The OECD Health Project

Towards High-Performing Health Systems

POLICY STUDIES

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Towards High-Performing Health Systems

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Foreword

The OECD initiated the Health Project in 2001 to address some of the key challenges policy makers face in improving the performance of their countries' health systems. A desire for real progress and a recognition of important gaps in the information needed to undertake change led to political commitment and support across countries for a focused cross-national effort. The three-year initiative provided member countries with multiple opportunities to participate in and learn from component studies focused on pressing health policy issues. Countries also benefited from the information and exchanges that occurred, first at the kick-off conference in Ottawa, Canada in November 2001, and at no fewer than 20 subsequent meetings of officials and experts in venues ranging from Paris to The Hague to New York.

Performance improvement requires grappling with difficult questions. What can be done to ensure that spending on health is affordable today and sustainable tomorrow? What is needed to improve the quality and safety of health care, and to ensure that health systems are responsive to the needs of patients and other stakeholders? How should equitable and timely access to necessary care be supported? And perhaps the most challenging question of all: what can be done to increase value for money?

The Health Project offered a means for officials in member countries to learn from each others' experiences in tackling these questions, to draw upon the best expertise available across OECD member countries and within the OECD Secretariat, and to break new ground to support health-system performance improvement in the future. It encompassed nearly a dozen studies addressing key policy issues pertaining to human resources in health care, new and emerging health technologies, long-term care, private health insurance, health-care cost control, equity of access across income groups, waiting times for elective surgery, and other topics that are central to the policy concerns of OECD member countries. It was not possible to address every issue important to Health Ministries in the course of the Project, but the issues that were chosen were ones considered to be of the most pressing importance.

The Health Project built on the foundation of the OECD's work in health statistics and health policy that has been carried out under the purview of various committees and working parties across the OECD. An important contributor to the success of the Health Project was its horizontal approach. Work in progress was discussed by experts and Delegate groups with a variety of important perspectives on health policy issues. The project benefited from the guidance and support of an ad hoc group on health, made up of Delegates from member countries, and the specialised expertise of various OECD directorates was employed in tackling issues. The Directorate for Employment, Labour and Social Affairs took the lead in coordinating the work conducted in horizontal co-operation with the Economics Department, the Directorate for Science, Technology and Industry, and the Directorate for Financial and Enterprise Affairs.

From my own political experience, I know how significant the results of this Project will be for policy makers at the most senior levels of government. There are no governments within the OECD or beyond which will not derive important benefits from this work as they all struggle to meet varying challenges in the field of health care. It is apparent that there are few one-off solutions or quick fixes. But this Project has demonstrated that benchmarking within and across countries, and sharing information can bring new ideas together and help policy makers meet those challenges.

Donald J. Johnston
Secretary-General of the OECD

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Preface

This publication presents some of the detailed empirical and analytical findings of the OECD Health Project which were summarised in the overview report *Towards High-Performing Health Systems*. It draws on a range of studies which were carried out across the OECD, notably in the Directorate for Employment, Labour and Social Affairs, the Economics Department, the Directorate for Science, Technology and Industry, and the Directorate for Financial and Enterprise Affairs. Experts from health ministries, from the European Commission, from the academic community, and from industry also contributed to the analytical work. This volume benefited from input by participants at meetings of the Ad Hoc Group on the OECD Health Project, where drafts of these studies were initially discussed. Gaétan Lafortune was responsible for co-ordinating and editing this publication.

Introduction

OECD countries can be proud of the progress that has been made by their health care systems over the past three decades. Most countries have attained universal coverage for a core set of health services and have taken great steps to ensure the accessibility of those services to the population. Population health status has improved steadily, even dramatically, driven largely by economic and social development, as well as concerted efforts to reduce the prevalence of risk factors and promote healthy living. Advances in medical capability and improvements in health care have had direct benefits in terms of both cure and prevention of disease.

Nevertheless, it is possible to improve the performance of health systems well beyond what has already been achieved. Serious and significant shortcomings in the quality of health care – at levels that would not be tolerated in other high-risk industries – have recently come to light. Patients and health-care consumers are demanding more from their health-care systems in terms of responsiveness to their expectations and preferences. In a number of countries, there are barriers that make it difficult for disadvantaged groups to realize equitable access to health-care services and the health improvements such access brings.

Furthermore, health systems are facing major cost and financing challenges. Health-care costs are growing faster than economies as a whole in many countries, posing problems for public budgets in particular, but also for some individuals in countries where a significant share of costs is borne privately. All signs indicate that countries must expect continued health cost-growth pressure, reflecting development of new treatments that affect supply, demand, and prices. Population ageing will have implications for the financing of health and long-term care services, and is likely to increase the demand for both, raising questions as to the affordability and sustainability of health systems. Health systems have great scope for improving efficiency by increasing productivity, reducing waste or enhancing the cost-effectiveness of care, yet achieving efficiency improvements has proven to be difficult.

The OECD Health Project was undertaken to inform policy discussions on many of the key challenges facing today's health systems. This volume contains a selection of the health policy research and analytic studies constituting the OECD Health Project. These policy studies serve as the main source material for the synthesis report of the Project, *Towards High-Performing Health Systems* (OECD, 2004). Each of the seven chapters in this publication sheds light on various aspects of the performance of health systems in OECD countries.

Chapter 1 (Docteur and Oxley) sets the scene. It reviews health-system reforms in OECD countries over the past several decades, and their impact on ensuring access to services, improving the quality of care, allocating an "appropriate" level of resources to health care, and ensuring microeconomic efficiency in service provision. While nearly all OECD countries have achieved universal insurance coverage for at least a core set of health

services, this chapter reports that initiatives to address persistent disparities in access have been undertaken recently in a number of countries. It also reviews some of the evidence suggesting serious shortcomings with the quality of health care, and the different approaches that are being adopted (or considered) in a number of countries to address these concerns. Foreshadowing the conclusions of the more detailed study presented in Chapter 2, it concludes that it is still too early to generalise on the relative effects of alternative approaches to improving health-care quality. On the other hand, the review of the impact of past reforms aimed at containing health spending suggests that certain policies did succeed in slowing the growth of (particularly public) health-care spending over the 1980s and 1990s, although health-care spending continued to rise as a share of GDP in most countries. Countries have slowed cost growth using a combination of budgetary and administrative controls over payments, prices and supply of services. A few countries have been concerned, however, that spending restrictions in the 1990s have gone too far and hurt health-system performance, and they have moved since then to loosen cost-containment measures. For all systems, the prospect of efficiency gains has proved very attractive to policy makers faced with growing costs and financing constraints. The chapter reviews and assesses experience with various reforms intended to make health-care delivery, and health systems generally, more cost-efficient and concludes that there is much unexploited scope for such gains.

Measuring and improving the quality of care has become a policy priority in many OECD countries, following evidence of underuse, overuse and misuse of care. Chapter 2 (Mattke) sets out the public policy rationale for seeking to improve the quality of care. It also reviews the range of tools at the disposal of policy makers to complement the traditional reliance on professional self-regulation for quality assurance. Having recognized improvements in health-care quality as an important priority, policy makers now face the difficult question of whether the most effective response can be found in reforms to the institutions of professional self-regulation, in the introduction of expert intermediaries to safeguard quality or in the empowerment of consumers to select providers based on quality of care. This chapter describes current arrangements for, and anticipated reforms to, the systems for quality assurance in a sample of seven OECD countries, representing the variety of health care systems prevailing in member countries (Czech Republic, Denmark, Germany, Japan, The Netherlands, the United Kingdom, and the United States). This review indicates that the policy initiatives have focused so far on the hospital sector, but approaches to monitor and improve care at the physician level are also under way. While most of these initiatives have not been in existence for long enough to assess fully their impact, this chapter concludes that there is hope that the dynamic nature of this policy area will lead to innovative models and best practices in quality monitoring and improvement in the near future.

A goal at the heart of health policy-making in OECD Countries is achievement of adequate access to essential health-care services by all people on the basis of need. Many OECD countries endorse equity of service use as a metric of that adequacy, adopting a standard articulated as "equal care for equal need". Chapter 3 (Van Doorslaer, Masseria *et al.*) examines the issue of income-related inequality in the use of health services in 21 OECD countries, using population-based surveys. Both simple income quintile distributions and summary indices are used to assess *horizontal equity*, *i.e.* the extent to which adults in equal need of care appear to have equal rates of medical care utilisation. With respect to *doctor consultations*, once need differences across income groups are taken

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into account, this empirical analysis finds significant horizontal inequity favoring higher-income groups in about half of the countries (both for the probability of visiting a doctor and the total number of visits in a given year). The degree of inequity in doctor use is highest in the United States, Mexico, Finland, Portugal and Sweden. Interestingly, in the majority of countries, the study finds no evidence of inequity in the distribution of visits to general practitioners across income groups. But the result is very different with respect to consultations of *medical specialists*. In all countries, controlling for need differences, higher-income groups are significantly more likely to see a specialist than lower-income groups, and in most countries also more frequently. Inequity in specialist consultations favoring higher-income groups is especially large in Portugal, Finland and Ireland. The result emerging for *hospital utilisation* is more equivocal. No clear pattern for either pro-rich or pro-poor inequity emerges across countries. This chapter also assesses the contribution of regional disparities in use and, for seven of the countries, of income-related disparities in public and private health insurance coverage. It provides new evidence that policy interventions can mitigate inequities in access to care, where they exist, although this can be costly. In France, for example, the introduction of publicly-financed coverage of cost-sharing for lower-income groups (through the *Couverture maladie universelle*) has considerably reduced the pro-rich distribution in the use of specialist services.

In many OECD countries, concerns have been voiced that a gap may be looming between demand for and supply of physicians and nurses. Chapter 4 (Simoens and Hurst) reviews the available evidence on the supply and demand for physicians and nurses in more than 20 OECD countries. It confirms that shortages of nurses and physicians have now appeared in a number of countries, and these shortages could worsen in some countries over the next two decades. To avoid such shortages, the countermeasures may involve recruiting a higher proportion of young people to these professions which may, in turn, require raising their relative pay and improving their work conditions, especially in the case of nurses. This chapter also notes that international migration can increase the flexibility of labour markets for health professionals in receiving countries, but it raises serious concerns about a "brain drain" when there are net, long-term flows of staff from lower-income to higher-income countries. Services delivered by physicians and nurses depend not only on the numbers employed but also on their productivity. In the case of physicians, this chapter provides evidence that activity-related methods of payment will raise their activity rates but little is known about the effect this has on quality of care. There is growing interest in devising payment systems for physicians which also reward the quality of care directly, where that is feasible.

Opportunities also exist to increase the responsiveness of health systems to the expectations and preferences of patients. Chapter 5 (Hurst and Siciliani) summarises the findings from the OECD study on waiting times which was designed to address two questions in an international context: What are the causes of variations in waiting times for publicly-funded, elective surgery across OECD countries? Which policies are most successful in tackling "excessive" waiting times? This study involved 12 countries reporting waiting time problems, while additional information was gathered from eight OECD countries which do not report waiting-time problems. There is no international standard as to what constitutes "excessive" waiting times, but several countries have adopted maximum waiting-time targets of 3-6 months for elective conditions in recent years. In terms of causes, the study suggests that variations in waiting times across countries arise mainly because of different constraints on the supply of publicly-funded

surgery, when it is provided free (or nearly free) of charge to patients. In addition, there are signs that different health systems have different propensities to generate waiting, because of different incentives to manage the demand for surgery. Consequently, the policies to tackle excessive waiting should be directly linked to these determinants. This chapter concludes that a sufficient increase in surgical expenditure and capacity can be highly effective in reducing excessive waiting. Alternatively, countries which pay their surgeons by salary and their hospitals by global budgets, may be able to reap a one-off improvement in productivity by switching to activity-related payments for surgeons and hospitals. However, if the supply of surgery is judged to be adequate, waiting times can also be reduced by ensuring that patients with greatest needs are assured of timely services, but others are not added to waiting lists unless (or until) their need exceeds a threshold level.

Chapter 6 (Tapay and Colombo) looks at the role of private health insurance as a possible means of meeting some important health policy goals such as increased health-system responsiveness and containing public costs. While private health insurance represents only a small share of total health funding across the OECD area, it plays a significant role in health financing in some countries and covers at least 30% of the population in a third of member countries. Private health insurance plays a variety of roles in different countries, ranging from primary coverage for particular population groups to a supporting role for public systems. Following an assessment of the evidence on the effects of private health insurance in different national contexts, the chapter concludes that private health insurance presents both opportunities and risks for the attainment of health system performance goals. For example, in countries where it plays a prominent role, private health insurance can be credited with having injected resources into health systems, added to consumer choice, and helped make the systems more responsive. However, it has also given rise to equity challenges in many cases and has added to health care expenditure (total, and in some cases, public).

In many OECD countries, there is growing concern that ageing populations may lead to sharp increases in public health-care spending because the elderly tend to have higher health-care needs than the working-age population. The final chapter in this publication (Chapter 7, Bains and Oxley) provides some ageing-related projections for acute health care and long-term care costs for a number of OECD countries. It uses a common methodology to forecast possible age-related increases in health and long-term care spending over a fifty year period. The results from this empirical analysis suggest that the impact of ageing might increase acute health-care spending by, on average, around two percentage points of GDP between 2000-2050 and long-term care by just over one percentage point. However, there is considerable variation in the projected spending impacts across countries. Furthermore, simulations using alternative assumptions and projection methods suggest that there is also a wide degree of uncertainty around these estimates.

Over the long term, improving the efficiency of health systems may be the only way of reconciling rising demands for health care with public financing constraints. Taken together, the comparative analyses presented in this publication suggest that there is scope for improving the efficiency of health systems in all OECD countries, as well as other aspects of performance. Fortunately, health policy makers in OECD countries now know quite a bit about which tools and approaches can be used to accomplish many key policy objectives, such as controlling the rate of public spending growth, ensuring equitable access to care, improving health and preventing disease, and establishing equitable and sustainable financing for health and long-term care services. These tools and approaches have been used, with varying degrees

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of success, in reform efforts employed over the past several decades, providing a wealth of experience in both successes and failures from which to draw. It is important to learn from past efforts to improve and to anticipate the many significant obstacles to successful change.

Health policy-making involves a careful balance of trade-offs, reflecting the weights assigned to a range of important goals and a great deal of uncertainty. The ultimate goal, certainly, is robust population health, but promoting health is not the only consideration. Health policy decisions also have considerable economic consequences, since the health sector is a major component of the economies of OECD countries that provides extensive employment and profitable industry. Even when the tough choices are made, changing systems so as to improve performance is never easy, as the success of making change can be affected by the willingness of various stakeholders to embrace the proposed reforms. Given the speed of developments in medicine and evolution of health-care goals, reform of health systems is necessarily an ongoing, iterative process; there are few one-off solutions or quick fixes. But the body of work presented here suggests that bringing experience, evidence and new ideas together across national boundaries can help policy makers meet the challenges they face.

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Chapter 1

Health-System Reform: Lessons from Experience[1]

by
Elizabeth Docteur
and Howard Oxley,

OECD Secretariat

This study provides a broad overview of health-system reforms in OECD countries over the past several decades. Reforms are assessed according to their impact on the following policy goals: ensuring access to needed health-care services; improving the quality of health care and its outcomes; allocating an "appropriate" level of public sector and economy-wide resources to health care (macroeconomic efficiency); and ensuring that services are provided in a cost-efficient and cost-effective manner (microeconomic efficiency). While nearly all OECD countries have achieved universal coverage, initiatives to address persistent disparities in access are now being undertaken in a number of countries. In light of new evidence of serious problems with health-care quality, many countries have recently introduced reforms intended to improve this, but it is too soon to generalise as to the relative effects of alternative approaches. A variety of instruments aimed at cost control have succeeded in slowing the growth of (particularly public) health-care spending over the 1980s and 1990s but these have not addressed the root causes of growth and health-care spending continues to rise as a share of GDP in most countries. On the other hand, a few countries have been concerned that spending restrictions have gone too far and hurt health-system performance. There is some evidence that supply of health services has become more efficient, particularly in the hospital sector, but scope for further gains exists. A range of measures, such as better payment methods, have improved the microeconomic incentives facing providers. However, introducing improved incentives through a more competitive environment among providers and insurers has proved difficult.

1. Introduction

This paper presents a broad overview of OECD member countries' experience in reforming their health systems over the past several decades. The continued need for policy reform reflects the very particular nature of health care as an economic activity, together with fundamental equity objectives. More specifically, financing of health care is based on insurance (including tax-funded models), and insurance markets suffer from a number of deficiencies, which may be particularly pronounced in the case of health:

- The ability of insurance to pool financial risk and promote access to services is weakened in voluntary insurance markets because those with greater health risks are more likely to take out insurance and to insure at higher levels, as compared with those in good health. This "adverse selection" can limit access to affordable insurance for higher-risk individuals, lower coverage and potentially lead to under-consumption of care from a social perspective.
- The aim of insurance is to ensure that the insured person does not bear the full cost of treatment received. The associated "moral hazard" implies a propensity to consume beyond the social optimum.
- Providers of health care are typically better informed than insurers about the true need and scope for medical treatment, and about the quality of services furnished. This "information asymmetry" (which applies to patients as well as insurers) may well influence medical choices, with health-care practitioners often being in a position to induce demand for care.

For these reasons, all OECD countries rely heavily both on public provision of insurance and on public regulation of various aspects of health-care and private health-insurance markets. In practice, the public sector has come to take a dominant role in the financing and, in some cases, the provision of health-care services. However, because health-care spending over the 1960s and 1970s grew at rates that most governments considered inconsistent with sustainable public finances, policy makers became concerned with finding ways to bring this expenditure under control. In many instances, governments initially aimed at constraining health-care spending through various kinds of macroeconomic restrictions. Since these often created problems in the provision of health care, more recently the focus turned to encourage more efficient provision of care. Nonetheless, while spending growth has slowed considerably over the past two decades, health spending continues to grow at rates exceeding overall economic growth in many OECD countries.

Devoting more of GDP to health care as society gets richer is not necessarily inappropriate. Indeed, an emerging dilemma facing governments after this period of restraint is judging the "appropriate" level of spending. On the one hand, social welfare may well be improved by increased government spending, particularly if demand for health-care services tends to rise more rapidly than income, and if the cost of technological change is more than compensated by improvements in the quality of care. On the other, the market failures associated with health care suggest a risk of excess spending, with equivalent health outcomes possibly attainable at lower cost. In particular, governments continue to be

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concerned that providers may have captured some of the increase in health spending as *quasi*-rents and that forms of inefficient – and sometimes ineffective – provision have lingered, even when less expensive and better alternatives were possible. At the same time, price signals can be used only to a limited extent to curb excessive or overly expensive care because patient demand appears to be relatively inelastic and there is concern that they would prevent access to care for some persons and thereby conflict with objectives concerning equity and health outcomes.

Governments are increasingly aware that inappropriate incentives built into the existing arrangements for organising and paying for health-care services have contributed importantly to current problems. In the light of this, a number of reforms to address these issues have been introduced. The scope for improvement is far from exhausted, but choices about further reform are hampered by the insufficiency of information about the impact of the (numerous) reforms that have been enacted – either domestically or abroad. This, in turn, reflects the fact that those charged with governing the day-to-day operation of health-care systems only rarely have the information necessary to correctly identify problems and to monitor adequately the outcomes of changes once they have been introduced.

This chapter aims to give policy makers a better understanding of the state of reforms across OECD countries and to inform them of policy orientations that may potentially have greater payoffs. Nonetheless, the broad conclusions are to be treated with some caution: while all countries have encountered the same basic challenges, they have manifested themselves differently because of differences in institutional and historical context, and the reforms undertaken have not necessarily reflected the same factors and problems. This review is intended to serve as a supplement to the more detailed studies carried out under the OECD Health Project – some of which are found in this volume – and as an input to the comprehensive report prepared for discussion at ministerial level.

The report draws on the diversity of the reform experience across countries on the basis of information available to the Secretariat.[2] While the Secretariat has attempted to cast the net as wide as possible, information was not available for all countries and all aspects of reform. Thus, some important reform experiences may have been missed.

The remainder of this report is structured as follows. The report begins with a brief overview of the structural characteristics of OECD health systems. It then describes and assesses a range of instruments aimed at achieving key health-system goals. Under the heading of improving access to care and health outcomes, the first substantive section examines, successively, measures to improve access to health-care and reforms aimed at improving the quality and effectiveness of health-care services and achieving high levels of patient satisfaction. As regards the cost of health care, the second substantive section first considers macroeconomic measures to control public health-care spending and, then, efforts to achieve greater cost efficiency in the provision of care. Trade-offs between various instruments are highlighted in the various sections. The policy conclusions are summarised in the final section.

2. Overview of the structural characteristics of OECD health systems

OECD member countries use a wide variety of institutional arrangements to provide health insurance coverage and to finance and deliver health care. Each approach has strengths and weaknesses that reflect, to a large degree, the patterns of incentives associated with its institutional and regulatory arrangements.

2.1. Health-care insurance and financing

Because insurers serve as payers for health services, the extent of public versus private coverage is indicative of the degree of government control over health spending. Whether the system features a single, universal insurer or multiple insurers has implications for the scope for introducing competition-based reform approaches and the extent of consumer choice available. All OECD countries have some form of publicly financed or administered health insurance programmes (Table 1.1). Private health insurance is the dominant form of basic coverage in the United States and Switzerland, and serves as the primary coverage for a sizeable minority of the population in Germany and the Netherlands. In Japan, Korea, Mexico, and most Nordic and Eastern European countries, private health insurance policies are not commonly used. In other countries, private health insurance is used to fill gaps in the benefits package (a supplemental policy) or absorb out-of-pocket payments (complementary insurance).[3] Private insurance duplicates coverage provided by universal public programmes in Australia, Ireland, Italy, Spain, and the United Kingdom, where such coverage is purchased mainly to increase choice of providers and timeliness of care.[4]

The way in which health systems are financed affects equity (Table 1.2). Systems based on individual premia (as in standard private insurance arrangements) and/or with a high degree of cost-sharing distribute a larger share of the cost to higher-risk groups and those who use services. And since income is linked to health status (as are premia in some systems), financing can fall disproportionately on low-income households, potentially hindering access where costs serve as financial barriers. Financing schemes that are closely related to ability to pay – *i.e.* mainly relying on taxes or social insurance contributions – and that use a low degree of cost-sharing are generally considered to be more equitable in their financial impact and to foster greater equity of access to care. Because demand for services is not tempered by additional (direct, financial) costs incurred by prospective patients, this form of financing may be particularly subject to moral hazard.

2.2. Relationship between insurance/financing and delivery systems

The degree to which health-care financing and delivery systems are publicly controlled or administered has important policy implications, particularly for cost control and efficiency. Although there is considerable variation within systems, OECD countries can be classified as generally consistent with one of the three approaches described below.[5] It is important to recognise that elements of more than one of these approaches exist in most countries (even if one form is dominant) and that the dominant model has tended to shift under the force of reforms.[6]

The *public-integrated model* combines on-budget financing of health-care provision with hospital providers that are part of the government sector.[7] These systems, which merge the insurance and provision functions, are organised and operated like any government department. Staff is generally paid on salary (although, in some cases, doctors can have private patients as well) and they are most often public-sector employees. Ambulatory doctors and other health-care professionals can be either public employees or private contractors to the health-care authority, with a range of remuneration packages. Ensuring complete population coverage is particularly easy under such systems, and as they are under the control of the budget, the growth of overall costs has been contained more easily. However, they have weak incentives to increase output, improve efficiency, or maintain quality and responsiveness to patient needs. This may be less the case in the ambulatory sector, where payment systems are more often linked to provider output.

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Table 1.1. **Coverage of public health insurance schemes over total population, 1960-2000**

	Public health care coverage, per cent of total population[a]					
	1960[b]	1970[c]	1980	1990[d]	2000[e]	2001[f]
Australia	76.0	85.0	100.0	100.0	100.0	100.0
Austria	78.0	91.0	99.0	99.0	99.0	99.0
Belgium	58.0	97.8	99.0	97.3	99.0	99.0
Canada	100.0	100.0	100.0	100.0	100.0	100.0
Czech Republic	100.0	100.0	100.0	100.0	100.0	100.0
Denmark	95.0	100.0	100.0	100.0	100.0	100.0
Finland	55.0	100.0	100.0	100.0	100.0	100.0
France		95.6	99.1	99.4	99.9	99.9
Germany	85.2	89.2	92.3	88.8	90.9	90.9
Greece	44.0	55.0	88.0	100.0	100.0	100.0
Hungary			100.0	99.0	100.0	100.0
Iceland	100.0	100.0	100.0	100.0	100.0	100.0
Ireland	85.0	85.0	100.0	100.0	100.0	100.0
Italy	87.0	93.0	100.0	100.0	100.0	100.0
Japan	99.0	100.0	100.0	100.0	100.0	100.0
Korea			29.8	100.0	100.0	100.0
Luxembourg	90.0	99.6	99.8	98.8	99.0	99.4
Mexico[g]					50.0	50.0
Netherlands	71.0	71.0	74.6	73.9	75.6	75.7
New Zealand	100.0	100.0	100.0	100.0	100.0	100.0
Norway	100.0	100.0	100.0	100.0	100.0	100.0
Poland						
Portugal	18.0	40.0	100.0	100.0	100.0	100.0
Slovak Republic						97.9
Spain	54.0	61.0	83.0	99.0	99.8	99.8
Sweden	100.0	100.0	100.0	100.0	100.0	100.0
Switzerland[h]	74.0	89.0	96.5	99.5	100.0	100.0
Turkey		26.9	38.4	55.1	66.0	66.0
United Kingdom	100.0	100.0	100.0	100.0	100.0	100.0
United States				24.5	24.7	25.3
OECD point average[i]	80.4	86.6	92.3	93.9	93.0	93.2
22 comparable countries[j]						
Average	80.4	88.9	96.9	98.0	98.3	98.4
Standard deviation	22.5	17.1	6.7	5.9	5.4	5.4

a) This series gives the share of the population which is eligible for health care goods and services that are included in total public health expenditure. Coverage in the sense of this index is therefore independent of the scope of cost-sharing.
b) Data refer to 1961 for Australia, Canada, Czech Republic, Greece, Ireland and Japan.
c) Data refer to 1967 for Netherlands.
d) Data refer to 1993 for Luxembourg.
e) Data refer to 1997 for Italy, Spain and Turkey.
f) Data refer to 1997 for Italy, Spain and Turkey; 2000 for Ireland, Japan, Mexico, Portugal and Switzerland.
g) Approximate values.
h) Switzerland has universal mandatory private health insurance that is reported in *OECD Health Data* as public coverage, although it is a borderline case.
i) Unweighted average. Includes all available countries at the relevant point in time.
j) Unweighted average. Excludes France, Hungary, Korea, Mexico, Poland, the Slovak Republic, Turkey and the United States.

Source: OECD Health Data 2003, 3rd ed.; Barraza-Llorens *et al.* (2002), pp. 47-56 used for Mexico.

Table 1.2. **Public and private financing sources as shares of total health expenditure, 2000**[a]

	Public financing sources			Private financing sources			
	Social security schemes	Other public spending	Total public	Private health insurance	Out-of-pocket spending	Other private spending	Total private
Australia	0.0	68.9	68.9	7.3	18.5	5.4	31.1
Austria	40.2	29.2	69.4	7.2	18.8	4.6	30.6
Belgium			72.1				27.9
Canada	1.4	69.5	70.9	11.4	15.8	1.9	29.1
Czech Republic	81.7	9.7	91.4	0.0	8.6	0.0	8.6
Denmark	0.0	82.5	82.5	1.6	15.9	0.0	17.5
Finland	15.4	59.7	75.1	2.6	20.4	1.9	24.9
France	73.3	2.5	75.8	12.7	10.4	1.0	24.2
Germany	68.7	6.3	75.0	12.6	10.5	1.8	25.0
Greece			56.1				43.9
Hungary	63.3	12.2	75.5	0.2	21.3	3.0	24.5
Iceland	24.7	59.0	83.7	0.0	16.3	0.0	16.3
Ireland	0.9	72.4	73.3	7.6	13.5	5.6	26.7
Italy	0.1	73.3	73.4	0.9	22.6	3.1	26.6
Japan	65.4	12.9	78.3	0.3	16.8	4.5	21.7
Korea	34.3	10.1	44.4	8.7	41.3	5.6	55.6
Luxembourg	72.7	15.1	87.8	1.6	7.7	1.2	10.5
Mexico	31.5	16.4	47.9	0.6	51.5	0.0	52.1
Netherlands	59.4	4.0	63.4	15.2	9.0	12.4	36.6
New Zealand	0.0	78.0	78.0	6.3	15.4	0.4	22.0
Norway	0.0	85.2	85.2	0.0	14.3	0.5	14.8
Poland			70.0				30.0
Portugal			68.5				31.5
Slovak Republic	84.4	5.0	89.4	0.0	10.6	0.0	10.6
Spain	6.9	64.8	71.7	3.9	23.5	0.9	28.3
Sweden			85.0				15.0
Switzerland	40.4	15.2	55.6	10.5	32.9	1.0	44.4
Turkey			71.9				28.1
United Kingdom	0.0	80.9	80.9				19.1
United States	15.0	29.2	44.2	35.1	15.2	5.6	55.8
OECD point average[b]	32.5	40.1	72.2	6.4	18.7	2.6	27.8
22 comparable countries[c]							
Average	32.5	40.1	72.6	6.4	18.7	2.6	27.7
Standard deviation	31.1	31.3	13.2	8.0	10.6	3.0	13.5

a) Data refer to 1998 for Turkey.
b) Unweighted average. Includes all available countries at the relevant point in time.
c) Unweighted average. Figures for public financing sources exclude Belgium, Greece, Norway, Poland, Portugal, Sweden and Turkey. Figures for private financing sources exclude Belgium, Greece, Netherlands, Poland, Portugal, Sweden, Switzerland, Turkey and United Kingdom.

Source: *OECD Health Data 2003*, 3rd ed.

In the *public-contract* model, public payers contract with private health-care providers. The payers can be either a state agency or social security funds.[8] Single-payer arrangements have a stronger position *vis-à-vis* providers (as in the public integrated model) and tend to have lower administrative costs than do multiple payer systems. In many public-contract systems, the private hospitals and clinics are run on a non-profit basis. Independent private contractors generally supply ambulatory care. In the past,

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payment of providers has been often on an *ex post* basis for services provided (see Boxes 1.5 and 1.6), although contract arrangements have been evolving. These systems are generally considered to be more responsive to patient needs than public-integrated arrangements, but less successful in containing health-care costs, requiring additional regulation and control by the public authorities.

A *private insurance/provider model* uses private insurance combined with private (often for-profit) providers. Insurance coverage can be compulsory (Switzerland) or voluntary (the United States), and in the case of the latter, affordable insurance may not be available to some individuals. Payment methods have traditionally been activity based, and the systems have featured a high degree of choice and responsiveness to patient needs, but cost control has been weak. In response, managed care plans, which provide incentives for volume and price control, expanded rapidly in the United States during the 1990s. Under these arrangements, insurers selectively contract with competing providers and restrict patient choice of providers and services.

3. Improving access to care and health outcomes

Fostering access to health-care services has been a fundamental objective of health policy-making in OECD countries. This was approached by making insurance coverage of essential care universal and taking steps to eliminate financial barriers, ensure adequate supply and address disparities related to social characteristics. Only quite recently have countries turned their attention to other dimensions of health system performance – ensuring that the system works to improve health and functional ability, and that it provides an adequate level of patient and population satisfaction. In the sub-sections that follow, the reform experience and progress in meeting these performance goals are described.

3.1. Assuring universal and comprehensive health insurance coverage

Health insurance coverage promotes access to care, particularly in those countries that separate the functions of financing and delivering health-care services. It also furnishes protection against the high costs associated with treating many acute illnesses and chronic health conditions.[9] With the exception of Mexico, Turkey, and the United States, all OECD countries had achieved universal (or near-universal) coverage of their populations by 1990.[10] Coverage levels vary from comprehensive, providing full financial protection to patients for all necessary health-care services, to those that exclude some services or require patient cost-sharing.[11]

The relationship between health insurance coverage and health-care

Lack of health insurance is the greatest risk factor for inadequate access to services. Evidence from the United States shows that uninsured persons face barriers to access, despite the provision of significant quantities of care furnished on a subsidised or charity basis. Uninsured adults are less likely than their insured counterparts to obtain health care for serious conditions.[12] Those who lack insurance coverage are also at greater risk of not receiving preventive care and routine care for chronic conditions, which means they need more intensive care at later stages of illness.[13] The uninsured obtain worse health outcomes and are at significant financial risk.[14] These consequences make the insured status of a population an important determinant of efficiency of spending in the health sector.

Reforms to extend health insurance coverage to uninsured populations

Because universal or near-universal health insurance coverage exists in most OECD countries, coverage extension has been the focus of recent reforms in only a few countries. Rather, maintaining full coverage has served as a potential constraint on some reform options (such as shifting to voluntary coverage schemes).

The approach most commonly used to attain universal coverage has been to make coverage compulsory, either by establishing a default or all-inclusive public programme, or by mandating purchasing of private coverage. Australia, for example, shifted from a voluntary to a mandatory scheme with the introduction of Medicare, its universal health insurance programme, in 1984.[15] Similarly, Switzerland mandated compulsory purchase of a private health insurance policy in 1994, and in so doing moved from near-universal to universal coverage. Since establishing its social health insurance programme, Spain has implemented a series of coverage expansions and, as of 2000, coverage reached 99.8% of the population. France filled the final gaps in social insurance coverage in 2000, with institution of its *couverture maladie universelle*. In the Netherlands, insurance has been made compulsory for 65% of the population, including all vulnerable groups (those who qualify for social security benefits and those with incomes below a fairly high ceiling). Perhaps because the government also makes subsidised insurance available for those who are refused a private health insurance policy and for those with voluntary private health insurance whose incomes drop below a set level, the country's rate of uninsured stands at only 1.6%.

Some countries have adopted a targeted, incremental approach to increasing the availability of coverage to uninsured populations. For example, Mexico's approach to increasing coverage has been to create new social insurance programmes for each new group of employees required to affiliate. However, because an important part of the population is not employed through the formal economy, universal access through social insurance could not be attained, requiring reliance on other public programmes and services. The resulting fragmented financing system has been criticised as inefficient and resulting in inequitable care (Barraza-Llorens *et al.*, 2002) and has inspired more recent reforms to extend public insurance coverage. The United States has undertaken numerous reforms designed to increase both public and private health coverage.[16] But in spite of these initiatives and a booming economy throughout most of the 1990s, the rate of uninsured increased.[17]

Financial barriers associated with the level of coverage or cost-sharing

Cost-sharing requirements and lack of coverage for certain services – such as dental care, prescription drugs, mental or behavioural health care, rehabilitative or post-acute care, and infertility treatments vary widely across OECD countries (Table 1.3). Therefore, there is wide variance both within and across countries in the average share of total health expenditures represented by out-of-pocket payments (Table 1.4). Korea, Mexico, and Turkey all have systems in which more than a third of the cost is borne directly by patients. The practice of patients making supplementary, unofficial, out-of-pocket payments to supplement provider fees is common in a small number of OECD countries, mainly among the new Eastern European members.[18] Over-billing – charging fees above those fixed under social insurance contracts – is more widespread.

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Table 1.3. **Cost-sharing policies in public schemes for basic health coverage**[a]

Degree of cost-sharing in per cent and in USD or EUR

	General practitioner	Specialist	Drugs	Inpatient care	X-ray and pathology
Australia	For 25% of bills, average of USD 5. General patient reimbursed 85% of schedule fee if not bulk billed.	For 71% of bills, average of USD 8. Patient reimbursed 85% of schedule fee if referred.	Maximum AUD 23.70 (around USD 18) per prescription for general patients for drugs on the PBS Scheme.	None.	Included in specialists' bills.
Austria	20% of the population pays between 10% and 20% of doctor's fee.	Same as for GPs.	USD 4.50 per prescription.	For insured persons: USD 6 per day/maximum 28 days per year. For dependents: USD 10-USD 13.50 per day/maximum 28 days per year.	Same as for GPs.
Belgium	25%, reduced to 10% for vulnerable groups.	Same as for GPs.	Flat rate plus 1/20/30/50%; 100% for drugs on negative list.	USD 5-USD 6 per day, USD 2-USD 3 for vulnerable groups. Increased after 90 days.	
Canada	None.	None.	Discretion of Provinces.	None.	None.
Czech Republic (2000)	None.	None.	Generics covered. Non-generics reimbursed if no alternative.	None.	None.
Denmark	None, except for under 3% of the population.	None, except for under 3% of the population.	Flat rate plus: 50/70/100%.	None.	None.
Finland	There is an annual maximum fee of EUR 22 for a 12-month period. If the annual fee has not been paid, the fee is EUR 11 per visit. This fee may be collected for a maximum of three visits during the calendar year. Fee for visits outside normal opening hours is EUR 15 per visit. Fees are not collected from persons under the age of 18.	Visit to the outpatient department is EUR 22 per visit, free of charge in the psychiatric outpatient treatment unit.	SII reimburses part of the cost of medicines prescribed by the physician or dentist. SII pays 50% of all medicine costs in excess of a fixed minimum per purchase (EUR 10) or, more rarely, nearly all medicine costs (scheme members with certain specified conditions qualify for a 75% or 100% refund of costs exceeding EUR 5). All non-covered medicine costs in excess of EUR 604.72 in a year are covered by SII. Drugs administered during inpatient care are included in the daily fee.	Health centre: EUR 26 per day, EUR 12 per day in the psychiatric unit. Fees may be collected from a person under the age of 18 for only seven bed-days per calendar year. Hospital: EUR 26 per day, EUR 12 per day in the psychiatric unit. Fees may be collected from a person under the age of 18 for only 7 bed-days per calendar year. Day surgery is EUR 72 per procedure. Long-term (> 3 months) institutional care in a health centre or in a hospital: Fees according to solvency. Fees may constitute a maximum of 80% of the client's income. There must remain, for the personal use of the client, a minimum of EUR 80 per month. Fees may be collected from a person under the age of 18 for only seven bed-days per calendar year.	None.
France	30%[b]	30%[b]	0% for some drugs; 35% for most drugs, 65% for "comfort" drugs or those without proven therapeutic value.	EUR 11 per day plus 20% of total cost for first 30 days up to a ceiling of EUR 200.	40%
Germany[c] **(2004)**	Fee of EUR 10 per quarter covers all visits during the quarter. Preventive measures are exempt from practice fees.	Patients who are referred by one doctor to another pay no additional practice fees, as long as the referral falls within the same quarter.	Co-payment amounting to 10% of the price, but no less than EUR 5 and no more than EUR 10 per medication.	Co-payment of EUR 10 per day, limited to a maximum of 28 days in a calendar year.	None.
Greece	None.	None.	0/10/25%	USD 15	–

Table 1.3. **Cost-sharing policies in public schemes for basic health coverage**[a] *(cont.)*

Degree of cost-sharing in per cent and in USD or EUR

	General practitioner	Specialist	Drugs	Inpatient care	X-ray and pathology
Hungary (2002)	None.	Co-payment if no referral from medical doctor (except emergency).	0/10/30/50 or 100%; some drugs based on reference price system.	Co-payment for long-term care in hospitals (may be covered, depending on income level), co-payment for above-standard "hotel services" in hospitals.	None.
Iceland[d]	USD 9	USD 17 plus 40% of the rest of the cost.	0, 12.5%, 25%.	None.	USD 13
Ireland[e]	None for Category I (35% of population); those in Category II pay for GP services.	As for GPs.	No charge for Category I; reimbursement for Category II of any cost over USD 21 per month.	No charge for Category I; Category II: USD 17 per day subject to a maximum of USD 166 in any 12 month period.	None for Category I.
Italy	None.	Maximum of USD 41.	Free for Category I medication; 50% for Category II; both Categories I and II are free to exempted persons; 100% for Category III medication.	None.	Up to a maximum of USD 41.
Japan[f]	30% (younger than three years, 20%).	Same as for GPs.	30% (younger than 3 years, 20%).	Same as for GPs.	Same as for GPs (outpatient) or inpatient care.
Korea	"Outpatient fees" as follows: 30% if seen in clinic, 40% if hospital; 55% if general hospital.	"Outpatient fees" as follows: 30% if seen in clinic, 40% if hospital; 55% if general hospital.		20% of inpatient care ("hospitalization fees").	
Luxembourg	5%	5%	0% or 20%.	Flat rate between EUR 10 and EUR 15	
Mexico	No cost sharing for the members of the social security schemes (these cover around half of the population). For Ministry of Health Facilities, which are open to all the population, the Ministry of Finance sets indicative rates of cost sharing that depend on household income, but the rates applied can vary among states and hospitals.				
Netherlands	None.	None.	Prescription drugs reimbursed when judged to be of pharmaceutical value and cost-effective. Full reimbursement for those products for which no alternatives are available. Those similar to other reimbursed products are subject to reimbursement limit. Resulting co-payments are approximately 0.5% of total costs, as industry generally sets prices to avoid co-payments. Over-the-counter medicines not covered, even when prescribed.	None.	None.
New Zealand	Extra billing.	Outpatients USD 3-USD 17.	USD 2-USD 8 with stop loss.	None.	Out-patients USD 3-USD 17.
Norway	USD 11.	USD 16.	25% if on blue ticket, maximum USD 43 per prescription.	None.	X-ray USD 11.
Poland (1999)	None.	None.	Basic drug list: flat fee = 0.05% of min. wage; suppl. list = 30-50% of cost of drug. Patients w/chronic disease or war veterans fully or partially reimbursed.	None.	None.

Table 1.3. **Cost-sharing policies in public schemes for basic health coverage**[a] *(cont.)*

Degree of cost-sharing in per cent and in USD or EUR

	General practitioner	Specialist	Drugs	Inpatient care	X-ray and pathology
Portugal		USD 91-USD 213.	0/30/60/100% depending on drug category.	USD 30.	
Slovak Republic (2000)	None.	None.	Category I: fully covered. II: Same drugs as above, different manuf. partially reimbursed. III: out of pocket.	None.	None.
Spain	None.	None.	0%, 40%. Pensioners and long-term ill largely exempt.[g]	None.	None.
Sweden	USD 13-USD 20 per visit. Maximum visiting fees per 12 months, USD 120 (including fees to GPs).	USD 26-USD 40 per visit. Maximum visiting fees per 12 months, USD 120 (including fees to GPs).	Patient pays 100% up to USD 120, after that, patient pays in three steps: 50%, 25% and 10% of the cost. Maximum patient fees for pharmaceuticals per 12 months USD 240.	Maximum USD 10 per day where some county councils have variations in costs, depending on age, income, etc. Local variations also with regard to maximum inpatient fees. Fees for inpatient care are not included in the high-cost protection system for outpatient care.	None.
Switzerland[h]	10%.	10%.	10%.	CHF 10 per day (about USD7) if single.	10%
Turkey	None.	None	10% retired; 20% active.	None.	None.
United Kingdom	None.	None.	USD 9 per prescription or free with a "season ticket" of USD 130. Many persons exempt.	None.	None.
United States (2004)[i]	20% in excess of the USD 100 deductible. Also a USD 66.60 monthly premium for coverage of physician services.	20% in excess of the USD 100 deductible. Also a USD 66.60 monthly premium for coverage of physician services.	100%.	USD 876 deductible first 60 hospital days; USD 219 co-payment per day for days 61-90; USD 438 per day beyond 90 days. USD 109.50 per skilled nursing facility stay day 21-100.	Same as doctors.

a) Approximate amounts in US dollars or euros, converted at nominal exchange rates. Information refers to the most recent data available, ranging from the late 1990s to the present. Some changes arising from most recent reforms may not have been included.

b) 30% of the agreed fee schedule (doctor conventionné) and more if there is overbilling. Co-payment may be less if covered by complementary insurance which normally covers part of the co-payment including the overbilling. Complementary insurance covers over 80% of the population. Vulnerable groups and long-term ill may have zero co-payment.

c) Overall co-payment ceiling per year is 2% of gross income (1% for chronically ill patients). No co-payments for those < 18 years of age.

d) Maximum for the year in the charging scheme.

e) About 40% of the population has private health insurance that generally covers general practitioner fees above a relatively high threshold, consultant/specialist fees above a certain threshold and private and semi-private accommodation. Tax relief at the marginal rate is available on unreimbursed medical expenses above a certain threshold.

f) In Japan, there is a dedicated mandatory public health system for those aged 75 and over and those aged between 65 and 74 with severe disability. From October 2002, cost sharing is 10% (20% for those with income above certain amounts).

g) Patients with chronic illness pay 10% up to maximum of 400 pesetas (USD 2.75) per prescription.

h) Plus a yearly flat rate of CHF 300 for adults, CHF 0 for children. From 1986 higher rates can be chosen up to CHF 1 500 in exchange for a lower premium. The excess of 10% pertains to the amount exceeding the flat rate but only up to a maximum amount of CHF 700 per year for an adult of CHF 350 per year for children.

i) Applies to 13% of population (elderly and disabled) who are beneficiaries of public Medicare programme. Lower deductibles if in HMOs.

Source: Information supplied by OECD member countries or obtained from official publications.

Table 1.4. **Out-of-pocket spending as a share of total expenditure on health, 1980-2000**

	Per cent of total expenditure on health				
	1980[a]	1985[b]	1990[c]	1995[d]	2000[e]
Australia	16.1	14.3	16.6	16.5	18.8
Austria				14.9	18.8
Belgium					
Canada		14.7	14.4	15.8	15.8
Czech Republic			2.6	7.3	8.6
Denmark	11.4	13.6	16	16.3	15.9
Finland	18.4	18.3	15.5	20.5	20.4
France			11.4	10.8	10.4
Germany	10.3	11.2	11.1	10	10.5
Greece					
Hungary			10.9	16	21.3
Iceland	11.8	13	13.4	16.1	16.3
Ireland	13.8	14.4	16.5	15.5	13.5
Italy		15.7	15.3	24.4	22.6
Japan				15.5	16.6
Korea		59.9	53	51.1	41.3
Luxembourg	7.2	9.2	5.5	6.2	7.7
Mexico			58.3	56.2	50.9
Netherlands				8.8	9
New Zealand	10.4	10.8	14.5	16.2	15.4
Norway			14.6	15.2	14.3
Poland					
Portugal					
Slovak Republic				8.3	10.6
Spain			18.7	23.5	23.5
Sweden					
Switzerland		37.6	35.7	33	32.9
Turkey			31.4	29.7	
United Kingdom	8.6		10.6	10.9	
United States	24.2	22.8	20.1	15	15.2
OECD point average[e]	13.2	19.7	19.3	18.9	18.7
19 comparable countries[f]					
Average[g]			19.2	20.3	19.8
Standard deviation			14.4	13.3	11.1

a) Data refer to 1983 for Ireland.
b) Data refer to 1988 for Canada and Italy.
c) Data refer to 1991 for Hungary and Spain; 1992 for Turkey.
d) Data refer to 1997 for the Slovak Republic; 1998 for the Netherlands.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Excludes Austria, Belgium, Greece, Japan, the Netherlands, Poland, Portugal, the Slovak Republic, Sweden, Switzerland, Turkey and the United Kingdom.
g) Unweighted average. Includes Australia, Canada, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Korea, Luxembourg, Mexico, New Zealand, Norway, Spain, Switzerland and the United States.

Source: OECD Health Data 2003, 3rd ed.

The burden on households of out-of-pocket health spending also varies considerably across OECD countries, ranging in 2000 from a low of 1.1% of total household consumption to a high of 6.1%, among those countries reporting data (Table 1.5). In addition to the average, the distribution of spending across the population can vary considerably, depending on whether such spending is affected by income, service use, type of coverage, or other factors.[19]

Table 1.5. **Out-of-pocket payments as a share of total household consumption, 1970-2000**

	Out-of-pocket payments		
	1980[a]	1990[b]	2000
Australia	1.9	2.2	2.8
Austria			2.7
Belgium			
Canada		2.4	2.7
Czech Republic		0.3	1.2
Denmark	2.0	2.8	2.8
Finland	2.3	2.5	2.9
France		1.8	1.8
Germany	1.6	1.8	2.0
Greece			
Hungary		1.5	2.8
Iceland	1.3	1.8	2.6
Ireland	1.8	1.8	1.9
Italy	1.6	2.1	3.1
Japan			2.3
Korea		4.9	4.3
Luxembourg	0.7	0.7	1.1
Mexico		4.0	4.3
Netherlands			1.6
New Zealand	1.1	1.7	2.1
Norway		2.4	2.7
Poland			
Portugal			
Slovak Republic			1.1
Spain		2.4	3.0
Sweden			
Switzerland		5.5	6.1
Turkey		1.7	
United Kingdom	0.8	1.1	
United States	3.3	3.6	2.9
OECD point average[c]	1.7	2.3	2.6

a) Data refer to 1983 for Ireland.
b) Data refer to 1991 for Hungary; 1992 for Turkey.
c) Unweighted average. Includes all available countries at the relevant point in time.

Source: OECD Health Data 2003, 3rd ed.

Cost-sharing requirements and lack of coverage for certain types of care stand to pose financial barriers to service use, in cases where they are high relative to patient income. Out-of-pocket costs can have an impact on patients' use of certain services, such as primary care visits and prescription drug use, where a certain degree of patient discretion determines use.[20] However, they have little impact on non-elective hospitalisation and other high-cost services for which patients have very low price sensitivity (see Docteur and Oxley, 2003, annex).

Several studies have assessed whether access to health services is equitable across populations irrespective of income. Van Doorslaer *et al.* (2000) assessed the service use patterns across income groups in ten European countries and the United States. After standardising for differences in health-care needs (as proxied by age, sex, and health status), they found little evidence of significant inequities in the volume of health services

used. However, different patterns of use (*e.g.* more use of specialist care by the higher-income population in all of the countries studied) were evident. On the other hand, a population survey encompassing five OECD countries did find evidence of income-based inequalities in perceived access to care (Blendon *et al.*, 2002).[21] A minority of citizens reported problems with access to services, but persons with below-average incomes were more likely to report problems than were their counterparts with above-average incomes according to one or more of the access measures used.[22] Other country-specific studies have documented cross-income differences in access that may be growing subsequent to decisions to increase user payments.[23]

Reforms to expand the level of coverage for the insured

Some countries in which insurance coverage has gaps in benefits or requires patient cost-sharing have instituted reforms to increase the level of coverage for insured populations, either for the insured population generally or for vulnerable populations on a targeted basis.[24] Such reforms reflect an underlying objective to establish a common floor level of coverage, judged to promote access to care considered medically necessary.[25] The approaches differ on the question of how equity and public cost containment are weighted. When countries set relatively low coverage floors, relying to a greater extent on private health insurance or out-of-pocket spending, covered populations have more incentives to be cost-conscious in their use of services above the established floor. To the extent that they directly bear more of the cost associated with use of services, services of relatively low marginal value may be foregone due to cost. However, any efficiency gains may come at the expense of equity, in that those least able to bear the cost may forego some services of relatively high marginal value. When the basic coverage provided to the entire population is relatively generous, more of the population will be able to avail itself of more services.

Austria and Mexico are among the countries that have enriched the basic package of services and degree of cost protection in an effort to increase access and reduce financial barriers to care.[26] Some countries have focused on specific groups within the insured population thought to be vulnerable to access problems, such as low-income or unemployed persons. France, which began in 2000 to cover a greater portion of costs for low-income persons, provides an example, as does Japan, which in 2002 set a maximum co-payment amount for those aged 70 and older in an effort to increase access. In 1997, New Zealand introduced heavy subsidies for primary health services and pharmaceuticals for young children, encouraging physicians to make such care free of charge to patients.

3.2. Ensuring adequate and equitable access to needed health services

Many countries have found that universal and comprehensive insurance coverage is not always sufficient to ensure equitable access to services (see Box 1.1).[27] In some OECD countries, shortages or maldistribution of providers or services, or constraints presented by language or cultural differences, limit access to medically necessary care for some portion of the population. Numerous studies have documented large differences in service use patterns across geographic areas (both within and across countries) as well as across various populations within a country. Some such differences appear to represent inequitable use of services according to the standard embraced by most OECD countries: that need for care should be the primary or sole determinant of service use.

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Box 1.1. **Factors affecting access to services for insured populations**

In addition to health insurance coverage or financial barriers to access, three factors underlie access problems in many OECD countries:

Practitioner shortages/maldistribution: Despite some degree of planning of health-care supply or administration of services delivery, many OECD countries have experienced problems with the quantity and distribution of practicing physicians and other practitioners. In some countries, shortages of certain types of health-care practitioners create problems in meeting demands for services. For example, a recent shortage of nurses in the United States has meant that positions in many hospitals go unfilled and has prompted a current debate regarding the appropriate policy response. In a number of countries, including Australia, Canada, Finland, Mexico, New Zealand and the United States, certain geographic areas are considered to have an insufficient number of providers to ensure timely local access. The problem is often noted in countries that have significant expanses of rural areas with low population density that do not support efficient provision of health-care services. In addition, low-income, inner-city areas perceived as not desirable practice locations also have practitioner shortages in many countries.

Timely availability of services: Even when the number or distribution of practitioners is not an issue, demand for services can exceed the capacity of the system to supply them on a timely basis. Delays in treatment, particularly for non-urgent, elective procedures, are common in a significant number of OECD countries. Waiting lists for elective surgical procedures are an issue driving reform initiatives or policy debates in Australia, Canada, Denmark, Greece, Ireland, Italy, the Netherlands, New Zealand, Norway, Spain, Sweden and the United Kingdom (see Siciliani and Hurst, 2003; Hurst and Siciliani, 2003 and Chapter 5 in this volume). However, in other OECD countries, including France, Germany, and the United States, waiting lists for elective surgery are uncommon.

Socio-cultural barriers: Some OECD countries with significant populations of racial or ethnic minorities, or with recent immigrant groups, have identified problems in ensuring access to care for these populations. Such problems may reflect differences in language, geographic isolation, cultural norms, economic status, or a combination of these factors. For instance, in response to numerous studies showing differences in treatment and outcomes that could not be explained on the basis of coverage or need for care, the United States has established a goal of eliminating disparities in health experienced by certain racial and ethnic minorities by 2010. The goal is to be addressed through initiatives geared toward improving both coverage and access to services. Australia and New Zealand have likewise identified problems in meeting the health-care needs of their indigenous populations.

Reforms to increase access to health services: the initiatives and their effects

Having recognised problems with adequacy and equity of access to services, many countries have undertaken reform initiatives designed to lessen these problems.[28] In response to perceived shortages or maldistribution of providers and services, OECD countries have utilised regulatory planning measures, financial incentives and other mechanisms to increase or redirect supply (see Chapter 4 in this volume). In some cases, recognising that a lack of available services is a problem for certain populations, some countries have taken steps to enlarge the scope of free public health-care services available to uninsured or disadvantaged populations.

As part of recent reform initiatives, Mexico has focused on improving access to key primary care and public health services for populations living in rural and poor areas, for indigenous populations, and for those working outside the formal economy. Specific steps include expanding the country's network of health centres in rural areas. In 1992, Australia implemented a rural incentive programme to ameliorate access to health-care in rural and remote areas of the country. Australia also expanded its primary health services to aborigines in response to evidence of worse health outcomes for this population and has implemented a workforce programme designed to address cultural issues and other concerns. New Zealand has increased primary and community health services that are both owned by and operated for the native Maori population. Spain has opened more than 60 new public hospitals in recent years in an effort to ensure geographic proximity to needed care.[29] In the United States, recent initiatives have stepped up federal funding to health clinics and other providers that predominantly serve uninsured and poor patients.

Other approaches have focused on reducing pressure on existing providers by creating new sources of care. Like a number of other countries, Spain has taken steps to establish more ambulatory care alternatives to inpatient care to reduce pressure on its hospital system. In an effort to shorten waiting times, the United Kingdom has experimented with a programme to allow patients to obtain, in other countries, certain services for which demand exceeds national supply capacity. Several Canadian provincial payers have established temporary contracts with US providers for specific services for which waiting times exist in Canada (Katz *et al.*, 2002). Many countries have taken steps to increase the availability of home care for patients who formerly would have received long-term care in hospitals or other institutions.

Particularly in countries where the delivery system is largely private, financial incentives have been used to affect supply. For example, the Medicare programme of the United States exempts many rural hospitals from its prospective payment system, instead reimbursing them retrospectively on the basis of incurred costs so as to account for the lesser ability of small, low-volume institutions to match the efficiencies of larger urban hospitals. And at both the federal and state levels, numerous public programmes have been established to promote the availability of practitioners in underserved areas.[30]

The evidence suggests that the effects of such initiatives to address provider shortages or maldistribution have varied, with greater investments generally achieving correspondingly greater effects. On the face of it, this suggests that, in countries with significant areas of relative under-service or entrenched social problems, considerable investments may be necessary to ensure that all of the population has ready access to services.

3.3. Increasing the effectiveness of health systems

Increasing the effectiveness of health-care systems in accomplishing their intended functions is a growing priority for policy makers in many countries. The notion of effectiveness encompasses a broad and growing number of dimensions, reflecting increasing expectations in many countries that health systems must do more than just improve population health and reduce disability.[31] Notably, many countries include in their assessment of system effectiveness the extent to which systems result in an acceptable level of consumer and patient satisfaction. Ensuring safe and appropriate health-care of high technical quality is seen as a critical means of accomplishing both health and satisfaction goals. Increased pressure for reform has been heightened by better

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measurement of health system performance – including health outcomes, quality of care, patient satisfaction and system responsiveness – and the opportunities for improvement that this new evidence has revealed (Hurst, 2002).

Opportunities to further improve population health status and clinical outcomes

Population health status and patient outcomes are widely tracked in OECD countries as metrics for evaluating health system effectiveness. Population health-status measures, such as life expectancy and infant mortality, tend to be indirect measures of health system effectiveness in that they are highly influenced by social and environmental risk factors. According to measures such as life expectancy and infant mortality, population health status has been improving steadily over time in OECD countries. For example, life expectancy at birth increased by an average of eight years for men and nine years for women between 1960 and 1999 across all OECD countries (Table 1.6). Infant mortality has declined dramatically, from an OECD average of 36.3 deaths per 1 000 live births in 1960 to 6.4 in 1999 (Table 1.7). Such improvements are due to rising standards of living as well as advances in access to care and the capability of medicine. Despite across the board improvement, however, significant differences in health status across countries persist.

Clinical outcomes, such as cancer survival rates and rates of disability among those with chronic conditions, serve to reflect more directly the effectiveness of care received. These outcomes are a relatively newer focus of attention for OECD member countries. Studies making international comparisons of outcomes for conditions such as ischemic heart disease have uncovered significant differences in case mortality (Moïse and Jacobzone, 2002). Studies of post-surgical mortality and cancer survival also documented differences across countries (Roos *et al.*, 1990 and 1992; General Accounting Office, 1994). Significantly, the best outcomes were not always found to be linked with greatest resource use or volume of services, suggesting that there may be opportunities in some countries to simultaneously reduce costs while maintaining or even improving system performance.

Initiating focused public health programmes. A number of countries have set goals and undertaken focused initiatives to improve population health. The public-health initiatives are usually multi-dimensional efforts that rely on several channels (*e.g.* education and awareness campaigns, administrative changes to affect health-care practice) to accomplish focused goals. In Australia, the United Kingdom, the United States and many other OECD countries, specific targets for health outcomes and intermediate health targets have been set. Information systems have been built to measure success in meeting targets. Many such efforts have appeared successful in reducing health risk factors such as tobacco and alcohol use, for example. Australia's multi-faceted approach to reducing HIV infection rates is believed to have been instrumental in slowing the spread of the disease. However, even as established goals are approached or met (the record is mixed across countries and specific objectives), new public health issues emerge to present challenges.[32]

Establishing new health-care delivery arrangements. One reform direction used by some countries as part of efforts to improve the effectiveness of health-care delivery is to establish new health-care delivery arrangements designed to improve co-ordination and reduce fragmentation of the delivery process. Such arrangements may work to better integrate primary care with specialist services, as is the case in countries that have established gatekeeper arrangements. As discussed in the following section, France,

Table 1.6. **Life expectancy at birth, 1960-2000**

	Males			Females		
	Years		Per cent change	Years		Per cent change
	1960[a]	2000[b]	1960[a]-2000[b]	1960[c]	2000[d]	1960[c]-2000[d]
Australia	67.9	76.6	12.8	73.9	82.0	11.0
Austria	65.4	75.4	15.3	71.9	81.2	12.9
Belgium	67.7	74.6	10.2	73.5	80.8	9.9
Canada	68.4	76.7	12.1	74.3	82.0	10.4
Czech Republic	67.9	71.7	5.6	73.4	78.4	6.8
Denmark	70.4	74.5	5.8	74.4	79.3	6.6
Finland	65.5	74.2	13.3	72.5	81.0	11.7
France	67.0	75.2	12.2	73.6	82.7	12.4
Germany	66.9	74.7	11.7	72.4	80.7	11.5
Greece	67.3	75.5	12.2	72.4	80.6	11.3
Hungary	65.9	67.2	2.0	70.1	75.7	8.0
Iceland	70.7	78.0	10.3	75.0	81.4	8.5
Ireland	68.1	74.2	9.0	71.9	79.2	10.2
Italy	67.2	76.3	13.5	72.3	82.4	14.0
Japan	65.3	77.7	19.0	70.2	84.6	20.5
Korea	51.1	71.7	40.3	53.7	79.2	47.5
Luxembourg	66.5	74.9	12.6	72.2	81.3	12.6
Mexico	55.8	71.6	28.3	59.2	76.5	29.2
Netherlands	71.5	75.5	5.6	75.4	80.5	6.8
New Zealand	68.7	75.7	10.2	73.9	80.8	9.3
Norway	71.3	76.0	6.6	75.8	81.4	7.4
Poland	64.9	69.7	7.4	70.6	77.9	10.3
Portugal	61.2	72.7	18.8	66.8	79.7	19.3
Slovak Republic	68.4	69.2	1.2	72.7	77.4	6.5
Spain	67.4	75.5	12.0	72.2	82.7	14.5
Sweden	71.2	77.4	8.7	74.9	82.0	9.5
Switzerland	68.7	76.9	11.9	74.5	82.6	10.9
Turkey	46.3	65.8	42.1	50.3	70.4	40.0
United Kingdom	67.9	75.4	11.0	73.7	80.2	8.8
United States	66.6	74.1	11.3	73.1	79.5	8.8
30 comparable countries[e]						
Average[e]	66.0	74.2	13.1	71.0	80.1	13.6
Standard deviation	5.6	3.0	9.2	6.0	2.7	9.5

a) Data refer to 1961 for Canada and Italy.
b) Data refer to 1999 for Germany, Greece and Korea.
c) Data refer to 1961 for Canada and Italy.
d) Data refer to 1999 for Germany, Greece and Korea.
e) Unweighted average.

Source: OECD Health Data 2003, 3rd ed.

Germany, the Netherlands, Switzerland and the United States are among those countries that have experimented with the use of managed-care arrangements that incorporate elements of co-ordination, management and rationalisation of patient services. These reforms tend to have been motivated as much from concerns about cost as from a desire to improve health-care delivery. Evidence from the United States suggests that managed-care plans tend to outperform uncoordinated indemnity insurance arrangements in terms of ensuring preventive and primary care, but may not do as well in serving the needs of the chronically ill (Miller and Luft, 2002).

Table 1.7. **Infant mortality, 1960-2000**

	Deaths per 1 000 live births		Per cent change
	1960	2000[a]	1960-2000[a]
Australia	20.2	5.2	–74.3
Austria	37.5	4.8	–87.2
Belgium	31.2	4.8	–84.6
Canada	27.3	5.3	–80.6
Czech Republic	20	4.1	–79.5
Denmark	21.5	5.3	–75.3
Finland	21	3.8	–81.9
France	27.5	4.6	–83.3
Germany	35	4.4	–87.4
Greece	40.1	6.1	–84.8
Hungary	47.6	9.2	–80.7
Iceland	13	3	–76.9
Ireland	29.3	6.2	–78.8
Italy	43.9	4.5	–89.7
Japan	30.7	3.2	–89.6
Korea		6.2	
Luxembourg	31.5	5.1	–83.8
Mexico		23.3	
Netherlands	17.9	5.1	–71.5
New Zealand	22.6	5.8	–74.3
Norway	18.9	3.8	–79.9
Poland	56.1	8.1	–85.6
Portugal	77.5	5.5	–92.9
Slovak Republic	28.6	8.6	–69.9
Spain	43.7	3.9	–91.1
Sweden	16.6	3.4	–79.5
Switzerland	21.1	4.9	–76.8
Turkey	189.5	39.7	–79.1
United Kingdom	22.5	5.6	–75.1
United States	26	6.9	–73.5
OECD point average[b]	36.4	7.0	–81.0
28 comparable countries[c]			
Average	36.4	6.5	–81.0
Standard deviation	33.0	6.7	6.1

a) Data refer to 1999 for Korea and New Zealand.
b) Unweighted average. Includes all available countries at the relevent point in time.
c) Unweighted average. Figures exclude Korea and Mexico.

Source: OECD Health Data 2003, 3rd ed.

New concerns about quality of care and patient safety

Quality of care issues – namely inappropriate use of health-care services or poor technical quality in service provision – have only lately become a concern of health policy makers. Up until recent years, practitioner competency and judgements about appropriate provision of services were left largely to professional self-regulation. As in the case of health outcomes, prominent research studies have been responsible for newly asserted interests and actions by governments in their role as health-system regulators and third-party payers. In this case, the relevant studies were ones that revealed, both across and within countries, wide variation in health-care practice patterns and in the extent to which those patterns were judged consistent with the current state of medical knowledge.[33]

Patient safety and medical errors have similarly come into the spotlight because of new information suggesting problems of this type are much more common than previously believed.[34] Studies based on information derived from root-cause analysis of specific incidents suggest that poor design of health-care delivery processes, rather than technical incompetence among individual professionals, underlies the majority of problems (Kohn *et al.*, 2000).

Public reporting of information on health-care quality. A key dimension of the trend towards increased accountability for quality has been initiatives to publish and widely disseminate information on the performance of providers, health insurance plans, or other areas considered relevant (see Box 1.2). Such initiatives reflect the expectation that publication of this type of information will either increase the ability of consumers and their agents to demand effective care or will inspire further professional activities geared toward improvement.

Initial efforts to develop and report information on health-care quality have faced numerous challenges, both technical and otherwise, and results have yet to meet expectations in terms of influencing decision making (Marshall *et al.*, 2000). In particular, health-care consumers have not proved as ready an audience for comparative information

Box 1.2. **Improving the information basis for better health system outcomes**

Because approaches for improving clinical outcomes are highly dependent on context, few reform initiatives geared directly at addressing specific clinical outcomes have been initiated at the health system level. Instead, countries have focused on investment in clinical performance measures and the information systems needed to use them as part of ongoing measurement and improvement cycles (Hurst, 2002).

Most countries have recently created or improved information systems used to assess one or more dimensions of health system performance. In Mexico, the main health-care provider in the part of the system financed by social insurance has adopted a system based on diagnosis-related groups (DRGs) for recording hospital service activity as a means of informing efforts to reduce practice variation. The Czech Republic is also pilot-testing the use of a DRG-based system as a device for hospital management and making comparable measurements of quality and output across hospitals. The 1999 clinical governance initiative in the United Kingdom requires all NHS organisations to produce an annual report that provides information on performance for public use. Also in the United Kingdom, the National Patient Safety Agency was created in 2001 to manage a new mandatory national reporting system for adverse events and near misses in health-care delivery. The United States has also invested in information systems focusing on health-care quality and other performance measures. Notably, a standard set of quality and performance information is required to be submitted by all health plans participating in public programmes.[a] Reporting is also required by many employers that contract with health insurance plans on behalf of their employees. Public programmes in the United States have begun to implement systems of quality measurement and reporting focused on health-care providers, including nursing homes and home health care.[b]

a) Health Plan Employer Data and Information Set (HEDIS).

b) In the mid-1980s, a US government initiative to publish hospital-specific mortality data for Medicare patients was discontinued because of concerns about the validity of comparisons. However, a subsequent effort focused on heart attack mortality in New York state may have resulted in increased market share for surgeons with better outcomes (Mukamel and Mushlin, 1998).

on performance as was hoped by advocates of market-based reforms to health systems, as assessed by interest, propensity and ability to use such information. Assuring that information is viewed as relevant and usable from a patient or consumer standpoint will be important if use of information is to grow. And concerns of health-care providers about the technical quality of information and validity of comparisons must be met if they are to become active users of comparative information on quality. Questions about how best to preserve confidentiality of medical information have proved to be challenging to address from both technical and political perspectives.

Setting targets and standards for improvement. The policy responses of OECD member countries to recent findings of deficiencies in health-care quality and health outcomes have been, in general, moves to demand greater accountability for health-care quality from health-care providers. Accountability mechanisms include setting quality standards that providers must meet to obtain or retain a business license or to participate in public programmes. Although public authorities still rely on professional input for the definition of quality standards, they have come to take a leadership role in measuring performance against those standards and taking actions based on results.

Both policy makers and the medical profession have embraced the idea of "evidence-based medicine", a strategy for translating findings from clinical research into practice and policy decisions. Member-country reform initiatives designed to operationalise these ideas include efforts to develop practice guidelines that are used by payers and regulators for monitoring service provision as well as to inform decisions about health benefits, coverage and other factors affecting the supply of services. Spain, for example, has instituted protocol guides for hospital practice geared toward reducing variation and improving quality of care. France has also published official standard practice protocols, known as *réferences médicales opposables*.

Examples of recent initiatives to establish minimum conditions for health-care providers include Hungary's regulations, instigated in 1998, which are believed to have triggered new quality management efforts in the health system. The United Kingdom's National Service Frameworks were established in 1998 to set national standards for services or types of health care, as well as performance milestones and a timetable for improvement against which to measure progress.[35] France and several other countries have established a mandatory accreditation programme for hospitals that assesses providers against established standards. Reforms introduced in Belgium in 1990 introduced performance criteria for hospitals, such as target length of stay.

Information on the effects of public efforts to establish evidence-based standards for health-care is limited, largely because systems for monitoring the processes and outcomes of health-care are still in their infancy. However, it is clear that this reform approach faces a number of challenges to success. First, it requires a great deal of support from the health-care profession, which may resent a perceived intrusion on professional decision-making and perhaps also higher administrative costs. An example of such tension is the US experience in developing and publishing clinical practice guidelines through federal government support and organisation, which led to a provider backlash and cessation of public development of guidelines. A second challenge concerns the difficulty in maintaining standards that reflect the current state of the art in the rapidly evolving field of health care. Maintaining up-to-date standards is important to promote both best practices and provider buy-in; indeed, insisting on standards that no longer reflect best practice would be counter-productive on many levels.

In design of reforms geared toward increasing the practice of evidence-based medicine, governments must carefully weigh the use of incentive-based approaches (such as voluntary accreditation systems) versus enforcement-based approaches (such as licensing requirements). At present, there is little evidence available by which to determine which approaches have been more successful in influencing health-care practice, and countries have used a mixture of both.

Providing technical assistance for improving quality and performance. Accompanying greater demands for accountability has been increased recognition of the need to facilitate quality improvement. Because of increasingly rapid evolution in the state of medical knowledge and technological change, medical professionals find it increasingly difficult to stay up to date with the latest developments and may require ongoing training or assistance in doing so. Hospitals and other institutional health-care providers may also benefit from technical guidance regarding latest methods and procedures to ensure quality and safety. Both individual practitioners and institutional providers can benefit from collective efforts to pool certain types of data so as to allow for greater precision in estimating trends and making comparisons.

A wide range of reforms have been implemented as part of technical assistance efforts. In the Netherlands, for example, professional associations have taken on the role of transmitting and checking professional quality among doctors, and there is a high degree of "ownership". Such an approach is more difficult in an environment like that in France, where there are a number of professional unions; and, in this case, public organisations have been set up to evaluate medical skills and to undertake "reaccreditation" of doctors. In the light of the vast differences across hospitals in rates of patient deaths and infections acquired by patients, France has put in place new accreditation standards and assessment procedures. In 1999, the United Kingdom established a Commission for Health Improvement that reviews the clinical governance arrangements of all NHS organisations on a rolling basis and carries out investigations into serious failures. In the United States, so-called quality improvement organisations serve as government contractors, responsible for undertaking measurement and assisting hospitals in designing and implementing improvement strategies. New Zealand has established web-based "toolkits" designed to bring together resources and information to support efforts to address population health goals by providers, district health boards and others.

Reform initiatives that focus on technical assistance to health-care providers reflect a policy decision regarding the value of a co-operative approach to quality improvement. This serves as a contrast with the competitive approach that is also used, in some cases, side-by-side, in the United States and other countries that foster private markets for health-care or health insurance. It is not as yet clear which approach works best and under what circumstances. Those who point to the value of the co-operative approach note that sharing quality improvement techniques and data pooling may be the most efficient ways to foster improvement. At the same time, in a competitive approach, multiple avenues to quality improvement may be tested and used, resulting in perhaps quicker advancements in technique.

Aligning economic incentives with effectiveness objectives. In another approach, some OECD countries have introduced financial or other types of economic incentives for meeting quality standards or achieving effectiveness improvements. Australia, for example, has had a system in place since 1994 to reward physicians for meeting various quality and other effectiveness goals. Incentives were originally designed to reward

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physicians who spent more time with patients and are now linked to performance on a range of quality measures.[36] Similarly, the UK health system now rewards high-performing health-care providers with more funding and greater autonomy from central control.

Economic incentives can be a powerful tool to influence performance. However, they may also lead to efforts by health-care providers to "game the system" by focusing on the dimensions of performance subject to financial incentive at the expense of performance in areas not affected by the incentive. In addition, because it remains difficult to disentangle environmental effects on performance that are outside the direct control of health-care providers, some approaches may risk penalising providers who treat higher-risk patients and, thus, potentially compromise access to treatment. Because of these factors, care needs to be taken in the design and implementation of such incentives.

More attention paid to patient satisfaction and system responsiveness

Governments have also become more conscious of the value of assuring that patients are satisfied with their care and with the system in which they obtain it. As a result, they increasingly rely on surveys to measure satisfaction with practitioners, hospitals and other institutional providers, health insurance plans and the health system more broadly. An OECD survey on policy priorities conducted in 1997 found that approximately one-half of member countries reported problems with patient/health-care consumer satisfaction (Kalisch *et al.*, 1998).[37] Results from the 1999 Eurobarometer survey show a European Union country average of 12.7% who are "very dissatisfied" with their health-care systems, with a range of 2.2 to 34.1% across the 15 countries surveyed (Table 1.8). A 2001 survey of five countries – Australia, Canada, New Zealand, the United Kingdom and the United States – found that the vast majority of those surveyed agreed with the statement that "fundamental changes" to their health system were required or the system needed to be "rebuilt completely" (Blendon *et al.*, 2002). Only between 18 and 25% of the people in each country agreed that their health system needed only "minor changes".

In addition to assessing the level of patient or consumer satisfaction, some such surveys also collect information about patient perceptions regarding aspects such as humaneness of treatment, quality of communication, perceived barriers to obtaining services and other subjective components of care. Combined with objective data that are simultaneously collected, data from such surveys serve in initiatives to redesign system components to improve quality and are increasingly also used in consumer information campaigns designed to promote more knowledgeable decision-making among patients and consumers.

Establishing or strengthening patient protections and rights to treatment. One approach increasingly used to improve patient satisfaction with their health-care is to enumerate specific rights or protections for patients within the health system, an approach that has also been used to ensure access to a defined set of services. Patients' rights geared toward improved effectiveness often include ones to ensure choice of provider or rights to appeal health-care decisions made by other actors in the health system. For example, in 1997, a revised Guarantee for Medical Treatment took effect in Sweden that regulated accessibility to primary and specialist care.[38] Austria established a patient charter in 1999 that put forward a set of patient rights agreed between the federal government and the provinces. In the United States, numerous states have established legally binding "bills of rights" for patients that are, in part, focused on establishing rights to see certain specialists or to obtain appointments within set periods of time.

Table 1.8. **Satisfaction with health systems, 1999**

Per cent

	Share of population satisfied			Share of population dissatisfied		
	Very satisfied	Fairly satisfied	Total satisfied	Fairly dissatisfied	Very dissatisfied	Total dissatisfied
Austria	31.4	52.0	83.4	11.9	2.2	14.1
Belgium	15.8	61.2	77.0	16.9	4.0	20.9
Denmark	30.7	45.1	75.8	20.1	3.8	23.9
Finland	18.0	56.3	74.3	22.1	2.6	24.7
France	16.0	62.2	78.2	16.7	4.4	21.1
Germany	7.4	42.5	49.9	35.5	12.2	47.7
Greece	2.9	15.7	18.6	45.7	34.1	79.8
Ireland	11.4	36.3	47.7	26.9	20.3	47.2
Italy	2.1	24.2	26.3	45.6	26.2	71.8
Luxembourg	26.0	45.6	71.6	16.8	5.1	21.9
Netherlands	19.0	54.2	73.2	21.9	4.1	26.0
Portugal	3.1	21.0	24.1	42.4	31.7	74.1
Spain	9.6	38.0	47.6	40.6	9.3	49.9
Sweden	13.5	45.2	58.7	29.6	9.3	38.9
United Kingdom	13.0	42.7	55.7	31.8	10.5	42.3
European Union (15 country) average[a]	10.6	42.2	52.8	32.5	12.7	45.2
All countries average[b]	14.7	42.8	57.5	28.3	12.0	40.3
Standard deviation	9.3	14.0	21.4	11.4	10.8	21.4

a) Weighted average by population.
b) Unweighted average.
Source: European Commission Eurobarometer results listed in *Key Figures on Health Pocketbook* (2001).

Although there are limited data available by which to judge the effectiveness of this reform approach, its strengths and weaknesses have become evident. A strength is that it provides incentives for those parties responsible for guaranteeing the patients rights to take needed action. Depending on the specific rights involved, a variety of underlying approaches might be taken by the responsible parties to address the perceived problems. However, a weakness of this approach lies in the potential for any designated set of rights to become outdated because of changes in medical practice standards or underlying needs, and there may be additional implementation costs.

Increasing patient choice. Countries have undertaken reforms designed to increase patient choice of provider or insurer in an effort to increase consumer and patient satisfaction. Countries such as the Czech Republic, Hungary, Poland and Sweden that previously assigned patients to physicians or that featured community clinics in which patients previously saw the first doctor available now allow patients to select a primary care physician. Belgium, Germany, the Netherlands and Switzerland all allow some degree of competition among insurers, partly to promote consumer satisfaction. In Germany, consumer satisfaction, together with premium costs, is one of the key factors motivating switching among funds.

4. Controlling spending and improving cost efficiency

The level of health-care spending (both public and total) varies widely across countries reflecting market and social choices regarding, *inter alia* supply of services, remuneration of health-care providers, the degree of diffusion of health-care technology and the institutional arrangements for the finance of health care. While there is, therefore, no

"optimal" level of resources devoted to health-care (or to the public and private split in financing), expenditure as a share of GDP provides a broad indication of the resource costs of this sector and of the burden on public finances. Governments are, therefore, concerned when this share increases even though there is no prima facie reason why health-care spending should not increase relative to GDP. Indeed, a number of longer-term factors, including technological change, are likely to push spending upwards relative to GDP.[39] In addition, some governments have found that the existing level of resources was inadequate in the light of public demand for care and have increased public financing for health-care services. This section first examines the recent development of health-care spending, and policies that, until recently, have largely focused on limiting the growth of health-care spending.

With concern over increased pressures for health-care spending, public policy has also aimed at easing this constraint by achieving higher output at lower cost. A range of policies has been introduced to this end, most often focusing on institutional arrangements and the incentives facing providers. These efforts are discussed in a second sub-section.

4.1. Policies affecting the level of aggregate health-care spending

This sub-section first describes patterns of spending over the last three decades and some of the underlying factors influencing these developments. It then discusses policies aimed at controlling the rapid growth in spending in the earlier part of this period and their impact on expenditure developments in the 1980s and 1990s.

Developments in health-care spending

Attempts to control aggregate health-care spending over the last two decades reflected the rapid and sustained rise in expenditure during the 1960s and 1970s (Table 1.9).[40] Taken as a share of trend GDP, the increase in spending was smaller in the 1980s, partly as a result of these policies. Public spending – which represents about three-quarters of total health-care spending on average over the OECD area – increased more slowly than for total spending during the 1980s and, particularly, during the 1990s, reflecting a progressive shift of costs onto the private sector (Tables 1.10 and 1.11).[41] Nonetheless, an average one percentage point increase in total spending as a share of GDP over the 1990s suggests that upward pressures remain sizeable in a number of countries.

While there is general agreement about which supply and demand factors have driven aggregate health-care spending, there is little consensus about the specific contributions of each to the increase in outlays on health-care (see Docteur and Oxley, 2003, annex). Studies using statistical tests of the impact of budgetary caps or other policies to limit spending provide little evidence of a strong impact on health-care expenditure. Nonetheless, the greater variability in the growth of public health-care spending across countries in the 1980s may partly reflect growing differences in the type, size and timing of policies aimed at controlling expenditure.

Two factors affecting the development of health-care spending are likely to affect future expenditure trends strongly:

- Technology has been and is expected to remain an important driver of health-care spending. While it is difficult to identify precisely, this factor may have explained as much as half of total spending growth over recent decades (Newhouse, 1992a; OECD, 1995b; Jones, 2002).

Table 1.9. **Total expenditure on health care[a] as a per cent of trend GDP, 1970-2000**

	Per cent of trend GDP					
	1970[b]	1980	1990[c]	1992	1997	2000[d]
Australia		7.5	7.7	7.9	8.7	9.2
Austria	4.1	7.7	7.2	7.6	7.5	7.9
Belgium	3.6	6.6	7.6	7.9	8.3	8.7
Canada	6.3		9.0	9.4	8.6	9.2
Czech Republic[e]			5.0	5.4	7.1	7.1
Denmark	8.0	9.1	8.4	8.3	8.3	8.4
Finland		6.4	8.1	8.3	7.1	6.8
France			8.7	9.1	9.1	9.4
Germany	6.4	8.8	8.8	10.1	10.5	10.7
Greece		7.0	7.4	7.9	9.3	9.3
Hungary[e]			7.1	7.7	7.0	6.7
Iceland	3.7	6.5	8.0	7.7	8.2	9.6
Ireland		8.7	6.4	6.9	6.5	6.8
Italy			8.1	8.3	7.7	8.2
Japan	4.6	6.5	6.1	6.3	7.0	7.7
Korea[e]			4.8	4.7	5.0	5.9
Luxembourg[e]	3.6	5.9	6.1	6.2	5.9	5.6
Mexico[e]			4.5	5.4	5.4	5.6
Netherlands	6.9	7.5	8.2	8.5	8.2	8.9
New Zealand		6.1	6.7	7.2	7.5	8.0
Norway	4.7	8.7	8.7	9.3	9.7	10.3
Poland[e]			5.3	6.6	6.1	6.0
Portugal	2.5	5.6	6.4	7.2	8.6	9.2
Slovak Republic[e]					5.9	5.7
Spain		5.1	6.8	7.2	7.2	7.5
Sweden	7.2	8.9	8.5	8.0	8.0	8.6
Switzerland		7.8	8.9	9.5	10.2	10.7
Turkey[e]	2.4	3.3	3.6	3.8	4.2	2.0
United Kingdom	4.5	5.5	6.2	6.6	6.8	7.3
United States	6.8	8.5	11.8	12.6	13.0	13.2
OECD point average[f]	5.1	7.1	7.4	7.8	7.9	8.2
14 comparable countries[g]						
Average	4.9	7.1	7.6	7.9	8.2	8.4
Standard deviation	1.3	1.3	2.3	2.5	2.3	2.3

- Population ageing is expected to increase significantly the demand for health-care over the next half century (see Chapter 7 in this volume).

In this context, budgetary controls are likely to remain an important policy tool for containing expenditure. The following paragraphs review the nature of past policies.

Macroeconomic cost-containment initiatives

Efforts by governments to slow the growth of spending over the past two to three decades have relied on three sets of policies: regulation of prices and volumes of health-care and inputs into health care; caps on health-care spending, either overall or by sector; and shifts of the costs onto the private sector through increased cost-sharing.[42]

Table 1.9. **Total expenditure on health care[a] as a per cent of trend GDP, 1970-2000** *(cont.)*

	Change in percentage points			Change in percentage points		
	1970[b]-80	1980-90	1990[c]-2000[d]	1990[c]-92	1992-97	1997-2000[d]
Australia		0.3	1.4	0.2	0.8	0.5
Austria	3.6	–0.5	0.6	0.4	–0.1	0.3
Belgium	3.0	1.0	1.2	0.4	0.3	0.5
Canada			0.2	0.5	–0.8	0.6
Czech Republic[e]			2.2	0.4	1.7	0.1
Denmark	1.1	–0.6	0.0	–0.2	0.0	0.2
Finland		1.7	–1.2	0.2	–1.2	–0.3
France			0.7	0.4	0.0	0.4
Germany	2.5	–0.1	1.9	1.3	0.5	0.1
Greece		0.4	2.0	0.5	1.4	0.1
Hungary[e]			–0.5	0.5	–0.7	–0.3
Iceland	2.8	1.5	1.7	–0.2	0.4	1.5
Ireland		–2.4	0.4	0.6	–0.4	0.3
Italy			0.0	0.2	–0.7	0.5
Japan	1.9	–0.4	1.5	0.2	0.7	0.7
Korea[e]			1.1	0.0	0.3	0.9
Luxembourg[e]	2.4	0.2	–0.5	0.0	–0.2	–0.3
Mexico[e]			1.0	0.9	0.0	0.2
Netherlands	0.6	0.8	0.6	0.3	–0.3	0.7
New Zealand		0.7	1.3	0.5	0.2	0.5
Norway	4.0	0.1	1.6	0.6	0.4	0.6
Poland[e]			0.7	1.4	–0.5	–0.1
Portugal	3.1	0.8	2.8	0.8	1.4	0.6
Slovak Republic[e]						–0.2
Spain		1.7	0.7	0.4	0.0	0.3
Sweden	1.7	–0.4	0.1	–0.4	–0.1	0.6
Switzerland		1.1	1.8	0.6	0.7	0.5
Turkey[e]	0.9	0.3	–1.6	0.1	0.4	–2.2
United Kingdom	1.0	0.7	1.1	0.5	0.2	0.5
United States	1.7	3.3	1.3	0.8	0.3	0.2
OECD point average[f]	2.1	0.6	0.9	0.4	0.2	0.3
14 comparable countries[g]						
Average	2.2	0.5	0.9	0.3	0.3	0.3
Standard deviation	1.0	1.5	0.7	0.5	0.5	0.2

a) Total expenditure on health care refers to items HC.1-HC.7 and item HC.R.1 according to the International Classification for Health Accounts (ICHA).
b) Data refer to 1971 for Denmark ; 1972 for the Netherlands.
c) Data refer to 1991 for Hungary.
d) Data refer to 1998 for Turkey.
e) GDP used as the denominator instead of trend GDP for the Czech Republic, Hungary, Korea, Luxembourg, Mexico, Poland, Slovak Republic and Turkey.
f) Unweighted average. Includes all available countries at the relevant point in time.
g) Unweighted average. Figures include Austria, Belgium, Denmark, Germany, Iceland, Japan, Luxembourg, the Netherlands, Norway, Portugal, Sweden, Turkey, the United Kingdom and the United States.

Source: OECD Health Data 2003, 3rd ed.; *OECD Economic Outlook*, No. 73.

Table 1.10. **Public share of total expenditure on health care, 1970-2000**

	Per cent of total spending				Change in percentage points		
	1970[a]	1980	1990[b]	2000[c]	1970[a]-80	1980-90[b]	1990[b]-2000[c]
Australia	57.2	63.0	67.1	68.9	5.8	4.1	1.8
Austria	63.0	68.8	73.5	69.4	5.8	4.7	–4.1
Belgium				72.1			
Canada	69.9	75.6	74.5	70.9	5.7	–1.1	–3.6
Czech Republic	96.6	96.8	97.4	91.4	0.2	0.6	–6.0
Denmark	83.7	87.8	82.7	82.5	4.1	–5.1	–0.2
Finland	73.8	79.0	80.9	75.1	5.2	1.9	–5.8
France			76.6	75.8			–0.8
Germany	72.8	78.7	76.2	75.0	5.9	–2.5	–1.2
Greece	42.6	55.6	53.7	56.1	13.0	–1.9	2.4
Hungary			89.1	75.5			–13.6
Iceland	66.2	88.2	86.6	83.7	22.0	–1.6	–2.9
Ireland	81.7	81.6	71.9	73.3	–0.1	–9.7	1.4
Italy			79.3	73.4			–5.9
Japan	69.8	71.3	77.6	78.3	1.5	6.3	0.7
Korea			36.6	44.4			7.8
Luxembourg	88.9	92.8	93.1	87.8	3.9	0.3	–5.3
Mexico			43.0	47.9			4.9
Netherlands	60.2	69.4	67.1	63.4	9.2	–2.3	–3.7
New Zealand	80.3	88.0	82.4	78.0	7.7	–5.6	–4.4
Norway	91.6	85.1	82.8	85.2	–6.5	–2.3	2.4
Poland			91.7	70.0			–21.7
Portugal	59.0	64.3	65.5	68.5	5.3	1.2	3.0
Slovak Republic				89.4			
Spain	65.4	79.9	78.7	71.7	14.5	–1.2	–7.0
Sweden	86.0	92.5	89.9	85.0	6.5	–2.6	–4.9
Switzerland[d]			52.4	55.6			3.2
Turkey	37.3	27.3	61.0	71.9	–10.0	33.7	10.9
United Kingdom	87.0	89.4	83.6	80.9	2.4	–5.8	–2.7
United States	36.4	41.5	39.6	44.2	5.1	–1.9	4.6
OECD point average[e]	70.0	75.1	73.4	72.2	5.1	0.4	–1.8
21 comparable countries[f]							
Average	70.0	75.1	75.5	74.3	5.1	0.4	–1.2
Standard deviation	17.2	17.5	14.0	11.4	6.7	8.5	4.4

a) Data refer to 1969 for Australia; 1971 for Denmark; 1972 for the Netherlands.
b) Data refer to 1991 for Hungary.
c) Data refer to 1998 for Turkey.
d) Expenditure under mandatory private health insurance, but only 30% of total health expenditure is out-of-pocket spending by households.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Unweighted average. Figures exclude Belgium, France, Hungary, Italy, Korea, Mexico, Poland, the Slovak Republic and Switzerland.

Source: OECD Health Data 2003, 3rd ed.

Controlling wages, prices and health-care production resources. In the health-care sector most countries have regulated prices, volumes or both. Wage controls have been particularly prevalent in systems with public-integrated systems in both the hospital and in the ambulatory sector if health-care personnel are paid on a salary basis [Denmark (hospitals), Finland, Ireland (hospitals), Spain, Sweden, the United Kingdom (hospitals)], although this has often occurred in the context of broader public-sector pay restraint and

Table 1.11. **Public expenditure on health as a per cent of trend GDP, 1970-2000**

	Per cent of trend GDP					
	1970[a]	1980	1990[b]	1992	1997	2000[c]
Australia		4.7	5.2	5.3	5.8	6.3
Austria	2.6	5.3	5.3	5.6	5.3	5.5
Belgium				6.8	5.9	6.3
Canada	4.4		6.7	7.0	6.0	6.5
Czech Republic[d]			4.9	5.2	6.5	6.5
Denmark	6.7	8.0	7.0	6.9	6.8	7.0
Finland		5.1	6.5	6.6	5.4	5.1
France			6.7	7.0	6.9	7.2
Germany	4.6	7.0	6.7	7.8	7.9	8.0
Greece		3.9	4.0	4.3	4.9	5.2
Hungary[d]			6.4	6.8	5.6	5.1
Iceland	2.4	5.7	6.9	6.5	6.8	8.1
Ireland		7.1	4.6	5.0	4.8	5.0
Italy			6.4	6.4	5.5	6.0
Japan	3.2	4.6	4.7	4.9	5.4	6.0
Korea[d]			1.7	1.6	2.1	2.6
Luxembourg[d]	3.2	5.5	5.7	5.7	5.5	4.9
Mexico[d]			2.0	2.4	2.4	2.7
Netherlands	4.1	5.2	5.5	6.2	5.6	5.6
New Zealand		5.3	5.6	5.7	5.8	6.2
Norway	4.3	7.4	7.2	7.9	8.2	8.8
Poland[d]			4.8	5.1	4.4	4.2
Portugal	1.4	3.6	4.2	4.3	5.6	6.3
Slovak Republic[d]					5.4	5.1
Spain		4.1	5.4	5.6	5.2	5.4
Sweden	6.2	8.2	7.6	7.0	6.9	7.3
Switzerland			4.7	5.1	5.6	6.0
Turkey[d]	0.9	0.9	2.2	2.5	3.0	1.5
United Kingdom	3.9	4.9	5.2	5.6	5.5	5.9
United States	2.5	3.5	4.7	5.4	5.9	5.9
OECD point average[e]	3.6	5.3	5.3	5.6	5.6	5.7
13 comparable countries[f]						
Average	3.5	5.4	5.6	5.9	6.0	6.2
Standard deviation	1.7	2.0	1.5	1.5	1.3	1.8

is, thus, not specific to the health-care sector. Price controls have been used in all three sub-sectors of health care, as governments generally can set prices administratively or have oversight on prices agreed between health-care purchasers and providers. A number of countries have set fees directly after negotiations with health-care providers broke down (*e.g.* Australia, Belgium, France, Japan, Luxembourg and Canada). Cost control in Japan has relied heavily on government price fixing of both primary and secondary care. In others, prices have been automatically adjusted as a function of the volume of care so as not to exceed a fixed budget ceiling [*e.g.* Germany (ambulatory care), Austria (hospital care), Hungary (outpatient care) and recent Belgian reforms[43]]. A few jurisdictions use kinked price schedules to reduce the marginal return to doctors for additional supply beyond defined ceilings [Canada (Quebec), Hungary].

Administrative price setting has probably been most widespread for pharmaceutical drugs, as all countries except Germany, Switzerland and the United States have price-

Table 1.11. **Public expenditure on health as a per cent of trend GDP, 1970-2000** *(cont.)*

	Change in percentage points			Change in percentage points		
	1970[a]-1980	1980-1990	1990[b]-2000[c]	1990[b]-1992	1992-1997	1997-2000[c]
Australia		0.5	1.1	0.1	0.6	0.5
Austria	2.7	0.0	0.1	0.3	–0.4	0.2
Belgium					–0.9	0.4
Canada			–0.2	0.3	–0.9	0.5
Czech Republic[d]			1.7	0.3	1.3	0.0
Denmark	1.3	–1.0	0.0	–0.1	–0.1	0.2
Finland		1.5	–1.4	0.1	–1.2	–0.3
France			0.5	0.3	0.0	0.2
Germany	2.3	–0.3	1.3	1.1	0.2	0.1
Greece		0.1	1.3	0.3	0.6	0.4
Hungary[d]			–1.3	0.4	–1.1	–0.6
Iceland	3.4	1.2	1.2	–0.3	0.2	1.3
Ireland		–2.5	0.4	0.4	–0.1	0.1
Italy			–0.5	0.0	–0.9	0.5
Japan	1.4	0.1	1.3	0.2	0.5	0.6
Korea[d]			0.9	–0.2	0.5	0.5
Luxembourg[d]	2.3	0.2	–0.8	0.0	–0.2	–0.6
Mexico[d]			0.7	0.5	–0.1	0.3
Netherlands	1.1	0.3	0.1	0.7	–0.6	0.1
New Zealand		0.2	0.7	0.1	0.1	0.5
Norway	3.1	–0.1	1.6	0.6	0.3	0.6
Poland[d]			–0.6	0.2	–0.7	–0.2
Portugal	2.2	0.6	2.1	0.1	1.3	0.7
Slovak Republic[d]						–0.3
Spain		1.3	0.0	0.2	–0.3	0.1
Sweden	2.0	–0.6	–0.3	–0.6	–0.2	0.4
Switzerland			1.3	0.4	0.5	0.3
Turkey	0.0	1.3	–0.8	0.3	0.5	–1.6
United Kingdom	1.0	0.3	0.8	0.5	–0.1	0.4
United States	1.1	1.2	1.2	0.7	0.5	0.0
OECD point average[e]	1.8	0.2	0.4	0.2	0.0	0.2
13 comparable countries[f]						
Average	1.8	0.2	0.6	0.3	0.2	0.2
Standard deviation	1.0	0.7	0.9	0.5	0.5	0.7

a) Data refer to 1971 for Denmark; 1972 for the Netherlands.
b) Data refer to 1991 for Hungary.
c) Data refer to 1998 for Turkey.
d) GDP used as the denominator instead of trend GDP for the Czech Republic, Hungary, Korea, Luxembourg, Mexico, Poland, Slovak Republic and Turkey.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Unweighted average. Figures include Austria, Denmark, Germany, Iceland, Japan, Luxembourg, the Netherlands, Norway, Portugal, Sweden, Turkey, the United Kingdom and the United States.

Source: OECD Health Data 2003, 3rd ed.; *OECD Economic Outlook*, No. 73.

control arrangements at various levels of the distribution chain and these have tended to remain relatively unchanged over time.[44, 45] However, the vigour with which existing price-setting policies have been applied has varied over time, becoming more important during periods of budgetary pressure when supplementary price freezes, cuts or refunds from suppliers have been introduced.[46]

The impact of price controls on overall expenditure can be eroded by supplier responses, for example by increasing volumes to compensate for limiting price (or wage) increases (*e.g.* ambulatory care in Australia, France and Japan and the hospital sector in Sweden),[47] providing higher cost services (*e.g.* more on-site diagnostic tests in France, Germany and the United States), up-rating of patients into higher cost classifications (*e.g.* Medicare in the United States) or shifting services into areas where there are no price controls.[48] Although constraints on medical student numbers are particularly important, wage and price controls can also have negative longer-term supply effects. A number of countries are now facing shortages of medical personnel, and the market position of health-care workers and unions is becoming stronger in wage and price negotiations. Inadequate attention to relative prices may also be affecting the supply of certain specialities such as anaesthetists, gynaecologists and psychiatrists.[49] Nurses are in short supply in many countries. Thus, countries may achieve short-term gains in terms of lower public health-care spending, but may confront difficulties in maintaining an adequate level of services at a later date.

Limits in most countries on entry to medical schools are an important additional factor affecting the growth of the number of medical professionals. The number of doctors per capita has slowed as a result but remains positive in virtually all countries (Table 1.12).[50, 51] Elsewhere, there have been reductions in support staff (Canada, Sweden). Considerable diversity still exists across countries in the number of doctors and nurses per capita (Tables 1.12 and 1.13), suggesting that there is additional scope for limiting costs through further adjustment in medical personnel in some countries. But in making further adjustments to supply, governments need to be careful not to push these too far. For example, both Canada and the United Kingdom have recently increased health-care budgets but, like Denmark, are having difficulty in increasing the supply of health-care because of the limited number of available doctors and nurses.[52] In others, there is already upward pressure on wages.[53] Thus, the increased budgetary resources risk leading to higher wages of health-care professionals rather than increases in services provided. Looking to the future, a number of countries are now becoming concerned about the impact on the supply of services of the expected exit of a significant share of health-care professionals as the post-war baby-boom generations move into retirement (see Chapter 4 in this volume). Supply appears likely to fall just as age-related needs increase. Better human resource planning policies, focusing on maintaining adequate supplies of qualified health-care professionals over the longer run, may well be needed.

As regards hospital supply, the 1960s and 1970s saw rapid growth in supply in both the ambulatory and inpatient sectors even though, in the case of the latter, new health-care technology progressively reduced both the need for in-hospital care and for the required length of hospital stays.[54] While there was some policy lag to the effects of technology, government policies have – especially over the past two decades – encouraged a reduction in the number of beds per capita and concentrated acute care in larger hospital units so as to achieve economies of scale and scope (Table 1.14).[55] This policy has limited the risk of public expenditure overruns, as there are fewer beds to fill.[56] At the same time, governments have imposed tighter constraints on capital spending on new hospitals, often making them conditional on further restructuring of existing supply. Nonetheless, a high level of acute-care beds per capita in a few countries in 2000 suggests that there may still be some scope for further adjustment (such as Austria, the Czech Republic, Germany, Hungary and the Slovak Republic).

Table 1.12. **Practising physicians in OECD countries, 1970-2000**

	Per 1 000 population				Annual per cent growth		
	1970[a]	1980[b]	1990[c]	2000[d]	1970[a]-1980[b]	1980[b]-1990[c]	1990[c]-2000[d]
Australia	1.2	1.8	2.2	2.4	4.1	2.0	1.3
Austria	1.4	1.6	2.2	3.1	1.3	3.2	3.5
Belgium	1.6	2.3	3.3	3.9	3.4	3.7	1.7
Canada	1.4	1.8	2.1	2.1	2.5	1.6	0.0
Czech Republic	1.8	2.3	2.7	3.4	2.5	1.6	2.3
Denmark	1.4	2.2	3.1	3.4	4.6	3.5	1.0
Finland	0.9	1.7	2.4	3.1	6.6	3.5	2.6
France			3.1	3.3			0.6
Germany			2.8	3.3			1.7
Greece	1.6	2.4	3.4	4.5	4.1	3.5	3.2
Hungary	2	2.3	2.9	3.1	1.4	2.3	0.7
Iceland	1.4	2.1	2.8	3.4	4.1	2.9	2.2
Ireland			2	2.2			1.1
Italy			3.8	4.1			0.8
Japan	1.1	1.3	1.7	1.9	1.7	2.7	1.1
Korea		0.5	0.8	1.3		5.4	5.0
Luxembourg	1.1	1.7	2	2.5	4.4	1.6	2.3
Mexico			0.9	1.4			4.5
Netherlands	1.2	1.9	2.5	3.2	4.7	2.8	2.5
New Zealand	1.1	1.6	1.9	2.2	4.3	1.7	1.5
Norway	1.4	2	2.6	2.9	3.6	2.4	1.2
Poland	1.4	1.8	2.1	2.2	2.5	1.6	0.5
Portugal	0.9	2	2.8	3.2	8.3	3.4	1.3
Slovak Republic				3.7			
Spain				3.3			
Sweden	1.3	2.2	2.9	3	5.4	2.8	0.4
Switzerland	1.5	2.5	3	3.5	5.2	1.8	1.6
Turkey	0.4	0.6	0.9	1.3	4.1	4.1	3.7
United Kingdom	0.9	1.3	1.5	2	3.7	1.4	2.9
United States	1.6	2	2.4	2.7	2.3	1.8	1.3
OECD point average[e]	1.3	1.8	2.4	2.9	3.9	2.7	1.9
22 comparable countries[f]							
Average	1.3	1.9	2.4	2.9	3.9	2.6	1.8
Standard deviation	0.3	0.4	0.6	0.7	1.7	0.8	1.0

a) Data refer to 1969 for Belgium; 1971 for Australia and New Zealand.
b) Data refer to 1981 for Australia and Korea.
c) Data refer to 1991 for Germany and Norway; 1992 for Ireland; 1993 for Italy.
d) Data refer to 1999 for Hungary and the United States.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Unweighted average. Figures exclude France, Germany, Ireland, Italy, Korea, Mexico, the Slovak Republic and Spain.

Source: OECD Health Data 2003, 3rd ed.

Budgetary caps. Budgetary caps or controls have been a widely used instrument for controlling expenditure (Table 1.15). Initially directed at the hospital sector (the most costly element of the system), they have been often complemented by global and supplementary spending caps on ambulatory care and pharmaceuticals, reflecting the difficulty in controlling overall spending by focussing on only one care component. In general, policies to control and reshape supply and to cap spending in the hospital sector appear to have been more successful than for ambulatory care or pharmaceutical drugs, although institutional differences lead to

Table 1.13. **Practising nurses in OECD countries, 1970-2000**

	Per 1 000 population				Annual per cent growth		
	1970[a]	1980	1990[b]	2000[c]	1970[a]-1980	1980-1990[b]	1990[b]-2000[c]
Australia	6.7	10.3	11.6	10.7	4.4	1.2	–0.8
Austria	3.4	5.4	7.2	9.2	4.7	2.9	2.5
Belgium		8.5					
Canada	6.9	9.6	11.1	9.9	3.4	1.5	–1.1
Czech Republic		6.8	8.4	8.9		2.1	0.6
Denmark		6.9	8.6	9.5		2.2	1.1
Finland	6	8.3	10.2	14.7	3.3	2.1	3.7
France	3.1	4.7	5.6	6.7	4.7	1.8	1.8
Germany				9.6			
Greece	1.4	1.9	3.4	3.9	3.1	6.0	1.5
Hungary	2.7	3.7	4.5	4.8	3.2	2.0	0.6
Iceland	4.9	9.6	13.3	14	7.0	3.3	0.6
Ireland			11.3	14			2.2
Italy			5	5.2			0.4
Japan	2.6	4.2	6	7.8	4.9	3.6	3.3
Korea				3			
Luxembourg				10.1			
Mexico			1.5	2.2			3.9
Netherlands				13.4			
New Zealand		6.1	9.3	9.6		4.3	0.3
Norway				10.3			
Poland	3	4.4	5.5	4.9	3.9	2.3	–1.1
Portugal	1.8	2.3	2.8	3.7	2.5	2.0	2.8
Slovak Republic				7.5			
Spain				6.6			
Sweden	4.3	7	9.2	8.8	5.0	2.8	–0.5
Switzerland				10.7			
Turkey		1	1.3	1.7		2.7	2.7
United Kingdom			7.8	8.8			1.2
United States	3.7	5.6	7.2	8.1	4.2	2.5	1.3
OECD point average[d]	3.9	5.9	7.2	8.2	4.2	2.7	1.3
16 comparable countries[e]							
Average	3.9	5.9	7.5	8.2	4.2	2.6	1.1
Standard deviation	1.8	2.8	3.3	3.5	1.2	1.2	1.7

a) Data refer to 1971 for France and Portugal.
b) Data refer to 1993 for Italy.
c) Data refer to 1998 for Japan; 1999 for Greece, Italy and the United States.
d) Unweighted average. Includes all available countries at the relevant point in time.
e) Unweighted average. Figures include Australia, Austria, Canada, Finland, France, Greece, Hungary, Iceland, Japan, Poland, Portugal, Sweden and the United States.

Source: OECD Health Data 2003, 3rd ed.

considerable variation across countries.[57] Spending control through budgetary caps also appears to have been most successful in countries such as Denmark, Ireland, New Zealand and the United Kingdom where integrated models of health-care financing and supply are (or were) the rule and in mainly single-payer countries, such as Canada, where health-care budgets are generally explicitly set through the budget process.[58]

A few countries with social-insurance systems have established indicative budgets or targets (Belgium, France, Luxembourg and the Netherlands), but these limits have rarely been respected, partly because of their indicative nature and, sometimes, because there

Table 1.14. **Acute-care beds in OECD countries, 1970-2000**

	Per 1 000 population					Annual per cent growth		
	1960	1970[a]	1980	1990[b]	2000[c]	1970[a]–1980	1980-1990[b]	1990[b]–2000[c]
Australia	6.5	6	6.4	4.8	3.8	0.6	–3.1	–2.3
Austria				7	6.2			–1.2
Belgium		4.7	5.5	4.9	4.6	1.6	–1.1	–0.6
Canada			4.6	4	3.2		–1.4	–2.4
Czech Republic			8.6	8.5	6.6		–0.1	–2.5
Denmark		5.5	5.3	4.1	3.3	–0.5	–2.5	–2.4
Finland	3.9	4.8	4.9	4.3	2.4	0.2	–1.3	–5.7
France			10.4	8.5	6.7		–2.0	–2.4
Germany	7.3	7.5	7.7	7.5	6.4	0.3	–0.3	–1.6
Greece			4.7	4	4		–1.6	0.0
Hungary	4.6	5.6	6.6	7.1	6.3	1.7	0.7	–1.2
Iceland				4.3				
Ireland			4.3	3.3	3		–2.6	–0.9
Italy			7.9	6.2	4.3		–2.4	–4.0
Japan								
Korea				2.7	5.2			6.8
Luxembourg			7.4	7	6.7		–0.6	–0.4
Mexico				1	1			0.0
Netherlands	5.1	5.5	5.2	4.3	3.5	–0.6	–1.9	–2.0
New Zealand				8				
Norway			5.2	3.8	3.1		–3.1	–2.0
Poland	4.6	5.1	5.6	6.3	5.1	0.9	1.2	–2.1
Portugal	3.6	4.2	4.2	3.4	3.3	0.0	–2.1	–0.4
Slovak Republic					5.9			
Spain				3.3	3.2			–0.4
Sweden		5.5	5.1	4.1	2.4	–0.8	–2.2	–5.2
Switzerland	8.2	7.1	7.2	6.5	4.1	0.1	–1.0	–4.5
Turkey		1.3	1.5	2	2.2	1.4	2.9	1.0
United Kingdom					3.9			
United States	3.5	4.1	4.4	3.7	2.9	0.7	–1.7	–2.4
OECD point average[d]	5.3	5.1	5.8	5.0	4.2	0.4	–1.2	–1.6
13 comparable countries[e]								
Average		5.1	5.4	4.8	3.9	0.4	–1.0	–2.3
Standard deviation		1.5	1.6	1.6	1.4	0.8	1.7	1.9

a) Data refer to 1972 for Denmark; 1973 for Sweden.
b) Data refer to 1989 for Australia; 1991 for Mexico.
c) Data refer to 1997 for Belgium; 1998 for Portugal and Spain; 1999 for Denmark and Greece.
d) Unweighted average. Includes all available countries at the relevant point in time.
e) Unweighted average. Figures include only Australia, Belgium, Denmark, Finland, Germany, Hungary, the Netherlands, Poland, Portugal, Sweden, Switzerland, Turkey and the United States.

Source: OECD Health Data 2003, 3rd ed.

was no means to claw back over-spending in subsequent years (France).[59] Others have imposed spending limits indirectly: the Czech government set budget caps on individual providers in 1994 (after a sharp increase in spending in 1992-93), but operated the policy via the main insurer; Germany limited expenditure to the increase in receipts from contributions at fixed contribution rates over the period 1992-93 to 1997; and in countries where supply is organised at lower levels of government, the central authorities limited the amount of inter-government transfers (Canada, Finland) or set limits on tax increases at lower levels of government (Denmark and Sweden).

Table 1.15. **Overall and sectoral arrangements for setting expenditure**

	Budgets
Australia	Capped budgets for public hospitals.
Austria	There is no overall fixed health care budget. Part of sectoral hospital budgets are fixed annually. Expenditure limits for some doctors.
Belgium	Health insurance budget is fixed annually by government. Sectoral target budgets for hospital, pharmaceutical, clinical, biology, dental and primary care expenditure.
Canada	Single payer with budget oversight – varies by province
Czech Republic	Caps on hospital sector set from 1994 by government via the main insurer. Ambulatory care on a capitation basis.
Denmark	Overall health budget is negotiated annually and fixed by government and local governments (counties). Local governments cannot increase local taxes. Hospital budgets are fixed annually. Target budgets for primary care and pharmaceuticals.
Finland	There is no overall fixed health care budget. Fixed sectoral budgets at municipal level for hospitals and primary care.
France	A target budget is voted by parliament. Fixed budgets for hospitals, expenditure targets for clinical biology, nursing services, office-based doctors, pharmaceuticals and physiotherapy.
Germany[a]	There is no overall fixed health care budget. Fixed negotiated budgets for ambulatory and dental care at regional level. Target budgets for hospitals and spending regional negotiable ceilings for pharmaceutical expenditures.
Greece	A national budget is established annually but is not generally respected.
Hungary	Budget set by Parliament and with sub-budgets by sector. Cost overruns limited by capitation and German "points" for outpatient care and capped spending by DRG.
Iceland	Budget caps on total expenditure and by sector.
Ireland	Public expenditure is cash-limited and determined by the Department of Finance and the Department of Health. Prospective annual fixed budgets for the eight health boards. Sectoral fixed budgets for community care an special and general hospital programmes.
Italy	A national budget is established annually but is not generally respected. Fixed budget for pharmaceutical expenditure; in some regions fixed budgets for ambulatory care and private hospital expenditure.
Japan	Implicit cap on health care spending in GDP.
Korea	None.
Luxembourg	Since 1994, prospective fixed budget for health insurance expenditure.
Mexico	Controls spending through budget, contribution rates to the social security and government subsidies to the social security system.
Netherlands	Target budgets decided by government. Expenditure targets for ambulatory, hospital and mental care.
New Zealand	Government sets the budget.
Norway	Government sets the budget.
Poland	Government sets the budget.
Portugal	A national budget is established annually on a historical basis but is not generally respected. Sectoral budgets for GPs, pharmaceuticals and materials at regional level.
Slovak Republic	National health insurance system since 1992. Deficits have accumulated.
Spain	A national budget is established annually but is not generally respected. Target budgets for primary care, pharmaceuticals, in-patient care, research and training and administrative expenses.
Sweden	There is no overall fixed health care budget. The rate of county taxes is fixed by government. County councils can increase local taxes but there are disincentives *(i.e.* reduction of government subsidies). In many county councils there are fixed budgets at county council level for primary health care centres and individual hospitals. In other county councils budgets are allocated to groups of hospitals. There are no fixed hospital budgets in county councils with separation of purchasers from providers. Pharmaceutical expenditure is controlled indirectly by county councils.
Switzerland	National health insurance system since 1992. Deficits have accumulated.
Turkey	None.
United Kingdom	Public expenditure is cash-limited. Hospital and community services are budgeted at national level. Family services including pharmaceutical expenditure and GP practices are regulated indirectly.
United States	Medicare spending – less than 20% of total US health spending – is controlled by price setting. Prices are set prospectively for each year for all units of payment. There is no set budget and, given prices, volumes determine the amount of total spending in a given year.

a) During 1997, new systems were introduced: fixed fee-for-service payments and volume targets for ambulatory care; practice-specific soft budgets for pharmaceuticals, individual negotiated target budgets for hospitals were abolished.

Source: Mossialos and Le Grand (1999); various *OECD Economic Surveys*, and information provided by officials in OECD countries.

New budget controls have also involved a move from retrospective payments – *i.e.* paying the provider on the basis of costs – to prospective or forward-looking budgets. At the simplest level this has meant that providers have been given a hard-budget constraint while being expected to continue to adjust supply to meet the increasing demand for care. However, top-down spending constraints in the form of budget caps can have undesirable incentive effects. They do not encourage (and may actively discourage) providers to increase output or to enhance productivity.[60] For example, where the budget is allocated independent of output, there is no financial cost if output falls or compensation for higher costs where output is increased. Where budgets have been set on the basis of historical cost, this may favour inefficient providers and penalise efficient ones and hinder the geographical distribution of scarce resources on the basis of need. Furthermore, where any savings are clawed back by payers (Denmark, Greece and France continue to budget in this way), fixed budget ceilings encourage suppliers to spend up to the ceiling. And since budget caps and controls on inputs are often associated with cuts to staff and increasing work loads, staff morale and dedication may suffer while restrictions on wage rates and on hiring can interfere with personnel polices and the capacity to attract labour. In any case, most governments have found themselves obliged to finance the cost over-runs when faced with the potential insolvency of hospitals (Italy, Greece, New Zealand and Portugal). As a consequence, governments have been moving increasingly to combine budget setting with measures that take more account of levels of efficiency and output across hospitals and differences in need across geographical areas.

Shifting the costs to the private sector. Although the degree of cost-sharing varies across countries, the increase in cost-sharing for medical care has been a common feature over the 1980s and, particularly, the 1990s.[61] Greater cost-sharing has mainly affected pharmaceuticals, while patient payments for inpatient and doctors visits have been less widespread (Sweden, Italy, France).[62] The number of drugs not reimbursed has increased, mainly for "comfort" drugs or those without proven therapeutic value. The degree of cost-sharing has been increased for many others. In a number of cases, flat-rate payments per prescription have been introduced. Reference price systems have also been introduced in a number of countries. These arrangements increase cost-sharing for individuals using branded or higher cost products while assuring access to drugs of a generic nature.[63]

These measures have reduced the share of public spending in total spending, but the impact of these policies on overall household demand and consumption of care is probably limited (see Docteur and Oxley, 2003, annex). Available empirical evidence suggests that the elasticity of demand for health-care is generally small – in the range of –0.2 to –0.3 – with a weaker response at the level of hospital care.[64, 65] Increases in co-payments substantial enough to have significant effects on demand are likely to have undesirable effects on access and may have additional social costs.[66] Indeed, because of this, many countries have attenuated and effects on access, by exempting vulnerable groups (the poor, the chronically sick and the elderly) who consume the bulk of health-care services, by setting ceilings on annual spending on health-care by individuals or households (*e.g.* Sweden), and by allowing complementary insurance to cover the increase in cost-sharing (*e.g.* France). In such cases and in countries, where there are multiple exemptions and ceilings, administrative costs increase and the net budget savings may be less.

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4.2. Improving cost-efficiency at the micro level

Making health-care systems more efficient helps offset the budgetary impact of increased demand for health care.[67] This sub-section first examines reforms introduced to improve productivity and output of the ambulatory and hospital sector.[68] It then discusses efficiency issues associated with health insurance markets. Policies concerning technological change and, in this context, pharmaceutical drugs, are described subsequently.

Although the efficiency of health-care systems is hard to measure, a number of indicators suggest that there are large differences across countries (and even within countries) in what is produced and in the way that it is produced and on the resulting impacts on health outcomes (OECD, 1995b). As Tables 1.13 and 1.14 suggest, the level of capital and human resources employed in the sector shows wide variation across countries. In addition, there are as many different combinations of spending on ambulatory and inpatient care as there are countries (Table 1.12)[69] and there are also very different levels of specialist care.[70] For any given pathology, wide differences also exist in the treatment and in the intensity of care (practice patterns), both within and between countries.[71]

Reforms to provider markets: ambulatory care

With the primary-care doctor or nurse usually being the first contact with the health-care system, the role and organisation of ambulatory care is of key importance in the overall efficiency and effectiveness of health-care systems. In addition, shifting care to an ambulatory environment helps control overall costs since ambulatory care is generally less expensive than hospital care. There is considerable cross-country diversity in the way ambulatory care is organised and paid for (see Box 1.3).

Despite the potential importance of this sector for overall system efficiency, changes in this area have been relatively modest. This may partly perhaps reflect resistance to systemic change by practitioners but also the difficulty in designing payment systems that limit incentives to oversupply care while preventing low levels of patient satisfaction through, for example, waiting lists.[72] A significant shift in orientation may be occurring in the United Kingdom where recent reforms are intended to increase the role of the general practitioner in deciding how resources are allocated in the hospital sector and in New Zealand where practitioners will have greater say in deciding how resources are allocated in diagnostics and pharmaceuticals.[73] The gate-keeping role of GPs has been encouraged in a few countries (France, Norway and the United States).[74] Finally, in the Eastern European countries, the ambulatory sector has been shifted from the public sector to private practitioners in the course of the 1990s and, in some cases, they are now paid on a capitation basis. In the early 1990s, Sweden allowed private doctors to be reimbursed on a fee-for-service basis by the public insurer, a policy that has now been largely reversed.[75] Only a few countries have changed payment arrangements, generally away from fee-for-service systems to wage and salary and capitation approaches.[76]

Reforms to provider markets: the hospital sector

Enhancing the role of health-care purchasers. A first area of reform concerns the separation of purchasers and providers within public integrated systems and, more generally, the strengthening of purchasers' agency role within the health-care system. Purchasers/funders of health-care are responsible to the budgetary authorities for cost

Box 1.3. **Paying primary care doctors**

General practitioners (GPs) are employed on *salaries* in Greece, Finland, Iceland, Mexico (public health providers), Norway (mixed salary and fees), Portugal, Spain (with some capitation), Sweden (some capitation) and Turkey – countries with integrated health systems. Salaries are generally negotiated centrally (*e.g.* between physicians' associations and the government), with individual-based adjustments sometimes included to allow for experience, location and other reward and/or incentive considerations. Salary arrangements allow funders to control primary care costs directly; however, they may lead to under-provision of services (to ease workloads), excessive referrals to secondary providers and lack of attention to the preferences of patients.

Capitation-payment systems provide GPs with a fixed payment for each patient on their "list", usually with adjustments for factors such as age and gender. These systems are used in Italy (with some fees), the United Kingdom (with some fees and allowances for specific services), Austria (with fees for specific services), Denmark (one third of income with remainder fee for service), Ireland (since 1989), the Netherlands (fee-for-service for privately insured patients and public employees) and Sweden (from 1994). Capitation payments have become more frequent in "managed care" environments in the United States.[a] Capitation systems allow funders to control the overall level of primary health expenditures, and the allocation of funding among GPs is determined by patient registrations. However, under this approach, of GPs may register too many patients and under-serve them, select the better risks and refer on patients who could have been treated by the GP directly. Freedom of consumer choice over doctors, coupled with the principle of "money following the patient" may moderate some of these risks. Aside from selection, these problems are likely to be less marked than under salary-type arrangements.

Fee-for-service arrangements are used to pay GPs in the remaining OECD countries and are even more widely used for specialists working in ambulatory care. Fee levels are either negotiated centrally [as in Japan, Germany, Canada and in France (Sector 1)[b]] or set by the individual practitioners. Some countries [*e.g.* Australia, France (Sector 2) and New Zealand] allow "extra billing" by GPs on top of standard patient reimbursement rates.

The fee-for-service approach gives physicians full discretion over the level and mix of services, referrals and other treatment options. However, doctors face incentives to expand the volumes and prices of services they provide. The risk of supply-induced demand is particularly strong with this type of payment system, for example by increasing services provided "in-house" even if there would be advantages – *e.g.* through economies of scale – in making more use of secondary suppliers.

As suggested in the description of capitation contracts, there has been growing interest in payment systems that blend different element of these three payment approaches.[c]

a) Managed care can be defined as the body of clinical, financial and organisational activities designed to ensure the provision of appropriate health-care services in a cost-efficient manner (Academy Health, 2003). Managed care techniques are most often practiced by organizations and professionals that assume risk for a defined population (*e.g.* health maintenance organisations).

b) Doctors practicing in ambulatory care belong to either Sector 1 – where they charge a fee agreed with the Social Security (*conventionné*) – or Sector 2 – where they can set their fees freely. An easing in the rules of access to Sector 2 led to a rapid increase such that in many cities it is difficult to find a specialist in Sector 1. More recently, access to Sector 1 has been severely tightened.

c) Newhouse (1992b) argues that mixed systems outperform pure capitation and fee-for-service systems, by reducing the welfare losses that may arise, under administered price arrangements where prices are set at the "wrong" level – *i.e.* away from the level where the marginal costs and benefits of services are equal.

control and to patients for the quality and accessibility of care. A significant number of countries with integrated systems have now moved in this direction (Australia, United Kingdom, New Zealand, Sweden, Italy, Portugal and, more recently, Greece).[77] More active purchasing has also occurred in countries with public contract models (Germany, Belgium). The role of purchasers has been enhanced in the United States as well within the context of managed care arrangements and selective contracting by insurers (see Box 1.6). The form of the purchaser has also varied. While most countries have focused on the hospital sector, both the United Kingdom and New Zealand have experimented with using primary care doctors as purchasers and in the United Kingdom (General Practitioner Fundholders) such policies were reinforced in 1997.[78] And the extent of the experiments has also varied in countries where health-care is decentralised (Sweden, Italy and Spain).[79]

Little information on the impact of this approach on cost and performance is available. However, the ability of the purchasers to affect provider behaviour appears to depend importantly on whether the purchasers have adequate information. While less the case in the United States, purchasers have often lacked the skills and resources needed to overcome the information asymmetry in favour of providers. This, in turn, has limited their capacity to enforce contracts and to overcome provider resistance to change (Smee, 2000; Light, 2000).[80] Results from the United Kingdom have suggested that the GP fundholders have proved somewhat more agile in selective purchasing for elective care than have the District Health Authorities in the new environment (Glennester and Le Grand, 1995).

Purchasers have sometimes also taken on the role of reorganisation and rationalisation of care institutions. In France, the *Agences régionales d'hospitalisation* (ARH) were established in 1996 to organise hospital care by region. While they do not actively purchase care, they can set contracts with providers and allocate budgets to the various hospitals under their jurisdiction. These groups are also actively engaged in the restructuring of hospital supply.

Improving hospital contracting and payment systems. A shift toward more active purchasing and contracting by insurers/payers of hospital care rather than simply funnelling financial resources to providers has accompanied the move towards a clearer distinction between purchasers and providers. Countries have generally made hospital contracts both more explicit and better attuned to achieving the goals of cost control, efficiency and quality of care. Greater attention is being paid to the incentives inherent in specific payment methods (the key types and their incentive features are described in Box 1.4 for hospital care). A range of contracting methods has been used, the form often reflecting the amount of information available to the purchaser. Where detailed information on the costs of individual hospital services is absent, contracts have largely been of a block type, sometimes combined with indications of required levels and quality of service. In general, purchasers and providers – particularly in public integrated models – have had only a limited idea of the true resource costs of various treatments. As a consequence, providers have difficulty in evaluating which is the most cost-effective treatment approach while purchasers have little means of assessing provider performance. While purchasers are becoming more active in collecting the information needed to inform resource allocation decisions in the hospital sector, there is still considerable controversy over how it should be used.[81] The United States' experience with more active purchasing by private insurers (see below) demonstrates that important investment in data systems

Box 1.4. **Hospital financing systems**

With *block or global grants/budgets*, hospitals receive an annual fixed budget to cover all their services (usually apart from major capital spending). During the 1980s, this approach became the main payment method used in many "integrated" health systems, where the government is the main provider as well as funder of health services. It is found, for example, in Australia, Canada, Denmark, Finland (with some direct billing of municipalities), Ireland, Mexico, New Zealand, Norway and Sweden and the United Kingdom (until recent reforms) and is also commonly used in the public hospital sectors of other systems [*e.g.* France and Spain (social security hospitals)]. In Denmark and Sweden, block grants are provided at the level of clinical departments in hospitals. Block funding provides a direct means of containing hospital spending, provided enforcement mechanisms are adequate (as has not been the case in a number of southern European countries). However, as noted, this approach provides few incentives for hospitals to improve the efficiency of their operations. A more complex alternative defines prices and volumes of care (the United Kingdom, Germany), although such arrangements come closer to a Diagnosis Related Group (DRG) approach described below.

Bed-day payments provide hospitals with a flat-rate fee per occupied bed. This approach was found mainly in systems with public funding and a mixture of public and private providers and is probably now only found in Switzerland. Overall hospital spending is capped, in effect, by total hospital capacity; however, suppliers face incentives to lower patient turnover and prolong lengths of stay so that the more expensive early days (when treatment intensity is higher) are offset by lower-cost stays later on during recuperation. As with block grants, funding decisions do not incorporate information on relative costs across treatment methods. To minimise this incentive, Germany, for example, set caps on the number of bed days but only partially reimbursed the bed-day price when the bed days exceeded this limits.

Fee-for-service methods pay hospitals according to individual services provided. These are the principal means of paying for hospital services in Japan, some cantons in Switzerland and, formerly, the United States – *i.e.* systems with mainly private providers and multiple insurers. Under this system, macro-control is weaker than, for example, under block grants (requiring spending to be limited by other means), with suppliers facing incentives to raise the quantity, quality and prices of services provided.

Payments-per-case set fees prospectively according to diagnosed medical conditions and standardised treatment costs. The best-known system is the DRGs introduced into the US Medicare programme in 1983. Different pathologies are grouped into homogeneous cost groups and average costs of treatment are estimated. A patient is assigned to a group on entry to the hospital and the provider receives a lump sum for the treatment. Prices are set administratively for each category. This approach appears to have certain favourable characteristics: it allocates budgetary resources on the basis of output; it can give purchasers some control over treatment intensity (for example through price); it encourages hospitals to increase output where there is demand and capacity and to look for ways to reduce costs per sickness episode.However, this approach places the risk of cost over-runs on the provider. As this can lead to undesirable provider behaviour – such as cream skimming patients[a] – these systems need to be carefully designed and applied to the context of each country.[b] To avoid some of these problems, a number of countries have explored risk-sharing arrangements (van de Ven and Ellis, 2000).[c] In addition, care needs to be taken that increases in output do not lead to budget over-runs (Wennberg *et al.*, 1984).[d]

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Box 1.4. **Hospital financing systems** *(cont.)*

DRG-based systems have since spread to other parts of the US medical system and are being implemented or considered by other countries, including Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Korea, Mexico,[e] Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. In many of these countries, they have been used as an indicator of the volume of care, permitting a move to an allocation of budgets on the basis of output rather than historical costs (*e.g.* Austria).[f]

a) However, cream skimming can be a problem with other payment arrangements.
b) Prices need to be set carefully in line with the cost structure in each country and adjusted in line with changing practice patterns. More generally, providers need to be monitored to prevent "bumping" patients into higher-cost categories or refusing to treat high-risk individuals.
c) These can take on a variety of forms: payment of a part of total expenditure, payment for high-cost outliers (van de Ven and Ellis, 2000). For example, Belgium has chosen to combine a fixed payment or daily allowance for hotel charges on a prospective basis, while paying for the costs of treatment on a fee-for-service basis (FFS).
d) Concern over this issue led to an overall budget cap and a point system in Austria while in Sweden the introduction of a DRG system led to a rapid increase in output and the re-imposition of a budget cap in the mid 1990s. But such measures can introduce their own problems. In the Austrian case, this encouraged hospitals to raise output so as to maximise their share of the total budget. Such a result may be a positive outcome if there are productivity reserves and waiting lists but pose problems where they lead to unnecessary hospitalisation.
e) For the main health-care providers to social security (IMSS) and only for a very small part of hospital budgets.
f) In Germany, Ireland, Luxembourg and the Netherlands, budgets are based on hospital activities or functions; in Belgium and Spain only part of the budget is on an activity basis – for example nursing and hotel components – while medical treatment is on a fee-for-service basis and paid retrospectively; in Italy and Sweden (certain counties) budgets are paid on the basis of activities, while in the United Kingdom and Finland purchasing packages of hospital and outpatient services are used which determine expected supply.

and in human capital are needed to set contracts effectively and to assess whether contract conditions are being met (Light, 1998, 2000).

Within this context, greater attention has been given to capital costs. In many countries, hospital investment continues to be controlled and paid for at the central or regional level (Germany, Austria, Belgium, the Netherlands), and these expenses are normally considered outside operating budgets. Such arrangements may have encouraged hospital oversupply and greater capital intensity of care because capital costs are essentially free to the hospital. To counter such effects, a few countries have introduced capital charges into the contracting arrangements (New Zealand, United Kingdom).[82]

Prospective pricing systems appear to have encouraged greater cost efficiency in the hospital sector. Evidence from the United States indicates that there have been significant falls in average length of hospital stays compared with other payment methods, although this may also have been accompanied by lower intensity of care in certain cases (Chalkley and Malcolmson, 2000). In Sweden, a comparison of counties that used prospective payment systems with those that did not suggested cost differentials in the order of 10% (Gerdtham *et al.*, 1999a and 1999b) and similar results have been found for Australia. However, the use of these payment methods may conflict with overall expenditure controls, particularly where there is excess supply or productivity reserves. For example, the introduction of DRGs in Stockholm County led to a sharp rise in activity and spending and the re-imposition of central expenditure control through penalties for exceeding volume limits.

Improving managerial independence and cost accountability of hospitals. The shift towards more independent producers with greater management independence and responsibility to payers has been particularly marked for countries with integrated systems with tight budget limits as a starting point. With greater managerial freedom, contracting-out selected activities has also increased, where these can be provided more cheaply externally.[83] For example, the Private Finance Initiative in the United Kingdom allows the private sector to build hospitals and to operate all non-medical services within them under contract and similar arrangements are being introduced in Portugal. Gains in efficiency in the hospital sector, however, have been partly offset by the need for greater information both as a basis for effective management and to fulfil the oversight requirements of the funders and purchasers. Some countries have also moved to improve the flexibility of labour. For example, Portugal is shifting hospital staff onto private labour contracts and experience in test hospitals suggests that efficiency gains from greater labour flexibility can be achieved.

Increasing competition among providers. A limited number of countries (the United States, the United Kingdom, Sweden, the Czech Republic and New Zealand) have experimented greater competition among hospitals as a means of inducing improvement in efficiency, quality and responsiveness (see Boxes 1.5 and 1.6).The appearance of managed care in the United States for privately insured and Medicaid payments within a context of competing providers appears to have led to slower growth of private health-care spending during the mid-1990s without loss of quality.[84] This success was achieved under a set of market and regulatory conditions that are probably unique to the United States (see Box 1.5). However, the recent reappearance of strong upward pressure on health-care insurance premiums and spending suggests that these approaches may now be reaching their limits in terms of expenditure control.[85] Efforts to introduce competition in other countries – starting from very different systems of financing, provision and supply from that in the United States – have not achieved the expected results and have run into considerable patient and provider opposition. However, as these experiments were discontinued after a relatively short period, more time may have been needed for positive results to appear.

Competition in provider markets outside the United States

Reforms to increase competition among health-care providers have focused on creating quasi-markets.[86] These experiments have occurred largely in countries with national health services (integrated models) or with single-payer arrangements. These changes were intended to put pressure on providers through limited forms of competition and harder budget constraints (New Zealand, Spain (mainly Catalonia), Sweden and the United Kingdom) (see Box 1.6). These reforms have generally involved health-care providers competing for the customers of health-care purchasers on the basis of price. However, competitive pressures and provider incentives were weak, purchasers lacked the skills and information to place enough pressure on providers for change and the conditions of tight supply meant that providers were in a strong market position. These policies also led to significant opposition from both patients and providers. As a result, policies have been reversed and, in the case of New Zealand, the most recent changes appear to have brought the system nearly full circle.

While attempts at active competition in health-care markets in Europe and New Zealand have been curtailed, some of the underlying elements of these reforms

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Box 1.5. **Provider market competition and managed care in the United States**

Under the impetus of rising costs of health care, the insurance system in the United States has progressively moved from an indemnity model with free consumer choice of provider and *ex post* reimbursement of medical expenses towards policies that restrict patient choice of provider to varying degrees. Insurers then selectively purchase care on the basis of price, aiming to do so without loss of quality. Patients are limited to those providers chosen by their insurers or they will face financial penalties. Within this context, managed care plans go one step further by potentially restricting the level of care through gate-keeping, case/utilisation reviews, pre-authorisations and monitoring of doctor practice patterns. Managed care has taken on a variety of forms with differing mixes of risk cover, cost-sharing and premiums (Glied, 2000). At one extreme, certain health maintenance organisations (HMOs) supply their own care, thus combining both the insurance and supply function. An alternative and currently more widespread form is through non-exclusive contractual relations with independent providers (Independent Practice Associations). Other forms allow greater individual choice over the provider – at a price of increased patient cost-sharing and higher premiums (Preferred Provider Organisations or Point of Service Plans). But whatever the form, all but 5% of the privately insured population was in arrangements of this type by 2002 (Gabel *et al.*, 2002).[a]

Increased provider market competition has benefited from the particular market conditions in the United States health-care industry. There is broadly unregulated local competition for health-care services in large urban areas and excess supply (Dranove and Sattherwaite, 2000). Purchasing organisations have sufficient size and market power to collect and analyse complex information on cost and service use, thereby helping to bridge the information asymmetry inherent in health-care markets. These factors have permitted insurers to obtain lower prices (Rice *et al.*, 1985; Staten *et al.*, 1988; Melnick *et al.*, 1992).

After allowing for differences in health status associated with cream skimming and self selection,[b] managed-care plans appear to have lower levels of hospital utilisation (both through lower admissions and length of stay) and total care costs tend to be 10-15% lower than under indemnity plans (Miller and Luft, 1994, 1997 and 2002; Glied, 2000).[c] Cost reductions do not appear to have been accompanied by lower quality of care – although this is difficult to measure. Despite these achievements, care restrictions imposed by managed-care plans have led to considerable public dissatisfaction. As a consequence, state-government regulations that restrict the capacity of managed-care institutions to limit access to care have become widespread. In addition, and much more importantly, consumers have switched to larger, looser forms of managed care such as PPOs and Point of Service arrangements. This has weakened the capacity of managed care to sustain the efficiency gains so far achieved.

a) This expanded in the public sector where the states enrolled a large share of the Medicaid population in HMOs and to a much lesser degree in Medicare through the Medicare+Choice programme.

b) Because of self-selection and cream skimming, managed care plan participants are estimated to spend 20-30% less on health care, irrespective of the health-care plan they are in (Glied, 2000).

c) But while there is a broad consensus that managed care has been instrumental in the slowdown in overall health-care cost growth particularly over the 1990s, not all studies using micro data show this effect (somewhat over half of the studies reported in Glied (2000) indicate either an increase in overall costs associated with managed care or no reduction). For an alternative view, see Sullivan (2000).

Box 1.6. **Experiments with competing providers outside the United States**

In the early 1990s, New Zealand and the United Kingdom set up broadly the same approach to purchasing health-care from independent but largely government-owned providers. Hospitals were to establish prices for care and to compete for business. In practice, this was largely limited to elective care as emergency services needed to be locally supplied. In the United Kingdom, purchasing was divided between the District Health Authorities (the main purchasers) and General Practice Fundholders – *i.e.* GPs who volunteered to be the purchasers for most elective surgery for their patients. Groupings of GPs in New Zealand (Independent Practice Associations) took on some budget holding functions.

In Sweden, competition was largely limited to Stockholm County, where nine semi-autonomous district health authorities were established with purchasing responsibility for medical care and public health. These authorities were to establish contracts with providers specifying volume and quality. Payment was on a DRG basis and competition on the basis of price, with the share of total care under tender increasing progressively from 1993. These reforms were made against a background of free choice of provider by patients and an increase in private ambulatory care paid on a fee-for-service basis from 1994.

There was a very short-lived experiment in the Czech Republic, which set up a system of competing insurers and providers in 1992. The system was characterised by extensive oversupply in the health-care sector and a fee-for-services payment system. (OECD, 2003a).

While there were small improvements in some efficiency indicators in the United Kingdom, there was no sustained improvement in waiting lists or waiting times, and no measurable improvement in the clinical quality of care[a] or in health outcomes and, hence, in patient satisfaction (Smee, 2000; Mays *et al.*, 2000).[b] GP fundholders are thought to have had somewhat greater success in achieving cost savings through purchases of excess hospital supply where it appeared (Glennester and Le Grand, 1995). In New Zealand, there is no clear evidence of improved performance in the hospital sector. Competitive tendering may have led to small savings in non-medical hospital services (Cumming and Mays, 2002). These small successes in New Zealand and the United Kingdom need to be seen against a significant increase in administrative costs (Smee, 2000; Le Grand, 2002) and, in the United Kingdom, a perception of greater inequality in access to care.[c]

Reforms in the county of Stockholm appear to have led to a marked increase in the volume of hospital care, reflecting both payment on a DRG basis and free patient choice of provider. Some econometric evidence shows that hospitals in those counties most active in introducing contracting and internal markets proved to be somewhat more efficient than those that did not (Gerdtham *et al.*, 1999a and 1999b).[d] However, the rise in volume and the increased spending led to lowering DRG prices and penalties for providers exceeding their contract volumes, thus highlighting the difficulty in simultaneously achieving both cost control and incentives for increased efficiency. This problem was also apparent in the Czech Republic: after the sharp increases in health-care spending, budget caps were imposed on hospitals and doctors were paid on a capitation rather than a fee-for-service basis.

In all countries that introduced them, the competitive experiments remained short-lived, lasting from 1992 to 1997 in the United Kingdom and 1992 to 1996 in New Zealand and Sweden. This outcome has been attributed to a range of factors: a tradition of central budget and regulatory control; local provider monopolies, tight supply and waiting lists; weak provider incentives and the absence of hard-budget constraints; the absence of staff skilled in purchasing; and more generally, an underestimation of the complexity of health-care markets. As a result, competitive forces were weak, and policies were in place for too short a period to have a substantive impact. Some have argued that effective competition did not materialise (Le Grand, 1999; Smee, 2000; Light, 1998).

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Box 1.6. **Experiments with competing providers outside the United States** *(cont.)*

a) Indeed, Propper *et al.* (2002) provide some evidence suggesting that quality may have declined in the United Kingdom. Death rates were higher in hospitals where the potential for competition was strongest.

b) There was a small increase in the growth of hospital productivity and a relative reduction in the pharmaceutical expenditures of GP fundholders. Providers also appear to have been more responsive to GP concerns over quality. Fundholders were able in a few cases to get better prices, but at a possible cost in the form of lower hospital revenues. There is also some evidence that fund holding led to a two-tier service. However, the fact that fundholders tended to change activity patterns – so as to maximise their fundholding budgets – just before entering the scheme makes before and after comparisons difficult (Mays *et al.*, 2000).

c) Waiting times appear to have been shorter for GP fundholders (Mays *et al.*, 2000).

d) These studies suggest that the efficiency differences might be of the order of 10%. However, the accuracy of these estimates is limited by the ability to adequately control for exogenous factors. Some improvements in hospital performance occurred, but this appears to have been widespread and to have sometimes appeared before competitive markets began operating. This development may have reflected the impact of the earlier Patients Guarantee.

nonetheless remain. All countries appear to have maintained contracting arrangements, even if they have become longer-term in nature and place greater emphasis on co-operation and benchmarking than on head-to-head competition. This suggests that policy makers find them a useful tool to strengthen the position of purchasers, to encourage greater transparency and accountability and to search for more cost-effective solutions (Light, 2001). In some cases, incentives have been improved; for example, both purchasers and providers can now keep surpluses in the United Kingdom since the 1997 reform, while purchasers can still withdraw their custom as a last resort from local providers if they are dissatisfied with the services they are receiving.[87] Financing is increasingly based on output, with some offsets to allow for higher costs from very sick patients, rather than block contracts or capped budgets. A number of countries continue (or have increased) contracting out for non-medical hospital services (the United Kingdom). And greater attention is being paid to integrating health-care planning to include all levels of health care, such that more cost-effective combinations of community and health-care are explored (Sweden and the United Kingdom). Finally, growing use of benchmarking of the performance of providers is being made (*e.g.* Portugal and the United Kingdom).

Some form of budget control remains necessary for overall system efficiency because of moral hazard. Nonetheless, there may be tradeoffs between overall cost control and the extent to which increased efficiency gains can be obtained – even though indicators (see above) suggest widespread scope for gains. Achieving such gains may depend on how improved incentives translate themselves into provider behaviour. This is particularly true in the hospital sector where improvements will depend on a range of factors including the quality of management, the scope for better operating arrangements and the incentives to staff to search for and accept new ways of working. While there little information in this area, long periods of budget (or wage) restraint may make it more difficult to create conditions conducive to change, particularly where improvements depend on investment in human and physical capital. Some increase in resources may therefore be needed to "oil the wheels" of change. Such increases should, however, be carefully designed to encourage the chances for efficiency gains.

Furthermore, certain payment arrangements may not always be compatible with cost control. As experience in Sweden and Norway demonstrates, attempts to improve

productivity of hospitals through activity-related payment systems, can quickly lead to cost over-runs unless there is some way to adjust prices to compensate (such as in the Austrian hospital point system).[88]

Enhancing competition among insurers

Insurance market competition can improve efficiency in two ways. First, it encourages insurers to minimise administrative costs and improve services to the insured, even though they are still likely to have higher operating/marketing expenses when compared to countries with a single-insurer model. Where alternative insurance plans are proposed, there may be gains to consumer welfare through greater variety in health-care plans and, particularly, in the degree of insurance cover. Second, the pressure from selective contracting by insurers among competing health-care suppliers can encourage more efficient health-care provision. Recent experience in health insurance markets suggests that achieving this goal while maintaining full population coverage is more difficult than anticipated (van de Ven and Ellis, 2000).

Concern over increased health-care costs prompted a few OECD countries with multiple insurers to open the health insurance market to greater competition (Belgium, the Czech Republic, the Netherlands and Germany). In Switzerland, which already had competitive private insurance markets, health-care insurance was made mandatory (see Box 1.7). However, tight regulatory control and the objective of ensuring full access of the population to health-care cover has limited the scope of reforms and imposed new trade-offs.

Over the shorter run, these reforms appear to have led to an evening out of health-care premiums within countries as individuals move from higher-cost to lower-cost insurers, leading, at least initially, to greater equity in the premiums paid. The size of these contribution rate changes depends significantly on the initial differences in contribution rates between funds. Movements by the insured between funds and the degree of the narrowing in premiums have been larger in Germany (where differences in contribution rates have been large) than in the Netherlands (where they are relatively small) (Gress *et al.*, 2002).[89] However, in Switzerland there appears to be considerable consumer loyalty to individual funds and, despite very large differences in premiums, the flows from high to low cost funds appear to be relatively limited so far (Colombo, 2001).

An additional positive feature is that competition may place pressure on administrative costs and force insurers to pay greater attention to consumer needs and satisfaction with their services (Belgium, Germany). In Belgium, savings in administration by insurers have permitted increased cover in other health-care areas for their members. (Gress *et al.*, 2002; OECD, 1999a). In the Netherlands, amalgamation of social funds has been extensive and even social funds and private insurers are merging, potentially leading to greater scope for gains in administration costs.[90]

Despite a few areas of modest change, there has been little attempt to harness the competitive pressures from insurance markets to influence provider behaviour in these countries.[91] Insurers continue to regulate prices, quality and entry and exit of providers. Most importantly, insurers are generally unable to choose providers selectively, thereby limiting the transmission of insurance market competition to provider markets and any potential effects on the cost of care. Contractual relations with providers continue to take place in the context of a bilateral monopoly: insurers as a group generally negotiate with providers as a group with government regulatory oversight, and prices and payments generally apply equally to all

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Box 1.7. **Insurance competition in selected European countries**

These competitive insurance arrangements aim to combine competition with full or near-full insurance cover. Coverage is mandatory or has been achieved via public arrangements covering vulnerable groups (the Netherlands). Systems generally combine a defined package of insured care, free choice of insurer at regular intervals with open enrolment and community rating of all members of the same plan. Insurers are often non-profit (Belgium, Switzerland).[a] Contribution systems can be based on earnings (*e.g.* Germany), income, individual insurance premiums (*e.g.* Switzerland) or a mix of all three (*e.g.* the Netherlands).

A key element in all systems is an *ex ante* risk-adjustment arrangement to take account of differences in risks of needing medical care by policy holders of the individual insurers. Insurers with participants that have high-risk profiles receive a cross-subsidy from funds with lower risks to allow for their higher expected health-care costs. However, because these risk-adjustment systems are only able to account for a small part of the true differences in risk,[b] all insurers have an incentive to attract healthier individuals – *i.e.* to cream skim.[c] This, in turn, reduces incentives to place pressure on health-care providers to reduce costs as cream skimming provides an easier way of ensuring profitability (or financial viability in the case of non-profit insurers). In the light of this, government policies have attenuated the risks faced by individual insurers, for example through retrospective reimbursement of insurance fund deficits (*e.g.* Belgium and the Netherlands) or paying for high-cost patients.[d] However, this also has the disadvantage of reducing incentives facing insurers to search for less expensive and more cost-effective care from providers.

a) In both countries this is based on the notion that care decisions should not be based on motives of profit rather than on the strict application of medical need (OECD, 1999a and 2000a).

b) Up to now risk-adjustment systems fail to account for much more than 10% of the total variance in health-care spending, leaving ample scope for profitable cream skimming. Available indicators of risk are generally limited to age and sex but, depending on the country, can also include disability (Belgium and the Netherlands), region (Belgium, the Netherlands and Switzerland), unemployment (Belgium), mortality (Belgium) and hospitalisation (Ireland). However, some authors have suggested that there is scope for improvement in risk adjustment (see van de Ven and Ellis, 2000, Table 3; van Doorslaer *et al.*, 2000; Beck and Zweifel, 1998).

c) Insurance plans attempt to increase the chance of earning surpluses by attracting low-risk individuals and deterring high-risk individuals. Methods include: refusing or setting a very high premium for complementary insurance; having a weak response to the preferences of high-risk consumers. In a managed care environment, it may give poor care to the chronically ill, making patients wait for agreement for care, and otherwise providing poor service. For example, some German funds, do not advertise among lower-income groups, which are considered to be higher risks (Brown and Arneburg, 1999).

d) In both Belgium and the Netherlands, the insurance funds are being made increasingly responsible for deficits – *i.e. ex post* risk sharing is being reduced.

providers and insurers [Germany, Switzerland, Netherlands (hospitals)]. In addition, the insurers confront the same problems of information asymmetry as elsewhere and need to develop the tools necessary to engage in managed care activities. Even with regulatory changes permitting the introduction of managed care on a more widespread basis, it may be difficult to sustain competition. Low-cost insurers will be able to attract more clients, leading to a progressive reduction in the number of insurers.[92] While these systems avoid the key problem of coverage, recent experience in the United States insurance market highlights some of these longer-term problems. Health insurance markets appear to be becoming more segmented. This pattern has been reflected in the low-risk profile of managed-care enrolees but also in the increasing cost of traditional indemnity-type insurance, which in turn, pushes more individuals towards managed-care plans with less choice. Risk sharing across the population is reduced, and certain segments of the insurance markets may "collapse".[93]

Technological change and pharmaceutical drugs

Assessing technological change. Technological change covers a range of products, processes and organisational arrangements in health care.[94] As noted, this has had a major impact on health-care outcomes and in the quality of care. But it has also been a major driver (if not the major driver) of health-care spending over the post-war period (Newhouse, 1992a; OECD, 1995a and 2002e).

Technological change can affect health-care expenditure in complex ways. While the arrival of new drugs or procedures may increase costs in the short to medium run, they may reduce costs over the longer term where they help prevent more serious conditions from developing.[95] There can also be dynamic effects as a result of expanded indications of use.[96] In some circumstances, individuals may choose higher-cost treatments, a factor that may be encouraged by high levels of insurance coverage.[97] At the same time, the wide differences in the intensity of use of many technologies across countries, often without large differences in outcomes, suggests that there is considerable uncertainty as to the appropriate level of use in technology and there may be gains from a better understanding of costs and benefits in their use (OECD, 2002e; Cutler, 2002).

Technological change continues to be rapid and this is expected to continue, particularly in areas such as diagnostics, therapeutic and preventive technology and in medical procedures and devices (Gelijns *et al.*, 2002; Aaron, 2003). Longer-term control of health-care spending will importantly depend on governments taking a stronger role in evaluating the costs and benefits of new technology (see Chapter 2 in this volume.)

Pre-marketing controls to determine whether a new technology is safe and efficacious for a particular use is now widespread and has been strengthened, for example by the European Medicinal Products Evaluation Agency set up in 1995. In addition, many countries require hospitals to obtain a licence to provide expensive devices and procedures (*e.g.* imaging devices, open heart surgery units) and these appear to have been more seriously adhered to than the existing certificate-of-need system in the United States (Gelijns *et al.*, 2002). In addition, the introduction of budget caps has forced hospitals to be more selective in the investment in new technology. However, since health-care costs tend to be driven by "small ticket" items at the level of individual care units, this may not be an effective way of overseeing technological change. Budget caps also do not provide criteria for choice of technique and are unlikely, in themselves, to lead to the most effective or cost-effective choices as new developments present themselves.

A key problem facing governments in this context is the lack of meaningful indicators to judge the relative costs and potential benefits of new – as opposed to existing – technologies and investment of governments in improved policy tools is probably low relative to the potential payoffs.[98] However, such approaches are quite information intensive, often requiring large randomised trials that may take time before definitive results are forthcoming.[99] Decisions, therefore, are often taken on much smaller groups of patients where the possibility of small-sample errors is much larger and selection issues more important. Finally, estimates of the costs and the benefits of care are imprecise, particularly in the case of chronic conditions where the costs of care need to be viewed over a longer time frame.

A few countries are now moving to improve the information available for decision-makers. For example, the National Institute for Clinical Excellence (NICE) in the United Kingdom and the *Agence nationale pour le développement de l'évaluation médicale* (ANDEM) in France make recommendations to policy makers on the basis of available information and

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signal areas where further research is needed. In a few cases (*e.g.* the Netherlands and the United States), countries have begun using conditional insurance coverage – *i.e.* where the payment for treatment using the new technology is integrated into a research programme – thereby ensuring that spending contributes to increasing available information on costs and outcomes. Given that technology is diffused across the OECD, greater international co-operation in the area of testing and evaluation would be likely to result in large benefits from increased scale.

Policies for pharmaceutical drugs. Pharmaceutical drug markets have received special attention because they have been a dynamic component of health-care spending. This market is highly regulated in all countries (see Box 1.8). There are tight pre-marketing requirements to assess whether products are safe for use. In addition, most countries control prices at the wholesale and retail level and these methods – which often include references to prices in other countries – appear to have led to a narrowing in the prices in these products across countries (Jacobzone, 2000).

As noted above, the degree of cost-sharing for drugs has been more widespread than for other components of health care, although the impact of these measures on consumption and on public spending is often weakened because of exemptions of vulnerable groups. These changes have resulted from the exclusion of products from reimbursement – mainly over-the-counter and comfort drugs – and by changes in the rates of reimbursement on the remaining products. A number of countries have introduced reference price systems that set reimbursement on the basis of lower-priced generic products, a practice that also helps ensure access to drugs by vulnerable groups.

Widespread differences in the level of prescribing both within and across countries have led to a growing emphasis on practice guidelines and these have become widespread in a variety of countries. These aim to reduce risks of over- and under-medication and limit broader social effects – for example from the over-use of antibiotics.[100] However there is little evidence that they have had a major impact on practice patterns at the level of the individual doctors as doctors' habits and patient expectations remain strong.

On the supply side, the drug approval process has been significantly tightened both in the United States, Japan and in Europe, where the European Medicinal Products Evaluation Agency was set up in 1995. Within the broad context of technology policy just described, growing attention is being paid to assessing the cost-effectiveness of new treatments (Jacobzone, 2000 and Chapter 2 in this volume). For example, pharmaco-economic assessments in support of listings under publicly-funded benefits began in Australia in 1993 and have now been introduced in one form or another in at least 11 OECD countries (Dickson *et al.*, 2003).[101]

All countries except the United States and Germany control pharmaceutical prices either directly or indirectly (see Box 1.8).[102] There has been relatively modest change in the approach to fixing prices,[103] although the Czech Republic, Korea and Spain have moved to introduce a rate-of-return approach used in the United Kingdom since the late 1950s.

At the retail level, wide differences in the number of practising pharmacists (Table 1.16) suggests that rationalisation in this sector may also provide scope for savings.[104] Regulation of systems of distribution has remained largely unchanged with this sector heavily regulated both as regards to price (see above), market entry and the degree of competition at both the wholesale and retail level. Aside from Eastern Europe, where the number of wholesalers and

Box 1.8. **Regulating the pharmaceutical sector**

Pharmaceuticals represent around 15% of overall health expenditure. Heavy regulation of this market has been inevitable in light of the information asymmetry as regards safety and the moral hazard associated with high levels of insurance cover. A wide range of demand- and supply-side regulations has been introduced, the precise form differing widely across countries.

Demand-side policies

As noted above, there are widely different levels of cost-sharing across countries and pharmaceutical drugs are generally considered to be the most price sensitive element of health-care expenditure. All countries have public reimbursement systems except Canada, Mexico, Turkey and the United States.[a] Governments set the lists of drugs that will be reimbursed and these are changed with varying frequency and use different criteria.

Cost-sharing varies with the drug and but is often limited in high-risk groups, the poor and the chronically ill, and since these groups consume a large share of drugs, cost-sharing bites on relatively few people.[b] Cost-sharing is generally proportional to the price but Australia, Austria, Germany, Japan, New Zealand, the Netherlands and the United Kingdom use a fixed charge per prescription while Finland and Italy mix these two approaches. Cross-country differences in spending on drugs also reflect prescribing behaviour of doctors and a number of countries have introduced various tools: auditing and benchmark prescribing behaviour (France and the United Kingdom), guidelines (most OECD countries) and budgets at both the individual (GP fundholders in the United Kingdom) and regional level [Germany 1992-93 to 1997, Belgium, Greece (main insurance fund), Italy and Mexico].

Governments also encourage consumption of lower-cost generic drugs. Prescribing guidelines exist in most countries to encourage the shift to less expensive drugs but, as importantly, to encourage appropriate prescription of drugs and limit overuse. Reference price systems have been set up in which insurance reimbursement rates depend on the price of the cheapest comparable product have also encouraged a change in this direction along with an easing in regulations that permit pharmacists to substitute generic drugs where they exist. These mechanisms give the consumer more control, help ensure that individuals have access to drugs and increase competition.

Supply-side policies

Supply-side regulation relies heavily on price fixing and all countries, with the exception of the United States, Germany and to a lesser degree Switzerland, set producer prices. Pricing issues differ depending on whether the product is patented or not. Where this is the case, governments attempt to set prices that provide an appropriate return on investment in innovation, while limiting potential over-exploitation of monopoly positions founded on patent protection. For patented drugs, countries use a wide range of criteria in setting prices: the therapeutic value of the drug, reference to existing products; prices in other countries; and the contribution of the pharmaceutical sector to the economy. A few countries set prices to ensure pre-established rates of return on invested capital [the United Kingdom, and, to a lesser degree, the Czech Republic (domestic producers), Korea, Spain and Turkey].[c] As noted, some countries have moved to require cost-effectiveness tests for new pharmaceutical drug listings. While most countries have maintained these bilateral monopoly arrangements after patents lapse, overall costs have also been affected by subsequent price freezes in most countries in the 1980s and 1990s, de-listing of reimbursable products (often over-the-counter drugs) and specific taxes on the pharmaceutical industry (Belgium and France).

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Box 1.8. **Regulating the pharmaceutical sector** *(cont.)*

Distribution systems for pharmaceuticals

There are wide differences across countries in the number of retail outlets as suggested by the large number of practicing pharmacists per capita across OECD countries (Table 1.16). Distribution systems are highly regulated with limitations on ownership, entry and prices and mark-ups at the retail level in most countries even though the scope for greater competition is possibly larger in this sector than in most other areas of health care. The institutional arrangements vary from Sweden – where Apoteket AB is a government-owned monopoly – to North America where there are virtually no entry restrictions and many pharmacies belong to retail chains selling a wide range of other products. In many countries, pharmacies continue to have a monopoly on the sale of over-the-counter drugs, limiting competition in this area and there are fixed mark-ups on list wholesale prices, even though pharmacies are often able to obtain discounts from manufacturers or wholesalers. Such mark-ups have also reduced the incentives of pharmacies to promote generic drugs as their margins are smaller.

a) A large share of pharmaceutical drugs in Mexico are provided directly to patients under Social Security and, in principle, for patients served by the public health system. However, in the case of the latter, supply is often insufficient to fill demand. In Canada, provinces generally have schemes protecting the elderly and medication furnished in hospitals is free.

b) For example, France has 100% cover for the chronically ill, cost-sharing is largely covered by complementary insurance and this has been extended with the Couverture médicale universelle in 2000. However, Germany, Japan, Spain and Switzerland have officially banned reinsurance by a second-tier insurer on the grounds that it diminishes the incentives of public schemes.

c) For example, under the Pharmaceutical Price Regulation Scheme in the United Kingdom, a specified rate of return of between 17 and 21% is allowed with a 25% tolerance when companies submit new products.

retain outlets have increased with the shift in ownership of the distribution system from the state to the private sector, limits on market entry remain strong in virtually all countries. There has been difficulty in allowing competition even in over-the-counter drugs.[105]

The scope for gains from greater competition in these markets can be considerable. For example, Pharmaceutical Benefit Management companies, which act as purchasing agents of insurers in the largely unregulated (in terms of prices) United States pharmaceuticals market, have been successful in achieving gains in purchasing drugs from manufacturers – although their capacity to achieve these gains over the longer term has been questioned (Kaisernetwork, 2003). While some of these functions already exist in other OECD countries within existing government institutions and regulatory systems, there may be scope for cost savings, particularly in the area of generic drugs in many countries.

Table 1.16. **Practising pharmacists in OECD countries, 1970-2000**

	Per 1 000 population				Annual per cent growth		
	1970[a]	1980[b]	1990[c]	2000[d]	1970[a]-1980[b]	1980[b]-1990[c]	1990[c]-2000[d]
Australia	0.7	0.7	0.5	0.8	0.0	–3.3	4.8
Austria	0.3	0.4	0.5	0.6	2.9	2.3	1.8
Belgium	0.7	1	1.2		3.6	1.8	
Canada		0.5	0.6	0.6		1.8	0.0
Czech Republic	0.4	0.4	0.4	0.5	0.0	0.0	2.3
Denmark			0.5	0.5			0.0
Finland		1.4	1.4	1.5		0.0	0.7
France	0.5	0.7	0.9	1	3.4	2.5	1.1
Germany		0.4	0.6	0.6		4.1	0.0
Greece	0.2	0.5	0.7	0.9	9.6	3.4	2.5
Hungary	0.3	0.3	0.3	0.5	0.0	0.0	5.2
Iceland	0.5	0.7	0.9	1.2	3.4	2.5	2.9
Ireland		0.6	0.6	0.8		0.0	2.9
Italy		0.8	1	1.1		2.3	1.0
Japan	0.4	0.5	0.7	1.1	2.3	3.4	4.6
Korea							
Luxembourg	0.5	0.6	0.8	0.7	1.8	2.9	–1.3
Mexico							
Netherlands	0.1	0.1	0.2	0.2	0.0	7.2	0.0
New Zealand		0.7	0.7			0.0	
Norway			0.5				
Poland	0.4	0.4	0.4	0.6	0.0	0.0	4.1
Portugal	0.3	0.5	0.5	0.8	5.2	0.0	4.8
Slovak Republic				0.4			
Spain				0.8			
Sweden	0.4	0.5	0.6	0.6	2.3	1.8	0.0
Switzerland	0.3	0.4	0.5		2.9	2.3	
Turkey	0.1	0.3	0.3	0.3	11.6	0.0	0.0
United Kingdom			0.6				
United States	0.5	0.6	0.7		1.8	1.6	
OECD point average[e]	0.4	0.6	0.6	0.7	3.0	1.6	1.9
14 comparable countries[f]							
Average	0.4	0.5	0.6	0.7	3.0	1.6	2.4
Standard deviation	0.2	0.2	0.2	0.3	3.6	2.5	2.2

a) Data refer to 1971 for Australia.
b) Data refer to 1981 for Australia; 1982 for Canada.
c) Data refer to 1989 for Norway; 1992 for Denmark.
d) Data refer to 1999 for Iceland and Sweden.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Unweighted average. Includes only Australia, Austria, Czech Republic, France, Greece, Hungary, Iceland, Japan, Luxembourg, the Netherlands, Poland, Portugal, Sweden and Turkey.

Source: OECD Health Data 2003, 3rd ed.

5. Conclusions

The broad conclusions with respect to health-care policy reforms are summarised below, structured around the main policy objectives.

5.1. *Insurance coverage and health outcomes*

All but a few OECD countries have now achieved universal or near-universal insurance coverage of their population, a status with positive implications for both access to care and

efficiency. Experience suggests that full coverage can be achieved using approaches based primarily on public programmes or on private insurance. However, systems in which coverage is voluntary have not attained full population coverage. Mandating insurance coverage purchase or providing compulsory cover appears necessary.

Experience has shown that coverage alone is not always sufficient to ensure health-care accessibility, as more and more countries struggle with financial or social barriers to access, or general or isolated shortages in the supply of health providers or services. Fully addressing these problems may require additional investments to enhance coverage (overall or for vulnerable populations) or service availability, including some investments that imply trade-offs with efficiency goals.

Cost-sharing reforms have reduced the growth of *public* health-care spending by shifting costs onto the private sector. Estimates of price elasticities suggest that the impact on demand is likely to be small except where cost sharing is near zero or very low prior to reform (Docteur and Oxley, 2003, annex). The impact of cost sharing on hospital care is likely to be even weaker as choices in this area are most often determined by doctors. And because increased cost-sharing shifts the burden of financing health-care from the healthy to the sick and from the wealthy to the poor, increases in cost-sharing that are large enough to have a substantial effect on demand seem likely to compromise the standard of equal access for equal need. Indeed, many countries have limited cost-sharing for at-risk groups for this reason, further curtailing any impact on demand. Nonetheless, increased cost-sharing for certain types of services may usefully temper demand for services where these are discretionary or discourage the use of products for which cheaper substitutes are available (*e.g.* brand-name versus generic drugs).

Although population health status and clinical outcomes of health-care have improved dramatically over time, policy makers have become aware of problems with quality and safety of health-care and are also concerned about low patient satisfaction. Despite strong interest among policy makers and much activity, reforms geared at making health systems more effective are relatively new. Progress in this area will require increased investment in information systems designed to track system performance and in methods to improve the organisation and delivery of health-care and the practice of evidence-based medicine. Payment systems, too, must evolve to ensure that incentives are aligned as well as possible with desired outputs of the system. Payments increasingly reward improved productivity but may ultimately need to take into account the effectiveness of care in improving health and satisfying patients. At the same time, policy makers must recognise that behavioural and risk factors, such as tobacco use, violence and obesity, and social policy factors such as income levels and distribution across the population, are undoubtedly the greatest factors in determining overall population health status. Improvements in health systems can address clinical outcomes of health care, which, while important, in many cases play only a secondary role as determinants of population health and disability.

5.2. Controlling spending and improving system efficiency

Confronted by large cross-country differences in the share of resources devoted to health care, policy makers continue to grapple with the question of appropriate spending levels. Relatively low spenders asked whether expenditures were adequate to achieve system objectives. Relatively high and moderate spenders have questioned whether resource reallocation or structural changes in the system could allow objectives to be met

at lower cost. But irrespective of the level of spending, most governments reacted to the rapid increases in health-care spending during the 1960s and 1970s. A range of policies was put in place that contributed to more moderate growth since the 1980s. Although the timing varied, restraints on both the volume and price of health-care services were followed by measures to cap health budgets and to shift the financing of health-care onto the private sector. Rapid advances in medical treatment capability, demands for adequate access and quality of care, and growing supply constraints have led countries to make more targeted reforms. A few countries, often those that have been successful in containing spending, have judged that spending restraint may have gone too far and that increases in the level of resources accorded to the health-care sector are required.

The experience with reforms to limit the increase in spending suggests the following:

- Publicly-financed, single-payer systems (particularly public integrated systems) probably make containing overall spending easier. By contrast, multiple-payer systems (some social insurance and private insurance arrangements) have had more difficulty in attaining and sustaining slowdowns in expenditure growth.
- Efforts to control the volume of services have been successful, particularly in the hospital sector. Price and wage controls, while achieving restraint over short periods, may be unsustainable over the longer haul because of associated distortions to relative input and output prices.
- Budget caps in various forms have been successful in constraining expenditure, particularly in the hospital sector. However, budget allocation methods have introduced their own problems, particularly where they have limited the incentives to improve efficiency.

Increased efficiency in the provision of health-care services can help ease budgetary pressures (which will continue to increase because of medical progress and population ageing) and/or release resources to improve services elsewhere. Reforms have focused on modifying financing arrangements to better align the incentives of health-care providers and, in some cases, of patients, with efficient production and use of health services. Some key points emerging from the assessment of these reforms are:

- In countries with public-integrated systems, efficiency-related reforms have included: introducing separate purchaser and provider functions, better alignment of incentives with objectives through contracts, decentralised decision making, greater competition among providers and, more recently, benchmarking against best-performing hospitals. While the positive impact of such policies has most often been weakened by continued central control, tight spending limits and tighter supply constraints than elsewhere, these policies generally have been sustained, despite subsequent reforms in many countries.
- Experiments with competition among providers have been less successful and reforms have been reversed in those countries where they were introduced. Failures partly reflected tight supply conditions and monopoly positions of providers in local health-care markets and lack of sufficiently skilled purchasers. Positive results from competition probably require establishing market conditions conducive to competition, better purchasing capacity and the information base needed to appropriately set and monitor contracts.
- Improved payment systems can enhance productivity if administered carefully. For example, output-related prospective payment systems can encourage providers to minimise costs without hurting patient care if associated prices are set correctly and there is appropriate control of quality and of strategic provider behaviour.

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Experience with respect to increased competition among insurers, the most salient feature of reforms in multiple-payer systems, is mixed:

- Increased insurance market competition may have had some positive (but modest) effects by narrowing premia across insurers, encouraging better service and instituting incentives for administrative cost reduction.
- In addition, price negotiation and selective contracting among providers by competing purchasers has been successful in slowing cost growth in the United States. Managed-care arrangements, under which patients accept some limitations on choice of providers and services, may be particularly adept at reducing costs.
- However, one important issue is how to foster competition among insurers without creating further segmentation of the insurance market and reduced "solidarity" as a result of inadequate risk-adjustment mechanisms that encourage insurers to avoid bad risks.

A final point concerns possible tradeoffs between budgetary control and system efficiency. For example, introducing payment, management, or other changes geared toward improve efficiency may require both human and capital investments, which may be problematic in cases where tight resource constraints have already been imposed. Increasing flexibility may also be difficult where there are staff shortages or there have been long periods of wage restraint. Alternatively, where there are unused productivity reserves, incentives to increase supply through output-based payment arrangements (*e.g.* prospective payment systems) may put pressure on budgets, absent adequate price controls or adjustments that offset these volume effects. Thus, policies need to be carefully tailored to ensure that the advantages of policies introduced to achieve one objective are not offset by unexpected costs elsewhere.

Notes

1. This report was initially released in December 2003 as an OECD Economics Department Working Paper, No. 374 and an OECD Health Working Paper, No. 9. The Working Paper also included an annex on the determinants of health-care spending and effects of cost-sharing. The authors wish to thank the authorities in OECD member countries for providing input on the health-system reform experience and comments on earlier drafts. Thanks go also to Irene Sinha for secretarial assistance, Gabrielle Hodgson for statistical support, and Jean-Yves Gnabo for research assistance. Guidance and direction to this work was provided by Willi Leibfritz, Jorgen Elmeskov and Michael Feiner of the Economics Department and Peter Scherer, Martine Durand and John Martin of the Directorate for Employment, Labour and Social Affairs. Useful comments were provided by Rauf Gonenc, David Grubb, Peter Hoeller, Manfred Huber, Jeremy Hurst, Rick Imai, Peter Jarrett, Jens Lundsgaard, Flavio Padrini, Luigi Siciliani, Clive Smee and Nicole Tapay.
2. This paper has drawn on the special chapters on health in EDRC country surveys (listed in bibliography), mainly written during the 1990s, and other OECD reports on health and health policy. The Secretariat has, where possible, updated this material and widened the country coverage on the basis of available literature and replies to a questionnaire sent to member countries by the Secretariat. The Health Care Systems in Transition series of publications by the European Observatory on Health Care Systems served as another source of information on reforms in some OECD countries.
3. Countries in which complementary or supplementary private health insurance policies are common include Belgium, Canada, Denmark, France, Germany, the Netherlands, New Zealand, and the United States (in the case of Medicare programme beneficiaries).
4. In countries where private health insurance is available, governments often impose rules on what sort of coverage is permissible. For example, Australia prohibits private insurance policies from covering the ambulatory care co-payments required in the public programme. Canada prohibits private health insurers from covering benefits included in the national plan.

5. In practice, no OECD member country has a health system based on private financing combined with public delivery of health care.
6. For example, in the United States, the hospital system for veterans belongs to a public integrated model, and Medicare and Medicaid are a form of the public contract model, with the remainder a private insurance/provider model. Other countries are equally complex. France has a social insurance system that finances most of health care, but the public hospital system is part of the government sector and as such is closer to a public integrated model. This sits alongside public-contract arrangements with private clinics and hospitals (some of which are for-profit).
7. Broadly speaking, public-integrated systems exist in the Nordic countries, Australia (public hospitals), Italy, Greece and Portugal and, before reforms of the early 1990s, the United Kingdom. New Zealand introduced a purchaser-provider split in the 1990s similar to developments in the United Kingdom, but it has since moved closer to an integrated model following reforms in 2000.
8. Canada, most of the remaining Continental European countries, Japan, and, now, the United Kingdom and, to some extent, New Zealand, belong to the public-contract category.
9. Risk of incurring catastrophic expense is low, given that only a small share of the population in any given country accounts for the bulk of health spending in any particular year.
10. The share of the population lacking health insurance stands at close to 50% in Mexico (although reforms from 2003 are expected to expand public health insurance coverage), 17% in Turkey, and 14% in the United States. In all other OECD countries, at least 98.4% of the population is insured. Six OECD countries – the Czech Republic, Iceland, New Zealand, Norway, Sweden, and the United Kingdom – achieved universal (or near-universal) health coverage of their populations prior to 1960. Most of the remaining OECD countries attained universal coverage between 1960 and 1980, three of which – Greece, Korea and Spain – expanded eligibility to achieve full coverage of their populations during the 1980s.
11. Patient cost-sharing arrangements include co-payments (a fixed amount per service), co-insurance (a fixed percentage of the total charge or payment), and deductibles (a level of patient spending to be met in a given time period before insurance payments will be made). These requirements may be tempered by establishing a cap on total out-of-pocket spending during a set period.
12. For example, Baker *et al.* (2000) found, after adjusting for differences in age, sex, health status, and income, that uninsured persons in the United States were half as likely as those with insurance to receive care for a condition deemed by a physician to be highly serious and requiring attention.
13. Ayanian *et al.* (2000) found that adults who lacked insurance for a year or more were significantly less likely than those with coverage to obtain cancer screening, cardiovascular risk reduction and diabetes care.
14. One recent study found that chronically ill persons without insurance had higher average levels of out-of-pocket spending on health care, despite being five times less likely to see a physician (Hwang *et al.*, 2001). Medical expenses represent the second leading cause of personal bankruptcy in the United States, following loss of employment (Jacoby *et al.*, 2001).
15. Universal coverage under a programme known as Medibank existed previously between 1974 and 1976.
16. Coverage of poor and near-poor children was expanded through the creation of the State Children's Health Insurance Program in 1997. Reforms have also been undertaken by individual states, which regulate private health insurance markets, and their success has varied, sometimes resulting in substitution of one problem (*e.g.* limited availability) for another (*e.g.* limited affordability). At the federal level, the Health Insurance Portability and Accountability Act of 1996 created standards to improve the portability of coverage and otherwise increase the ability of privately insured persons to maintain coverage in the event of job loss.
17. In 1990, 14.9% of *non-elderly* Americans lacked insurance (Fronstin, 2002). The rate increased steadily throughout the 1990s, reaching a high of 17.0% in 1998. Following a decline to 15.8% in 1999, the rate of uninsured grew again in 2000 and 2001, when it stood at 16.5%.
18. Such payments are not accounted for in the reported OECD data on health financing.
19. Between 10 and 14% of Mexican households spent more than a third of total income on health care in 1998 (Barraza-Llorens *et al.*, 2002). Across the US population, there is wide variation in out-of-pocket spending, depending on the source of coverage, type of insurance, and amount of service use. For example, out-of-pocket spending among elderly and disabled Medicare beneficiaries

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averaged 19% of income in 1997. Out-of-pocket spending for Medicare beneficiaries with incomes below the poverty level varied from 35% of total income among the 40% who had assistance from Medicaid to about half of income, on average, among the 60% who did not (Gross *et al.*, 1999).

20. One recent study of working-age adults in the United States showed that doubling co-payments from USD 5 to USD 10 reduced the annual average drug cost from USD725 to USD563 (Joyce *et al.*, 2002).

21. The countries included in the study were Australia, Canada, New Zealand, the United Kingdom, and the United States.

22. For example, in four of the five countries studied, low-income persons were significantly more likely to report difficulty obtaining specialist care.

23. For example, recent studies of health-care use and perceived access to care in Sweden have documented income-related differences that were not found in earlier studies. Such differences may reflect changes in Sweden's health-care system in the 1990s, including the increase of user fees (Burstrom, 2002). Between 1970 and 1995, patient charges for consulting a general practitioner in Stockholm county increased more than three times faster than the consumer price index (Elofsson *et al.*, 1998).

24. Some countries (or the same countries during different periods) have taken the opposite tack. The subsequent section on cost-containment reforms describes reforms designed to increase reliance on out-of-pocket payments and private health insurance as a means of controlling public-sector spending.

25. How medical necessity is determined varies across countries. In addition to considerations of medical necessity, some countries also take account of whether services are routine or predictable in occurrence and low in cost. Thus, coverage for dental care varies widely.

26. Austrian reforms implemented in 1992 expanded benefits for psychotherapy, medical rehabilitation and home health care by qualified nurses. Long-term care benefits were extended in 1993. Japan and Germany also extended long-term care benefits in the 1990s.

27. In this regard, adequacy represents the degree to which needed services are available and attainable by the population requiring care and equity denotes the degree to which those with equivalent need are able to obtain essentially equal care.

28. The issue of disparities in health outcomes and health status is of great and growing importance in a number of OECD countries. This is discussed in the next section, which reviews reforms geared toward improving health outcomes, quality of care and patient satisfaction.

29. As a result of these efforts, virtually all of the population lives less than one hour from a public general hospital offering a minimum package of basic services, including 24-hour emergency services.

30. Such programmes include medical school loan assistance or forgiveness, and supplementary payment schemes, such as Medicare's bonus payments for care furnished in designated shortage areas.

31. The concepts of effectiveness and efficiency are not mutually exclusive. In this study, "effectiveness" reforms are ones designed to improve health system performance in ways that may be cost-increasing, cost-neutral, or cost-decreasing, while "efficiency" reforms aim to improve the value obtained for a given amount of health spending.

32. At present, many countries are experiencing a rapid growth in the share of the population that is overweight and obese. Because obesity has been linked to increases in health problems and associated costs, this trend represents an area of concern that is a likely subject for future public health initiatives (Strum, 2002).

33. Examples of such studies include one that found wide variation in the management of respiratory illness among infants across nine OECD countries (Behrendt, 1998) and another that documented low rates of compliance with guidelines for controlling patient asthma in seven western European countries (Vermeire *et al.*, 2002).

34. For example, a report by the Institute of Medicine (Kohn *et al.*, 2000) noted that medical errors are responsible for more annual deaths than motor vehicle accidents in the United States. Studies have found comparable error rates in Australia, Denmark and the United Kingdom.

35. The first wave of standards addressed cancer, paediatric intensive care, mental health, coronary heart disease, diabetes and care for older people. Although the initiative is relatively recent, performance has been monitored on a quarterly basis and improvement has been documented in a number of areas, including screening services.

36. Australia has also created a set of national goals, targets and strategies for health-care quality improvement that may ultimately be linked to bonus payments.

37. Surveys consistently find differences in satisfaction between users of health care and the population at large. Often, users express higher satisfaction, particularly with their own physician and most recent experience obtaining care.

38. The guarantee assured that patients could receive care from a nurse practitioner upon the day of presentation at a health centre. An appointment to see a physician must be offered within eight days. Specialist referrals must result in an appointment offer within three months (one month if diagnosis is uncertain). Care must be arranged in another county if these timetables cannot be honoured.

39. The value of health care is, generally, measured by inputs and fails to take into account the value of improved quality of care arising from advances in medicine. At the same time, upward pressures on health care can arise from the introduction of new technology, ageing populations and maintaining wages and salaries in the health-care sector in line with the rest of the economy. Governments may also judge that current levels of volume inputs need to be increased or that relative wages need to be adjusted.

40. Health-care spending has been taken as a share of trend GDP rather than actual GDP. Trend GDP reduces the impact of differences in cyclical position across countries and over time relative to calculations where spending is normalised by GDP. Trend GDP was drawn from the OECD Analytical Database. Estimates are based on production functions for most countries with the remainder estimated by smoothing GDP.

41. Reductions in the share of public spending in total health-care spending took place in 13 out of 21 countries in the 1980s and in 17 countries (out of 28) during the 1990s, as more of the cost of care was shifted to the private sector. This development was very important (around five percentage points) in eight of the OECD countries (the Czech Republic, Finland, Hungary, Italy, Luxembourg, Poland, Spain and Sweden). Some of this increased share was covered by private insurance.

42. Many countries have tended to introduce reforms in that order (Mossialos and Le Grand, 1999).

43. The German "point" system, which was modified in 1997, combined an overall budget for ambulatory care with a system of points for services provided. The value of the point was set so as to ensure that the budget ceiling was not surpassed. Austria uses a similar system for its hospitals following the introduction of a DRG-type payment system. Belgium has recently strengthened its capacity to control costs by varying prices when actual spending deviates from the budget target.

44. For example, Jacobzone (2000) reports that pharmaceutical price freezes have been introduced, mainly during the 1990s, in all of the countries covered by his report (Austria, Belgium ,Canada (two provinces), the Czech Republic, Denmark, France, Germany Greece, Italy, Korea, Luxembourg, the Netherlands, Spain, Switzerland and the United Kingdom).

45. Canada, Italy and the Netherlands have moved to setting drug prices on the basis of prices in other countries. The Czech Republic, Korea, Spain and Turkey have increasingly taken into account the costs of research and development (Jacobzone, 2000).

46. In addition, managed-care organisations in the United States have often obtained discounts from both manufacturers and wholesalers by driving a harder bargain in the pharmaceutical drug market.

47. These concerns prompted Germany and Austria to put in place automatic adjustment mechanisms described above. In Australia, there have been attempts to control the supply of ambulatory doctors limiting the places to get training needed to practice as general practitioners.

48. For example in Greece, where social insurance reimbursement rates for doctor visits are set at low levels, doctors shift patients to private practice. Over-supply of health-care services in Eastern Europe – one of the legacies of the communist era – has been reflected in continued low wages and salaries in this sector, leading to demands for under-the-counter gratuity money. In the United Kingdom and Ireland, hospital consultants can increase their incomes by encouraging patients to move into private care. While this may in fact reduce pressure on public health-care outlays, it increases overall health-care spending.

49. In some countries the problem of legal liability – and the associated increases in malpractice insurance premia – in certain specialties is said to be becoming increasingly important in the supply of certain specialists.

50. The number of practicing doctors in the ambulatory sector is also controlled by professional associations (Germany, Austria) or through limits on the number of doctors able to bill public insurers (Denmark and the Netherlands).

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51. Such constraints have not always been successful. The number of doctors and dentists in Italy rose by 25% from 1987 to 1994 even though there was officially a freeze on hiring (Fattore, 1997), and the number of doctors per capita remains amongst the highest in the OECD area.

52. These difficulties are also related to wage restraint in both countries and some upward adjustment of wages is therefore likely. Ireland and Sweden have had similar experiences in the late 1970s and early 1990s. There, strong pressure on budgets led to a fall in expenditure but were followed by a subsequent rebound. Some of these difficulties in supply are leading to migration of medical staff.

53. As documented by an increasing number of strikes of doctors in countries such as Finland, France, Korea and in some Canadian provinces. Wage increases have been agreed recently in Canada (Quebec and British Columbia, while Ontario has increased overall health-care funding).

54. Political economy factors underlay some of the increases in hospital supply. In many countries, there were strong political pressures for increases in hospitals in municipalities and cities to ensure local access. These hospitals were also important employers. In addition, there were strong financial incentives where the investment in increased capacity was often paid for at other levels of government or institutions.

55. To some degree, the lag in policy reflected incentives in payment methods. Payment on the basis of bed days – which was common – provided a strong incentive for hospitals to keep patients as long as possible and masked the effects of technological change. This is reflected in the strong correlation between number of beds and average length of hospital stays (see OECD, 1995a, Figure 4).

56. Roemer's "law" argues that "an available bed is a filled bed" (see Oxley and MacFarlan, 1995), although the linkages between the number of beds and bed use are complex (Taroni, 2001). In addition, countries are also making progress towards a better balance between long-term nursing care beds and acute-care beds and increased services aimed at encouraging the elderly to remain in their own homes as long as possible. This is reducing pressure on acute-care beds (Casey *et al.,* 2003).

57. For example, spending under capitation-based payment systems in the ambulatory care sector is easier to control than under fee-for-service payment arrangements.

58. Nonetheless, such outcomes are not a foregone conclusion and may depend on the period under review. Budget caps have been, generally, less well met or not met at all in Greece, Italy, Portugal (until 2001) and Spain even though they have similar institutional arrangements. Alternatively, countries with integrated models have also deliberately increased resources to the health-care sector over certain periods – for example, Canada, New Zealand and the United Kingdom in the most recent period – or have experienced rebounds in spending after periods of tight budget restraint (Ireland).

59. Belgium has recently reinforced its capacity to change prices to adjust to deviations from budget targets.

60. The outcome may depend on the amount of excess supply in the system. For example, spending limits have traditionally been kept tight in the UK National Health Service. With pressure to improve efficiency, and reduce waiting lists, considerable productivity gains were achieved over much of the period under review.

61. More important increases in cost-sharing were introduced in Austria (1988, 1996, 1997), Belgium (1992-95), Finland (1990-95, 2002), France (1970s and 1980s), Germany (successive measures in the 1990s), Italy (1995), The Netherlands (1997 but reversed in 1999), Portugal and Sweden (during the 1990s). In some cases, these were combined with policies to shift patients from hospitals into nursing-home environments where the cost-sharing is higher (Australia, Belgium and the United Kingdom).

62. This is, presumably, not independent of the higher price elasticity for pharmaceutical drugs than for ambulatory and, particularly, for hospital care.

63. Branded drugs appear able to maintain their price advantage over generics even after patents are expired, reflecting marketing efforts by the drug firms and strong loyalty of doctors to the brand name (see Scherer, 2000 for a review). This has led a number of countries to take pro-active policies to encourage the introduction of generics. Reference price systems reimburse patients on the basis of the lowest price generic substitute or the lowest priced drug in a given therapeutic class [*e.g.*, Denmark (1993), Germany (1989), Hungary (1989), Italy, the Netherlands (1996), New Zealand (the late 1980s), Portugal (current decade) and Sweden (1993)].

64. At the level of secondary care, health-care professionals are likely to have a strong influence on the level and kind of care and the impact of higher cost-sharing on demand is, therefore, weakened.

65. The impact of the elasticity is calculated as the elasticity times the per cent change in cost-sharing. Thus, where the level of cost-sharing is near zero the impact of a change in cost-sharing can be large. For example, the Health Insurance Experiment in the United States estimated that an increase in co-payments from around zero to 25% reduced spending by around one-fifth, despite an elasticity in the range indicated in the text (Manning *et al.*, 1987).

66. As noted, the largest impact of cost-sharing on demand for care will fall on ambulatory care and pharmaceutical drugs. Because "necessary" contacts with the health-care system appear to be as equally affected by cost-sharing as "unnecessary" consultations, the chances of early diagnosis are reduced, possibly requiring more costly treatment at a later date. Similar problems can also arise where patients do not take prescribed drugs.

67. Efficiency, for the purposes of this paper, is defined as achieving the maximum output in terms of health-care services with a given level of resources and cost or to achieve output targets with minimum costs. This can comprise finding the best balance between different kinds of care, the inputs going into that care and their cost and the technical efficiency with which they are used.

68. For additional information on developments in the European hospital sector, see McKee and Healy (2002).

69. The real resources consumed in each sector may differ from the numbers in Table 1.9 because of differences across countries in relative prices for the ambulatory and inpatient care.

70. This has been very much the case in Eastern Europe where the share of specialists in the total number of doctors is very high. In Poland, specialists are moving to become "family" doctors (Girouard and Imai, 2000).

71. This is replicated in national studies. For example, Skinner *et al.* (2001) demonstrate the wide differences between states in the level of Medicare spending in the United States. The authors estimate that if spending were reduced to levels in the lowest spending states, overall Medicare spending might fall by just under 30%.

72. Ideally, primary-care doctors (general practitioners) would act as informed agents of the patients and coordinate care by specialists or hospitals, for example via gatekeeping arrangements. However, doctors may have too many patients on their lists to care for them effectively and capitation payments provide little incentive for them to do so. This very often leads to waiting lists and low patient satisfaction. In contrast, fee-for-service arrangements provide little incentive to refer or to coordinate hospital or specialist care and encourage over supply.

73. In the United Kingdom, the General Practice Fundholding system established under the 1992 reform has evolved further under the 1997 reforms. In the new system all GPs will belong to a Primary Care Trust. These trusts will be the new "purchasers" of secondary care, replacing the District Health Authorities. In New Zealand, a more important role for the Independent Practice Associations is being considered.

74. For France, patients who accept their doctor as "médecin référant" (referring doctor) do not need to pay the doctor with subsequent reimbursement by the insurers. This option, however, is voluntary and has been relatively little used, mainly because the financial incentives for doctors are weak: they receive a small lump sum payment per patient but have extra administrative and prescribing obligations. In the United States, this shift has occurred within the context of managed care plans.

75. Prior to this change, public finance of ambulatory care was limited to services provided by the state sector.

76. Some forms of managed care in the United States have introduced capitation and wage and salary contracts. The Czech Republic moved from salaries to fee-for-service and then to capitation. Spain is progressively moving from a capitation system towards a salary payment. Ireland shifted from a fee for service to a capitation system leading to an estimated decline in doctor visits of 20% (Hughes, 1999). In the United Kingdom, GPs can also be paid now in the form of a block grant, equivalent to a wage. Denmark has moved to a mixed system of capitation for around one third of GP income and two thirds from fee-for-service arrangements.

77. This has sometimes been combined with better geographical distribution of budgets using weighing systems based on the number of individuals covered by the purchaser and their health characteristics. These funds are then distributed to the various funders using a number of

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indicators ranging from historical patterns (France), to population or risk factors such as age or health characteristics of the population (Canada, Italy, Sweden). France intends to move towards capitation/risk-based arrangements for distributing public finances in the hospital sector across regions. This was initially to be fully introduced early in the next decade but this is now to take place over a much longer period (Imai *et al*., 2000).

78. In the 1992 United Kingdom reforms, volunteering GPs (GP fundholders) received a budget to purchase pharmaceutical drugs and elective care. After some experimentation this is now being extended in the form of Primary Care Trusts which regroup all GPs and which will form the main purchasing agencies. In New Zealand, Independent Practice Associations and Primary Care Organisations developed and these have been given a purchasing role for selected services such as laboratory tests.

79. Purchasing arrangements were set up in 11 counties in Sweden. In Italy, where ultimate financial responsibility for health-care budgets was decentralised to the Regions, the Local Health Units have been strengthened and made more independent and they now contract with local hospitals and ambulatory providers for care. However a full purchaser-provider split has only taken place in a few regions (Jommi *et al*., 2001). A move towards health-care purchasing has recently been legislated in Greece and will be progressively introduced over the next six years.

80. This has been compounded by the requirement that purchasers contract with all providers and by the fact that contracting takes place in an environment of bilateral monopoly between insurers and providers, leaving less scope for influencing behaviour of individual hospitals. Furthermore, in most cases, the health purchasers were drawn from the same group of individuals that had formerly administered the system, making it more difficult to change roles.

81. For example, private clinics in France now furnish more than three-quarters of elective surgery in France. These patients most often have no important medical complications, such that the risk of cost over-runs is limited. In contrast, public hospitals – which are often better equipped for complex cases – tend to have a high proportion of very sick individuals. In the light of this "cream skimming", public hospitals are concerned that a single DRG for both public and private hospitals will put them at a disadvantage.

82. For example, in New Zealand the value of the capital was estimated and hospitals were required to pay a rate of return to the owners, in this case to the state.

83. To some degree, however, the lower costs may reflect public or para-public sector wage scales which provide higher wages for the low skilled than in the private sector.

84. However, a number of other instruments and factors in addition to competition have played a role. For example, managed care also constrained costs by limiting choice over the kind of care received. The Medicare prospective price system has also played a role by demonstrating that lower prices were possible.

85. Health-care costs are estimated to have increased by roughly three-quarters of a percentage point of GDP in both 2001 and 2002, although this partly reflects a slowdown in the growth of GDP (Levit *et al*., 2003; Sethi and Fronstin, 2004). One important factor underlying this development has been the shift of the population away from health maintenance organisations (HMOs) to less restrictive arrangements such as preferred provider organisations (PPOs) that provide greater patient choice. In addition, increased intensity of care and higher prices have also played a role.

86. In quasi-markets, third-party payers or public agents contract for health care rather than the patients themselves (Le Grand *et al*., 1998).

87. However, it is not clear how the Primary Care Trust (PCTs) will arbitrate between different GP interests and this may mean replacing weak monitoring capacity of DHA purchasers in the last scheme with even weaker arrangements in PCTs to face down the hospitals (Le Grand, 2002; OECD, 2000b).

88. This may lead to a desirable increase in output particularly where there are waiting lists. However, where waiting lists are not at issue, this may simply encourage hospitals to provide additional services of a low marginal social value to ensure a larger share of points in the total.

89. Differences in the flat-rate component of health insurance paid by the individual in the Netherlands can differ by as much as 25%. But this component forms only a very small share of the overall cost of health care, the majority of which is financed through the public sector.

90. Between 1985 and 1998, the number of sickness funds declined from 53 to 31 (Lieverdink and van der Made, 2001).

91. There have been a few developments, largely in the ambulatory sector. In the Netherlands, selective contracting with individual providers such as GPs or specialists is becoming more frequent. Some insurers are beginning to use managed-care tools, including case management for large claims, co-ordination of GPs' referrals to specialists, provision of data on resource use to physicians and development of preferred provider organisations (van Doorslaer *et al.*, 2000). In Switzerland, some funds are operating pilot projects of an HMO nature at the ambulatory level with important effects on costs. Leading social health insurers now all have HMO divisions, but the number of plans in 1998 was around 10 with a market share of 3% but increasing rapidly. In several smaller cities primary care networks have been created, acting as gatekeepers for participating insurers. Physicians seek to prevent unnecessary hospitalisation and receive a part of the savings (Zweifel and Manning, 2000).

92. For example, if one insurer is able to attract a low-risk clientele its premiums will also be low, permitting it to attract new fund members. Even if risk selection is not possible, the low-premium fund will still tend to increase its membership, although its premiums would progressively rise as higher risk individuals enter the scheme. The fund progressively absorbs a larger and larger share of the market and in the limiting case could become the only insurer. New entry into the market is likely to be limited, particularly where insurers are non-profit organisations.

93. Developments in the United States (Harvard University Health plans and the Federal Employees Health Benefits programme) illustrate what can happen. In the case of the Harvard scheme, a decision not to subsidise the most generous alternative plan in the health-care scheme led to a "death spiral". Higher-risk individuals tended to choose the generous scheme, pushing up costs and premiums and leading to exit by lower-risk individuals into less costly (and, possibly, less generous) schemes. There was a similar development for the federal employees' plan (Cutler and Reber, 1998).

94. Pritchard (2002) defines this broadly as "drugs, devices, medical or surgical procedures used in medical care as well as the organisation and supportive systems within which such care is provided".

95. For example, drugs to reduce blood pressure reduce the risk of heart disease, strokes and peripheral vascular disease may increase costs initially but may subsequently delay the appearance of high-cost diseases at a later date.

96. For example, a recent study of an HMO in over a five year period (Legoretta *et al.,* 1993) showed that despite a 25% reduction in the average cost of care for gall-bladder operations as a result of key-hole surgery, there was an increase in overall costs because of an increase in the number of operations by 60%, as it became possible to operate higher-risk patients.

97. Zweifel and Manning (2000) argue that insurance systems may result in "dynamic moral hazard" where patients choose more expensive technology if they have high insurance cover and freedom of choice. The effect may be even stronger under fee-for-service payment systems with retrospective reimbursement for costs. This issue may be less important in countries that limit the diffusion of and access to new technologies.

98. One promising method is to compare the cost of treatment per life year saved or per quality-adjusted life year (QALY) for technologies affecting relatively focused therapeutic categories (Gelijns *et al.,* 2002).

99. For example, a recent study has shown that a comparison of the long-term effects of many costly hypertensive drugs is not significantly greater than the effect of much cheaper diuretics.

100. High levels of antibiotic use have resulted in the appearance of bacteria that are now resistant to even the most powerful combinations of drugs.

101. These included Australia, Belgium, Canada, France, Italy, Japan, the Netherlands, Portugal, Sweden, Switzerland and the United Kingdom.

102. While Switzerland does not control the prices at the time of introduction it can influence the rate of increase over time.

103. France introduced joint negotiations on values/prices and introduced innovative value/price as a criterion in 1994. Italy moved to use average prices in Europe in 1995 and introduced an innovative product criterion; the Netherlands set maximum authorised prices in 1996; reference pricing systems were introduced in Norway and Sweden in the early 1990s, and Switzerland modified its method of adjusting prices of older products in 1995.

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104. However, cross-country differences may reflect prescribing patterns. In countries where doctors prescribe heavily, there may be more prescriptions and a higher demand for services at the retail level. Gains in this area may require changes to patient and medical behaviour.

105. Part of the problem in making reforms is the fact that most pharmacies have capitalised the rents of these monopoly conditions into the market value of the pharmacy. This means that regulatory changes that would erode these rents will reduce the resale value. This results in strong opposition from existing owners.

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Chapter 2

Monitoring and Improving the Technical Quality of Medical Care: A New Challenge for Policy Makers in OECD Countries

by
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Monitoring and improving quality of care has become a policy priority in many OECD countries after evidence on underuse, overuse and misuse of care suggested that the traditional reliance on professional self-regulation is no longer warranted. Policy makers now face the difficult question whether the most appropriate response to this new challenge can be found in reforms to the institutions of professional self-regulation, in introduction of expert intermediaries to safeguard quality or the empowerment of consumers to select providers based on quality of care. This study describes current arrangements for, and anticipated reforms to, systems for quality assurance in seven OECD countries, representing the variety of health care systems prevailing in member countries (Czech Republic, Denmark, Germany, Japan, Netherlands, United Kingdom and United States).

Based on the country reviews, a taxonomy of instruments for quality assurance is proposed and illustrated with examples from different countries. This study reports that policy makers are preparing and implementing major reforms, such as the development of indicator frameworks to benchmark providers and the creation of new institutions to monitor and improve quality. While the reforms imply a greater role for the government as well as for purchasers and the public, the medical profession and its institutions are usually key participants. The reforms have so far focused on the hospital sector, but approaches to monitor and improve care at the physician level are also under way. While the efforts are too recent to assess their impact, the dynamic nature of this policy area should lead to innovative models and best practices in quality monitoring and improvement in the near future.

1. Introduction

Monitoring and improving quality of care or, more precisely, the technical quality with which medical care is provided, has recently become a priority issue for policy makers in many OECD countries and has joined volume, access and cost as the main concerns of health policy.

The very fact that policy makers perceive a necessity to address the issue of quality of care represents a paradigm shift, as it was formerly taken for granted that the institutions of professional self-regulation would ensure adequate quality of care. However, scandals and systematic evidence have raised the question in various OECD countries as to whether this traditional societal arrangement is still viable in the face of the changing nature of medicine and changed ideas about accountability. As a consequence, many countries have begun to introduce reforms in the area of quality monitoring and improvement with the goal of making medical care safer and more effective. These reforms have gained momentum because of concerns about the high cost of medical care and its impact on public finances. Quality improvement is now regarded as a means of coping with cost pressures through making care more efficient rather than merely reducing it.

To inform policy makers about options for, and experiences with, quality monitoring and improvement policies, this study describes current arrangements for, and anticipated reforms to, the systems for quality assurance in selected OECD countries. The sample of seven countries included in this study (the Czech Republic, Denmark, Germany, Japan, the Netherlands, the United Kingdom and the United States) represents the variety of health care systems prevailing in member countries.

The paper builds on previous OECD research on performance measurement systems in Australia, Canada, the United Kingdom and the United States (Hurst and Jee-Hughes, 2001), and on experiences with quality improvement in France, the Netherlands, New Zealand and Sweden (Or, 2002). It is structured as follows. Section 2 reviews the evidence that suggests that a quality problem of economic and political relevance exists in medical care. Section 3 describes the traditional arrangements for ensuring quality through professional self-regulation, and their shortcomings given the changing nature of medical care provision. Section 4 sets out the requirements for changing medical practice to improve quality. A taxonomy of instruments to improve quality of care together with examples from the reviewed countries is presented in Section 5. Section 6 concludes with a summary of common trends in OECD countries.

2. Quality of care: Is there a problem?

In recent years, scandals in several OECD countries have cast doubt on the institutions of professional self-regulation and raised the question as to whether they needed to be reformed or replaced. Whereas the profession has usually argued that such scandals reflect failures of individual professionals rather than of professional institutions, there is

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increasing evidence for structural problems in quality of care, implying that fundamental reforms are necessary (Newhouse, 2002). The research quoted in this context consistently shows overuse, underuse and misuse of care and falls in four broad categories.

2.1. Inappropriate use of procedures

Beginning in the 1980s, research first conducted at the RAND Corporation has shown that a substantial part of surgical and interventional procedures, such as coronary artery bypass grafting (CABG) or coronary angiography, is performed for indications for which the scientific evidence suggests that the risks outweigh the expected benefit. For example, a study showed that 14% of all CABG procedures in three randomly chosen US hospitals could be labelled inappropriate (Winslow *et al.*, 1988). While the research originated in the United States, comparable results can be found in other countries, even though their overall procedure rates tend to be much lower. In Sweden and the United Kingdom, researchers classified 10% and 16%, respectively, of CABG surgeries as inappropriate (Bernstein *et al.*, 1999; Gray *et al.*, 1990).

2.2. Underuse of accepted services

Next to overutilisation of procedures, universally accepted and widely known treatment standards are not followed in daily medical practice to a surprising degree. For example, there is uncontroversial evidence that patients benefit substantially from treatment with aspirin and beta-blockers after acute myocardial infarction, and, if asked, physicians worldwide would be aware of that. But only 84% and 72%, respectively, are prescribing these drugs at hospital discharge, according to a recent study (Jencks, 2000). A recent study by the RAND Corporation in the United States concluded that physicians followed accepted treatment standards in only about half of their encounters with patients (McGlynn *et al.*, 2003).

2.3. Regional variation of procedure rates

Rates for common surgical procedures, like hysterectomy or knee replacement, show considerable regional or small area variation within countries that cannot be fully explained by differences in case mix and capacity (*www.dartmouthatlas.org/default.php* 30 September 2002).[2] While such findings also originated in the United States, similar results have been reported for many other countries (Wennberg, 1999; McPherson *et al.*, 1982). Moreover, regional variation appears to be unrelated to appropriateness, *i.e.* it is not the case that regions with low utilisation rates have lower rates of inappropriate surgery (Chassin *et al.*, 1987). Geographic variation can also be found for non-surgical services, like hospitalisations and physician visits (Ashton *et al.*, 1999). This variation has been labelled "clinical practice style" and reflects the particular preferences of physicians, which can often be linked back to their training institutions. It should be emphasised, however, that some of the variation is due to genuine uncertainty about indications but there seems also to be variation that goes beyond the discretion which uncertainty and ambiguity in medical knowledge would explain.

These streams of evidence suggest that medical decision-making has a substantial degree of arbitrariness, even in areas where accepted standards of medical practice exist. The problem does not appear to be due to lack of knowledge or controversy, as few physicians would question the validity of the standards. But the current systems of care delivery seem ill-equipped to translate those standards into predictable practice patterns.

2.4. Medical errors

The discovery of an alarmingly high rate of errors during the delivery of medical care, particularly in hospitals, has increased the awareness of quality problems for policy makers, the profession and the public. Such adverse events, like wrong-site surgery or medication errors, occur in one to three percent of all hospital admissions, according to studies from a variety of countries (Leape, 1994; Kohn *et al.*, 1999; Schiøler *et al.*, 2001). Estimates from the United States suggest that more people die from medical errors than from traffic injuries or breast cancer (Kohn *et al.*, 1999). Such an error rate would be perceived as disastrous in other high risk industries, like aviation. Here, even a failure rate of 0.1% is viewed as unacceptable, as it would translate, for example, into two unsafe plane landings each day at the Chicago O'Hare Airport (Deming, 1987 quoted in Leape, 1994).[3]

2.5. The case for reforms

Taken together, the evidence points to the existence of substantial quality problems in medical care, and indicates that care is overused, underused and misused due to systematic failures rather than because of isolated individual failures. Though medicine can be regarded as an art as much as a science, the degree of arbitrariness and inconsistency in medical decisions and their execution by far exceeds what could be expected because of uncertainty and lack of evidence, and statistical variation in practice. Nor is this a matter of balancing cost against quality: evidence is beginning to appear which suggests that improving quality of care may help to reduce health care costs (see below). Consequently, fundamental reforms appear to be necessary to ensure better, safer and more efficient care, raising difficult questions on several levels for policy makers.

On a societal level, any reforms have to be consistent with societal values and attitudes regarding the relative role of the individual, stakeholders and the state, as well as to the sensitive nature of the relationship between physicians and their patients. On the level of the payment system, one needs to consider how changes in the payment system can create incentives for better quality. In the realm of research, there is a strong case for improving the evidence base for the practice of care by clinical trials, health services research and health technology assessment.

Investigating those issues is beyond the scope of the current study. Rather, it tries to provide guidance on changes in the institutional arrangements for monitoring and improving care. It should be emphasised that the study looks at policy approaches, which aim at ensuring that existing and accepted medical knowledge is being used in daily practice, rather than at improving clinical knowledge. In principle, three policy approaches are available:

- Reforming the institutions of professional self-regulation.
- Increasing oversight of the medical sector by intermediaries (*e.g.* regulators, purchasers).
- Creating an environment for competition on quality.

The first option would maintain the responsibility for quality assurance with the medical profession, but would replace the former unconditional trust in the profession with institutional arrangements that the profession puts in place. The second two options would move away from the traditional division of responsibilities, the first by introducing intermediaries to act on behalf of patients/consumers and the second by empowering patients/consumers themselves to choose their providers based on quality of care.

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Obviously, these three options are not mutually exclusive but may be combined into an overall policy to improve quality of care and patient safety. The design of policy will be very dependent on the particular context and the historical structure of each health care system. In particular, it needs to be consistent with societal values and attitudes, such as the relative weights placed on efficiency and equity, and the balance between allocating responsibility to individuals and the state. The implementation of the reforms will also raise difficult technical and political issues. For example, crafting a quality monitoring system requires substantial technical skills with respect to design of measures, adjustment for patient risk and interpretation and presentation of information. It also involves additional investment in research, data collection, information technology and human capital. Thus, the expected cost of, and returns on, those investments need to be taken into consideration. And even the most skilfully designed system is likely to encounter political resistance by stakeholders.

3. Market imperfections as rationale for self-regulation

Before changing a long-standing societal arrangement, such as professional self-regulation, an important question is why the arrangement was originally put into place, and whether the conditions it was designed to deal with still exist. This is particularly true when alternative arrangements are difficult to design and implement. In other words, why was the medical profession granted the privilege of self-regulation, whereas in most other sectors of the economy market forces are assumed to weed out inferior suppliers unless they reflect inferior quality in their prices?

Clearly, many imperfections in the market for medical care prevent it from reaching efficiency through competition, as in other industries. The most severe imperfection is the information asymmetry between patients and physicians. Since patients lack the ability to translate their demand for health outcomes into demand for medical services on their own, partly because of lack of knowledge, partly because of their vulnerable state, they have to rely on the superior knowledge and comparative detachment of the physician to make these decisions as their agents (Dranove and White, 1987; Arrow, 1963). They also have to trust their physicians to provide care with adequate skill and effort (McGuire, 2000).[4]

Such information problems are common in the service sector and are not confined to the health care market. However, some features of medical care add to their salience, such as the absence of repeated interactions between patients and providers in acute diseases, the vulnerability of patients and the presence of time constraints in seeking out information. The high rate of technological change in medicine makes it particularly difficult to amend information gaps through scientific evidence and reporting of quality data.

In addition, the dominant role of the public sector in health care contributes to market imperfections (Newhouse, 2002). As the public sector pursues also goals other than efficiency, like equity and redistribution, it interferes with market mechanisms through price setting, capacity and work force planning and other regulations.

Almost ubiquitously, societies have chosen to deal with those market imperfections through an implicit social contract with the medical profession, which guarantees effective self-regulation of the behaviour of its members in exchange for societal respect and prestige but also above-average incomes (Arrow, 1963). Medical decisions are to be made on behalf of, and to the benefit of, patients and reflect the current state of specialised

knowledge, while financial interests have to be of secondary concern (Starr, 1982). This arrangement allows patients to develop trust in physicians and to surrender themselves to medical judgement without perceiving the need to monitor physicians.

Economists like Milton Friedman have long challenged the efficiency of this arrangement (Friedman, 1962). He argued that professions used the necessity of a professional behavioural code as a pretext to restrict entry into the medical market and to secure high income levels. There is also the obvious risk that removing the discipline that market forces impose on providers may make them complacent and decrease their responsiveness to the needs of patients. Other authors have likened the model of self-regulation of the medical profession to that of a medieval guild (Krause, 1996). New members have to undergo a rigorous selection and training process into the profession, using an apprenticeship model, which depicts the master clinician as the ideal. A strong professional code prescribes rules of conduct among the members of the profession and with respect to the public, and also defines standards for the goods and services produced by the profession. Peer review and the desire for recognition are the main forces to motivate improvement, and lapses in quality are regarded as individual failure.

There are, however, substantial differences between the medical profession and the guilds, most notably its emphasis on clinical research and evidence, and its efforts to disseminate the resultant knowledge locally and globally through journals and conferences. Also, entry into the medical profession and the career within it are competitive rather than based on descent and seniority. This model proved very successful in raising the standards of care in the 20th century and in reinforcing the terms of the implicit social contract. It is also consistent with the traditional way medicine has been practised, which can be characterised by a dyadic relationship between physician and patient, by emphasis on the responsibilities of the individual practitioner and by a focus on the individual case at hand and its particularities.

However, the practice of medicine has changed fundamentally over time. The delivery of care shifted from individual practitioners to complex and multi-faceted institutions, like today's hospitals or multi-specialty practices. These institutions are characterised by a complex infrastructure and the collaboration of a variety of medical and non-medical professionals. Advanced therapeutic approaches such as organ transplantation or open-heart surgery are as much an operational as a medical challenge. Thus, a substantial part of the processes for care delivery is no longer under the sole control of physicians, let alone one single physician.

4. Changing medical practice towards better and safer care

In light of the above-mentioned evidence, it became questionable to many whether the traditional model[5] of quality assurance in medicine is still equipped to deal with its task in this rapidly changing environment. In fact, some features of the traditional model, in particular the exclusive emphasis on individual responsibility, are now regarded as obstacles to quality improvement. Quality problems are equated with personal failure, resulting in a culture of blame and shame that discourages the acknowledgement of errors and an open discussion of their causes and ways to avoid them (Leape, 1994).

Moreover, evidence from human factor research and cognitive psychology demonstrates that the human mind is prone to making mistakes, especially under stress.[6] For example, it is difficult for human beings to maintain attention levels for highly

repetitive and routine tasks and they also tend to commit errors of judgement under extreme pressure. Lively and emotional events tend to trump statistical evidence in human memory. For example, a dramatic recent case that a physician just treated may subconsciously influence his or her future treatment decisions even if the case was highly unusual. And, physiological stress, like sleep deprivation and hunger, which are common among physicians, may seriously impair judgement.

Realising this and accepting that a certain degree of human error is inevitable, safety experts recommend designing complex work environments to reduce the likelihood of errors by introducing failsafe mechanisms and by providing decision support. Processes are put into place that decrease reliance on human memory and structure decision-making (see Box 2.1). There are various examples of such approaches in medicine, in particular in the area of anaesthesiology, a field that is widely regarded as the avant-garde of medical safety and error avoidance. For example, colour coding arterial and venous access lines during surgery can help avoid accidental (and possibly deleterious) injections of drugs into an artery rather than a vein.

But engineering solutions are also employed to improve routine care in areas where strict adherence to standard practice patterns is a key element, such as care for chronic diseases. For instance, electronic medical record systems can be programmed to deliver alerts to remind physicians to order certain tests, such as routine eye exams and blood tests for diabetics. Those tests are widely accepted to be able to identify diabetic complications early enough for effective treatment, but also widely underutilized. Such alerts are much more likely to result in good preventive care that relying on a busy physician to remember during a brief encounter that a patient is diabetic, that he or she has not had an eye exam for more than a year and that the test has substantial benefits. Such decision support can relieve physicians of having to address the myriad of routine decisions that daily practice requires and allows them to focus on the complex problems that cannot be automated. Rather than as individual failure, lapses in quality are seen as a system-level problem that should be addressed by improving the system and not by singling out individuals. Thus, the focus of improvement shifts away from the individual case and the individual practitioner to patterns of care and delivery systems, of which physicians are an integral part. The core idea is to accept that human beings are fallible and to design systems that are resistant to human failure.

A variety of success stories suggest that system re-engineering approaches can successfully be employed to improve the quality of medical care. These examples demonstrate that substantial change can be brought about by an effort of the profession, by the intervention of the government and by market pressures.

Anaesthesiology is regarded as the prime example of how a profession-driven effort improved quality and safety. After evidence emerged in the 1950s that anaesthesia in general and certain practices in particular resulted in unnecessary deaths and brain injuries, opinion leaders in the profession, collaborating with device and drug manufacturers, succeeded in introducing substantial changes in equipment, drug protocols, patient preparation, monitoring and documentation (Pierce, 1996). Systematic research projects were launched to identify best practices and practices associated with unusually high morbidity and mortality rates. A reduction of intraoperative mortality rates from 1 in 10 000 in the 1970s to 5 per million cases today speaks to the potential gains that such rigorous quality control can achieve in medicine (Chassin, 1998). Thus, anaesthesia

Box 2.1. **System re-engineering as an approach to improved care**

Health policy makers and researchers have concluded that the tools and methods that have been employed to improve quality and safety in other industries can be successfully applied to medicine as well. But this would require material changes in the way that medicine is organised and practised, because the traditional model of quality improvement with its exclusive reliance on the individual seems no longer consistent with the challenges that medicine now faces. Pioneered by Donabedian, such new approaches to quality improvement, borrowed from manufacturing, are making their way into the medical sector (Donabedian, 1985). Termed Total Quality Management (TQM) or Continuous Quality Improvement (CQI), these models are systematic and data-driven re-engineering approaches. A problem is identified using statistical techniques, its root causes are described and an improvement plan is crafted and implemented. Re-measurement then tests whether the intervention under study is effective. This approach to improve performance of the health care delivery system, also called the Performance Cycle, is far from universally established but it is gradually gaining acceptance in the medical profession.

Commercial aviation may provide important lessons for the implementation of those techniques in medical care, as both sectors share the features of a highly-specialised and risky service industry.* Here, manufacturers, airlines and regulators have joined forces to systematically improve the safety of aviation with a variety of approaches, all of which aim at either reducing the likelihood of an accident, or at reducing its consequences if such an accident occurs. Examples of the former include the introduction of a confidential reporting system for unsafe events, which allows for root cause analysis and dissemination of lessons learned, as well as continuous improvements of cockpits and operating procedures to eliminate identifiable sources for human error. An example of the latter is the improvement of the crash-worthiness of fuel tanks and passenger seats.

The core idea is not to replace the pilots' judgement by standard operating procedures and computerised decisions, but to free their capabilities up to deal only with the complex decisions that cannot be dealt with through standardisation. It is also accepted that, in spite of rigorous training and safe procedures, human error will occur and that systems have to be forgiving of such error. This approach has implied a paradigm shift in the industry, which, like medicine, used to mainly rely on the professional competence of pilots to improve safety. Quality control techniques have now been augmented by input from a multitude of disciplines, such as engineering, cognitive psychology and statistics.

* For more details, please see *www.flightsafety.org/about_fsf.html* accessed 10 March 2003.

has now reliability standards comparable to top manufactures, pursuing Six Sigma Quality. While certain features of anaesthesia, such as the high volume of similar procedures, make it particularly amenable to improvement approaches inspired by manufacturing, other fields, like cardiac surgery, have begun to exploit those techniques with great success (Malenka and O'Connor, 1998).

The reforms of the Veterans Health Administration (VHA) in the United States serves as a well-publicised example for a successful re-engineering of a government owned and operated health care system (Kizer, 2000). The VHA, created to provide medical and rehabilitation care to veterans, saw itself confronted with numerous reports on operational and managerial failures and deteriorating public image in the early 1990s. This crisis lead to a major restructuring effort starting in the mid-1990s, with the implementation of universal primary care. The most critical component was the creation of integrated service networks, which aggregated all VHA providers in a given area into one organisational unit. Combined with a

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measurement-based performance management programme, investment in information technology and use of clinical guidelines, those innovations lead to substantial improvements in quality of care. Within four years, surgical mortality fell by 9% and compliance with accepted preventive care standards rose from 34% to 81% (Khuri *et al.*, 1998, Kizer, 2000). Importantly, estimated per patient cost fell by 25% in a five-year period (Kizer, 2000) demonstrating that quality improvement and cost control can be complements, not alternatives.

With the increasing public attention to quality of care, and the expectation that better quality may well prove to be a cost saving strategy, several providers, mainly in the United States, have started to employ quality as strategy for product differentiation and improved competitiveness. An example is Intermountain Health Care (IHC) in Salt Lake City, Utah, which is a so-called integrated provider, offering both a full range of medical care and health care insurance. Even though IHC has long dominated its market, it embarked in the mid-1990s on a major initiative to redesign its care process in order to improve quality and efficiency of care. The decision was motivated by the expectation of increasing cost pressure and by a genuine professional concern about quality. Under the joint leadership of the medical and senior administrative staff, IHC invested heavily in information technology to integrate clinical and administrative data in a coherent system and developed standard procedures for both clinical and non-clinical decisions. The changes started in its hospital system and were, after proving successful, extended to physician practices. Over a period of five years, the investment paid off in the form of lower cost of care, improved patient outcomes and numerous research publications.[7]

Some common themes emerge from these success stories. Regardless of whether the profession, a government agency or a private enterprise started the effort, they all share the features of an interdisciplinary approach, heavy reliance on data and measurement and strong leadership. These experiences are very encouraging, but applying such innovative models to the practice of medicine on a broader scale remains difficult. The challenge of achieving the necessary transformation should not be underestimated, as it would require fundamental changes in the organisation and the culture of the profession. No industry greets such changes with enthusiasm, and medical care is no exception.[8]

Aside from bringing the medical profession on board, policy makers face numerous challenges in their attempts to create safer and more effective health care systems. Most notably, the reforms will demand substantial upfront investment into data collection and information technology, and will entail ongoing cost for analysts, who extract actionable information from the databases and for managers, who ensure implementation of action plans. As the investment can be expected to be sizable, the obvious question of the returns must be raised. In other words, while improving quality can improve the effectiveness of health care systems by providing better results, as the numerator of the value for money term, one also has to consider its effects on cost as the denominator. The nature of some types of quality problems, as outlined above, gives reason for optimism. Better practices could reduce cost by eliminating inappropriate procedures, by implementing effective preventive strategies and by avoiding the consequences of medical errors.[9] But better and safer care can also prolong the life of patients with chronic diseases and may render surgical intervention an option for patients whose risk would have made them inoperable before, thus generate additional health expenditures. Thus while quality improvement can reduce costs, it can also make care effective for more people and thus lead to greater expenditure overall.

The short-term question that arises for policy makers is which policies and institutional changes for monitoring and improving quality can and should be implemented to pave the way towards a more fundamental reform. Many countries are still in the design phase of their approaches. Policies that have been implemented are usually of a quite recent nature, so their evaluation and assessment remains open. But the prominence of the issue has resulted in experimentation with, and implementation of, various approaches in member countries and their experiences may provide guidance and decision support for policy makers. Consequently, the goal of this study was to collect information on quality assurance approaches in a selected set of member countries that represent the variety of types of health care systems found among OECD countries and to structure the insight to inform future policy decisions.

The sample includes the United Kingdom as an example for a central government system, Denmark as an example for a local government system and the United States as the example of a relatively market-based system. In addition, four countries with social insurance systems are being reviewed: the Netherlands, which can be characterized as centrally controlled; Germany, which traditionally has devolved many responsibilities to the corporatist partners; Japan, which shares elements of the former two but has a very different cultural tradition; and the Czech Republic, as representative of countries transitioning from a planning economy.

The review is focussed on efforts by national and regional policy makers, but also reports initiatives by the medical profession, providers, insurers and consumer groups. It is also restricted to medical care, *i.e.* primary care, specialty care and hospital care, and does not look at quality assurance in other areas of the health care sector, such as public health and long-term care. This boundary was drawn because medical care is the traditional domain of professional self-regulation and also the area of the largest economic relevance.

This report proposes a taxonomy of instruments and approaches to quality monitoring and improvement and categorises them according to the degree to which they would move health care systems away from professional self-regulation and towards formal accountability. Examples based on the countries' case studies illustrate how those tools are being used.

5. A taxonomy of instruments to monitor and improve quality of care

This classification scheme constitutes an attempt to structure the different institutional approaches which can be used to monitor and improve quality of care, and to array them according to the degree of interference with professional self-regulation. Starting with the traditional instruments of professional self-regulation, it moves over their modern extensions and onto instruments used by intermediaries, such as regulators, purchasers and insurers, to those instruments which directly inform the consumer about quality of care. All these approaches can (or should) be used in conjunction with appropriate financial and non-financial incentives.

It should be emphasised that the categories of this taxonomy are not mutually exclusive. The traditional self-regulatory instruments of quality assurance are typically used in conjunction with approaches that hold the profession accountable to other stakeholders. But by assessing in which of the categories the instruments used in a given country predominantly fall, policy makers can get an impression of where in this continuum the country lies.

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As with all classifications, drawing the line is occasionally somewhat arbitrary. It should also be kept in mind that the hierarchy should be understood as descriptive not evaluative, *i.e.* it does not mean to imply that emphasis on formal accountability leads to better policies or *vice versa*. And finally, while graduate training in medical schools plays an important part in determining quality of care, only instruments that apply to accepted members of the medical profession are discussed.

5.1. *The guild approach: traditional self-regulatory instruments*

These instruments represent the most traditional forms of professional self-regulation. Many of them were employed by medieval guilds, and carried over to modern professions. Because of their long tradition and their embededness in daily practice, they are sometimes, and wrongly, overlooked as approaches to quality assurance. They are also mainly aimed at the knowledge base of the professional.

Standards of conduct and ethics

Those regulate the roles and responsibilities of physicians to their patients, peers and the public. Their use is probably the oldest instrument for quality assurance and can be dated back to the Hippocratic Oath.

Forms of collegial exchange

Like other professions, physicians have created a variety of forums to exchange with their peers for mutual learning, such as regular staff meetings to discuss cases, rounds under the supervision of senior colleagues and morbidity and mortality conferences (M&M), in which complications and deaths of patients can be discussed confidentially.

Education and knowledge dissemination

Besides the informal, on-the-job learning discussed above, a variety of explicit training opportunities exist in medicine. Examples are seminars, journal clubs (collegial discussion of recent publications in the field), training courses and conferences.

Post-graduate medical training

Similar to the apprenticeship in the medieval guilds, recent medical graduates have to practice for a certain period under the supervision of senior physicians before they are regarded as full members of the profession. More recently, the duration and the content of this training became structured and formalised in most industrialised countries.

Licensing and registration

The medical profession maintains a registry of licensed physicians who have completed all training requirements and are in compliance with the professional rules. Removal from that registry, as a threat to non-compliant or incompetent physicians, equates to loss of permission to practice. While the policies and operations of those licensing and registration bodies are heavily dominated by the profession in all countries, these bodies can be a part of the government agency, for example the National Board of Health in Denmark and the State Medical Boards in the United States, or an autonomous professional institution, like the Czech Medical Chamber.

Arbitration panels and medical court

Like the guilds, the medical profession has long had internal institutions to investigate and possibly sanction inappropriate behaviour towards patients or peers and malpractice. The proceedings of the General Medical Council in the United Kingdom are an example.

5.2. Towards the new guild: more recent extensions of the traditional instruments

These approaches utilise the concepts behind the traditional instruments discussed above but adapt them to the requirements of a modern profession. They remain, however, fully controlled by the profession and are not shared with the public or regulators and are usually educational without control of success.

Continuous Medical Education (CME)

CME is a way of formalising the professional obligation of life-long learning. To retain their license, physicians have to earn a certain number of CME credits each year by participating in educational events. Knowledge tests are usually not part of those credits. CME can usually be offered by a variety of institutions, such as scientific societies, medical journals and universities. Typically, accreditation of a CME programme through a professional body is required for acknowledgement of the credits. This function is handled, for example, by the Czech Medical Chamber in the Czech Republic, the Royal Colleges in the United Kingdom, and the Japanese Medical Association in Japan.

Quality circles

These are informal and confidential discussion groups, in which physicians, frequently with guidance from a trained moderator, discuss complex cases or therapeutic approaches. Their function is to emulate the collegial exchange in settings where such exchange is otherwise rare, such as in individual practices. In the Netherlands, quality circles have become an accepted format for earning CME credits, and in Germany they have become a widespread forum to share best practices among physicians.

Guidelines and clinical pathways

These are an attempt to transform medical knowledge into explicit instructions on how to treat certain conditions or to conduct certain procedures (guidelines) and how to proceed in a given clinical situation (pathways). Most commonly, the medical scientific societies develop the recommendations. In the Netherlands, patient advocacy groups and payers have recently become involved in the process, and the Dutch Institute for Healthcare Improvementhas started work on recommendations for the development process, in order to standardise the approach across specialties.

Decision support systems

Such systems can be either passive or active. Passive systems make information readily available upon request, such as internet-based journal search. Active systems are embedded in the workflow and provide real-time decision support, such as reminders and alerts. For example, a physician can be reminded to refer a diabetic patient to a regular retinal exam to prevent blindness. Such systems are increasingly used in the United States, developed by software firms, hospitals and the federal Department of Veteran Affairs. These systems usually require some form of electronic medical record.

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Modern self-regulation: internal but formalised mechanisms

A characteristic feature of the traditional instruments of self-regulation and their modern extensions is the absence of any formal evaluation and assessment of a physician by his or her peers. It is assumed that the provision of information and feedback will suffice to maintain adequate quality of care. More recently, review mechanisms have been introduced which formalise and institutionalise collegial exchange and build in an evaluative element. Frequently, the review is conducted by outside experts to ensure a more objective perspective. The rules and evaluation criteria for these approaches are defined by the medical profession and the resulting proceedings remain under its full control, *i.e.* they are not being shared with the public, purchasers and regulators.

Peer review or medical audit

Often used interchangeably, these instruments review and address the clinical practice style of a physician by a peer group. These reviews can use implicit criteria, *e.g.* read through patient records and provide feedback on the diagnostic and therapeutic approach, or explicit ones, *e.g.* apply criteria that reflect standard medical practice and check for compliance. Assessment and recommendations are provided based on the review results. It is a major quality improvement method for specialty care in Dutch hospitals since the 1970s. Participation may be obligatory or voluntary but there is strong peer pressure to participate. Physician reviewers assess practices and policies in priority areas along explicit criteria and make confidential recommendations for improvement. Plans to create an evaluation system for primary care practices based on mutual peer review also exist in the Czech Republic.

Visitation or practice audit

While medical audit evaluates the actual clinical care, visitation assesses how well a practice or a hospital is organised and governed. The reviewers, who are usually physicians appointed by the scientific medical societies, look, for example, at the presence of standard operating procedures and the quality of the infrastructure. This approach originated in the Netherlands (*visitatie*) in the 1960s and remains an important component of the quality improvement efforts in that country.

Recertification

Rather than maintaining a physician's licensure status indefinitely or until incompetence is proven, professional institutions may require regular renewal of the license and base renewal on requirements, for example obtaining a certain number of CME credits and maintaining a minimum practice volume. For instance, the General Medical Council in the United Kingdom is currently designing and implementing a system for regular mandatory re-evaluation of physicians and the Czech Medical Chamber requires a certain number of CME points for license renewal. A complex recertification system has recently been introduced by the American Board of Internal Medicine in the United States, under which physicians have to complete self-evaluation tests in five areas, pass a knowledge-based examination, and submit satisfactory evidence regarding the state of their clinical skills.

Confidential use of quality indicators and benchmarking

Quality indicators are measures for the technical quality of medical care and mainly reflect compliance with medical standards (process indicators) and success of treatment

(outcomes indicators). In internal quality improvement, they are usually reported back to clinicians and compared to a peer group as benchmark. Full confidentiality is maintained. This process can be regarded as automation of medical audit based on explicit criteria. In Germany, the Federal Association of Statutory Health Insurance Physicians as well as various specialty societies uses this approach.

Confidential reviews of incidents and perceived problems

Review and discussion of isolated care problems, or patterns of such problems, have a long tradition in medical care, for example in Morbidity & Mortality Conferences. Incident review is a formalised approach which builds on this tradition. Sometimes referred to as root cause analysis, it employs a structured investigation to determine the immediate and underlying causes of a problem. The goal is usually not to place blame on an individual but to identify and correct systems failures that lie at the heart of the observed problem, and to avoid further mishaps. Because of the sensitive nature of these events, and the risk that punitive approaches might discourage reporting, there is a tendency for governments not to interfere with these proceedings. Denmark is considering whether results from such investigations can be protected from use in legal proceedings. In the United Kingdom, the National Patient Safety Agency was founded to confidentially collect and analyse data on adverse events and to develop recommendations for error reduction.

5.3. Towards external supervision: setting structural standards for care

These instruments mark a watershed in monitoring and improving quality of care, because they all involve setting external standards for medical practice. These standards can be imposed either by regulators or by purchasers through contractual requirements. While compliance may be audited, the audit results are not publicly available. In the form that interferes the least with professional self-regulation, those standards prescribe structural and procedural requirements, while leaving it up to the medical profession to determine how to practice care within those constraints. There is no interference with processes of care or external assessment of outcomes. The public can either assume that, by the fact that providers are licensed to practise, they comply with the requirements, or compliance is explicitly publicised. However, the release of information is usually restricted to the fact that a provider is compliant, while the details of the compliance assessment are confidential.

Patient bill of rights

These bills guarantee patients certain rights that must be respected by providers. The provisions are usually more specific and detailed than the ones contained in the professional codes of conduct, such as rights to information about treatment options or the right to make advanced directives. In the Netherlands various laws were introduced in the mid-1990s that define requirements for informed consent, privacy protection, liability, complaints procedures and client participation in institutional policy decisions. Many States in the United States have also introduced such bills.

Consumer protection laws

Such laws specify requirements for product safety. They are sometimes applied to medical care but have mainly been replaced by more sector-specific regulation (see below).

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Regulatory or purchasing standards

Regulators and/or purchasers are imposing minimum requirements on providers as precondition for licensure and/or contracting decisions. These standards can mandate, for example, staffing ratios in hospitals, training requirements for physicians and features of medical equipment. For example, Czech providers have to comply with national standards to be eligible for payments under prevention and screening programmes. Denmark has mandated hospitals to phase in electronic medical record systems.

Certification and accreditation

Used interchangeably to some degree, certification and accreditation mean that an external organisation grants a seal of approval to a provider, such as a hospital or a physician practice. The distinction sometimes (but not always) made is that certification applies to selected aspects of care, for example discharge planning in a hospital, whereas accreditation looks at the provider as a whole. In the more common models, accreditation and certification requires a provider to have standardised and documented operating procedures, as well as to comply with certain minimum standards regarding, for example, staffing and infrastructure. The reviews to obtain the approval are usually based on a blend of self-assessment and external audit. Providers can use their accreditation and certification status to advertise their quality to purchasers and the public, but it is uncommon for the review organisation to release either details of the audit or failures of a provider to pass the audit.[10]

Accreditation and certification have gained widespread acceptance in hospitals. The US Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is an independent accreditation organization, which assesses mostly health care providers, like hospitals and group practices, and grants certificates based on audits. In Denmark, the Copenhagen Hospital Corporation has pioneered accreditation as a voluntary model. It gained accreditation status by the international arm of JCAHO for all its six hospitals in 2002 and a national model is in preparation. The German government has supported the development of a national accreditation model, which was recently launched. The Japanese Council for Quality Health Care (JCQHC) was established in 1995. As many as 35 different voluntary programmes exist in the United Kingdom and the Czech Republic is developing a mandatory programme to replace various voluntary programmes. Accreditation of physician practices is less well established, but many governments (*e.g.* the Czech Republic, Denmark, the United States) conduct or support developmental projects in this area.

5.4. Accountability to expert intermediaries: addressing the practice of care

The next level of interference with professional self-regulation can be seen in the attempts of regulators and/or purchasers to influence or to judge the actual care, rather than merely setting minimum requirements for the structure in which care is delivered. Many of the possible instruments resemble those used by the profession for internal improvement efforts, but remove their confidential nature. This also implies the transition from a purely educational approach to the possibilities of imposing positive and negative sanctions. However, findings are used to guide licensing and contracting decisions, but are not publicly released.

External practice review and medical audit

Similar to the profession-driven medical audits described above, such reviews entail assessment of care decisions, usually based on reviews of medical records, but the assessment is provided by external reviewers on behalf of regulators or purchasers. For example, utilisation reviews look at appropriateness of indications for procedures and quality reviews investigate whether certain key quality criteria have been met. The NHS in the United Kingdom introduced such audits in 1991 as part of the establishment of internal markets and the current NHS Plan introduces national standards against which to audit.

Inspection

In an extension of the audits to check compliance with regulatory standards, inspections can be applied to clinical care processes as well. This is usually done through site visits combined with staff interviews, and reviews of medical records and other documents. Inspectors can, for instance, look at compliance with treatment guidelines. As an example, the Commission for Health Improvement has the task of conducting so-called clinical governance reviews of NHS organisations in the United Kingdom, *i.e.* surveys of how well the provision of care is managed.

External incident investigation

While the former two instruments are used routinely to assure quality of care, incident investigation is event-driven. Incidents of a defined severity, like wrong site surgery, trigger a comprehensive external review of procedures and practice patterns. The Commission for Health Improvement has the responsibility for those investigations in the United Kingdom, and the National Board of Health (an agency of the Ministry of the Interior and Health) in Denmark.

Release of quality indicators and benchmarking results to regulators or purchasers

Regulators or purchasers may require the reporting of measures for quality of care that reflect processes and outcomes.

Quality based contracting

When using this relatively novel tool, purchasers write quality provisions into their contracts with providers. Those provisions can specify, for example, that a hospital has to decrease its infection rate by a certain percentage in a year. It is then left to the provider how to meet the provisions. Non-compliance can result in lower payment rates or contract termination. The legal basis for such contract provisions has been created in several countries with social health insurance (*e.g.* Czech Republic, the Netherlands) and even in countries with direct government provision of care (*e.g.* Denmark). So far, the contract terms mostly address structural features, such as equipment and staffing requirements, but plans to also include explicit quality improvement targets exist in Denmark, the Netherlands and the United Kingdom. The Japanese government reduced fees paid to hospitals that did not develop explicit treatment plans for patients or failed to maintain a sufficiently high case volume for technically demanding surgical procedures.

5.5. *Full public accountability*

Arguably, the final step in moving away from the traditional self-regulatory model of monitoring and improving quality of care is mandating full public release of the findings

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that any of the above-mentioned instruments have yielded. This change is particularly powerful, if patients have control over their choice of providers. By removing expert intermediaries, such as purchasers and regulators, and communicating quality results to consumers and patients, a core component of the implicit social contract that patients should trust the medical profession to safeguard quality is given up and replaced by formal accountability. The implications of this change should not be taken lightly, because trust is not only part of the implicit social contract that was perceived as an efficient solution for a long time, but also a key requirement in the therapeutic relationship between doctors and their patients (O'Neill, 2002). In addition, conveying complex technical information to a lay audience increases the demands on robustness of the methods to measure quality and on the communication strategy.

League tables

These rank providers according to their performance along a particular measure of quality. As this communication strategy requires ordinal properties of the measure, the tables are usually based on quality indicators.

Scoring methods

These methods group providers into several categories of relatively homogeneous performance levels. This approach is more amenable to incorporating descriptive information than ranking methods, such as league tables. An example is the star-rating system for British NHS hospitals.

Balanced scorecards

Whereas scoring methods communicate performance to instruments along a single measure, balanced scorecards attempt to give a full representation of a provider's performance. They contain the rank or score of a provider for a variety of different measures, usually grouped by dimension of performance. For example, the NHS "Performance Framework" publishes data on the health care system and individual providers along six dimensions: health improvement, fair access, effective delivery, efficiency, patient experience and health outcomes. The development of a balanced scorecard for health care providers has been commissioned by the Dutch Ministry of Health, Welfare and Sports. Scorecards are in widespread use in the United States, where federal and state agencies as well as non-governmental institutions publish a variety of scorecards to inform patients or intermediaries about quality of care.

Public release of auditing or accreditation reports

Accountability to the public can obviously also be achieved by releasing the various types of reports that are being generated through the above-mentioned quality improvement approaches to the public. For example, reports on all reviews conducted by the UK Commission for Health Improvement are publicly available on their website.

6. Summary and conclusions

While the rapidly changing nature of the field makes *it impossible to provide a comprehensive assessment* on the basis of a review of current arrangements for quality assurance in a sample of seven OECD countries, some consistent trends begin to emerge. Most importantly, monitoring and improving the technical quality of medical care was

found to be a policy priority in all seven countries and governments have drawn up or even implemented plans to introduce greater accountability in the medical sector. This finding alone implies a paradigm shift in public policy, because it has long been assumed that the implicit social contract of granting the medical profession broad powers of self-regulation would be the most efficient approach to ensuring quality of care. In face of the changing nature of medicine, policy makers appear increasingly concerned that the traditional arrangements for quality assurance may no longer be appropriate.

The seriousness of their concerns is reflected in the fact that, in times of severely constrained public budgets, governments are investing substantial amounts in projects and the creation of new institutions to improve quality.[11] Both the Danish and the Dutch Ministries of Health have commissioned national indicator development projects that will provide provider-level quality measures to the public. The Czech government has created the national Centre for Quality Assurance in Healthcare and various new agencies have been founded within the British NHS in the last few years to set and disseminate quality standards. In the United States, the federal government is using both research funding and its leverage as the largest payer for care to establish a unified national system for quality monitoring and reporting.

While reforms lead to a greater role for the government, the medical profession and its institutions are usually key participants. The Danish National Council for Quality Development has representatives from all stakeholders and the National Indicator Project is a joint effort between the central and local governments, together with scientific and professional associations. The Czech Ministry of Health has orchestrated the foundation of a National Board of Medical Standards, but left its operation to the specialty associations and professional societies.

The greater involvement of the public also constitutes a common feature. In the United Kingdom, lay representatives were involved in the definition of the National Service Frameworks that set minimum standards of care. Also 40% of the members of the General Medical Council, the key institutions of professional self-regulation, are now lay representatives. Patient advocacy groups are becoming increasingly involved in guidelines development in the Netherlands and care institutions are legally mandated to have client councils to advise on policy decisions. Advocacy groups are also involved in quality monitoring in the United States, for example by representation in the National Quality Forum, a national body for consensus formation in quality measurement.

Purchasers also assume a greater role in quality monitoring. In the social insurance countries, they were an obvious choice for an expert intermediary to procure excellent quality on behalf of their enrolees. In the Czech Republic, the insurance funds have the legal responsibility of ensuring adequate quality on behalf of their policy holders. They are moving towards including and monitoring explicit quality requirements in their contracts with providers. The insurance reforms currently under discussion in the Netherlands and Germany envision competition of insurers on quality and price to secure the best value for patients. But also government-financed systems are also beginning to employ purchasing for quality improvement. The Danish counties are increasingly adding quality specifications in their contracts even with their own hospitals. The British General Practitioners, who have the responsibility of purchasing specialty and hospital care for their enlisted patients, are now provided with information on the quality of care of different providers to inform their decisions. Employers in the United States, which

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purchase health insurance for their employees, have started to form collaborations to use quality criteria for purchasing decisions.

The reforms clearly create added burdens for providers. So far the hospital sector has been particularly affected. Czech hospitals are now mandated to conduct and publish annual patient satisfaction surveys. Senior NHS hospital managers are being held accountable for a variety of clinical and non-clinical performance measures and face greater scrutiny by the Commission for Health Improvement. Japanese hospitals will see their fees reduced if they fail to meet national quality and safety standards. All surveyed countries either have introduced or will introduce accreditation models for their hospitals. But approaches to monitor and improve care on the physician level are also underway. For example, the UK General Medical Council is developing a revalidation procedure that will impose quality requirements on physicians to maintain their license. Practice audit models for primary care have been introduced in the Netherlands, and an accreditation model for community-based care providers has been piloted in the Danish county of South Jutland.

In summary, even though quality of care has only recently emerged as a challenge for public policy, a great number of policy approaches have been discussed and implemented in the countries surveyed. While their efforts have not been in existence for long enough for their impact to be assessed, they demonstrate that concern over the quality of care has now become a public policy issue. The days when this issue was left to the medical and nursing professions alone are passed.

Notes

1. By the time of publication of this chapter, Soeren Mattke had moved to RAND Health, United States.
2. Substantial variation of procedure rates can also be found across countries. This is less surprising, because, in contrast to regional variation, this variation can be explained by structural differences, like capacity and payment system and by cultural differences.
3. Going even further, an accepted benchmark for reliability goals in manufacturing is Six Sigma Quality, introduced by Motorola in 1988 (*http://mu.motorola.com/index.shtml* 4 October 2002), that states that less than 3.4 defects per 1 million units (or 0.00034%) should occur. While this target seems ambitious, since most companies define between 35 000 and 50 000 defects per 1 million as acceptable quality, working towards it has lead to significant cost reduction for several companies. For example, General Electric estimated that using Six Sigma as a target lead to USD 1.2 billion of savings in 1998 (Henderson and Evans, 2000).
4. The importance of vulnerability and impaired judgement when experiencing a major illness is also highlighted by the fact that even physicians, who in theory have the necessary knowledge, would not choose to treat themselves.
5. David Blumenthal from Harvard University has called it the "black bag model" of quality assurance, as it dates back to a time where all a physician needed was contained in his bag (Blumenthal, 1995).
6. Leape has provided an excellent overview of the relevant research (Leape, 1994).
7. For example, clinical improvement project resulted in cost savings of about USD 20.7 million in 1995. Introducing care protocols reduced one-year mortality and hospital readmission rates for congestive heart failure from 22.7 to 17.8% and 46.5 to 38.5%, respectively. For more detailed information, please see: Bohmer and Edmondson (2002).
8. The relevance of financial and non-financial incentives in bringing about change should not be overlooked. Arguably, pilots had a much stronger motivation to improve safety than physicians who can return home safely even after the worst of mishaps. As an industry expert put it, "the pilot is always the first at the scene of an accident". However, professional incentives do not have to be that drastic as the example of anaesthesia teaches us. It can be regarded as medical specialty with a great degree of immediate professional accountability. A (relatively) healthy patient is put to sleep for a procedure, in most cases even an elective one and the expectation is that he/she should wake up unharmed.

9. Apart from such consideration for the health system as a whole, policy makers also have to keep in mind what is now called "the business case for quality". Because of externalities, changes that are beneficial for the system may not be beneficial for individual providers. For example, most payment systems link payment to volume, creating no financial incentives for providers to reduce unnecessary procedures.

10. Accreditation and certification is actually difficult to classify with the proposed hierarchy, because the nature of this instrument depends very much on the content of the approval process. Some accreditation organisations have started to incorporate information on processes and outcomes of care into their decisions, infringing more on professional self-regulation. Similarly, models that mandate public release of the audit details and/or failures can be regarded as of a different nature.

11. While outside the scope of this study, the interest of member countries in quality monitoring is also reflected in the support they give to the OECD Health Care Quality Indicators Project, which attempts to develop measures to benchmark health care systems on an international level. By the end of 2003, more than 20 member countries were participating in this effort.

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Chapter 3

Income-related Inequality in the Use of Medical Care in 21 OECD Countries[1]

by
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This study provides new findings on equity in health care utilisation across income groups in 21 OECD countries. Income quintile distributions and concentration indices are used to assess horizontal equity, i.e. *the extent to which adults in equal need for care have equal rates of medical care utilisation.*

For physician utilisation, a significant degree of horizontal inequity favoring the better off is found in about half of the countries. It is highest in the US, followed by Mexico, Finland, Portugal and Sweden. In the majority of countries, the study finds no evidence of inequity in the distribution of GP visits across income groups, and where it does, it indicates a pro-poor distribution. However, in all countries, given similar needs, the rich are significantly more likely to seek help from a medical specialist than the poor, and in most countries also more frequently, especially in Portugal, Finland and Ireland. No clear pattern for either pro-rich or pro-poor inequity in inpatient care utilisation emerges, nor is it obvious how to account for the observed patterns in terms of different health system characteristics. Finally, the study finds a pro-rich distribution of dentist visits in all OECD countries, with wide variation in the degree to which this occurs. Using a decomposition method, the study assesses the contribution of regional disparities in use and, for seven of the countries, of income related disparities in (public and private) health insurance coverage.

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1. Introduction

Most OECD member countries have long achieved close to universal coverage of their population for a fairly comprehensive package of health services. There are exceptions, but in most of these countries, access to good quality physician services is ensured at relatively low and sometimes at zero financial cost. This is mainly the result of a variety of public insurance arrangements aimed at ensuring equitable access. Equity in access is also regarded as a key element of health system performance by the OECD (Hurst and Jee-Hughes, 2001). In the context of performance measurement, a question that arises is to what extent OECD countries have achieved the goal of equal access or utilisation for equal need, irrespective of other characteristics like income, place of residence, ethnicity, etc.? As in our previous cross-country comparative work (Van Doorslaer, Wagstaff and Rutten, 1993; Van Doorslaer *et al.*, 1992; Van Doorslaer *et al.*, 2000; Van Doorslaer, Koolman and Puffer, 2002) we will focus on the principle of *horizontal* equity – *i.e.* that those in equal need ought to be treated equally – and test for the extent of any systematic deviations from this principle by income level. Van Doorslaer *et al.* (2000) and Van Doorslaer, Koolman and Puffer (2002) have concluded that both in the US and in several European countries some systematic deviations from the horizontal equity principle could be detected. In particular, we found that often the rich tend to be more intensive users of medical specialist services than one would expect on the basis of differences in need for care.

The earlier work was based on secondary analysis of existing national health interview surveys or general purpose surveys and hampered by cross-survey comparability problems of self-reported utilisation and health data. Van Doorslaer, Koolman and Puffer (2002) used the much more comparable information from the *European Community Household Panel* for 1996, the 1996 US *National Medical Expenditure Panel* and the Canadian 1996 *National Population Health Survey*. Here we use the 2000 wave of the ECHP, which provides comparable data for 10 of the EU member countries. For the 11 other countries, we rely on the use of country-specific household surveys[2] to obtain comparable information. However, such comparable information was not available for all countries and for all variables.

The paper starts by defining our equity measurement instruments in Section 2. Section 3 contains a very brief summary of some of the salient features of the health care systems in the 21 countries studied which may affect the degree to which systematic deviations of an equitable distribution can occur. Section 4 provides a summary description of the data and estimation methods used (the Annex provides more detail), and Section 5 presents the main results. We conclude and provide some further discussion in Section 6.

2. Horizontal inequity in health care delivery

2.1. Defining horizontal inequity

A key policy objective in all OECD countries is to achieve adequate access to health care by all people on the basis of need. Many OECD countries further endorse equality of

access to health care explicitly as one of the main objectives in their policy documents (Van Doorslaer, Wagstaff and Rutten, 1993; Hurst and Jee-Hughes, 2001). In some countries, health policies have however only aimed to equalize access for the lower income parts of the population. And in almost all countries, options are being offered to varying degrees for topping up the general public cover with complementary or supplementary private cover. These options often relate to more comfort and convenience, but they may also – as in the case of dental care – be the sole source of cover for sizeable shares of the care package.

Usually, the horizontal version of the equity principle is interpreted to require that people in equal need of care are treated equally, irrespective of characteristics such as income, place of residence, race, etc.[3] It is this principle of horizontal equity that the present study uses as the yardstick for the international comparisons. This yardstick is obviously only useful for performance measurement to the extent that this principle is in accordance with a country's policy objectives. For countries not subscribing to this principle, the methods may still be useful for comparison with others but not for internal performance measurement.

2.2. Describing and measuring inequity

The method we use in this paper to describe and measure the degree of horizontal inequity in health care delivery is conceptually identical to the one used in Wagstaff and Van Doorslaer (2000a), Van Doorslaer *et al.* (2000) and Van Doorslaer, Koolman and Puffer (2002). It proceeds by comparing the actual observed distribution of medical care by income with the distribution of need. The study cannot address differences in overall provision between countries: it assumes that the average treatment rates for each country, and the average treatment differences between individuals in unequal need, reflect the accepted overall "norm" for that country. In order to statistically equalize needs for the groups or individuals to be compared, we use the average relationship between need and treatment for the population as a whole as the vertical equity "norm" and we investigate to what extent there are any systematic deviations from this norm by income level.

The concentration index (CI) of the actual medical care use measures the degree of inequality and the concentration index of the need-standardized use (which is our horizontal inequity index HI) measures the degree of horizontal inequity. When it equals zero, it indicates equality or equity. When it is positive, it indicates pro-rich inequality/inequity, and when it is negative, it indicates pro-poor inequality/inequity. The Annex provides further detail on the statistical methods used for measuring and decomposing horizontal inequity.

3. Differences in equity-relevant health care delivery system characteristics in OECD countries

While all of the countries included in this analysis – except for Mexico and the US – had by 2000 achieved close to universal coverage of their population for the majority of health care services, important other cross-country differences remain with respect to potentially equity-relevant features of their financing and delivery systems. In Annex Tables 3.A1.1 and 3.A1.2 we have summarized some of the salient system characteristics which may have an impact on any differential utilisation of doctors (general practitioners or specialists), hospital care and dental care by income level.

Two of the countries included in this study still have sizeable shares of their populations without insurance coverage. In Mexico, about half the population (or about 48 million people)

does not have health insurance and has to rely on publicly provided health care of varying quality (Barraza-LLorens *et al.*, 2002) while in the US, the uninsured group is now about 14% (or over 40 million people) of the population (Haley and Zuckerman, 2003). In a number of countries, certain population groups at different levels of income buy private health coverage because they are either not eligible to public coverage or choose to opt out of it. This is the case for rather small numbers of high income earners choosing to opt for private coverage in Germany, but it concerns sizeable portions of the population in the Netherlands (where about a third of the population is not eligible to public health insurance coverage). In Ireland, about two thirds of the population is not entitled to public coverage (medical cards) for GPs and other outpatient services, although people buy private health insurance mainly to obtain a private alternative to public hospital coverage, to which the entire population is entitled. In Switzerland, mandatory health insurance is the sole source of cover for the entire population. Some countries' public insurance rules, like Australia, Belgium, Finland, France, Norway and Portugal require their insured to pay co-payments which vary depending on the type of services, while in many other countries (like Denmark, Canada, Germany, Spain and the UK) visits to public sector doctors are free at the point of delivery. In yet other countries, like Hungary and Greece, care is officially free at the point of delivery but, in practice, unofficial payments to doctors are widespread.

Countries also vary in their access rules to secondary care. In some countries, notably Australia, Denmark, Canada, Ireland, Norway, Netherlands, Sweden and the UK, the primary care physician acts as a "gatekeeper" referring to secondary care provided by medical specialists, whereas in other countries, there is direct access to all physicians. Yet in some countries, like Finland, Greece, Italy, which officially do have GPs acting as gatekeepers, this principle is not strictly enforced. In others (Spain, Portugal), it can be bypassed through emergency units of hospitals. Some countries pay their general practitioners mainly by capitation (like Denmark, Ireland – group I, Italy, the Netherlands) or salary (Greece, Mexico, Portugal, Spain, Sweden) whereas others rely mainly on fee-for-service payment.

Some of the smaller European countries (Denmark, Belgium, and the Netherlands) have fewer regional differences than the larger countries where people might face distance to care problems and disparity in access might arise due to regional autonomy. A large number of the characteristics summarized in Tables 3.A1.1 and 3.A1.2 will be of relevance when attempting to interpret the findings from this study. Although this summary is by no means complete in the sense of providing a full picture of the diversity represented by these systems characteristics, it does serve to illustrate which factors may help to account for any irregularities found in the cross-country differences in horizontal equity.

4. Data and estimation methods

4.1. Survey data

The data for most European Union (EU) member countries are taken from the seventh wave (held in 2000) of the *European Community Household Panel* (ECHP) conducted by Eurostat, the European Statistical Office.[4] The ECHP is a survey based on a standardized questionnaire that involves annual interviewing of a representative panel of households and individuals of 16 years and older in each EU member state (Eurostat, 1999). It covers a wide range of topics including demographics, income, social transfers, health, housing, education, employment, etc. We use ECHP data for the following ten member states of the EU: Austria, Belgium, Denmark, Finland, Greece, Ireland, Italy, Netherlands, Portugal and Spain.

The datasets used for the other (*i.e.* non-ECHP based) countries are listed in Table 3.1, along with the years they refer to and the adult sample size. All surveys, except for the US (1999), refer to the year 2000 or a more recent year and all are nationally representative for the non-institutionalized adult population (*i.e.* individuals over the age of 16). They were mainly selected on the basis of their suitability for this analysis and their comparability to the ECHP information.

Table 3.1. **Non-ECHP household surveys used for 11 countries**

	Survey	Year	Sample size	Sampling unit	Age limits used
Australia	National Health Survey (ABS)	2001	15 516	Individual	16+
Canada	Canadian Community Health Survey (CCHS)	2001	107 613	Household	16+
France	National health survey linked to social insurance utilisation (EPAS-ESPS)	2000	4 381	Members of the three main health insurance funds	16+
Germany	Socio-Economic Panel (SOEP)	2001	12 961	Household	16+
Hungary	National Health Monitoring Survey (OLEF 2000)	2000	4 404	Household	18+
Mexico	National Health Survey (ENSA)	2001	153 865	Household	16+
Norway	Norwegian level of living survey – panel	2000	3 709	Individual	16-80
Sweden	Survey of living conditions (ULF)	2001	5 054	Household	16-80
Switzerland	Swiss Health Survey	2002	13 692	Household, then random indiv. in households	18+
United Kingdom	British Household Panel Survey (BHPS)	2001	13 712	Household	16+
United States	Medical Expenditure Panel Survey (MEPS)	1999	16 541	Household	16+

Source: Van Doorslaer, Masseria *et al.* for OECD.

4.2. Health care utilisation

Measurement of the utilisation of general practitioner (GP), medical specialist services and dental services in the ECHP is based on the questions "During the past 12 months, about how many times have you consulted *1)* a general practitioner? *2)* a medical specialist? or *3)* a dentist?". Hospital care utilisation was measured by the question "During the past 12 months, how many nights have you spent admitted to a hospital?". For Sweden, the hospital care data are from the Swedish patient register and therefore are based on actual stays. Similar questions referring to a 12 month reference period were used in the other countries, though not all surveys for all countries had all information. Annex Table 3.A1.3 provides an overview of the availability of utilisation variables.

Some countries' surveys (*i.e.* Australia, Germany, Mexico, Sweden and the US) do not distinguish between GP and specialist visits over the one year time frame adopted in this study. For Australia and Mexico, only whether or not a doctor was consulted in the last year was asked. Germany and Sweden only ask for visits in the last *three* months and the UK BHPS survey has a categorical answer category which does not allow the summation of GP and specialist visits. The Norwegian survey did not record hospital admissions and several had no (or limited) information on dentist visits.

4.3. Health status

The measurement of health as a proxy for care need was based on two types of questions. Respondents' categorical responses to a question on a self-assessment of their general health status in the ECHP for five categories: "Very good, good, fair, bad or very bad." Most surveys have similar response options although the response categories may vary, and the number of categories varies from three (in Sweden) to ten (in Germany and France).

A further health-related question in the ECHP is: "Are you hampered in your daily activities by any physical or mental health problem, illness or disability? (no; yes, to some extent; yes, severely)." We used two dummies to indicate the degree of limitation. Similar but not identical questions were used in the other surveys. Exact wordings and definitions are presented in Annex Table 3.A1.4.

It is well known that the inclusion of additional health information in the need standardization procedure tends to lead to less pro-poor (or more pro-rich) results (*e.g.* Van Doorslaer, Wagstaff and Rutten, 1993). This appears to be due to the fact that not only the poor suffer from health problems more frequently but also from *more severe* health problems. Less extensive use of health information in the need standardization process (*e.g.* because of the selection of a common core set of indicators for cross-country comparisons) therefore may lead to an underestimation of pro-rich utilisation patterns and an overestimation of pro-poor patterns.

4.4. Income

Annex Table 3.A1.5 lists some relevant information on the questions used from these surveys. The ECHP income measure (*i.e.* our ranking variable) is disposable (*i.e.* after-tax) household income per equivalent adult, using the modified OECD equivalence scale.[5] Total household income includes all the net monetary income received by the household members during the reference year (which is 1999 for the 2000 wave). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. No account has been taken of indirect social transfers (*e.g.* reimbursement of medical expenses), receipts in kind and imputed rent from owner-occupied accommodation. Income information was more limited in some of the other surveys. In the Canadian Community Health Survey, we could not use the actual income, but only a categorical variable which could not be equivalized using the modified OECD scale. Instead we used four categorical income dummies. For the Australian National Health Survey, we used a categorical variable representing equivalent income deciles. The US before-tax household income measure recorded in the survey was adjusted to a net household income using estimates of the federal tax paid per household, which was obtained with the NBER TAXSIM model. Insufficient information was available to estimate state taxes. For some surveys (*e.g.* Sweden, Finland and Norway), the income data are more accurate than the ECHP income variable since they are not derived from the survey but from linking up with the national tax files.

4.5. Other explanatory variables

Other explanatory variables used in the analysis include education and activity status, two variables which affect an individual's general propensity to consume health care, but which cannot often directly be influenced by health policy makers. The survey information used on educational and activity status is described in Annex Table 3.A1.5. The two other

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variables used, insurance coverage for medical care expenditures and region of residence (as a proxy for availability of care), are described in Table 3.A1.6.

The health insurance question was dropped from the ECHP questionnaire after the third wave (1996) and is therefore missing for all ECHP based analyses, except for Ireland, for which we obtained the insurance variables from the Economic and Social Research Institute (ESRI). In the non-ECHP surveys, relevant variables relating to (private) health insurance coverage were usually available. Also the information available in the ECHP regarding the region of residence of the respondents is very limited. Mostly for privacy reasons, either no information is provided (as in *e.g.* Denmark and Netherlands) or only at a very broad regional level (most other countries). Somewhat more extensive regional identifier information was available (and used) in most of the non-ECHP surveys. For five countries, it was possible to distinguish areas with different degrees of urbanization. The information we could use is presented in Table 3.A1.6. We could not undertake to link up regional identification with availability of medical services (providers, hospital beds, etc.). As such, the estimated regional fixed effects using regional dummies can only control for the variation across some large regional units in the various countries. They cannot really be assumed to reflect local circumstances in supply of and demand for each type of care.

4.6. Estimation methods

Health care utilisation data like physician visits are known to have skewed distributions with typically a large majority of survey respondents reporting zero or very few visits and only a very small proportion reporting frequent use. Because these features cause violations of the standard OLS model, various specifications of intrinsically non-linear two-part models (TPM) have been proposed in the literature, distinguishing between the probability of positive usage and the conditional amount of usage given positive use in the reference period (see Jones, 2000, for a review). While these models have certain advantages over OLS specifications, their intrinsic non-linearity makes the (linear) decomposition method described in the Annex impossible. In order to restore the mechanics of the decomposition, one has to revert to either decomposing inequality in the (latent variable) propensity to use (rather than *actual* use) or to a re-linearization of the models using approximations (see Van Doorslaer, Koolman and Jones, 2004, for an example). However, Van Doorslaer *et al.* (2000) have shown that the measurement of horizontal inequity hardly differs between OLS-based TPMs and non-linear TPM specifications such as the logistic model combined with a truncated negative binomial model.

For this analysis we have therefore chosen a pragmatic approach. We use simple OLS estimation for the decomposition based measures and we check the sensitivity of the HI indices and quintile distributions by comparing these with the indices and distributions obtained using non-linear specifications. We obtained "needed" health care use based on a generalized negative binomial model for total consumption, a logistic specification for the probability of use, and a truncated negative binomial model for the conditional positive use. In comparing the HI indices obtained using linear versus non-linear models, we found that the estimates are extremely similar and that in only very few cases, the linearly and non-linearly estimated indices differ significantly. This provides some reassurance that our results are not conditional on the choice of the linear standardization model.

For all countries and surveys, cross-sectional sample weights were used in all computations in order to make the results more representative of the countries' populations. Robust standard errors were obtained using the Huber/White/sandwich estimator. This estimator was adjusted to allow for intra-cluster correlation for those countries with surveys which contained primary sampling unit information.

5. Results

We will discuss the results separately for each type of medical care. For this study, we did not attempt to aggregate the various types of care into one overall medical care utilisation measure. It would require adding "apples and oranges" by attributing relative weights or scores to the different types of medical care. Even this disaggregated approach is already very broad-brush since it does not make any distinction by type of specialty or diagnosis or hospital department.

5.1. *Distributions and inequity indices*

For all types of care, we show the distribution of need-standardized use by income quintiles. This is the distribution that one observes after need has been (statistically) "equalized" across income groups. In the standardization procedure, in general, need was proxied by a vector of nine age-sex dummies, four dummy variables for self-assessed health (SAH) and one or more dummies for the presence of a chronic condition or handicap and the extent to which it hampers the individual in his or her usual activities (see Table 3.A1.4 for details). The reported indices and their t-values were generated using the OLS regression models described in the Annex.

Any inequality remaining in need-standardized use is interpreted as inequitable. This can favor either the poor or the rich. If there is no inequity in use, the need-standardized distributions ought to be equal across income groups. To ease interpretation, we also present two index values for each quintile distribution. These summarize the degree to which there is inequality related to income. The concentration index (CI) for the *actual*, unstandardized distribution of care summarizes inequality in actual use. The concentration index of the need-standardized distributions is used as our horizontal inequity index (HI): it summarizes the inequality in use that remains after need differences have been standardized out. Positive values of CI (HI) indicate inequality (inequity) favoring the rich. Negative values of CI (HI) have the opposite interpretation: they indicate inequality (inequity) favoring the poor. A zero or non-significant value of CI (HI) indicates that use is distributed equally (equitably) across income groups.

We present these distributions for two measures of utilisation: *a)* the total reported annual use (*i.e.* number of visits or nights) and *b)* the probability of any use in a year (a visit or a night in hospital). For reasons of space, we do not report the estimation results for the conditional use of positive users (*i.e.* given at least one visit or one hospital night) since these can be estimated from the comparison of *a)* and *b)*. The distinction between the three types of use is important as it generates further insight as to how the utilisation patterns differ by income. Country indices, ranked by magnitude, along with 95% confidence intervals are presented in Figures 3.1 to 3.8.

5.1.1. *All physician visits*

As can be seen from Table 3.A1.7, most OECD countries have annual mean doctor visit rates around five, but some countries have much higher average rates (*i.e.* more than six visits/

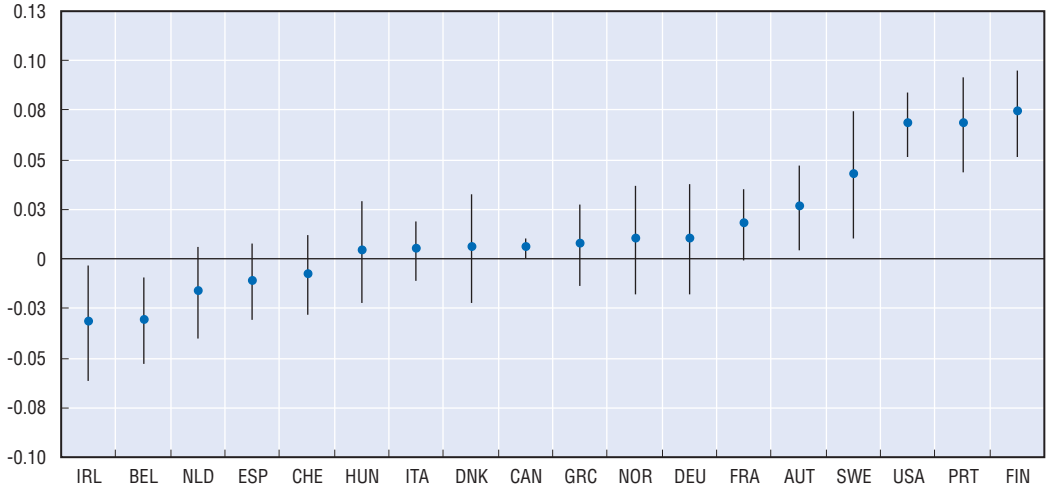
person/year), including Hungary, France, Belgium, Austria and Italy. Countries with low average rates (*i.e.* less than four visits/person/year) include Finland, Denmark, the US, Switzerland, Norway, Ireland, and Greece. We have a nearly complete set of results for the probability of at least one doctor visit for all countries in this study, albeit for two countries (Germany and Sweden) these are not comparable, because they refer to a shorter recall period (three months only). We can see that in all countries except Mexico (21%), Greece (63%) and the US (68%), more than 70% of the adult population has visited a doctor in the last 12 months. In Belgium, this percentage reaches almost 90%. One would expect these cross-country differences in utilisation rates to be largely determined by doctor availability but neither the doctor visit rate nor the visit probability appear strongly correlated to available doctor/population ratios in *OECD Health Data 2003*. Possibly, differences in remuneration types and cultural differences in seeking medical advice or care also play some role here. It is also possible that in some countries, more simple treatments (or renewal of prescriptions) are delegated to other categories of health workers than physicians.

More interesting for the purpose of this study are the patterns by income. It is striking that in all countries (except Finland and Sweden) the concentration indices of actual (unstandardized) use are negative and mostly significant. This implies that in virtually every OECD country, low income groups are more intensive users of doctor visits than higher income groups. The utilisation differences vary by country but, on average, the bottom quintile reports about 50% more doctor visits or about 1.5 extra visits per year than the top quintile (not shown). But these utilisation differences by income group do not tell us anything about inequity since these inequalities may reflect differences in need for care.

That is why the need-standardized distributions are much more revealing. Strictly speaking, for horizontal equity to hold, the distributions ought to be equal across income groups. On average, all income groups ought to use equal amounts of care when need is equalized statistically. And indeed, all concentration indices of need-standardized doctor use (*i.e.* the HI indices) turn out to be much less negative than the CI indices, for all countries. They remain significantly negative only in Belgium and Ireland; they become insignificant (at 5% level) in Canada, Denmark, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Spain, and Switzerland; and they are positive and significant in Austria, Finland, Portugal, Sweden and the US (see Figure 3.1). This means that doctor visits appear distributed according to the need for such visits in the majority of countries. The countries with significant pro-rich inequity are the same as those reported in Van Doorslaer, Koolman and Puffer (2002) – except Greece –, plus two added Scandinavian countries, Finland and Sweden.

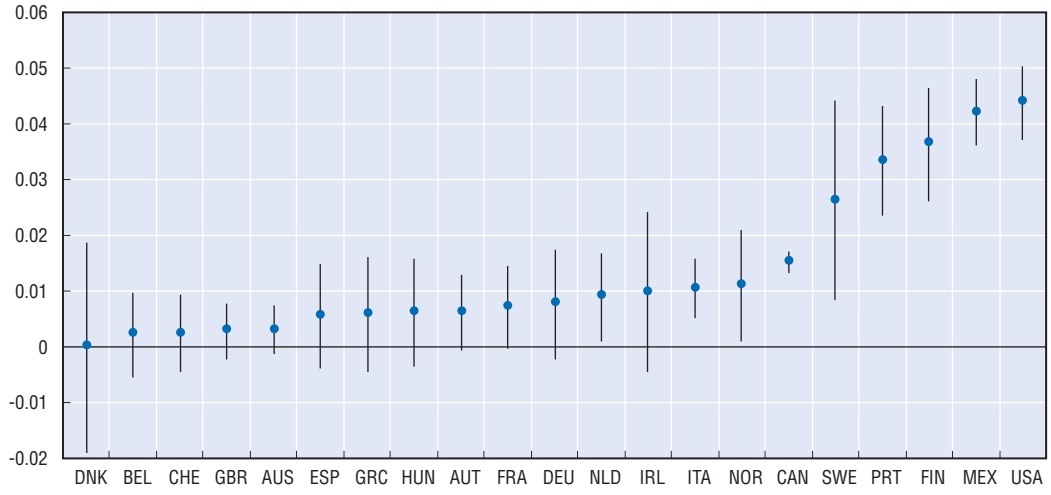
But the total use can be broken down further into the probability of any use and the conditional use, given at least one visit. This is of interest if the decision of initiating use is more patient-driven and the decision about continued use more doctor-driven. The patterns are by no means identical for the two parts of the utilisation process. The probability of any use shows positive HI indices for most countries, and these are significant in nine of them: Canada, Finland, Italy, Mexico, Netherlands, Norway, Portugal, Sweden and the US (see Figure 3.2). But we find no violation of the horizontal equity principle in the other 12 countries: the HI is not significantly different from zero in Australia, Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Ireland, Spain, Switzerland and the UK. This means that in about half of these countries, given the same need, the rich are more likely to see a doctor than the poor. The fact that this does not translate into inequity in total visits for all of these countries has to do with what happens once they have contacted a doctor. It means that the conditional number of (positive) visits,

Figure 3.1. **HI indices for number of doctor visits, by country**



Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.2. **HI indices for probability of a doctor visit, by country**



Source: Van Doorslaer, Masseria *et al.* for OECD.

given at least one, must favor the poor. In fact, we do find (not shown) that in several countries, notably Belgium, Canada, Ireland, and the Netherlands, HI indices for conditional number of visits are significantly *negative*, indicating inequity favoring the poor. But in another four countries, Austria, Finland, Portugal and the US, the index is significantly positive. This explains why these countries are all among those showing significant positive inequity in all visits in Table 3.A1.7.

What does the decomposition *by parts* (into probability of use and conditional use) tell us? If the probability of at least one visit were mainly determined by patient consultation behavior, then one could say that in the majority of countries, richer patients exploit their ability to increase their likelihood of seeing a doctor. If, on the other hand, the conditional number of visits were mainly driven by doctor's decision making or advice, it would mean that only doctors in the above five countries somehow exploit their ability to see richer

patients more often than poorer patients. However, in practice, the surveys do not allow for such a clear-cut distinction because the first visit in a year need not necessarily be a patient-initiated visit, and neither do we know that subsequent visits in the same year are necessarily doctor-initiated. This conclusion is therefore tentative.

The quintile distributions of all doctor visits do not, however, reveal the differences in the composition of these visits between primary care and secondary physicians. In the next section, we will turn to a different kind of decomposition, that by type of doctor visit. We will do this by distinguishing – where it is possible – between general practitioner (GP) and medical specialist visits.

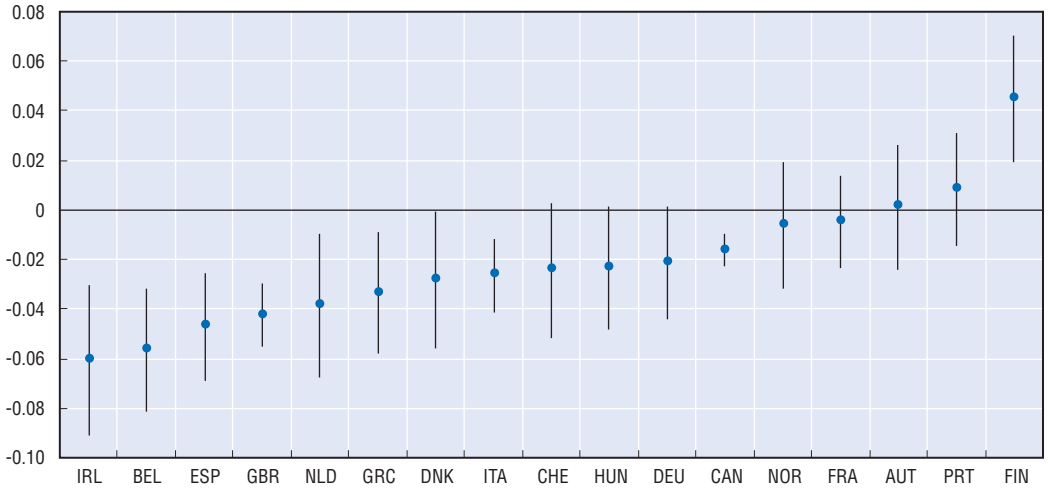
5.1.2. *General practitioner visits*

Table 3.A1.8 (p. 157) presents need-standardized quintile distributions for GP visits for the 17 countries for which we could distinguish these. On average, adults pay their GP a visit about three times a year, but the mean rate varies substantially, from about two contacts per person per year in Greece, Finland and Switzerland to more than five in Belgium. The poor see a GP more often than the rich. We can see that the unstandardized distributions are now pro-poor in all countries (*i.e.* negative CIs), and the need-standardized distributions remain significantly pro-poor (i.e. negative HIs) in ten of them (see Figure 3.3). In only one country, Finland, is the HI index significantly positive (see further discussion of this result below). Strictly speaking, it means that the poor use more GP services than the rich even once need differences are taken into account, but this finding should be interpreted with caution and in conjunction with the results for specialists (reported below).

The probability of contacting a GP, while distributed pro-poor when unstandardized, shows little evidence of horizontal inequity after need standardization. As can be seen from Figure 3.4, HI indices are generally small and insignificant, with a few pro-rich exceptions (Canada, Finland, and Portugal) and a few pro-poor (Greece, Spain and Germany). But, on the whole, the likelihood of seeing a GP is distributed fairly equally across income groups in all OECD countries. This must mean that most of the pro-poor distributional pattern is generated by a pro-poor conditional use. This is borne out by the results (not shown). In no

Figure 3.3. **HI indices for number of GP visits, by country**

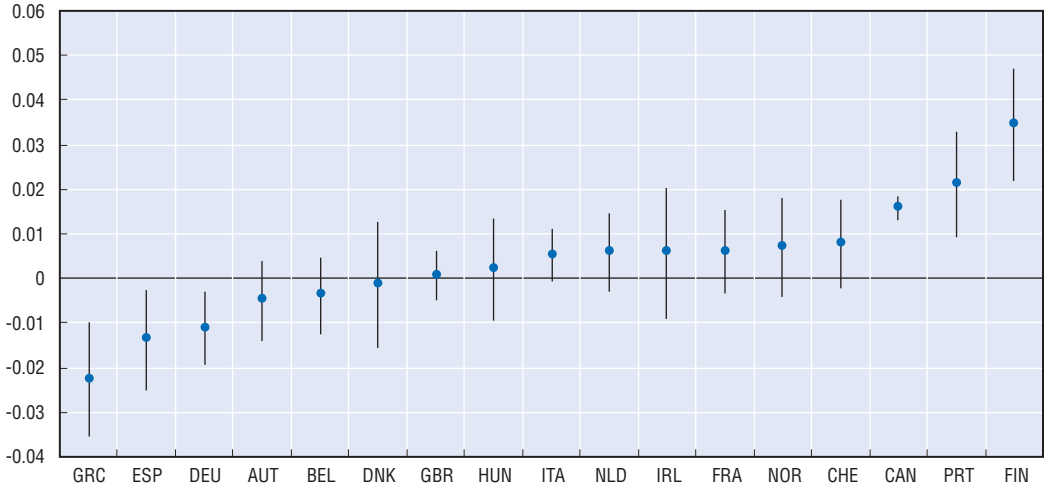
With 95% confidence interval



Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.4. **HI indices for probability of a GP visit, by country**

With 95% confidence interval



Source: Van Doorslaer, Masseria *et al.* for OECD.

less than 10 of the 16 countries, we find a significantly negative HI, indicating pro-poor inequity for conditional number of visits. For only three countries, Finland, Canada and Portugal, do we find significant pro-rich inequity, but the degrees are fairly small. This means that in almost every OECD country, the probability of seeing a GP is fairly equally distributed across income, but once they do go, the poor are more likely to consult more often. Again, we defer the interpretation of this result until after the discussion of the specialist visits results.

5.1.3. *Medical specialist (outpatient) visits*

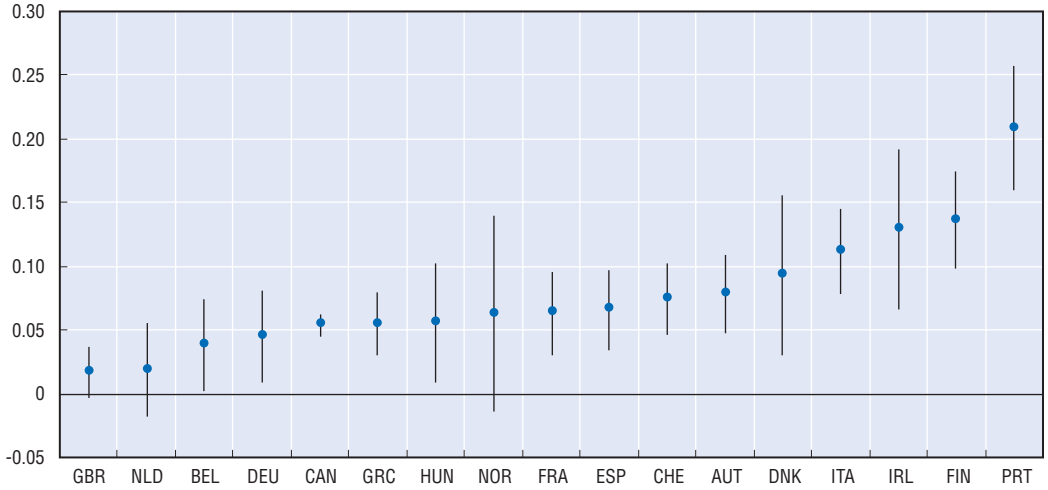
The distributional patterns are completely different for visits to a medical specialist (see Table 3.A1.9). While the mean rate of specialist visits per person per year is generally somewhat lower (about 1.5) than for GPs, there is no less variation. While Germans report an average of 3.3 visits per year, the mean visit rate in Ireland is only 0.6, a fivefold difference.[6] The unstandardized use is distributed more equally across income quintiles than for GP visits, with several CIs not significantly different from zero. But after standardization, virtually *all* distributions are significantly in favor of the higher income groups. The only exceptions are Norway, Netherlands and the UK, where the positive HI indices are not significantly different from zero (see Figure 3.5). This would suggest that in almost every OECD country, the rich are getting a higher share of specialist visits than expected on the basis of their need characteristics. The gradients seem particularly steep in Portugal, Finland, Ireland, and Italy, four countries where private insurance and direct private payments play some role in the access to specialist services. Surprisingly, this is not the case in countries like the UK. The UK BHPS results (based on a categorical measure of outpatient visits) are puzzling and in sharp contrast to earlier findings based on the ECHP 1996 (on medical specialist visits) for which strong pro-rich inequity was found (Van Doorslaer, Koolman and Puffer, 2002). Recent findings by Morris, Sutton and Gravelle (2003), who analyzed pooled data for 1998-2000 from the Health Survey of England, also suggest pro-rich inequity in outpatient visits.

Looking at the distributions and indices for the specialist visit probability, we see that most of the observed pro-rich inequity is already generated in this first stage of the

utilisation process. In all countries (the exception being the UK again), we find significant pro-rich inequity in the likelihood of contacting a specialist (see Figure 3.6). While there are definitely important differences between countries in the degree to which this occurs, it is clear that access to specialist services is *not* equalized across income groups. The non-ECHP countries (Canada, France, Hungary, Norway and Switzerland) do not differ much from the average European pattern in this respect: everywhere, given need, the rich are more likely to seek specialist help than the poor. In most countries, the degree of inequity in total specialist visits is somewhat higher than in the probability of at least one visit, suggesting that conditional use generally reinforces the patterns induced by the inequitable probability distribution.

Figure 3.5. **HI indices for number of specialist visits, by country**

With 95% confidence interval

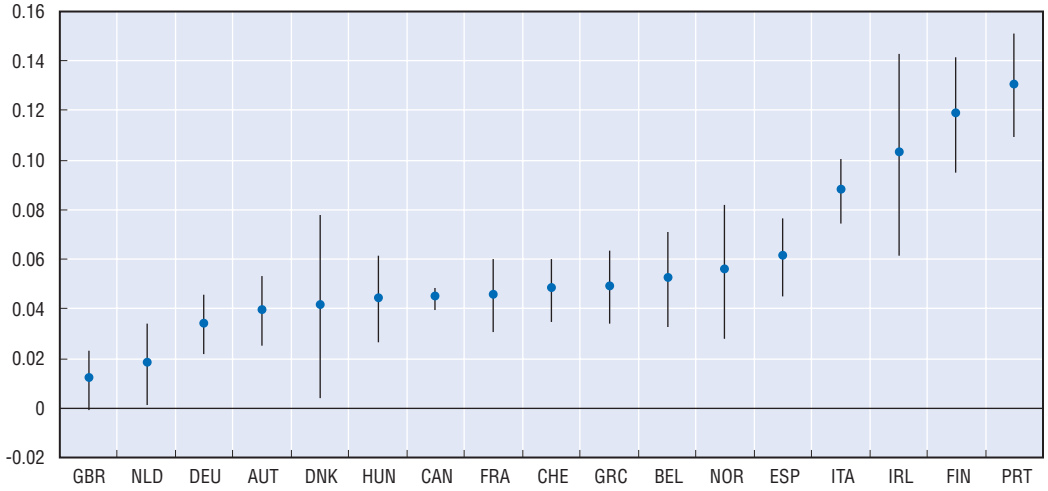


Note: Results for UK (GBR) refer to outpatient visits.

Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.6. **HI indices for probability of a specialist visit, by country**

With 95% confidence interval



Note: Results for UK (GBR) refer to outpatient visits.

Source: Van Doorslaer, Masseria *et al.* for OECD.

5.1.4. *Hospital (inpatient) care utilisation*

Distributional patterns are different again with respect to inpatient care utilisation. Table 3.A1.10 shows that both the probability of being admitted to a hospital and the number of nights spent in hospital vary across countries, but that in all except one (Mexico) inpatient care use is more concentrated among the lower income groups. Annual admission probabilities range from as low as 3.7% in Mexico to as high as 15.2% in Hungary, and hospital beds are occupied more often by poor than by rich individuals. The picture is far more varied after standardizing for need. First of all, in many countries, no significant inequity indices emerge, neither for the total number of nights spent in hospital each year, nor for the admission probability. This is partly a result of the fact that the distribution of hospital care utilisation is far more skewed than for other types of care: only around 10% of adults end up in hospital, but some have very long stays. Lengths of stay are especially hard to explain with the very general kind of individual characteristics available in these general population surveys. As a result of lack of test power, confidence intervals are wider and far fewer determinants show up with a significant influence; this is also true for the income variable. Masseria, Van Doorslaer and Koolman (2003) have found that increasing the power by pooling several waves of the ECHP led to a substantial reduction in the width of the confidence intervals around HI indices, and consequently an increase in the number of countries showing up with significant pro-rich inequity in hospital admission rates.

It is not a coincidence, therefore, that the most significant HI indices are found for the countries with the largest sample sizes (Canada, Mexico, Australia, and US). Interestingly, three groups of countries emerge (see Figures 3.7 and 3.8): *i)* those with no inequity in hospital care use (and often with smaller sample sizes) like Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Spain, Sweden, UK; *ii)* for Mexico and Portugal we find significant pro-rich inequity in the admission probability (and in Mexico also for overall use); and *iii)* for a heterogeneous set (but all non-EU member) countries like Australia, Canada, Switzerland and the US, we find significant pro-poor "inequity". It is not immediately apparent what drives these very diverging patterns across countries in the way hospital care gets distributed across income groups. In any case, in general the degrees of inequity – as judged by the magnitudes of the HI indices – are much smaller than for specialist care.

5.1.5. *Dental care visits*

Finally, we present the distributions of dental care utilisation in Table 3.A1.11. Again, the differences in mean rates of dentist visits are striking. The annual probability of an adult consulting a dentist, for instance, is only around one third in the southern European countries, and in France, Hungary and Ireland, but as high as 82% in Denmark and 78% in the Netherlands. Clearly, in all countries, and despite wide differences in degrees of public and private coverage and rules of reimbursement, dental care appears to have a very strong pro-rich distribution. By lack of other indicators for dental care needs, standardization in this case only concerns age standardization, and it does not make much difference. It only slightly reduces the high degree of pro-rich distribution. Both the total use and the probability – with or without age standardization – show a highly significant pro-rich distribution, and for *all* countries (see Figures 3.9 and 3.10). There is, however, substantial variation in its degree: it is particularly high (HI > 0.15) in Portugal, and the US. It is also high in Spain, Ireland, Canada, Hungary, Italy and Finland. It is quite low (HI < 0.05) in Sweden and the Netherlands. The degree of pro-rich inequity

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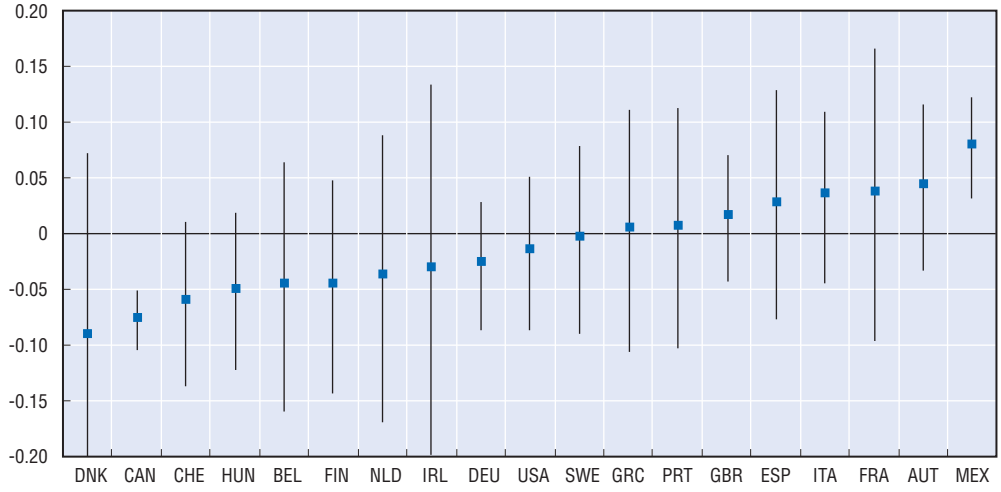
Figure 3.7. **HI indices for number of hospital nights, by country**

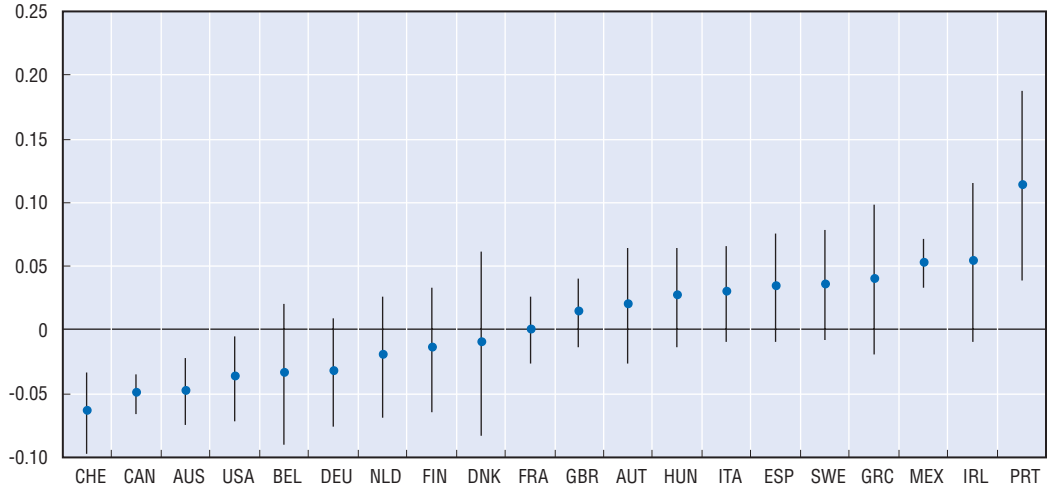
With 95% confidence interval



Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.8. **HI indices for probability of a hospital admission, by country**

With 95% confidence interval



Source: Van Doorslaer, Masseria *et al.* for OECD.

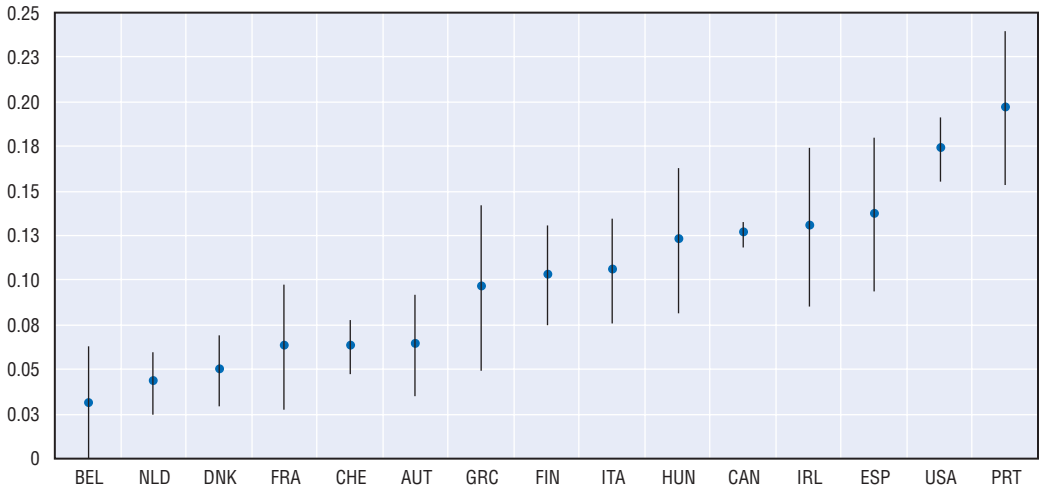
appears negatively correlated with the average usage rate. In countries with low dental care use, the pro-rich gradient is much steeper than in those countries with more extensive dental care use.

5.2. Sources of horizontal inequity

Having described the differences *between* countries, it is worth turning to the potential sources of inequalities and inequities *within* countries using the methods described in the Annex. Tables 3.A1.12-3.A1.16 present the results of a decomposition analysis based on the OLS regressions. They summarize in a very condensed form what we can learn from the decompositions. In order to illustrate how the decomposition analysis works and how these

Figure 3.9. **HI indices for number of dentist visits, by country**

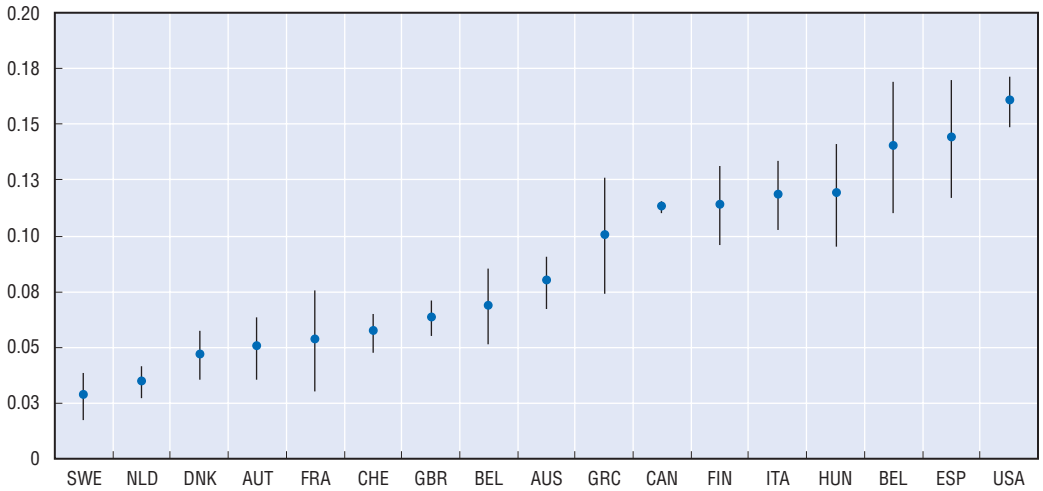
With 95% confidence interval



Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.10. **HI indices for probability of a dentist visit, by country**

With 95% confidence interval



Source: Van Doorslaer, Masseria *et al.* for OECD.

numbers are derived, we present one full decomposition table for one type of care and one country (Spain) in greater detail in Table 3.2. This table shows how the contribution of each variable to total inequality in total specialist visits by income in this country's adult population depends on three factors: 1) the importance of this variable (as indicated by its mean), 2) the extent to which it is distributed across income (as indicated by its concentration index value), and 3) the (marginal) effect of this variable on the number of specialist visits (as indicated by the regression coefficient). The identity is defined by Equation 8 in the Annex.

To understand how the decomposition works, it is useful to discuss a few variables in turn. Consider the dummy variables indicating self-assessed health (SAH) to be less than "very good". The means show their respective proportions in the adult Spanish population: for instance, only 1.2% of Spanish adults report their health to be very poor. The concentration

Table 3.2. **Detailed decomposition of inequality in total specialist visits in Spain, 2000**

	Mean	Concentration index	Margin effect	Contribution to inequality	Sum of contributions
HI index				0.066	0.066
Ln(income)	14.121	0.025	0.098	0.022	0.022
SAH Good	0.522	0.061	0.348	0.007	
SAH Fair	0.194	–0.101	1.342	–0.017	
SAH Poor	0.089	–0.244	3.208	–0.045	
SAH Very Poor	0.012	–0.283	2.599	–0.006	–0.060
Health limit	0.059	–0.270	2.293	–0.023	
Health limit severe	0.092	–0.140	1.134	–0.009	–0.033
Male 35-44	0.086	–0.006	–0.098	0.000	
Male 45-64	0.129	0.045	0.042	0.000	
Male 65-74	0.054	–0.065	0.020	0.000	
Male 75+	0.033	–0.141	0.162	0.000	0.000
Female 16-34	0.175	–0.002	0.456	0.000	
Female 35-44	0.086	–0.022	0.504	–0.001	
Female 45-64	0.137	0.031	0.507	0.001	
Female 65-74	0.063	–0.125	0.116	–0.001	
Female 75+	0.054	–0.199	–0.252	0.002	0.002
Education medium	0.171	0.139	0.002	0.000	
Education low	0.630	–0.159	–0.137	0.009	0.009
Other inactive	0.056	–0.175	0.015	0.000	
Housework	0.204	–0.171	0.105	–0.002	
Retired	0.131	–0.080	0.194	–0.001	
Unemployed	0.065	–0.277	0.245	–0.003	
Student	0.105	0.042	–0.229	–0.001	
Self-employed	0.097	0.122	–0.154	–0.001	–0.008
Noroeste	0.131	–0.044	–0.587	0.002	
Noreste	0.107	0.113	–0.424	–0.003	
Centro	0.137	–0.177	–0.733	0.011	
Este	0.258	0.128	0.174	0.004	
Sur	0.203	–0.211	–0.582	0.016	
Canarias	0.039	–0.256	–0.408	0.003	0.033
Error				0.011	0.011

Source: Van Doorslaer, Masseria *et al.* for OECD.

indices indicate how these health dummies are distributed across income: for instance, a more negative value indicates that especially the poorer health states are more prevalent among the lower income groups. Finally, the regression coefficient represents the estimated (marginal) effect on specialist visits from going from very good to a lower health state. It is clear that this effect increases with lowering health, going up to an additional 2.6 specialist visits for those who report very poor health. These three components can be combined into the estimated contribution to inequality in specialist visits using Equation 8. We see that most contributions are negative because most SAH dummies have a negative concentration index. A negative contribution means that the effect is to *lower* inequality in visits favouring the rich (a positive contribution has the opposite interpretation). This is because lower reported health *increases* specialist use. Because the linear decomposition model is additive, the contributions of all SAH dummy variables can be added to arrive at the total contribution of "not very good health" (which amounts to –0.06). Basically, this means that the inequality in specialist use is 0.06 lower than it would have been if SAH had been distributed equally (*i.e.* if all SAH dummies had a CI equal to zero) or if SAH did not have an effect on use.

The contributions of all other variables can be explained and interpreted similarly. Generally, unequal need distributions serve to *reduce* inequality (*i.e.* to obtain a less positive or more negative CI) while positive contributions have the opposite effect. Clearly, income itself has a stronger *positive* contribution the more unequal is the income distribution [as measured by the CI of (log) income] and the greater the positive marginal effect of income on specialist use. A similar contribution is made by educational status: especially those with the lowest education, which is a large group (63%), tend to rank lower in the income distribution (CI = –0.16) and report fewer specialist visits than the higher educated (–0.137). This results in a positive contribution to horizontal inequity of 0.01.

Finally, it is worth having a closer look at the regional effects in Spain. Compared to the omitted region (which is Madrid), all (but two) other regions are poorer (negative CIs) and use fewer specialist services (negative use effects), resulting in a pro-rich contribution. Only the Northeast shows a negative contribution because it is relatively richer (positive CIs). But the total regional dummies contribution (compared to Madrid) is still positive. The two disadvantaged regions contributing most to total inequity are the Centre and the South. In other words: if there had not been either any income differences or any use differences across Spanish regions, pro-rich inequity in specialist use would have been 0.033 smaller. Regional use differences account for about half the total degree of pro-rich inequity in specialist use in Spain. For all other countries, we have condensed and summarized all decompositions in Tables 3.A1.12-3.A1.16 and summarized some of these graphically in Figures 3.11-3.15. Rather than discussing these results once more by type of care, we will now go through them by type of "contributor". Some striking regularities emerge.

5.2.1. *Contribution of need*

First, the contribution of need (*i.e.* the aggregation of all morbidity and demographic variables used as proxies) is, with very few exceptions, invariably negative for *all* types of care (except dental care for which need-adjustment is basically a demographic standardization). This is very clear from the example in Figure 3.11 for total doctor visits, and it is "good news", as it implies that in all OECD countries, a needs-based allocation of health care ensures that income-related inequality in use of services is smaller than it would be if need were *not* a main driver of health care use. However, as we saw in the previous section, the extent to which the pro-poor distribution of health care use matches the pro-poor distribution of need for such care differs by type of care and by country. While the distribution of specialist care is rarely, if ever, distributed sufficiently pro-poor to match the pro-poor distribution of need, in many countries the actual distribution of GP care is *more* pro-poor than required on the basis of needs, and the same is true for hospital care. As argued above, however, it is unwise to draw too strong conclusions from the isolated consideration of one type of care, since there appear to be offsetting tendencies with respect to different types of care. A mismatch between the actual and need-expected distributions is precisely what we have defined here as an inequitable distribution if all equals are to be treated equally. It gives rise to non-zero HI indices which we can decompose further into other contributing factors. This is what is done below.

5.2.2. *Contribution of income*

In a large number of countries, and for a variety of care types, the unequal distribution of income contributes to a more pro-rich distribution of specialist and dental care and a more pro-poor distribution of GP and hospital care. This implies that income still matters for access to health care in many OECD countries. The main difference between income-related inequity

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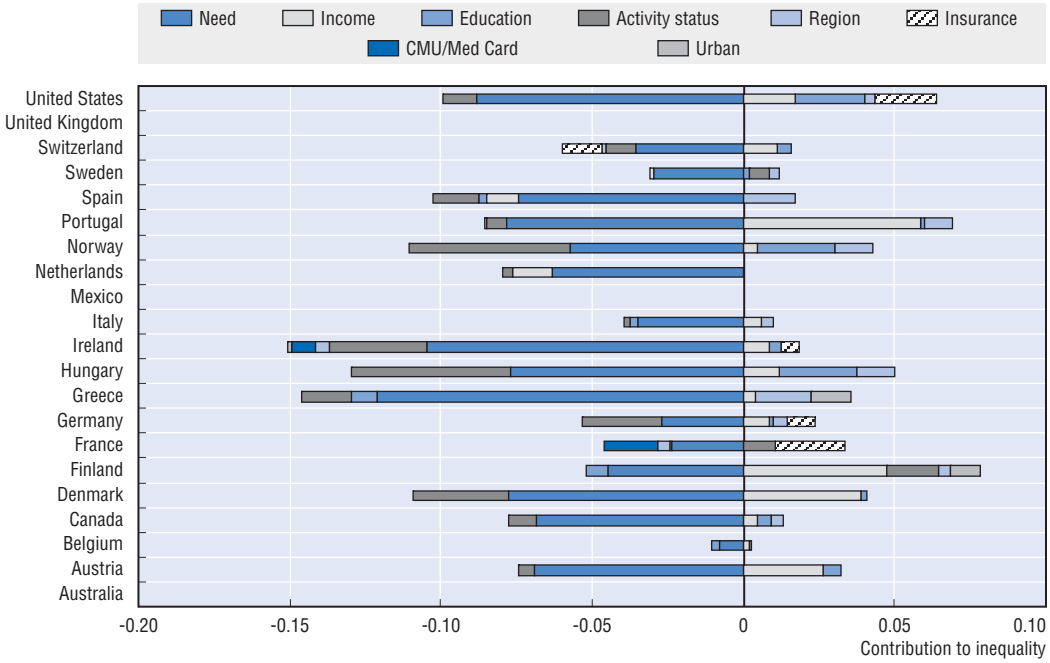
Figure 3.11. **Decomposition of inequality in total number of doctor visits**

I.e. including need contributions



Source: Van Doorslaer, Masseria *et al.* for OECD.

in health care use (the HI index) and the marginal contribution to this of income itself, is that the latter is based on the marginal effect (*i.e.* keeping *all* else constant) while the former is based on the need-controlled association (*i.e.* keeping only need constant). As a result, any discrepancy between the HI and the income contribution to inequity must be due to the contributions of the other non-need variables included. If HI is larger than the income contribution, it is because other variables have higher contributions. An example is the use of total specialist visits in France: HI is large and significant while the (marginal) income contribution is very small. Apparently, the pro-rich inequity is generated there through health insurance, education and activity status and not through income *per se*.[7] A similar phenomenon occurs in the US: horizontal inequity for physician visits is fairly high (HI = 0.068), while the separate income contribution is only 0.017. Most of the pro-rich distribution appears associated with education (0.023) and health insurance (0.02). For many countries, the marginal income contribution to inequity is smaller than the HI. However, there are some exceptions like, for example in specialist use in the UK, where, despite the inclusion of private health insurance coverage, the contribution of income is larger than the HI index.

5.2.3. *Contribution of education and activity status*

Two other important socio-economic characteristics which are known to be related to both income and health are education and labour force participation status. Differences in medical care use by level of education often mirror the utilisation patterns by income. As in previous research, here too we find that the higher educated, *ceteris paribus*, are more inclined to seek care from a medical specialist and a dentist. Because the higher educated tend to be richer, this implies positive contributions to a distribution of care favouring the rich. The picture is less clear-cut with respect to GP visits, total doctor visits and hospital care

use. Contributions are smaller, most often negative, but can be positive too. The contribution of education to pro-rich inequity in specialist and dental care is not unimportant, as it suggests that some of the apparent barriers to care still in operation may not be related so much to (lack of) income but to "taste" differences in the use of the medical care system.

Labour force participation in itself is not directly a determinant of health care use, although differences in employment status might imply differences in access to and time costs faced when using the health system. Generally, not being in paid employment does, all else equal, seem to exert some influence on the degree to which utilisation patterns vary by income. Its (aggregate) contribution appears to be predominantly negative. This could mean two things. It could mean that activity status, while holding health and a number of other things constant, acts as an additional indicator of need for care. Take the example of those receiving a retirement or a disability pension. Holding all else constant, in particular their self-reported health and age, then those who have retired from the work force may be less healthy, in greater need of care and have lower incomes than their working counterparts. This might explain why the contributions of these two variables are often negative. They then simply operate as (imperfect) need proxies and might be considered for inclusion in the vector of need indicators. In many instances, this would mean some reduction of the degree of pro-rich inequity. If, however, the non-labour force participation status has more to do with differences in time costs of using the health service, then it ought to be included under the factors driving the divergence between needed use and actual use distributions.

We have so far preferred to include this variable under the non-need variables on the grounds that ideally "true" need differences ought to be picked up by the demographic and health status variables directly, not by labour force status *per se*. Also, for other (non-) activity states, like housework, student, self-employed, etc, the need status is not obvious. The alternative choice will not, in general, change the very significant results (like the pro-rich inequity in specialist use) but it might, in various places, mean a substantial re-ranking of countries.

It is clear from the results in most tables that the meaning and impact of activity status varies tremendously across countries. A further breakdown of the decomposition into the respective categories shows that in some countries (notably Denmark and Hungary) it is particularly the retired status which has often a strong pro-poor contribution to inequity. This may mean that the (early) retired in these countries are worse off than working individuals in the same age category, and also receive more doctor attention. A remarkable result for Finland is that this is the only country where the higher utilisation rates of employed versus non-employed lead to a more pro-rich distribution of primary care visits. A closer investigation of primary care visits in Finland reveals that this may partly be due to the inclusion of occupation-based health visits.[8] A proper understanding and interpretation of these findings requires a thorough understanding, not only of health care policies, but also of the operation of labour markets and social policies in each of the countries. This goes beyond the scope of this analysis. But from a country-specific perspective, such a further decomposition of contributions into its components may prove very fruitful in detecting sources of income-related differences in care use.

5.2.4. *Contribution of regional disparities*

One determinant which potentially has greater relevance for health policy making is regional disparities in use. Here also it is important to distinguish between the regional differences in utilisation *per se* – which are measured by the regression coefficients – and

their contribution to inequalities in use by income. Regional use disparities will *not* contribute to income-related inequalities in use *unless* there are also regional differences in income level. In practice, regional differences in medical care utilisation often *do* mirror underlying socio-economic differences. While the decomposition method used in this study has the potential to detect the contributions quite precisely, the regional information available in most of the surveys used in this study is extremely limited. We have listed the regions that we could distinguish in Table 3.A1.6. At best, it represents some broad regional division of the respective countries and for several countries, even such a broad regional identifier was not (made) available. For those countries for which region of residence of the survey respondent *was* available, it often constitutes a very large territory which includes both urban areas which are well-endowed with a supply of medical services as well as rural areas with a much lower availability of (especially secondary and tertiary) care services. Only for a few countries it was possible to differentiate (densely populated) urban areas from (intermediate and thinly populated) rural areas.

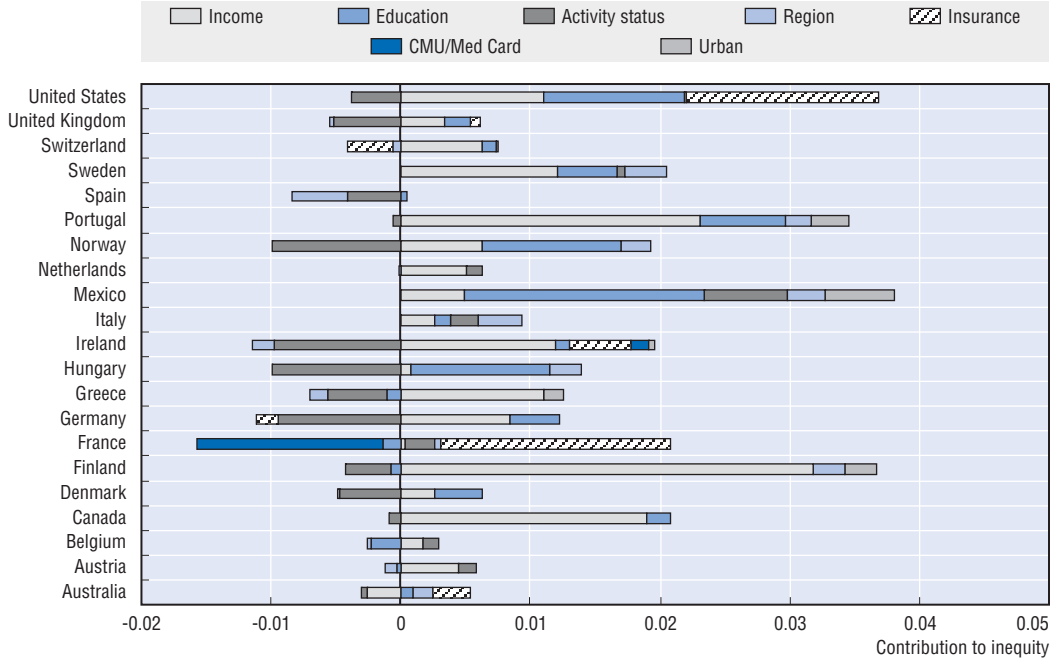
Nonetheless, the decomposition by region proved to be of interest for a number of countries. As for all other categorical variables, the estimated size of each separate regional dummy's contribution depends, in part, on the omitted category (here region 1) with which they are compared. While there are regional differences in use for every type of health care use, their contribution to income-related use differentials is, not surprisingly, greatest for those types of care with strong income-related inequity patterns. That is why we observe, for instance, substantial pro-rich regional contributions for specialist visits in Italy, Spain, Hungary, Greece and Norway and, to a lesser extent, in Portugal and in Ireland. For hospital care, some pro-rich regional contributions emerge for Italy, Spain, Finland, Greece and Hungary, and interestingly, negative (*i.e.* pro-poor) contributions for countries like Canada and Sweden. The *inter-regional differences* contributions have to be interpreted in conjunction with the urban-rural differences, which may be able to capture *intra-regional differences*. The contribution of the urban-rural differences is mostly pro-rich. It reflects that people living in urban areas tend to be wealthier and to have better access to secondary care services. In Greece and Portugal, the urban-rural contribution is sometimes larger than the regional contribution. The effect is particularly large in Mexico, where urban-rural differences account for more than half of the degree in pro-rich inequity in hospital care use.

In Spain, Italy, Hungary, Greece and Portugal, the regional differences reflect familiar geographic patterns. In Spain, the (disadvantaged) regions South and Centre are responsible for most of the regional impact (as already mentioned above). In Hungary, most of the regional effect is due to the higher consumption of Middle Hungary (which includes the capital Budapest and is richer) versus the rest of the country. In Italy, the north-south differences account for most of the regional impact. A similar situation emerges for hospital care in Greece, with the Athens region (Attica) contributing most to the pro-rich pattern. It is worth noting that the contribution of urban dummies is particularly important for this country.

Perhaps equally noteworthy is the fact that regional variation does *not* contribute a great deal to total income-related inequity in some countries with marked regional disparities. For example we did not detect substantial contributions of disparities among Canadian provinces, French regions, German Länder, Mexican, UK and US regions. As indicated above, this may be due to a large extent to the unsatisfactory regional classification used. In a number of cases (*e.g.* France), there are substantial differences in mean use across regions, but the income differences between the regions appear smaller than in, say, Italy or Spain. Hence, the use differences do not translate into income-related use inequalities.

Figure 3.12. **Decomposition of inequity in probability of any doctor visit**

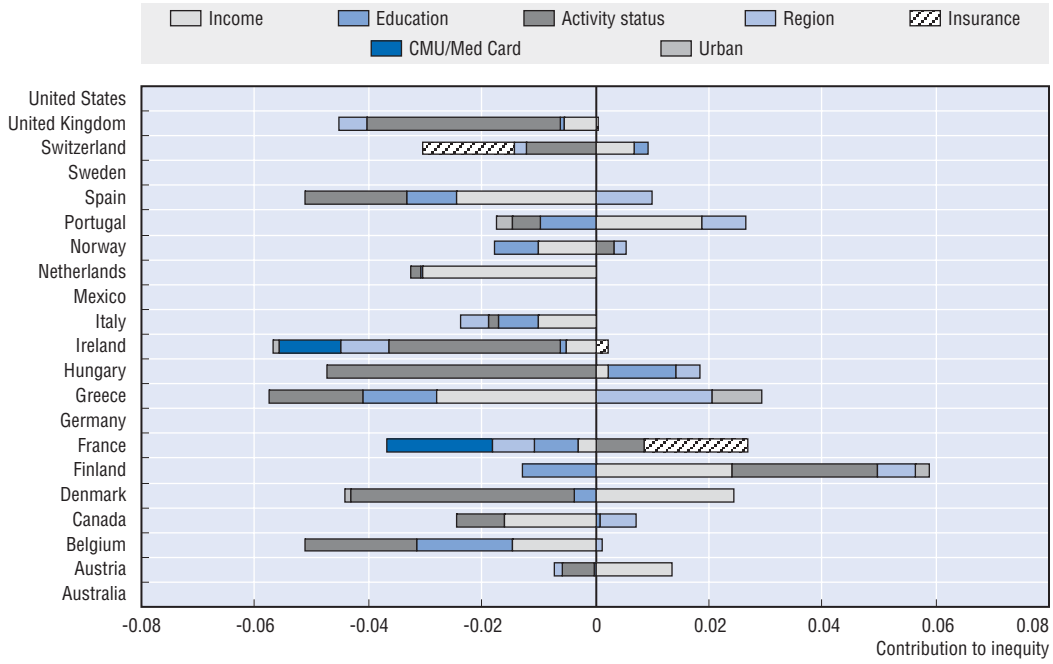
I.e. including need contributions



Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.13. **Decomposition of inequity in number of GP visits**

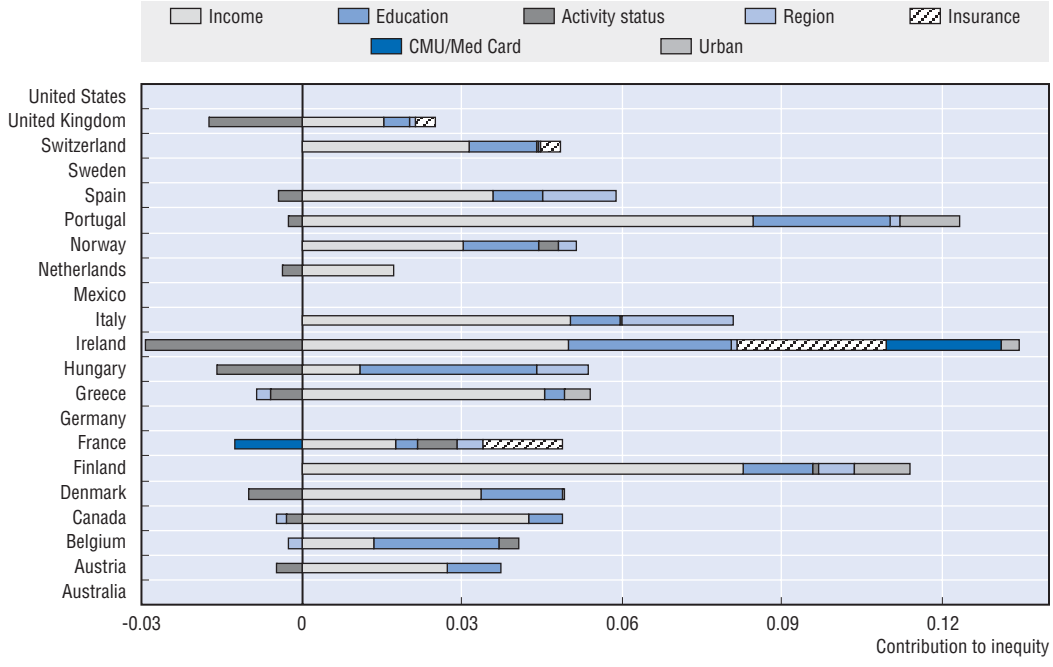
I.e. including need contributions



Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.14. **Decomposition of inequity in probability of any specialist visit**

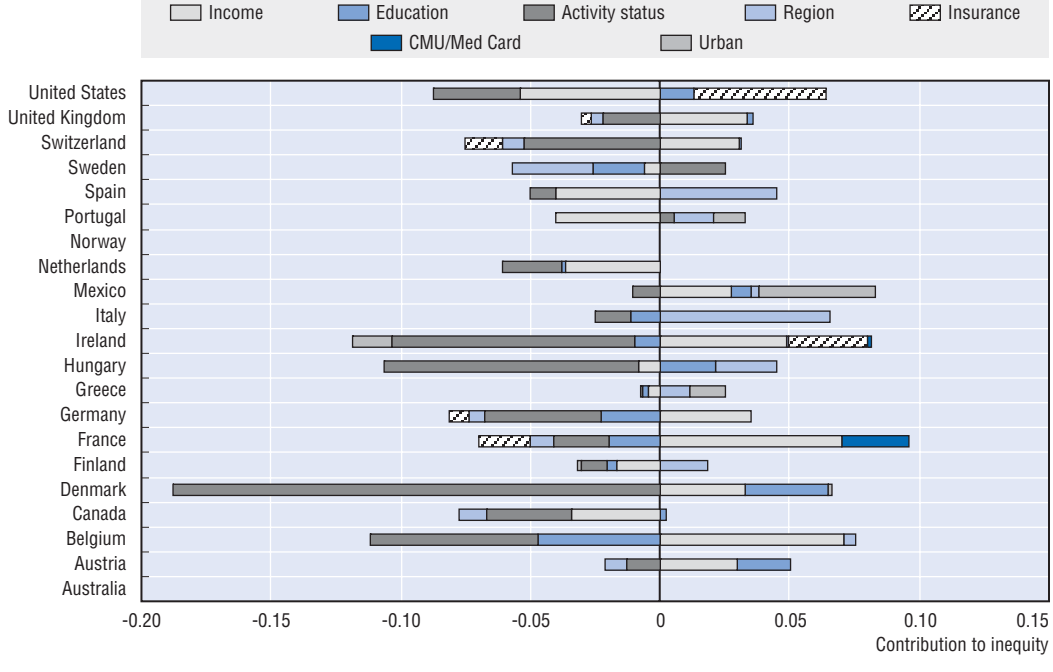
I.e. including need contributions



Source: Van Doorslaer, Masseria *et al.* for OECD.

Figure 3.15. **Decomposition of inequity in number of hospital nights**

I.e. including need contributions



Source: Van Doorslaer, Masseria *et al.* for OECD.

5.2.5. *Contribution of private health insurance coverage*

Finally, last but not least, inequalities in the degree of private insurance coverage of the population may exert an influence on patterns of health care use by income. Like labour force status, the voluntary purchase of health insurance coverage cannot be considered as entirely exogenous in these utilisation models. As a result, any estimated "effects" or "contributions" have to be interpreted with caution since they may be as much a result of demand for insurance behaviour as of demand for care behaviour.

Unfortunately, information on insurance coverage was deleted from the ECHP survey after 1996 and the information was also lacking for a lot of the non-ECHP based countries. As a result, we have been able to include insurance among the explanatory variables for only seven countries: Australia, France, Germany (SOEP), Ireland, Switzerland, the UK and the US. The results are nonetheless interesting. It is worth emphasizing that private insurance has a different meaning in each of these countries (*cf.* Table 3.A1.2). In Australia, the 43% of the population with private cover (52% in this sample) have additional benefits, like choice of doctor in public hospitals and treatment in private hospitals. In France, about 85% of the population buys (complementary) private health insurance (88% in this sample) to cover public sector co-payments. Certain groups with chronic illnesses are exempt from paying these (13.6% in the sample). Since the introduction of the *Couverture Maladie Universelle* (CMU) in 2000, for the least well off 10% of the population (4.6% in the sample) care is essentially free of charge. In Germany, most of the population is insured publicly through the sickness funds and private insurance can mean a number of things. In the SOEP, we could distinguish: *i)* private cover for those (self-employed or high income) who opt out of the public system (12% of sample), *ii)* whether deductible was taken out by these privately insured (4.2% of sample), *iii)* supplementary private cover bought by publicly insured for additional choice and upgraded hospital accommodation (8.8% of sample), *iv)* privately insured as civil servant (*Beihilfe*; 10.9% of sample).

In Ireland, those with incomes below a certain threshold (category I, nearly 30% of the population) are eligible for a medical card which entitles them to free GP and other services. All others (category II) have to pay fee-for-service for GP consultations and for some outpatient and inpatient care.[9] But more than 50% of the Irish population has private insurance to cover costs of inpatient and outpatient care. In Switzerland, basic cover is mandatory and people can choose among four different types of cover: *a)* ordinary policies; *b)* policies with a higher level of deductible; *c)* bonus insurance, where individuals receive a premium reduction if they did not use their cover in the previous year; *d)* HMO insurance, where individuals obtain premium discounts if they choose to restrict their choice of providers to those indicated by the insurer. Supplementary insurance for additional comfort or luxury treatment is purchased by about 30% of the population. In the UK, 15.6% of the sample purchased supplementary private health insurance which usually covers quicker access to certain hospital services (*e.g.* elective surgery). Finally, in the US, most people are covered through private insurance plans, usually tied to their employment, while Medicare (for the over 65) and Medicaid (for the poor) provide public cover. In the MEPS, we used the variables private *or* public cover to capture the effect of insurance coverage. In that way, it captures best the contribution of any cover (or lack of it).[10]

In general, the insurance effects are fairly small and in the expected direction, but some are worth a closer look. In particular the French, Irish and US results are revealing with respect to the contribution of "coverage gaps" to inequities in use. For France, we have

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included three dummy variables, one for private health insurance, one for people "exempted" from co-payments for medical reasons, and one for CMU cover, but we have summed the contributions of the latter two. Table 3.A1.12 and Figures 3.11-3.12 for total visits show that they have the expected opposite effects: private cover increases and public cover decreases the pro-rich distribution of all doctor visits. On average, the CMU does not fully compensate the private insurance effect, mainly because it relates to a much smaller population group, but also because its consumption effect appears smaller than that of private insurance (not shown). Interestingly, the breakdown by GP and specialist visits (in Table 3.A1.13 and 3.A14) shows that the pro-rich contribution of private health insurance is far greater for specialist than for GP visits. The reason for this turns out to be that – while both private and public cover increase GP use to a similar degree – the effect of private cover on specialist use is much higher for private (*i.e.* 1.6 extra visits per year) than for public (only 0.3 extra visits) coverage. Since the CMU was only introduced in 2000 and the data relate to the same year for France, it remains to be seen whether this is just a transitory start-up effect or whether equalizing the financial access cost is not sufficient to equalize specialist use among those with public and private health insurance coverage.

For Ireland, people without private health insurance and without public (medical card) cover are the reference category (about 20% of the population). Private health insurance is complementary for an individual in category II. Its contribution to the overall level of inequality is pro-rich and particularly important for hospital, dental and specialist care. Unlike the French results, the contribution of public cover is on average small. Moreover, for specialist care the public cover effect even has a positive contribution and reinforces the pro-rich effect of private health insurance, because category I persons apparently tend to use less specialist care.

As explained above, the contribution of the variable "public or private coverage" for the US can best be interpreted as an effect of being "not insured". Table 3.A1.12 quantifies and Figures 3.11 and 3.12 visualize the contribution of the unequal distribution of the uninsured to the degree of pro-rich inequity found both for total visits to a doctor and for the probability of any visit. In both cases, it appears that the insurance coverage gap in the US accounts for about 30% of the total degree of inequity found in doctor utilisation. The impact of insurance appears to be large also for the number of nights spent in hospital (*cf.* Table 3.A1.15*a*), but not for the admission probability (*cf.* Table 3.A1.15b). The distribution of hospital care would be a lot more pro-poor (HI would be 0.05 units lower) than it is now if insurance coverage were more equally distributed across the US population.

As expected, the contributions of the insurance variables for the four other countries are much more modest. In Australia, private insurance mainly buys access to privately provided hospital care and choice of doctor. Its contribution appears to be indeed pro-rich for both doctor utilisation and hospital care utilisation, but more substantial for the latter, as expected. It does appear therefore to buy Australians with such cover somewhat better access to the hospital. However, it does not stop the distribution of hospital care in Australia (in terms of probability of utilization) from being pro-poor (Table 3.A1.15b).

The private insurance coverage purchased in Germany – while clearly income-related – does not appear to have a large impact on the distribution of care across income groups. The impact of private health insurance in Switzerland is peculiar: higher income groups are more likely to take out the larger deductibles and to use less of all medical care. As a result, the contribution of insurance coverage is negative (*i.e.* pro-poor) but small. In

the UK, supplementary health insurance mainly buys access to private care, mainly to avoid NHS waiting lists (16% in the BHPS sample, mainly high incomes). The contribution to pro-rich inequity in specialist and hospital care is, however, not very great. For other countries where private insurance might play some role for some types of care – *e.g.* Canada, Denmark, Finland, Netherlands, and Spain – we cannot conclude anything because of lack of data in the surveys used for this study. It is conceivable that, in its absence, some of the contribution of the unequal private coverage distribution is now picked up by the income, education or activity status variables.

6. Conclusions

The present analysis updates and extends previous results obtained in Van Doorslaer, Koolman and Puffer (2002). It updates the analysis from 1996 to around 2000 for 13 of the 14 countries included in the earlier study (Luxembourg is excluded) and adds results for eight other OECD countries, *i.e.* Australia, Finland, France, Hungary, Mexico, Norway, Switzerland and Sweden. It also goes beyond the earlier study by using new methods for need standardization and inequity decomposition, by distinguishing explicitly between the probability of any use and total annual use, and by including hospital care and dental care utilisation.

However, the extension and update comes at a price in terms of comparability. First, the common core database – the *European Community Household Panel* survey – has stopped collecting information on health insurance coverage after 1996. For three countries (Germany, Luxembourg and UK), the ECHP panel was terminated altogether and the ECHP data replaced by similar (but not identical) country-specific surveys (like the *German Socio-economic Panel* and the *British Household Panel Survey*). Taking into account that the ECHP did not include Sweden and that it never collected comparable data for medical care utilisation in France, this meant that for 11 of the 21 countries included in this study, we had to rely on country-specific survey data. While virtually all of these are the best surveys currently available in the participating countries for this purpose, it does imply some decrease in the degree of data comparability compared with the results presented in Van Doorslaer, Koolman and Puffer (2002).[11] It means that we could not provide a sufficiently comparable analysis to provide complete results for all types of care for all countries, though the great majority of countries are included in each of the comparisons.

We have used both simple quintile distributions and concentration indices estimated using regression models to assess the extent to which adults in equal need for care appear to have equal rates of medical care utilisation. The usefulness of the measurement method crucially hinges on the acceptance of the horizontal equity principle as a policy goal. To the extent that "equal treatment for equal need" is not an explicit policy objective – or only for public care, and not for private care – the measures have to be used with caution for equity performance assessment. The analysis for dental care differs from this general pattern because no indicators for dental care need (other than demographics) were available in most surveys. Some of the findings corroborate those obtained in Van Doorslaer, Koolman and Puffer (2002) and the extensions shed further light on the mechanisms underlying the patterns of care utilisation by income that we observe in OECD countries.

With respect to *physician utilisation*, it is clear that OECD countries still differ tremendously in mean doctor visit rates. The observed relative distributions around these means tend to favor the lower income groups. This is mainly because the need for

physician services is likewise concentrated among the worse off. After having "standardized out" these need differences, positive and significant horizontal inequity is found in about half of the countries, both for the contact probability and for the total number of visits, but the degree of this measured inequity is fairly small. Higher income adults do have slightly better chances of seeing a doctor than lower income individuals, but the differences are not very large. The degree of pro-rich inequity in doctor use is highest in the US, followed by Mexico, Finland, Portugal and Sweden.

However, breaking down total physician utilisation into *primary care* (GP) and *secondary care (specialist)* physician visits reveals very divergent patterns. In the majority of countries, GP visits are equitably distributed across income groups and where significant HI indices emerge, they are often negative, indicating a pro-poor distribution. This is the case for Ireland, Belgium, Spain, the UK, the Netherlands, Greece and Italy. Pro-poor co-payment exemptions (as in Ireland) or reductions (as in Belgium) seem to induce more pro-poor distributions. The only country with a significant pro-rich GP visit distribution is Finland. But as indicated above, primary care visits to doctors in public health centres are also found to be pro-poor in Finland (Unto Häkkinen, personal communication). The overall pro-rich distribution is probably partly due to some of the occupational health and private doctor visits being reported as GP visits.

The findings suggest little or no inequity in the probability of seeing a GP across countries: in the great majority of OECD countries, rich and poor have very similar probabilities of contacting a GP when they need one. This corroborates the earlier finding of Van Doorslaer, Koolman and Puffer (2002).

The picture is very different with respect to consultations with a medical specialist. In every country for which there are the necessary data, without exception, after controlling for need differences, the rich are significantly more likely to see a specialist than the poor, and in most countries also more frequently. Pro-rich inequity is large here, with most indices exceeding 0.05. Pro-rich inequity is especially large in Portugal, Finland and Ireland. The income-based public/private split in Ireland, the large out-of-pocket costs and unequal distribution of specialist services in Portugal, and the high co-payments and private sector options offered in Finland appear to be the main factors driving this situation.[12] The large number of countries with a fairly modest degree of pro-rich specialist care distribution (with HI indices between 0.03 and 0.06) suggests that there appears to be some "natural" tendency of the better-off to use more specialist care, irrespective of system characteristics.

The story emerging for *inpatient care utilisation* is more equivocal. While infrequent hospital care utilisation with a very skewed distribution is more difficult to analyze reliably with general household surveys and leads to larger standard errors, no clear pattern emerges. Significant indices are only found for countries with very large sample sizes. In Mexico and Portugal, significant pro-rich inequity is found in hospital admission probability, and in Mexico also for overall use. On the other hand, it is not immediately obvious why inpatient care would be distributed pro-poor in countries with very diverse systems such as Switzerland, Canada, Australia, and the US, but not in many other countries. A major limitation in this context is probably that we were only able to capture hospital overnight admissions, thereby missing out on day cases. It is well known that the proportion of elective admissions is much lower in overnight admissions than it is in day cases. It is conceivable that any inequities in hospital care use are more likely to manifest themselves in elective than in acute or emergency admissions. The hospital utilisation patterns analyzed here may reflect disproportionately more acute/emergency cases, for which equitable treatment patterns are more likely.

Finally, *dental care* is quite different from the other types of care because it has more of a luxury investment good character. Public opinion on the applicability of the principle of equal treatment for equal need to adult dental care is far less unanimous, as can be gathered from the exclusion of large sections (or the entirety) of adult dental care from public care insurance packages in a large number of countries. Allocation of (certain types of) adult dental care on the basis of ability to pay rather than need seems to meet far less opposition.

It is no surprise, therefore, to find a pro-rich distribution of both the probability and the frequency of dentist visits in *all* OECD countries. There is, however, wide variation in the degree to which this occurs. It is smallest in some of the countries with the highest visit rates like Belgium, the Netherlands, and Denmark. It is highest in countries where dental insurance is not provided publicly and has to be paid for either out-of-pocket or through private insurance coverage. This appears least affordable to the worse off in countries like Portugal, the US, Spain, Ireland, Canada, Greece, Hungary, Italy and Finland where pro-rich inequity is very large (*i.e.* HI is 0.10 or larger).

The decomposition analyses helped to track down the sources of inequity per country for each type of medical care utilisation. They revealed that income itself is not the only factor leading to income-related patterns of use. We found that, in many instances, education turned out to be an important contributor to a pro-rich distribution, while work activity status often contributes to a more pro-poor distribution. These findings, are, however, not universal and often require a more detailed knowledge of a country's health system or social policy features for a proper interpretation.

Utilisation determinants which are of greater direct interest to health policy analysts are regional discrepancies and health insurance coverage. Unfortunately, neither of these two variables was available for many countries in great detail in our datasets. We found that differences in health care utilisation between richer and poorer regions did make some contribution to overall income-related inequalities in secondary care use in some countries. We observed pro-rich contributions of regional differences for specialist visits in Italy, Spain, Hungary, Norway, Portugal and Ireland, and for hospital care in Italy, Portugal, Spain, Hungary, and Greece. Very often, this reflected familiar discrepancies between better endowed (often the capital) regions and more peripheral regions. In Mexico, urban-rural differences account for more than half of the degree in pro-rich inequity in hospital care use.

Unfortunately, we could only quantify the contributions of disparities in (public and private) health insurance for seven countries. The decomposition analysis showed clearly that in France, for instance, the voluntary purchase of private complementary insurance for public sector co-payments has a substantial pro-rich contribution to specialist use. But the introduction of similar public cover for the poorest through the *Couverture Maladie Universelle* (CMU) in 2000 has induced a significant pro-poor shift which compensates this a great deal. For the US, the analysis shows that the lower utilisation of the uninsured (or incompletely insured) accounts for about 30% of the measured pro-rich inequity in physician utilisation. For Ireland, the contribution of private insurance is pro-rich and particularly important for hospital, dental and specialist care. The contribution of public cover (Medical Card) is more equivocal: it is pro-poor for GP visits and hospital care, but strongly pro-rich for specialist care. This suggests that the medical card coverage of GP care may have the unintended effect of lowering the lower income individuals' use of specialist

care. For Germany, the existence of some voluntary private schemes, mainly covering additional comfort and luxury, has only a small pro-rich contribution to otherwise fairly equitable distributions of care.

While we think that this study adds considerably to the body of comparative knowledge on the equity achievements of OECD health care systems, it is not without important limitations. The available survey data do not permit to go beyond comparisons of reported *quantities* of use, with little or no possibilities to account for potential differentials in *quality*. Inequities in quality may be just as relevant – or perhaps even more so – than inequities in quantity. It is well known that in many countries – especially those with private health services offered alongside public services – not all doctor visits or hospital stays can be assumed, on average, to be of the same quality. While the distinction between general practitioner and specialist visits is one small step in the direction of allowing for such quality differences, more is needed. One obvious next step (data permitting) would be to distinguish between public and private care utilisation.[13] A third dimension to consider is the timeliness of care provided. Increasingly, OECD health systems are experiencing strains through shortages of supply which lead to rapidly increasing waiting times for various types of care. Private insurance and private care offers the possibility not only to buy more or better care, but also quicker care. A largely under-researched question is to what extent income-related inequities exist with respect to the time spent waiting for proper care.

The other obvious area to look into to improve current estimates of inequity is the "needs" adjustment. Clearly, some of the surveys we have used offer far greater potential to measure the care needs of respondents than just the simple (though powerful) self-assessed health indicators used in this study. Sensitivity analyses have shown that inclusion of a much larger battery of health measures into the need adjustment does not change the main thrust of these findings very much, but if it does, it is likely to *increase* the measured degrees of pro-rich inequity (or *decrease* the degrees of pro-poor inequity). Undoubtedly, greater need comparability could be obtained by focusing attention on specific treatments for specific subpopulations (*e.g.* the pregnant, the chronically ill, etc.), but this would come at the price of losing the system-wide perspective taken in this study.

Finally, the most important question is whether and to what extent any inequities in health care usage also translate into inequities in health outcomes. Some of the evidence that is available to answer this question suggests they often do. For example, one Canadian disease-specific study (Alter *et al.*, 1999) looked at differences in access to invasive cardiac procedures after acute myocardial infarction by neighborhood income in the province of Ontario. Whereas the rates of coronary angiography and revascularization were found to be significantly positively related to income, waiting times and one-year mortality rates were significantly negatively related to income. Each US$10 000 increase in the neighborhood median income was associated with a 10% reduction in the risk of death within one year. Similar evidence on socio-economic inequities in coronary operations has been reported for other countries, such as Finland (Hetemaa *et al.*, 2003; Keskimäki, 2003) and the UK (Payne and Saul, 1997; Ben-Shlomo and Chaturvedi, 1995). This suggests that differences in diagnostic and therapeutic utilisation across income groups are not trivial and *do* appear to translate into differential outcomes by income as well, even in a country like Canada, that, at least by the standards of this study, does seem to achieve a fairly equitable distribution of its care. It seems therefore warranted not to underestimate the potential impact of the income-related patterns of health care use described in this study on health outcomes.

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Notes

1. This chapter has been published in its entirety in May 2004 in the OECD Health Working Paper Series (No. 14).
2. For all countries, with the exception of the US (1999), data were for 2000 or a more recent year.
3. There is some debate as to whether it is not treatment but access, or rather access costs, which ought to be equalized (Mooney *et al.*, 1991, 1992; Culyer *et al.*, 1992a, 1992b; Goddard and Smith, 2001). For the present exercise, the difference seems fairly innocuous and mainly related to the interpretation of any remaining differences in utilisation after standardising for need differences. To the extent that these are genuinely due to differences in preferences, and not due to differences in *e.g.* benefit perceptions resulting from differences in information costs, these would not be regarded as inequitable.
4. More detailed information on the design and content of this survey can be found at *www-rcade.dur.ac.uk/echp/*.
5. The modified OECD scale gives a weight of 1.0 to the first adult, 0.5 to the second and each subsequent person aged 14 and over, and 0.3 to each child aged under four in the household.
6. This difference may be explained at least partly by the stronger gatekeeper role played by GPs in the Irish system and the higher density of medical specialists in Germany.
7. Of course, in a fuller structural model, with *e.g.* insurance status endogenous, income could indirectly still be playing a more important role.
8. A more meaningful disaggregation of doctor visits in Finland by sector reveals a high degree of pro-rich inequity for occupational care and private visits, a very low degree of pro-rich inequity in public outpatient care visits and a pro-poor distribution of public health centre contacts (Unto Häkkinen, personal communication).
9. While all individuals in Ireland are entitled to free care in public hospitals, the complex mix between private and public practice has meant that insurance is taken out primarily to ensure quicker access to hospital services and avoid large hospital bills (Harmon and Nolan, 2001).
10. In fact, we experimented with several combinations of public and private coverage variables available but settled for "any cover" for the purpose of this comparison.
11. For nine of the countries included, the analysis was performed by local research teams, albeit using commonly-agreed guidelines and similar Stata syntax.
12. The quite different results for the UK based on the BHPS 2001 compared to the ECHP 1996 results reported in Van Doorslaer, Koolman and Puffer (2002) suggest that the different income measurement and the use of the words "outpatient visits" (rather than "specialist visits") may play a role here.
13. A few studies have been able to do this. Such studies (*e.g.* Atella, 2003 for Italy; Rodriguez *et al.*, 2004 for Spain) have shown that income-related distributions can differ enormously between public and private services.

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ANNEX 3.A1

Measuring and Decomposing Horizontal Inequity

Measuring inequity

This study measures distributions of actual and needed use of care by income quintiles. These are groups of equal size, each representing 20% of the total (adult) population, but ranked by their household income from poorest to richest. The "needed" health care use is computed by running a regression on all individuals in the sample, explaining medical care use (*e.g.* doctor visits or hospital nights) with a set of explanatory variables. This means running a linear OLS regression[1] equation like

$$y_i = \alpha + \beta \ln inc_i + \sum_k \gamma_k x_{k,i} + \sum_p \delta_p z_{p,i} + \varepsilon_i \qquad [1]$$

where y_i denotes the dependent variable (medical care use of individual *i* in a given period) and we distinguish between three types of explanatory variables: the (logarithm of) the household income of individual *i* (ln inc_i), a set of *k* need indicator variables (x_k) including demographic and morbidity variables, and *p* other, non-need variables (z_p). α, β, y_k and δ_p are parameters and ε_i is an error term.

Equation 1 can be used to generate need-predicted values of *y*, *i.e.* the expected use of medical care of individual i on the basis of his/her need characteristics. It indicates the amount of medical care s/he would have received if s/he had been treated as others with the same need characteristics, on average.[2] Combining OLS estimates of the coefficients in Equation (1) with *actual* values of the x_k variables and *sample mean* values of the ln inc_i and z_p variables, we can obtain the need-predicted, or "x-expected" values of utilisation, $\hat{y}_i^X$ as:

$$\hat{y}_i^X = \hat{\alpha} + \hat{\beta} \ln inc^m + \sum_k \hat{\gamma}_k x_{k,i} + \sum_p \hat{\delta}_p z_p^m \qquad [2]$$

Estimates of the (indirectly) need-standardized utilisation, $\hat{y}_i^{IS}$, are then obtained as the difference between actual and x-expected utilisation, plus the sample mean (y^m)

$$\hat{y}_i^{IS} = y_i - \hat{y}_i^X + y^m \qquad [3]$$

The quintile means of these indirectly standardized values give our need-standardized distributions of medical care. They are to be interpreted as the distributions to be *expected if need were equally distributed across quintiles*.

But these quintile distributions are difficult to compare across a large number of countries and types of care use. It is therefore useful to summarize the degree of inequality observed using a *concentration index*. It is defined as (twice) the area between a concentration curve and a line of perfect equality. A medical care *concentration curve* plots

the cumulative proportion of medical care against the cumulative proportion R of the sample, ranked by income (Wagstaff and Van Doorslaer, 2000a and b).

A concentration index of a variable y can be computed using a simple "convenient covariance" formula, which looks as follows for weighted data:

$$C = \frac{2}{y^m} \sum_{i=1}^{n} w_i \left(y_i - y^m \right) \left(R_i - R^m \right) = \frac{2}{\mu} \ \mathrm{cov}_w(y_i, R_i) \qquad [4]$$

where y^m is the weighted sample mean of y, cov_w denotes the weighted covariance and R_i is the (representatively positioned) relative fractional rank of the ith individual, defined as :

$$R_i = \tfrac{1}{n} \sum_{j=1}^{i-1} w_j + \tfrac{1}{2} w_i \qquad [5]$$

where w_i denotes the sampling weight of the ith individual and the sum of w_i equals the sample size (n).

Testing for differences between concentration indices requires confidence intervals. Robust estimates for C and its standard error can be obtained by running the following convenient (weighted least squares) regression of (transformed) y on relative rank:

$$\frac{2\sigma_R^2}{y^m} y_i = \alpha_1 + \beta_1 R_i + \varepsilon_{1,i} \qquad [6]$$

where σ_R^2 is the variance of R_i and $\hat{\beta}_1$ is equal to C, and the estimated standard error of $\hat{\beta}_1$ provides the estimated standard error of C.

The concentration index of the actual medical care use measures the degree of inequality and the concentration index of the need-standardized use (which is our horizontal inequity index HI) measures the degree of horizontal inequity. When it equals zero, it indicates equality or equity. When it is positive, it indicates pro-rich inequality/inequity, and when it is negative, it indicates pro-poor inequality/inequity.

It is worth emphasizing that coinciding concentration curves for need and actual use provide a sufficient but not a necessary condition for no inequity. Even with crossing curves, one could have zero inequity if, for example, inequity favoring the poor in one part of the distribution exactly offsets inequity favoring the rich in another.[3]

Decomposing and explaining horizontal inequity

It is possible to estimate the separate "contributions" of the various determinants and their relative importance. Using the regression coefficients γ_k, (partial) elasticities of medical care use with respect to each determinant k can then be defined as:

$$\eta_k = \gamma_k x_k^m / y^m \qquad [7]$$

where y^m is the (population weighted mean) of y and x_k^m is the (population weighted) mean of x_k. These elasticities denote the percentage change in y result from a percentage change in x_k.

It has been shown (Wagstaff, Van Doorslaer and Watanabe, 2003) that the total concentration index can then be written as:

$$C = \eta_r C_{\ln inc} + \sum_k \eta_k C_{x,k} + \sum_p \eta_p C_{z,p} + G C_\varepsilon \qquad [8]$$

where the first term denotes the partial contribution of income inequality, the second the (partial) contribution of the need variables, and the third the (partial) contribution of the other variables. The last term is the generalized concentration index of the error term μ.

In other words, estimated inequality in predicted medical care use is a weighted sum of the inequality in each of its determinants, with the weights equal to the medical care use elasticities of the determinants. The decomposition also makes clear how each determinant *k*'s separate contribution to total income-related inequality in health care demand can be decomposed into two meaningful parts: *i)* its impact on use, as measured by the use elasticity (η_k), and *ii)* its degree of unequal distribution across income, as measured by the (income) concentration index (C_k). This decomposition method therefore not only allows us to separate the contributions of the various determinants, but also to identify the importance of each of these two components within each factor's total contribution. This property makes it a powerful tool for unpacking the mechanisms contributing to a country's degree of inequality and inequity in use of health care.

Notes

1. We discuss the alternative of using intrinsically non-linear regression models in the section on estimation methods.
2. The average relationship between need indicators and utilisation, as expressed by the regression coefficients, is the implied norm for assessing equity in this health care system. But this approach to measuring need is not intrinsic to the method of measuring equity. If need estimates could be obtained alternatively (*e.g.* from professional judgement), the equity measures could still be computed in the same way.
3. *Cf.* also notes 7 and 8 in Wagstaff and Van Doorslaer (2000a).

Table 3.A1.1. **Equity-relevant delivery system characteristics and provider incentives**

	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilisation	Dentist consultations
Australia	GPs charge FFS. Most (around 70%) "bulk bill" Medicare, some charge patient who is reimbursed 85% of agreed fee schedule. Some over-billing.	Yes	As for GPs, where the provider is formally recognized as a specialist and the patient has been referred by another doctor. In other cases, a lower or no Medicare benefit is paid.	Free accommodation and treatment for Medicare eligible patients in public hospitals. Private insurance can cover most of the cost of private patients in public and private hospitals (can nominate their physician).	Free for school age children and people on low incomes. Otherwise self funded with private health insurance cover available.
Austria	Ambulatory care free at point of delivery, except for farmers and self-employed who pay 20%; mix of capitation and FFS payment.	No	Ambulatory care is free at the point of delivery, except for farmers and self-employed who pay 20%.	About € 4 per day, for up to 28 days per year.	Co-payment of about 20% for most of the population, with payments of up to 50% for special services, such as fitting crowns.
Belgium	Universal public coverage, except for self-employed but most have voluntary private cover. 30% co-payment rate (but 100% for self employed without private cover). Reduced co-payment rate of about 8% for lower socio-economic groups. FFS, agreed fee schedule.	No	Universal public coverage, except for self-employed, but most have voluntary private cover. 40% co-payment rate (reduced rate of 8% for lower income groups). FFS, agreed fee schedule, but some specialties engage in over-billing.	Co-payments I: not uniform, depending on type of intervention, but typically very low (around 5%) Co-payments II: charge for "hotel costs" of hospitalization (fixed for multiple person rooms, an upper limit for two-person rooms; and no upper limit for private rooms).	Co-payments: 20% for consultations (if covered) Higher co-payments for fillings, prostheses, etc. FFS.
Canada	GPs paid fee-for-service. No co-payments. Canada is moving to set up primary health care teams.	Most referrals to specialists are through GPs/family physicians.	Fee-for-service remuneration. No co-payments.	Free of charge for all medically necessary services provided by a public (non-for-profit) hospital.	Outside the Canada Health Act. Most employed people would have some employer-based insurance. People over 65 years have access to some dental coverage.
Denmark	Choice between group I and group II. GP care free for group I (98% of population) but has to accept same GP as gatekeeper for at least six months. Group II (2%) has co-payment for GP, but can choose GP freely.	Yes for group I. No for group II.	People in group II have to pay a co-payment for specialist care, but do not need a referral.	Free of charge.	Co-payment ranging from 35% to 100%. Cost-sharing accounted for about 75% of total cost in 1994.
Finland	GP consultations in municipal health centres available to all with some co-payments (€ 10 per visit) for first three visits. GP visits free for those employees for whom employers organise occupational care. In private sector, substantial co-payments.	Yes, in principle, but not strictly enforced and no referral required for private specialist consultations.	About 65 % of specialist consultations occur in outpatient departments of public (municipal) hospitals (co-payment is € 17). The remainder is consultations in private sector (partly reimbursed by NHI but with substantially higher co-payments).	Most of hospital care delivered in municipal hospitals with some co- payment (€ 23 per day). Doctors paid on a salary basis.	Until 2000, dental care publicly subsidized only for young adults (born in or after 1956). During 2000-2002, reimbursement gradually extended to whole population. Dental care is charged FFS both in public health centres and private practice, but fees are higher in private sector.
France	GPs work FFS in private practices. Free choice of provider. Patients (or their complementary insurance) pay a coinsurance rate (30% of official tariff) + some balance billing. Some people with long-term illnesses exempt.	No	Specialists work in private practices and are paid FFS. Patients (or supplemental insurance) pay a coinsurance rate (30% of the official tariff) + some balance billing (for 35% of specialist visits).	€ 11 per day, plus a complex system of co-payments (and exemptions). Close to 93% of hospital expenditure is covered by social health insurance.	A 30% co-payment rate applies to "simple" consultations but prostheses are poorly reimbursed. As a result, private insurance plays an important role in access to dental care.

Table 3.A1.1. **Equity-relevant delivery system characteristics and provider incentives** *(cont.)*

	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilisation	Dentist consultations
Greece	Public sector: primary care centers in rural areas only. In urban areas, public primary care from primary care physicians, hospital OP and SI polyclinics, who charge on an ATP basis. Free of charge in theory (but informal payments are common).	No (in practice).	Private financing is very high, most is out-of-pocket (informal payments also common). Public sector: combination of salaried doctors FFS. Private sector: physicians (incl. many doctors working in public sector) charge on a FFS basis.	Public sector: Official payments through social insurance but informal payments still prevalent. Private sector: Large co-payments, with most finance from out-of-pocket.	Public: Payments through social insurance. Private: For those without adequate social insurance cover.
Germany	Free at point of delivery; FFS.	No	Substantially higher fees for privately insured; some co-payments; FFS.	€ 8.7 per day to a maximum of 14 days per year. Supplement for private rooms. Full or partial exemption for children (under 18), unemployed people, those on income support and students receiving grants.	Basic and preventive care free of charge. Co-insurance rates of between 35% and 50% for operative treatments.
Hungary	Free at point of delivery, with no patient co-payments. But extensive informal payments. Due to capitation based finance, GPs have incentives to over-refer.	Yes. In practice, gate keeper role limited for some types of specialist care.	Free at point of delivery. No patient co-payments, except for some specific services. Extensive informal payments. Outpatient specialist services are paid on a FFS basis, which provides incentives to treat everyone, irrespective of whether informal payments are made.	Free at point of delivery. Extensive informal payments. Hospitals financed in DRG type system for acute services, which provides incentives to treat everyone. Informal payment system may have more influence on quality than on quantity of care received by individuals with different income levels.	Some dental care services included among the publicly provided services, others not. Dentists allowed to over-bill the fee they receive from the insurance fund. Extensive private dental care market exists, without a private dental health insurance market.
Ireland	The 30% Irish with the lowest income are in group I and get free GP care at point of delivery and GP is paid by capitation. Higher income group II has to pay for GP services in full.	Yes (group I) but can be bypassed by emergency unit; No, for group II.	Free at point of delivery for group I, and group II only has to pay for routine ophthalmologic and aural services; specialists receive higher fee for private care patients.	Persons with full eligibility (group I): No charge Persons with limited eligibility (group II): Charge in 2000 of € 33 per night in a public ward, up to a maximum of € 330 in any 12-months period.	Free dental service to all children up to 16 years of age and to all adults with low incomes. The rest of the population mostly covered by Social Insurance for basic dental care, with balance billing. Cosmetic dentistry not covered. No private dental health insurance market. Private expenditure accounts for an estimated two-third of overall dental expenditure.
Italy	Free at point of delivery. GPs paid on capitation basis.	Yes, but there are exceptions such as for psychiatric, obstetricians, gynecologic, and preventive visits.	For public consultations and outpatient visits, flat rate payment required.	Free at point of delivery. Hospital care mainly delivered by public hospitals. But local health authorities can choose to contract out services to private hospitals. Authorized organizations are reimbursed by NHS funds.	It is mainly private.
Mexico	Public sector General Medical Doctors (GMDs employed by Social Security Institutions) salaried. Private sector GMDs can charge directly to the patient (most are self employed) or they can receive a salary from a private institution.	Yes	Most consultations (about 65%) provided in the public sector.		

Table 3.A1.1. **Equity-relevant delivery system characteristics and provider incentives** *(cont.)*

	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilisation	Dentist consultations
Netherlands	Free for public patients, private patients obtain reimbursement of fee if covered; GPs paid capitation for public and FFS for private patients.	Yes	Most specialists receive a salary from their partnerships, which themselves are paid FFS; other specialists get FFS; academic specialists receive a salary and get FFS for private patients only.	Little or no distinction between public-private patients. Privately insured can buy "first class" comfort policies.	Most dental care covered by sickness funds, either in basic cover or in supplement cover. Cover for privately insured depends on choice of insurance policy.
Norway	Majority of GPs paid FFS, some are salaried. Out-of-pocket co-payments amount to approximately 18% of consultation costs.	Yes	FFS remuneration. Out-of-pocket co-payment covering approximately 18% of consultation costs.	Co-payments, not uniform, depending on type of intervention, typically very low.	Public provision, free of charge for persons aged below 18.Usually private provision for adults.
Portugal	Flat rate co-payments for GP consultations (€ 1.5) and diagnostic tests. "Low income" individuals exempted, as well as those with special medical needs, pregnant women, and children under 12. GP's mainly salaried. In 1999, new experimental mixed system of GP reimbursement introduced (participation is voluntary). Mixed = salary + capitation. FFS for target services.	Yes, but hospital emergency departments often used to bypass.	Co-payments income-related. Half of NHS salaried doctors also work in private practice. Co-payment 100% for consultations in private sector (unless covered by private insurance). Private doctors free to set fees according to reputation. Privately insured individuals tend to go to private specialists, to avoid GP referral and waiting list for same service in the NHS.	Inpatient treatment is free. Co-payments for outpatient visits (€ 3) and emergency visits (€ 5). Exemption of this co-payment for the same groups as in GP consultations.	Very few NHS dentists, so people normally use the private sector. In this case, patients pay 100% of the fees that might be reimbursed by the professional insurance scheme or by the private insurance scheme (if it covers dental care).
Spain	Free at point of delivery; GPs mainly salaried; private sector physicians are usually paid FFS.	Yes, but emergency often used to bypass waiting lists. No referral needed for obstetricians, dentists and ophthalmologists.	Free at point of delivery; Specialists in the public sector paid salaries.	Free at point of delivery. *Double* referral needed (GP *and* specialist) for admissions in large provincial hospital that provides complete range of services. "Public beds" (for NHS patients) in many private hospitals.	Public provision only for teeth extractions and diagnostic tests during pregnancy. (Note: Public provision of all type of dental services for children under 8 in Basque Country and Navarra.)
Sweden	Co-payments low but differ across county councils. GPs salaried in public, and FFS in private sector.	Yes, in practice most referrals to specialist and hospital care are through GPs (although in most county councils, there is no gatekeeper function for Pediatrics, Obstetrics and Gynecology).	Co-payments low but differ across county councils. Specialists salaried in public, and FFS in private sector.	Reimbursement systems for hospitals and co-payments differ across county councils.	Preventive care provided free to everyone under 20 years. Co-insurance for rest of the population. User charges represented about 50% of total expenditure in 1995.
Switzerland	Deductible of CHF 230 per year, then co-payment of 10% up to max of CHF 600. Optional higher deductibles (CHF 300, 600, 1 200 and 1 500) for lower insurance premium.	No	Free choice of physician.	Free choice among public hospitals in the cantons; supplementary insurance provides access to all public and private hospitals.	Not covered by insurance.

Table 3.A1.1. **Equity-relevant delivery system characteristics and provider incentives** *(cont.)*

	GP consultations	GP gatekeeper?	Specialist consultations	Hospital utilisation	Dentist consultations
United Kingdom	Free at point of delivery. GPs paid by mixed reimbursement, mostly capitation with some FFS and salary. Fundholding replaced by decentralised commissioning of secondary care through primary care trusts.	Yes (unless patients access care through hospital emergency units).	Free at point of delivery (in the public sector).	Free at point of delivery. Doctors paid by salary and through private practice. Admissions require referral from GP, except for A&E. Resources allocated geographically through weighted capitation formula.	User charges in NHS (with exemptions) and private. FFS. Growing share of private compared to NHS.
United States	Cost varies widely depending on insurance plan. For Medicare beneficiaries (13% of population, elderly and disabled), co-payments of 20% in excess of the US$100 deductible (lower deductibles if in HMOs).	Yes, for 46-50% of population with public/private managed care plans.	Depends on the insurance plan.	Primarily covered by private and public insurance plans. Co pays vary with plan and length of stay. Charges and payments based on Prospective Payment System upon diagnosis by attending physician. Uninsured pay full cost, though provisions are made for charity cases.	Some private dental insurance; typically not employer subsidized.

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.2. **Regional differences and private insurance characteristics**

	Regional differences	Private insurance
Australia	Universal entitlement to Medicare subsidized services, though access may be affected by supply considerations in rural and more remote areas.	40% of the population has private health insurance. Provides added benefits, such as choice of doctor in public hospitals and treatment and accommodation in private hospitals. Provides assistance with the costs of dental and allied health services.
Austria	Some variation in the distribution of physicians at the state levels and at the regional level; variations also in the distribution of hospitals.	1% is uninsured; 38% has supplementary private health insurance that mostly covers sick leave benefits, more comfortable accommodation in hospital and free choice of physician.
Belgium	Regional differences in utilisation between Flanders, Wallonia and Brussels. Higher consumption in Wallonia and Brussels. Supply of services (mainly hospitals) generally higher in Wallonia and Brussels.	Many employers offer supplemental insurance to cover public insurance co-payments and extra-billing.
Canada	13 different plans, for ten provinces and three territories, but conform to federal Canada Health Act. Shortage of health professionals in rural and remote areas, particularly in the northern regions and on Aboriginal reserves.	Many employers offer supplemental health insurance as benefit to cover services not covered by provincial plans such as prescribed medicines, dental care, etc.
Denmark	The responsibility for primary and secondary care is decentralized. The 14 counties own and run hospitals and prenatal care centres. They also finance GP and other physicians. Only few hospitals, mainly located in the Copenhagen area and private for-profit hospitals, are regulated by the central government.	30% of population; but coverage limited to dental and other services.
Finland	Municipalities (local government) responsible for providing municipal health service, which can create regional differences in access. In addition, substantial regional variation in supply of private doctor services.	Role of private insurance is, in general, modest for the adult population. For children, it has a more important effect, which is reflected also in income-related differences in utilisation patterns.
France	No regional variation in the system's regulation. The density of physicians varies across and within regions.	The public health insurance system covers about 75% of total health expenditures. Half of the other 25% is covered by out of pocket payments and the other half is paid by private health insurance companies offering supplementary health insurance policies to individuals or groups. About 85% of population has such cover. In January 2000 a means-tested public supplementary insurance (CMU, *Couverture Maladie Universelle*) was implemented to ensure access to health care for lower-income groups (about 10% of pop is eligible). This covers all public co-payments and provides reimbursements for glasses and dental prostheses (for CMU beneficiaries, care is essentially free).
Greece	Very wide urban-rural disparities; primary care provided by salaried physicians in health centres for rural areas, by FFS physicians in hospital outpatient departments in urban areas. 2000 reform aims to create regional health authorities and to extend primary care centres to urban areas. In theory one NHS, but in practice, entitlements, access and finance vary substantially across occupation-based sickness funds (SI).	40% of health expenditure private, and 95% of that is financed through out-of-pocket payments. Private insurance market varies; it is generally underdeveloped and confined to major cities.
Germany	Regional negotiations on fee levels.	< 0.5% uninsured, civil servants different insurance, small percentage private insurance.
Hungary	Regional differences in access to health care, due to a concentration of specialist and hospital capacity in the capital. Insurance fund pays for cost of travel to provider.	< 1% uninsured; very small percentage private supplementary insurance.
Ireland	Planning of health services done by regional health boards.	44% of population has voluntary health insurance; VHI pays co-payments and for private care; private care available in public hospitals.

Table 3.A1.2. **Regional differences and private insurance characteristics** *(cont.)*

	Regional differences	Private insurance
Italy	The NHS is highly decentralised It is responsibility of the regional government to achieve the objectives of the National Health Plan. The Regions are the ones who deliver the benefit package to the population through a network of population based health care organizations (local health units) and public and private accredited hospitals. Each region plans health care activities and organizes the supply according to population needs. Moreover, they have the responsibility to guarantee the quality, appropriateness and efficiency of the services provided. The NHS is financed through national and regional taxes, but the general taxation has only a complementary role. The main tax is a regional tax on productive activities.	5-10% of the population has a private insurance. It is supplementary and includes coverage for services not included in the NHS benefit package.
Mexico	Mexico suffers from enormous regional socioeconomic gaps. The Ministry of Health is fostering and financially sustaining compensatory programs for the poorest regions of the countries, especially those located in the south and with high proportions of indigenous populations.	Less than 3% of total population has private insurance. Almost all firms that give this type of health and social benefit are national. The costs of private medical care insurance are in general much higher.
Netherlands	Health care facilities regionally allocated according to need.	< 1% is uninsured; about 1/3 of the population privately insured (no double coverage).
Norway	The proportion of GPs per thousand in the population is higher in small municipalities – rural areas. Specialists are to a larger extent located in urban areas.	Some employers offer supplemental private health insurance.
Portugal	Around 2000 extensions of health centres seem to ensure a fair distribution of GP-care (however, human resources not evenly distributed, and rural areas tend to lack health care personnel, mainly doctors and nurses). Geographical inequities in distribution of specialists (some areas do not provide certain specialist services). Large hospitals unequally distributed; level of autonomy in the five regions is high. Health centres financed by RHA's. Allocation of funds to the RHA's is mainly based on historical data and on capitation (weighted by sex/age and need). Hospital budgets based mainly on historical values. Since 1998, partly based on DRG's.	Private practitioners to be paid by the patients directly. 10% of the population has some private insurance coverage (mostly group insurance provided by employer). Private insurance means double coverage since NHS is universal.
Spain	Regional variations exist as some regions organize most of the public health care (Catalonia, Valencia, Andalusia, Galicia, Basque Country, Navarra, Canary Islands), whereas others don't. Catalonia and the Basque Country took steps to increase competition among providers. Regional differences in private health care facilities. Regional differences in purchase of PHI. More than 20% of the inhabitants in Balearic Islands, Catalonia and Madrid buy PHI.	About 10% of population contracts private health insurance (PHI). Most of PHI is duplicate coverage in order to bypass waiting lists and to obtain direct access to specialist care. For 0.5% of population not covered by the public sector, PHI acts as substitute. The dental policies are complementary. In 1999 tax deductibility of individually purchased health insurance (15% of total premium) was abolished, and employer-provided PHI now fiscally favored. Civil servants have special regime with choice of health care provider – public or private.
Sweden	Variation across 25 county councils.	Private insurance coverage exists but has relatively little significance (about 1%). Employees may also be reimbursed by employer for health care spending, but all fringe benefits are subject to taxation.
Switzerland	Substantial differences in physician (especially specialist) density and hospital bed density across cantons; this is also reflected in large premium differences for basic health insurance between cantons	Private supplementary insurance provides free choice of senior physicians in public hospitals, access to private hospitals and more comfortable accommodation (one or two bed room).
United Kingdom	Resources distributed according to capitation formula to ensure equity; geographical variation in private care considerable. national differences in unit of resource (*i.e.* between England, Scotland, Wales and Northern Ireland).	Around 10% of population has (duplicate) private coverage; growth also result of employment benefits packages.
United States	Large variations by state in all types of private health insurance. Some state variation in Medicaid. Less variation in Medicare.	Private insurance provided through an employer plan is the most common form of coverage for those under 65. For those 65 and over, private supplemental insurance for Medicare is extremely common.

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.3. **Availability of utilisation variables in ECHP and non-ECHP surveys**

	GP visits		Specialist visits		Doctor visits		Hospital nights		Dentist visits	
	Tot.	Prob.	Tot.	Prob.	Tot.	Prob.	Tot.	Prob.	Tot.	Prob.
Australia	No	No	No	No	No	Yes	No	Yes	No	Yes
Austria	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Belgium	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Canada	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Denmark	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Finland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
France	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Germany (SOEP)	No	No	No	No	Yes[a]	Yes[a]	Yes	Yes	No	No
Germany (ECHP) §	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Greece	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hungary	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ireland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Italy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mexico	No	No	No	No	No	Yes	Yes	Yes	No	No
Netherlands	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Norway	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
Portugal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Spain	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sweden[a]	No	No	No	No	Yes[a]	Yes[a]	Yes	Yes	No	Yes
Switzerland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
United Kingdom (BHPS)	Yes[b]	Yes	Yes[b]	Yes	Yes	Yes	Yes	Yes	No	Yes
United Kingdom (ECHP) §	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
United States	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

a) For Germany and Sweden, the reference period of total doctor visits is 3 months.
b) For the UK BHPS, the GP and specialist total visits are reported as categorical variables.
§ For comparison, some analyses were done using 1996 ECHP data for Germany and UK.

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.4. **Health questions (ECHP and non-ECHP)**

Survey	Self-assessed health	Question on health limitations
European ECHP	How is your current health? (Very good, good, fair, bad, very bad.)	Are you hampered in your daily activities by any physical or mental health problem, illness or disability? (Yes, severely; yes, to some extent; no.)
Australian National Health Survey	In general, would you say your health is: excellent, very good, good, fair, poor, not stated.	
Canadian CCHS	In general, would you say your health is: excellent, very good, good, fair, poor.	Impact of health problems on three main domains: home, work or school, and other activities: (sometimes, often, never)
France EPAS-ESPS	Could you rate your health on a 0 to 10 scale (0 = very bad, 10 = excellent)? Five categories derived.	Is your mobility limited? (No, I feel hampered but don't need help, I can walk with a cane or another apparatus, I can move with someone's help, I cannot get out of bed.) Do you usually have difficulties to wash? (Yes, if not: I can do it alone or not.) Do you frequently experience pain? (No, yes: minor, strong, or very strong.)
Germany GSOEP	How satisfied are you with your health on scale from 0 (compl. unsatisfied) to 10 (compl. satisfied). Five categories were derived.	None
Hungary OLEF	How is your health in general? (Very good, good, fair, bad, very bad.)	Are you hampered in your daily activities (such as work, shopping, sports) by any problems, injuries, or diseases? (Yes; No; unable to answer; not willing to answer)
Mexican national health survey	How is your health in general? (Very good, good, fair, bad, very bad.)	Are you hampered in your daily activities by any physical or mental health problem, illness or disability? (Yes, no)
Norwegian level of living standard	How is your health in general? (Very good; good; neither good nor bad; bad; very bad.)	Five questions regarding depression, anxiety, feeling of hopelessness and nervousness. Alternative answers were: very hampered, quite hampered, a little hampered and not hampered at all. Variable health limit sever = 1 if responding very hampered on at least two of the five questions, 0 otherwise. Variable health limit = 1 if responding a little or quite hampered on at least two of the five questions, 0 otherwise.
Sweden ULF Survey	How is your current health? (Very good, good, fair, bad, very bad.)	The respondents were asked two questions about functional ability. In the first question the respondents were asked if they could run a short distance (*e.g.* 100 metres) if they were in a hurry, and in the second question the respondents were asked if they could climb stairs without difficulty. These two questions divide the respondents into three classes of functional ability: 1) Persons who are able to run a short distance and climb stairs without difficulty (no limitations in functional ability); 2) Persons who are unable to run a short distance but are able to climb stairs without difficulty (some limitations in functional ability); 3) Persons who are unable to run a short distance and are unable to climb stairs without difficulty (severe limitations in functional ability).
Swiss Health survey	How is your health at the moment? (Very good, good, fair, bad, very bad.) Is your health better, the same or worse than usually?	Are you hampered in your daily activities by any physical or mental health problem, which has been going on longer than for one year? (yes, no). A second dummy-variable which is one if an individual received treatment for one of several chronic conditions over the last twelve months.
UK BHPS	Health status over the last 12 months: (excellent, good, fair, poor, very poor)	Does your health in any way limit your daily activities compared to most people of your age? (yes, no)
US Medical Expenditure Panel Survey	In general, compared to other people of (one's) age, would you say your health is excellent/very good/good/fair/poor?	Combination of a question asking whether respondent is limited in any way in the ability to work at job, do housework or go to school because of an impairment or a physical or mental health problem (yes/no).

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.5. **Information used regarding income, activity status and education**

Survey	Income	Activity status	Education
European ECHP	Disposable (*i.e.* after-tax) household income per equivalent adult (modified OECD scale). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. No account has been taken of indirect social transfers (*e.g.* reimbursement of medical expenses), receipts in kind and imputed rent from owner-occupied accommodation.	Main activity status – self defined. Seven categories: • employed; • inactive; • housework; • retired; • unemployed; • student; • self-employed.	Three categories: • third level of education; • second stage of second level education; • less than second stage of secondary education.
Australian national health survey	Total gross annual personal cash income (+18); Equivalent income deciles (equivalent income – OECD scale – of the income unit to which the person belongs).	Four categories: employed; own account worker or contributing family worker; Unemployed; Out of labor force.	Three categories: post school qualification; second level of education; and less than second level of education
Canadian CCHS	Only categorical variables. We classified income into five categories based on total household income and number of people living in the household. 1) < CAD 10 000 if one to four people; < CAD 15 000 if five+ people; 2) CAD 10 000 to 14 999 if one or two; CAD 10 000 to 19 999 if three or four; CAD 15 000 to 29 999 if five+; 3) CAD 15 000 to 29 999 if one or two; CAD 20 000 to 39 999 if three or four; CAD 30 000 to 59 999 if five+; 4) CAD 30 000 to 59 999 if one or two; CAD 40 000 to 79 999 if three or four; CAD 60 000 to 79 999 if five+; 5) > CAD 60 000 if one or two; > CAD 80 000 if three+.	There are different variables that describe the activity status of the respondents. Six categories are derived: • employed; • self-employed; • inactive; • retired; • student; • unemployed.	Three categories: • third level of education; • second stage of second level education; • less than second stage of secondary education.
France EPAS-ESPS	Income typically net of most social contributions but not of personal income tax as it is not collected at source. Per equivalent adult income computed.	Six categories: • employed; • inactive; • housework; • retired; • unemployed; • student.	• third level of education; • secondary level of education; • less than secondary; • unknown.
Germany GSOEP		Generated from the monthly calendar in the SOEP for main activity: full time; part time; apprentice; unemployed; retired; maternity leave – student; milit. or civ. service; house work; other.	*a)* school – *Abitur* the highest school degree (13 years) – *Realschule* (ten years), – *Hauptschule* or less (nine years) *b)* highest finished educational degree/professional training: – vocational training – university
Hungary OLEF	Disposable (*i.e.* after-tax) household income per equivalent adult. No details about income composition.	Main activity status: Employed; Inactive; Housework; Retired; Unemployed; Student; Self-employed.	Six response categories re-grouped into three categories: primary; secondary; university.

Table 3.A1.5. **Information used regarding income, activity status and education** *(cont.)*

Survey	Income	Activity status	Education
Mexican national health survey	Disposable (*i.e.* after-tax) household income per adult. It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. The reference period is last week.	Main activity status – self defined: paid employment; paid apprenticeship; training under special schemes; self-employment; unpaid work in family enterprise; education or training; unemployed; retired; doing housework; community or military service; other economically inactive; working less than 15 hours.	Highest level of general or higher education completed (Recognized third level of education; second stage of second level education; less than second stage of secondary education; still at school).
Norwegian level of living standard	Before and after-tax individual and household income (per equivalent adult). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfers received. No account taken of imputed rent from owner-occupied accommodation.	Main activity status – self defined • employed; • inactive; • retired; • unemployed; • student; • self-employed.	Three categories: • Higher education. • Secondary education. • Primary education.
Sweden ULF survey	Disposable (*i.e.* after-tax) household income per equivalent adult (modified OECD scale). It includes income from work (employment and self-employment), private income (from investments and property and private transfers to the household), pensions and other direct social transfer received. No account has been taken of indirect social transfers (*e.g.* reimbursement of medical expenses), receipts in kind and imputed rent from owner-occupied accommodation.	Main activity status – self defined. Seven categories: • employed; • inactive; • housework; • retired; • unemployed; • student; • self-employed.	Four categories: • university education; • secondary education (> 2 years); • short secondary education.(< = 2 years); • primary education.
Swiss health survey	Net (*i.e.* before tax and health insurance contributions, after social insurance and mandatory pension fund contributions) household income and equivalent net household income per month. It includes income from work, pensions and other direct social transfers received. Capital income (from investments and property) not available.	Seven categories: • employed; • inactive; • housework; • retired; • unemployed; • student; • self-employed.	Highest level of general or higher education completed (categorical variable).
United Kingdom (BHPS)	Annual household gross income. Monthly net gross and net labor income Annual non-labor income.	Current economic activity: Self-employed; employed; unemployed; retired; maternity leave; family care; still at school; disabled; training scheme; other	Highest academic qualification: Higher degree; 1st degree; HND, HNC, Teaching; A level; O level; CSE; None of these.
United States medical expenditure panel survey	Household income before tax was adjusted to a net household income using the NBER TAXSIM model. Per equivalent adult using OECD scale.	Main activity status – self defined (paid employment; paid apprenticeship; training under special schemes to employment; self-employment; unpaid work in family enterprise; education or training; unemployed; retired; doing housework, looking after children or other persons; community or military service; other economically inactive).	Highest level of general or higher education completed (Recognized third level of education; second stage of second level education; less than second stage of secondary education; still at school).

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.6. **Survey information on region of residence and health insurance**

Survey	Regional information	Health insurance
European ECHP	Region in which the household is presently situated (NUTS aggregates): Austria: Westosterreich, Ostosterreich, Sudosterreich. Belgium: Brussels, Walloon, Flemish region. Finland: Uusimaa, Etela-Suomi, Ita-Suomi, Vali-suomi, Pohjois-Suomi. Greece: Voreia Ellada, Krentriki Ellada, Attiki, Nisia Aigaiou-Kriti. Ireland: Dublin, rest of Ireland. Italy: Northeast, Northwest, Lombardia, Emilia Romagna, Centre, Lazio, Abruzzo-Molise, Campania, South, Sicilia, Sardegna. Portugal: Norte, Centro, Lisboa e Vale do Tejo, Alentejo, Algave, Acores, Madeira. Spain: Madrid, Northwest, Northeast, Centre, East, South, canaries Islands. For Finland, Greece, Ireland, and Portugal it was possible to differentiate areas with different degree of urbanization (densely populated areas, intermediate areas, and thinly-populated areas). For Denmark, villages were differentiated from small or middle size towns and from larger towns.	None. The only exception is Ireland, for which we obtained additional data on private insurance and medical card status. For 27% of respondents who did not answer we created a dummy for the missing value (ins1 and mcard1).
Australian national health survey	Major cities are differentiated from the rest of Australia.	Whether currently covered by private health insurance.
Canadian CCHS	11 provinces and territories: Newfoundland and Labrador; Prince Edward Island; Nova Scotia; New Brunswick; Quebec; Ontario; Manitoba; Saskatchewan; Alberta; British Columbia; Yukon/Northwest/Nunavut territories.	None
France EPAS-ESPS	There are 22 regions in France, but "supra" regional grouping in eight categories used here. The capital region is the reference: Ile de France (Paris area). Others : north of Paris; north; west; south west; centre east; Mediterranean region.	Private complementary insurance; Public complementary coverage (CMU); None. Individuals declare whether they are exempted from public co-payments because of high cost chronic conditions.
Germany GSOEP	16 regions: Berlin; Schleswig-Holstein; Hamburg; Niedersachsen; Bremen; Nordrhein-Westfalen; Hessen; Rheinl.-Pfalz, Saarl.; Baden-Wuerttemberg; Bayern; Berlin (Ost); Mecklenburg-Vorpommern; Brandenburg; Sachsen-Anhalt; Thueringen; Sachsen.	– privately insured (not in the public system) either because individual is self-employed or above the opting-out income ceiling or is civil servant (Beamter); – a publicly insured can buy additional insurance for access to private unit in hospital and treatment by senior physicians; – German civil servants and their non-working dependants are privately insured but only have to insure 50% , the other half of any bill is paid by the state.
Hungary OLEF	Seven main regions: Region 1 "Ny-Dun", West-Dunantul; Region 2 "Del-Dun" South-Dunantul; Region 3 "Koz-Dun" Middle-Dunantul; Region 4 "Koz-Mo" Middle-Hungary; Region 5 "Esz-Mo" North Hungary; Region 6 "Esz-Alf" North-Alfold; Region 7 "Del-Alf" South-Alfold. "Dunantul" is whole area west of the river Danube. "Alfold" is large area in east and southeast plain of Hungary.	None
Mexican national health survey	Six categories: 1) Federal district (Mexico City Metropolitan Area); 2) North; 3) West; 4) Centre; 5) South; 6) East. Also includes a dummy of urban zone (15 000 inhabitants or more).	Whether person has right to medical service at: 1) Mexican Institute of Social Security (IMSS); 2) Social security and services institute of the workers of the state (ISSSTE); 3) Other institution of social security?; 4) Private medical insurance?
Norwegian level of living standard	Six regions: North; Middle; West; Southwest; Southeast ; capital + surrounding area.	None
Sweden ULF survey	21 counties: Stockholm, Uppsala , Södermanland, Östergötland, Jönköping, Kronoberg, Kalmar, Gotland, Blekinge, Skåne, Halland, Västra Götaland, Värmland, Örebro, Västmanland, Dalarnas, Gävleborgs, Västernorrland, Jämtland, Västerbotten, Norrbotten.	None

Table 3.A1.6. **Survey information on region of residence and health insurance** *(cont.)*

Survey	Regional information	Health insurance
Swiss health survey	Seven regions: lake Geneva (cantons Vaud, Valais and Geneva); Espace Mittelland (cantons Bern, Fribourg, Solothurn, Neuchatel, Jura); Northwest CH (cantons Basel-City, Basel-country, Aargau) ; Zurich (canton Zurich) ; East CH (cantons Glarus, Schaffhausen, Appenzell-Ausserrhoden, Appenzell-Innerrhoden, St. Gallen, Graubünden, Thurgau) ; central CH (cantons Luzern, Uri, Schwyz, Obwalden, Nidwalden, Zug) ; canton Tessin.	Type of mandatory basic insurance chosen (insurance with deductible to a minimum of CHF 230, HMO, bonus insurance plan, etc.). Any supplementary voluntary insurance (called semi-private and private)? Government subsidies for mandatory health insurance payments? (yes, no)
United Kingdom (BHPS)	Ten regions: Southeast; Southwest; East Anglia; East Midlands; West Midlands; Northwest; Yorkshire; North; Wales; Scotland.	Are you covered by private medical insurance, whether in your own name or through another family member? (Yes in own name; yes in another person's name; no.)
United States medical expenditure panel survey	Four large census regions: Northeast, Midwest, South and West. (and SMA).	Constructed from a series of detailed questions about insurance status. Indicates whether or not individual had any private or public insurance during the year.

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.7. **Quintile distributions (after need standardisation), inequality and inequity indices for total physician utilisation**

	Sample size		Poorest	2	3	4	Richest	Total	CI	HI
Australia		Total								
	15 516	Prob.	0.849	0.846	0.835	0.846	0.858	0.847	**–0.014**	0.003
Austria		Total	6.620	6.077	6.407	6.586	7.350	6.608	**–0.043**	**0.026**
	5 610	Prob.	0.877	0.877	0.895	0.886	0.910	0.889	–0.002	*0.006*
Belgium		Total	7.458	7.208	6.841	6.313	6.539	6.872	**–0.114**	**–0.031**
	4 483	Prob.	0.894	0.869	0.908	0.883	0.902	0.891	–0.006	0.002
Canada		Total	4.342	4.470	4.252	4.342	4.417	4.355	**–0.064**	*0.005*
	107 613	Prob.	0.834	0.835	0.841	0.864	0.897	0.866	**0.004**	**0.015**
Denmark		Total	3.331	4.074	3.388	3.944	3.459	3.639	**–0.073**	0.005
	3 787	Prob.	0.784	0.748	0.755	0.777	0.771	0.767	**–0.026**	0.000
Finland		Total	2.501	2.914	3.307	3.265	3.724	3.142	**0.029**	**0.073**
	5 587	Prob.	0.727	0.781	0.824	0.822	0.870	0.805	**0.026**	**0.036**
France		Total	6.567	6.994	7.186	7.086	7.318	7.030	–0.007	*0.017*
	4 381	Prob.	0.841	0.870	0.891	0.882	0.873	0.871	0.005	*0.007*
Germany		Total (3 m)	2.921	2.876	2.689	3.060	3.064	2.922	–0.017	0.010
	12 961	Prob.	0.688	0.707	0.693	0.718	0.718	0.705	–0.005	0.008
Greece		Total	3.753	3.880	4.014	4.056	3.868	3.914	**–0.114**	0.007
	8 983	Prob.	0.627	0.615	0.633	0.646	0.629	0.630	**–0.035**	0.006
Hungary		Total	6.925	7.534	8.587	7.899	6.684	7.525	**–0.073**	0.003
	4 404	Prob.	0.750	0.765	0.781	0.803	0.750	0.770	–0.007	0.006
Ireland		Total	4.343	4.018	3.903	3.767	3.521	3.911	**–0.137**	**–0.032**
	4 601	Prob.	0.715	0.718	0.693	0.703	0.770	0.720	**–0.020**	0.010
Italy		Total	6.116	6.361	6.204	6.158	6.303	6.228	**–0.030**	0.004
	14 155	Prob.	0.810	0.814	0.837	0.835	0.852	0.830	**0.008**	**0.010**
Mexico		Total								
	153 865	Prob.	0.189	0.191	0.206	0.218	0.227	0.206	**0.029**	**0.042**
Netherlands		Total	4.737	5.002	4.402	4.604	4.449	4.639	**–0.080**	–0.017
	8 706	Prob.	0.739	0.749	0.738	0.759	0.773	0.751	–0.003	**0.009**
Norway		Total	3.655	4.136	3.781	3.763	4.073	3.882	**–0.048**	0.009
	3 709	Prob.	0.736	0.782	0.761	0.782	0.788	0.770	–0.003	**0.011**
Portugal		Total	3.976	4.307	4.720	5.002	5.431	4.687	–0.011	**0.068**
	10 276	Prob.	0.714	0.763	0.793	0.805	0.856	0.786	**0.011**	**0.033**
Spain		Total	5.117	5.011	4.929	5.124	4.756	4.988	**–0.086**	–0.012
	12 182	Prob.	0.779	0.774	0.757	0.783	0.796	0.778	–0.008	0.006
Sweden		Total (3 m)	0.812	0.738	0.902	0.867	0.982	0.860	0.012	**0.042**
	5 054	Prob.	0.388	0.366	0.417	0.411	0.418	0.400	–0.003	**0.026**
Switzerland		Total	3.441	3.304	3.367	3.309	3.269	3.338	**–0.044**	–0.008
	13 692	Prob.	0.753	0.757	0.766	0.768	0.758	0.760	–0.005	0.002
United Kingdom *		Total	*5.788*	*5.684*	*5.340*	*5.149*	*5.126*	*5.417*		
	13 712	Prob.	0.787	0.791	0.787	0.786	0.801	0.790	**–0.019**	0.003
United States		Total	2.982	3.412	3.671	3.836	4.223	3.655	**–0.020**	**0.068**
	16 557	Prob.	0.618	0.629	0.690	0.703	0.757	0.683	**0.023**	**0.044**

Note: Significant CI and HI indices in bold (P < 0.05).
Total = mean number in last 12 months.
Prob. = proportion with positive use in last 12 months.
* UK figures obtained as sum of estimated GP and specialist visit rates.

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.8. **Quintile distributions (after need standardisation), inequality and inequity indices for GP care utilisation**

	Sample size		Poorest	2	3	4	Richest	Total	CI	HI
Australia		Total								
	15 516	Prob.								
Austria		Total	4.884	4.159	4.294	4.358	4.805	4.501	**–0.073**	0.001
	5 610	Prob.	0.843	0.830	0.826	0.800	0.841	0.828	**–0.014**	–0.005
Belgium		Total	5.745	5.469	4.964	4.528	4.468	5.035	**–0.144**	**–0.057**
	4 483	Prob.	0.861	0.845	0.887	0.848	0.843	0.857	**–0.013**	–0.004
Canada		Total	3.469	3.605	3.304	3.237	3.162	3.265	**–0.089**	**–0.016**
	107 613	Prob.	0.738	0.757	0.764	0.786	0.813	0.786	0.001	**0.016**
Denmark		Total	2.579	3.113	2.548	2.572	2.411	2.645	**–0.104**	**–0.028**
	3 787	Prob.	0.762	0.727	0.715	0.743	0.751	0.739	**–0.031**	–0.002
Finland		Total	1.928	2.018	2.264	2.206	2.381	2.159	*–0.008*	**0.045**
	5 587	Prob.	0.651	0.672	0.739	0.745	0.754	0.712	*0.013*	**0.034**
France		Total	4.597	4.884	5.020	4.651	4.665	4.764	**–0.027**	–0.005
	4 381	Prob.	0.777	0.816	0.829	0.824	0.808	0.811	0.003	0.006
Germany (96)		Total	4.978	5.564	5.377	5.252	4.491	5.131	**–0.075**	*–0.021*
	8 392	Prob.	0.781	0.788	0.797	0.769	0.737	0.774	**–0.018**	**–0.011**
Greece		Total	2.375	2.046	2.142	2.067	1.932	2.113	**–0.148**	**–0.033**
	8 983	Prob.	0.565	0.532	0.539	0.538	0.488	0.532	**–0.066**	**–0.023**
Hungary		Total	4.849	4.950	5.934	5.191	3.992	4.987	**–0.101**	*–0.024*
	4 404	Prob.	0.677	0.703	0.712	0.735	0.659	0.697	**–0.018**	0.002
Ireland		Total	3.985	3.419	3.402	3.057	2.776	3.329	**–0.161**	**–0.061**
	4 601	Prob.	0.708	0.711	0.686	0.685	0.750	0.708	**–0.025**	0.006
Italy		Total	5.102	5.079	4.891	4.609	4.573	4.851	**–0.059**	**–0.026**
	14 155	Prob.	0.796	0.793	0.816	0.804	0.816	0.805	0.003	*0.005*
Mexico		Total								
	153 865	Prob.								
Netherlands		Total	3.180	3.196	2.680	2.817	2.710	2.917	**–0.098**	**–0.038**
	8 706	Prob.	0.700	0.710	0.696	0.723	0.717	0.709	–0.007	0.006
Norway		Total	2.871	3.284	2.999	3.022	2.906	3.016	**–0.066**	–0.006
	3 709	Prob.	0.702	0.753	0.731	0.746	0.738	0.734	–0.009	0.007
Portugal		Total	3.120	3.361	3.334	3.355	3.274	3.289	**–0.074**	0.008
	10 276	Prob.	0.671	0.730	0.745	0.758	0.758	0.732	–0.003	**0.021**
Spain		Total	3.760	3.569	3.508	3.406	2.915	3.432	**–0.114**	**–0.047**
	12 182	Prob.	0.740	0.726	0.710	0.722	0.679	0.716	**–0.027**	**–0.014**
Sweden		Total								
	5 054	Prob.								
Switzerland		Total	2.208	2.184	2.187	2.165	1.956	2.140	**–0.062**	*–0.024*
	13 692	Prob.	0.562	0.586	0.588	0.591	.,581	0.582	–0.005	0.008
United Kingdom		Total	4.351	4.196	3.859	3.678	3.564	3.930	**–0.119**	**–0.042**
	13 712	Prob.	0.754	0.763	0.753	0.747	0.763	0.756	**–0.023**	0.001
United States		Total								
	16 557	Prob.								

Note: Significant CI and HI indices in bold (P < 0.05).
Total = mean number in last 12 months.
Prob. = proportion with positive use in last 12 months.
Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.9. **Quintile distributions (after need standardisation), inequality and inequity indices for specialist care utilisation**

	Sample size		Poorest	2	3	4	Richest	Total	CI	HI
Australia		Total								
	15 516	Prob.								
Austria		Total	1.736	1.918	2.113	2.228	2.545	2.108	0.021	**0.078**
	5 610	Prob.	0.591	0.590	0.641	0.645	0.707	0.635	**0.023**	**0.039**
Belgium		Total	1.713	1.739	1.876	1.785	2.072	1.837	–0.031	**0.038**
	4 483	Prob.	0.454	0.466	0.514	0.517	0.586	0.507	*0.017*	**0.052**
Canada		Total	1.098	1.088	1.160	1.309	1.450	1.295	**–0.015**	**0.054**
	107 613	Prob.	0.494	0.474	0.494	0.541	0.598	0.541	**0.013**	**0.044**
Denmark		Total	0.752	0.961	0.840	1.372	1.049	0.994	0.009	**0.093**
	3 787	Prob.	0.279	0.292	0.288	0.335	0.330	0.305	–0.030	**0.041**
Finland		Total	0.574	0.896	1.043	1.059	1.344	0.983	**0.110**	**0.136**
	5 587	Prob.	0.263	0.365	0.427	0.396	0.531	0.396	**0.105**	**0.118**
France		Total	1.969	2.110	2.166	2.435	2.653	2.266	**0.037**	**0.063**
	4 381	Prob.	0.527	0.575	0.617	0.641	0.654	0.603	**0.034**	**0.045**
Germany (96)		Total	2.599	3.481	3.632	3.254	3.719	3.335	–0.003	**0.045**
	8 392	Prob.	0.536	0.584	0.598	0.607	0.648	0.595	**0.019**	**0.034**
Greece		Total	1.379	1.835	1.872	1.989	1.935	1.802	**–0.074**	**0.055**
	8 983	Prob.	0.367	0.416	0.435	0.465	0.464	0.429	**–0.018**	**0.049**
Hungary		Total	2.077	2.584	2.654	2.707	2.692	2.538	–0.019	**0.055**
	4 404	Prob.	0.452	0.448	0.492	0.522	0.535	0.490	0.014	**0.044**
Ireland		Total	0.358	0.600	0.501	0.710	0.744	0.582	0.005	**0.129**
	4 601	Prob.	0.153	0.212	0.202	0.247	0.263	0.215	0.014	**0.102**
Italy		Total	1.015	1.282	1.313	1.549	1.730	1.378	**0.072**	**0.112**
	14 155	Prob.	0.338	0.406	0.438	0.467	0.537	0.437	**0.071**	**0.087**
Mexico		Total								
	153 865	Prob.								
Netherlands		Total	1.558	1.806	1.723	1.787	1.739	1.722	**–0.051**	0.019
	8 706	Prob.	0.369	0.379	0.383	0.388	0.407	0.385	–0.011	**0.018**
Norway		Total	0.784	0.852	0.783	0.741	1.1668	0.865	0.015	0.063
	3 709	Prob.	0.267	0.295	0.296	0.324	0.348	0.306	0.019	**0.055**
Portugal		Total	0.856	0.945	1.386	1.647	2.156	1.398	**0.140**	**0.208**
	10 276	Prob.	0.291	0.372	0.404	0.463	0.576	0.421	**0.086**	**0.130**
Spain		Total	1.357	1.442	1.420	1.718	1.842	1.556	–0.026	**0.066**
	12 182	Prob.	0.400	0.430	0.430	0.473	0.534	0.453	**0.022**	**0.061**
Sweden		Total								
	5 054	Prob.								
Switzerland		Total	1.174	1.396	1.440	1.497	1.724	1.446	**0.051**	**0.074**
	13 692	Prob.	0.397	0.434	0.437	0.497	0.489	0.450	**0.034**	**0.047**
United Kingdom		Total	1.437	1.488	1.481	1.470	1.562	1.487	**–0.062**	*0.017*
	13 712	Prob.	0.399	0.395	0.399	0.414	0.410	0.403	**–0.038**	*0.011*
United States		Total								
	16 557	Prob.								

Note: Significant CI and HI indices in bold ($P < 0.05$).
Total = mean number in last 12 months.
Prob. = proportion with positive use in last 12 months.
Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.10. **Quintile distributions (after need standardisation), inequality and inequity indices for hospital care (inpatient) utilisation**

	Sample size		Poorest	2	3	4	Richest	Total	CI	HI
Australia		Total								
	15 516	Prob.	0.147	0.156	0.138	0.116	0.125	0.136	**–0.113**	**–0.049**
Austria		Total	2.047	1.800	1.805	2.284	2.304	2.048	**–0.097**	0.041
	5 610	Prob.	0.142	0.134	0.137	0.123	0.164	0.140	**–0.055**	0.019
Belgium		Total	1.369	1.280	1.141	1.207	1.079	1.215	**–0.222**	–0.048
	4 483	Prob.	0.111	0.105	0.127	0.095	0.095	0.107	**–0.141**	–0.034
Canada		Total	0.704	0.740	0.603	0.475	0.480	0.533	**–0.256**	**–0.078**
	107 613	Prob.	0.100	0.101	0.087	0.080	0.075	0.082	**–0.150**	**–0.051**
Denmark		Total	1.636	0.633	0.676	0.717	1.054	0.943	**–0.205**	–0.093
	3 787	Prob.	0.100	0.097	0.080	0.096	0.095	0.094	**–0.081**	–0.011
Finland		Total	0.791	1.649	1.266	0.896	0.827	1.086	**–0.170**	–0.047
	5 587	Prob.	0.112	0.142	0.129	0.104	0.118	0.121	**–0.053**	–0.016
France		Total	0.794	0.933	1.398	0.867	1.039	1.006	–0.019	0.035
	4 381	Prob.	0.090	0.099	0.092	0.091	0.096	0.094	–0.037	0.000
Germany		Total	2.053	1.878	2.522	2.333	1.376	2.032	**–0.059**	–0.029
	12 961	Prob.	0.132	0.129	0.130	0.120	0.113	0.125	**–0.064**	–0.033
Greece		Total	0.733	0.646	0.544	0.665	0.692	0.656	**–0.230**	0.003
	8 983	Prob.	0.056	0.046	0.041	0.056	0.062	0.052	**–0.137**	0.040
Hungary		Total	2.817	2.568	2.750	2.147	2.138	2.485	**–0.160**	–0.052
	4 404	Prob.	0.139	0.146	0.166	0.154	0.158	0.152	**–0.047**	0.025
Ireland		Total	1.477	1.180	1.313	1.528	1.059	1.311	**–0.261**	–0.033
	4 601	Prob.	0.075	0.103	0.097	0.122	0.097	0.099	**–0.081**	*0.053*
Italy		Total	0.777	1.097	1.184	1.214	0.881	1.031	–0.036	0.033
	14 155	Prob.	0.061	0.074	0.079	0.078	0.071	0.073	–0.024	0.028
Mexico		Total	0.125	0.138	0.181	0.164	0.187	0.159	0.036	**0.078**
	153 865	Prob.	0.031	0.032	0.041	0.039	0.039	0.037	**0.039**	**0.052**
Netherlands		Total	0.825	1.037	0.596	0.888	0.690	0.807	**–0.158**	–0.040
	8 706	Prob.	0.079	0.073	0.074	0.073	0.065	0.073	**–0.085**	–0.021
Norway		Total								
	3 709	Prob.								
Portugal		Total	0.732	0.540	0.582	0.592	0.749	0.639	**–0.192**	0.004
	10 276	Prob.	0.045	0.050	0.063	0.056	0.085	0.060	–0.016	**0.113**
Spain		Total	1.118	0.668	0.745	1.043	1.024	0.920	**–0.168**	0.025
	12 182	Prob.	0.073	0.062	0.076	0.084	0.076	0.074	**–0.076**	0.033
Sweden		Total	0.714	1.201	0.915	0.946	0.906	0.932	**–0.122**	–0.006
	5 054	Prob.	0.079	0.105	0.103	0.095	0.102	0.096	**–0.045**	0.035
Switzerland		Total	1.158	1.309	1.185	0.974	0.880	1.101	**–0.128**	*–0.063*
	13 692	Prob.	0.142	0.129	0.134	0.112	0.099	0.123	**–0.093**	**–0.065**
United Kingdom		Total.	0.907	0.930	1.156	0.992	0.893	0.975	**–0.181**	0.013
	13 712	Prob.	0.095	0.119	0.109	0.111	0.102	0.107	**–0.093**	0.013
United States		Total	0.510	0.616	0.583	0.545	0.482	0.546	**–0.252**	–0.017
	16 557	Prob.	0.088	0.079	0.087	0.075	0.072	0.080	**–0.167**	**–0.038**

Note: Significant CI and HI indices in bold (P < 0.05).
Total = mean number of nights in last 12 months.
Prob. = proportion with at least one hospital night in last 12 months.
Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.11. **Quintile distributions (after need standardisation), inequality and inequity indices for dental care utilisation**

	Sample size		Poorest	2	3	4	Richest	Total	CI	HI
Australia		Total								
	15 516	Prob.	0.361	0.409	0.428	0.493	0.533	0.446	**0.087**	**0.079**
Austria		Total	1.161	1.414	1.269	1.568	1.612	1.404	**0.079**	**0.063**
	5 610	Prob.	0.545	0.616	0.655	0.633	0.727	0.635	**0.064**	**0.050**
Belgium		Total	1.153	1.385	1.459	1.476	1.381	1.371	**0.048**	*0.030*
	4 483	Prob.	0.456	0.570	0.605	0.667	0.651	0.590	**0.084**	**0.068**
Canada		Total	0.820	0.756	0.912	1.214	1.540	1.200	**0.131**	**0.126**
	107 613	Prob.	0.434	0.386	0.467	0.612	0.746	0.598	**0.119**	**0.113**
Denmark		Total	1.408	1.849	1.865	1.916	1.945	1.796	**0.072**	**0.049**
	3 787	Prob.	0.705	0.797	0.832	0.884	0.898	0.823	**0.063**	**0.046**
Finland		Total	0.927	1.188	1.351	1.442	1.638	1.309	**0.121**	**0.103**
	5 587	Prob.	0.366	0.469	0.583	0.598	0.674	0.538	**0.127**	**0.114**
France		Total	1.519	1.588	1.771	1.796	2.036	1.742	**0.075**	**0.062**
	4 381	Prob.	0.332	0.371	0.372	0.392	0.428	0.379	**0.066**	**0.053**
Germany		Total								
	12 961	Prob.								
Greece		Total	0.509	0.630	0.680	0.705	0.857	0.676	**0.104**	**0.095**
	8 983	Prob.	0.181	0.230	0.260	0.287	0.307	0.253	**0.118**	**0.100**
Hungary		Total	0.738	0.992	0.980	1.072	1.395	1.032	**0.139**	**0.122**
	4 404	Prob.	0.274	0.333	0.333	0.398	0.485	0.364	**0.142**	**0.118**
Ireland		Total	0.509	0.685	0.625	0.807	0.987	0.722	**0.161**	**0.130**
	4 601	Prob.	0.266	0.335	0.322	0.401	0.532	0.371	**0.163**	**0.140**
Italy		Total	0.835	1.063	1.143	1.247	1.463	1.150	**0.108**	**0.105**
	14 155	Prob.	0.279	0.335	0.364	0.431	0.499	0.382	**0.121**	**0.118**
Mexico		Total								
	153 865	Prob.								
Netherlands		Total	1.536	1.646	1.677	1.901	1.854	1.723	**0.044**	**0.042**
	8 706	Prob.	0.712	0.758	0.777	0.816	0.844	0.781	**0.033**	**0.034**
Norway		Total								
	3 709	Prob.								
Portugal		Total	0.580	0.705	0.795	0.888	1.530	0.899	**0.216**	**0.196**
	10 276	Prob.	0.220	0.244	0.292	0.355	0.569	0.336	**0.216**	**0.200**
Spain		Total	0.522	0.678	0.632	0.811	1.046	0.738	**0.149**	**0.137**
	12 182	Prob.	0.228	0.282	0.275	0.373	0.453	0.322	**0.152**	**0.143**
Sweden		Total								
	5 054	Prob.	0.679	0.591	0.697	0.690	0.754	0.683	**0.054**	**0.028**
Switzerland		Total	1.363	1.580	1.721	1.745	1.875	1.657	**0.059**	**0.062**
	11 265	Prob.	0.587	0.655	0.713	0.740	0.778	0.695	**0.055**	**0.056**
United Kingdom		Total								
	13 712	Prob.	0.540	0.548	0.635	0.666	0.715	0.621	**0.080**	**0.063**
United States		Total	0.643	0.791	1.077	1.239	1.554	1.084	**0.181**	**0.173**
	16 557	Prob.	0.274	0.341	0.436	0.510	0.616	0.444	**0.167**	**0.160**

Note: Significant CI and HI indices in bold ($P < 0.05$).
Total = mean number in last 12 months.
Prob. = proportion with positive use in last 12 months.
Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.12*a*. **Contributions to inequality in total doctor visits (total number)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		–0.0434	–0.1138	–0.0636	–0.0728	0.0286	–0.0067	–0.0170	–0.1141	–0.0734
Need		–0.0690	–0.0079	–0.0685	–0.0777	–0.0446	–0.0239	–0.0269	–0.1212	–0.0767
HI		0.0256	–0.0313	0.0049	0.0049	0.0733	0.0173	0.0099	0.0072	0.0033
Income		0.0262	0.0017	0.0044	0.0390	0.0473	0.0002	0.0086	0.0039	0.0117
Education		0.0061	–0.0023	0.0048	0.0018	–0.0073	–0.0007	0.0016	–0.0085	0.0257
Activity status		–0.0051	0.0012	–0.0092	–0.0314	0.0174	0.0102	–0.0262	–0.0162	–0.0531
Region		–0.0005	–0.0003	0.0044		0.0039	–0.0037	0.0045	0.0182	0.0125
Insurance							0.0232	0.0087		
CMU/Med Card							–0.0179			
Urban					0.0003	0.0099			0.0132	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	–0.1367	–0.0304		–0.0803	–0.0477	–0.0106	–0.0863	0.0124	–0.0439		–0.0205
Need	–0.1045	–0.0345		–0.0631	–0.0573	–0.0785	–0.0746	–0.0297	–0.0357		–0.0882
HI	–0.0323	0.0041		–0.0172	0.0092	0.0679	–0.0118	0.0422	–0.0082		0.0677
Income	0.0086	0.0057		–0.0130	0.0046	0.0586	–0.0100	–0.0010	0.0112		0.0174
Education	0.0039	–0.0028		–0.0001	0.0257	0.0015	–0.0032	0.0022	0.0048		0.0226
Activity status	–0.0322	–0.0019		–0.0036	–0.0531	–0.0064	–0.0149	0.0062	–0.0099		–0.0114
Region	–0.0049	0.0040		0.0000	0.0125	0.0093	0.0171	0.0034	–0.0009		0.0037
Insurance	0.0063								–0.0131		0.0200
CMU/Med Card	–0.0077										
Urban	–0.0016					–0.0005					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.12*b*. **Contributions to inequality in total doctor visits (probability)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI	–0.0136	–0.0019	–0.0058	0.0044	–0.0257	0.0261	0.0045	–0.0045	–0.0347	–0.0070
Need	–0.0167	–0.0081	–0.0079	–0.0108	–0.0257	–0.0102	–0.0025	–0.0122	–0.0406	–0.0132
HI	0.0030	0.0062	0.0021	0.0151	–0.0001	0.0363	0.0070	0.0077	0.0058	0.0062
Income	–0.0025	0.0045	0.0017	0.0190	0.0026	0.0318	0.0004	0.0084	0.0110	0.0008
Education	0.0010	–0.0003	–0.0023	0.0018	0.0036	–0.0007	–0.0014	0.0038	–0.0011	0.0107
Activity status	–0.0005	0.0014	0.0012	–0.0009	–0.0048	–0.0035	0.0022	–0.0094	–0.0046	–0.0099
Region	0.0015	–0.0009	–0.0003	0.0000		0.0024	0.0005	–0.0001	–0.0014	0.0023
Insurance	0.0030						0.093	–0.0017		
CMU/Med Card							–0.063			
Urban					–0.0001	0.0026			0.0015	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	–0.0199	0.0085	0.0292	–0.0029	–0.0030	0.0110	–0.0079	–0.0030	–0.0054	–0.0190	0.0233
Need	–0.0296	–0.0020	–0.0129	–0.0117	–0.0087	–0.0224	–0.0181	–0.0292	–0.0076	–0.0217	–0.0204
HI	0.0098	0.0104	0.0421	0.0089	0.0109	0.0333	0.0055	0.0263	0.0023	0.0028	0.0438
Income	0.0119	0.0027	0.0049	0.0051	0.0063	0.0231	0.0000	0.0121	0.0063	0.0033	0.0111
Education	0.0010	0.0012	0.0185	–0.0001	0.0107	0.0065	0.0005	0.0046	0.0010	0.0021	0.0108
Activity status	–0.0098	0.0021	0.0064	0.0012	–0.0099	–0.0006	–0.0042	0.0006	0.0001	–0.0051	–0.0038
Region	–0.0017	0.0033	0.0029	0.0000	0.0023	0.0021	–0.0042	0.0032	–0.0007	–0.0003	0.0002
Insurance	0.0048								–0.0035	0.0007	0.0148
CMU/Med Card	0.0014										
Urban	0.0004		0.0053			0.0029					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.13*a*. **Contributions to inequality in GP visits (total number)**

Total	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		–0.0734	–0.1439	–0.0895	–0.1037	–0.0082	–0.0275		–0.1484	–0.1007
Need		–0.0744	–0.0873	–0.0732	–0.0754	–0.0530	–0.0227		–0.1150	–0.0775
HI		0.0010	–0.0566	–0.0162	–0.0283	0.0448	–0.0047		–0.0335	–0.0236
Income		0.0137	–0.0147	–0.0161	0.0246	0.0241	–0.0031		–0.0278	0.0022
Education		–0.0003	–0.0169	0.0009	–0.0038	–0.0129	–0.0077		–0.0132	0.0120
Activity status		–0.0054	–0.0197	–0.0083	–0.0392	0.0256	0.0087		–0.0166	–0.0474
Region		–0.0014	0.0011	0.0063		0.0068	–0.0073		0.0206	0.0042
Insurance							0.0181			
CMU/Med Card							–0.0185			
Urban					–0.0009	0.0025			0.0088	

Total	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	–0.1615	–0.0594		–0.0977	–0.0656	–0.0745	–0.1139		–0.0625	–0.1194	
Need	–0.1012	–0.0329		–0.0594	–0.0594	–0.0828	–0.0668		–0.0382	–0.0766	
HI	–0.0606	–0.0265		–0.0383	–0.0061	0.0083	–0.0470		–0.0243	–0.0424	
Income	–0.0051	–0.0099		–0.0303	–0.0100	0.0187	–0.0245		0.0070	–0.0055	
Education	–0.0010	–0.0070		–0.0005	–0.0076	–0.0097	–0.0087		0.0023	–0.0008	
Activity status	–0.0304	–0.0018		–0.0018	0.0035	–0.0047	–0.0178		–0.0262	–0.0339	
Region	–0.0083	–0.0051			0.0020	0.0077	0.0101		0.0045	–0.0051	
Insurance	0.0023								0.0087	0.0004	
CMU/Med Card	–0.0107										
Urban	–0.0013					–0.0030					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.13*b*. **Contributions to inequality in GP visits (probability)**

Dummy	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		–0.0140	–0.0128	0.0011	–0.0307	0.0126	0.0029		–0.0664	–0.0177
Need		–0.0090	–0.0873	–0.0148	–0.0292	–0.0218	–0.0030		–0.0436	–0.0199
HI		–0.0050	–0.0039	0.0159	–0.0015	0.0344	0.0059		–0.0227	0.0020
Income		–0.0003	–0.0147	0.0133	0.0002	0.0227	0.0012		–0.0066	0.0044
Education		–0.0028	0.0045	0.0017	0.0030	–0.0037	–0.0050		–0.0081	0.0087
Activity status		0.0011	0.0065	–0.0016	–0.0032	0.0069	0.0027		–0.0069	–0.0136
Region		–0.0011	0.0026	0.0020		0.0022	–0.0010		0.0023	0.0010
Insurance							0.0120			
CMU/Med Card							–0.0082			
Urban					–0.0002	0.0019			–0.0017	

Dummy	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	–0.0252	0.0030		–0.0070	–0.0087	–0.0033	–0.0274		–0.0052	–0.0231	
Need	–0.0310	–0.0021		–0.0127	–0.0156	–0.0244	–0.0137		–0.0129	–0.0236	
HI	0.0058	0.0051		0.0057	0.0068	0.0210	–0.0137		0.0077	0.0006	
Income	0.0104	0.0002		0.0026	0.0029	0.0147	–0.0041		0.0133	–0.0004	
Education	–0.0001	0.0001		–0.0003	–0.0012	–0.0004	–0.0041		0.0028	0.0036	
Activity status	–0.0076	0.0025		0.0015	–0.0009	0.0006	–0.0034		0.0026	–0.0051	
Region	–0.0018	0.0014			0.0007	0.0049	0.0010		–0.0029	–0.0001	
Insurance	0.0024								–0.0034	0.0006	
CMU/Med Card	0.0007										
Urban	0.0005					0.0030					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.14*a*. **Contributions to inequality in specialist visits (total number)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		0.0206	–0.0313	–0.0150	0.0093	0.1096	0.0369		–0.0737	–0.0194
Need		–0.0575	–0.0693	–0.0687	–0.0838	–0.0262	–0.0263		–0.1285	–0.0752
HI		0.0781	0.0381	0.0537	0.0931	0.1358	0.0633		0.0548	0.0555
Income		0.0529	0.0292	0.0528	0.0774	0.0981	0.0072		0.0411	0.0305
Education		0.0198	0.0214	0.0157	0.0169	0.0048	0.0140		–0.0031	0.0527
Activity status		–0.0045	–0.0105	–0.0145	–0.0105	–0.0007	0.0134		–0.0157	–0.0643
Region		0.0046	–0.0010	0.0003		–0.0025	0.0038		0.0154	0.0287
Insurance							0.0337			
CMU/Med Card							–0.0166			
Urban					0.0034	0.0261			0.0184	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	0.0050	0.0716		–0.0508	0.0147	0.1398	–0.0256		0.0514	–0.0623	
Need	–0.1235	–0.0403		–0.0693	–0.0481	–0.0683	–0.0917		–0.0226	–0.0792	
HI	0.1293	0.1118		0.0186	0.0628	0.2081	0.0661		0.0741	0.0171	
Income	0.0867	0.0608		0.0164	0.0556	0.1525	0.0221		0.0584	0.0322	
Education	0.0317	0.0119		0.0007	0.0145	0.0278	0.0089		0.0268	–0.0001	
Activity status	–0.0425	–0.0023		–0.0067	–0.0327	–0.0103	–0.0084		–0.0036	–0.0333	
Region	0.0146	0.0362			0.0157	0.0129	0.0327		–0.0004	0.0006	
Insurance	0.0296								–0.0029	0.0067	
CMU/Med Card	0.0096										
Urban	–0.0031					0.0055					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.14*b*. **Contributions to inequality in specialist visits (probability)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		0.0227	0.0175	0.0134	–0.0298	0.1053	0.0336		–0.0184	0.0136
Need		–0.0165	–0.0342	–0.0307	–0.0706	–0.0130	–0.0116		–0.0672	–0.0303
HI		0.0392	0.0517	0.0441	0.0409	0.1183	0.0454		0.0488	0.0437
Income		0.0271	0.0135	0.0427	0.0337	0.0827	0.0175		0.0456	0.0109
Education		0.0104	0.0234	0.0062	0.0154	0.0130	0.0043		0.0036	0.0332
Activity status		–0.0048	0.0038	–0.0029	–0.0099	0.0011	0.0073		–0.0059	–0.0159
Region		0.0000	–0.0025	–0.0018		0.0067	0.0047		–0.0027	0.0097
Insurance							0.0150			
CMU/Med Card							–0.0126			
Urban					0.0003	0.0105			0.0050	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	0.0140	0.0712		–0.0113	0.0192	0.0858	0.0221		0.0340	–0.0381	
Need	–0.0874	–0.0160		–0.0290	–0.0359	–0.0442	–0.0387		–0.0135	–0.0492	
HI	0.1022	0.0872		0.0176	0.0551	0.1299	0.0608		0.0475	0.0112	
Income	0.0498	0.0502		0.0172	0.0302	0.0844	0.0360		0.0315	0.0153	
Education	0.0306	0.0096		0.0002	0.0141	0.0257	0.0092		0.0124	0.0050	
Activity status	–0.0291	0.0001		–0.0035	0.0036	–0.0026	–0.0043		0.0006	–0.0173	
Region	0.0012	0.0210			0.0036	0.0020	0.0136		0.0003	0.0010	
Insurance	0.0277								0.0037	0.0038	
CMU/Med Card	0.0218										
Urban	0.0033					0.0110					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.15*a*. **Contributions to inequality in hospital care utilisation (total number)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		–0.0971	–0.2215	–0.2563	–0.2046	–0.1704	–0.0193	–0.0587	–0.2303	–0.1596
Need		–0.1377	–0.1740	–0.1784	–0.1121	–0.1231	–0.0541	–0.0297	–0.2331	–0.1081
HI		0.0406	–0.0475	–0.0779	–0.0925	–0.0473	0.0348	–0.0290	0.0028	–0.0518
Income		0.0297	0.0709	–0.0341	0.0328	–0.0165	0.0697	0.0348	–0.0048	–0.0084
Education		0.0209	–0.0467	0.0024	0.0321	–0.0043	–0.0196	–0.0225	–0.0018	0.0215
Activity status		–0.0129	–0.0654	–0.0326	–0.1878	–0.0097	–0.0212	–0.0455	–0.0009	–0.0977
Region		–0.0084	0.0047	–0.0107		0.0182	–0.0094	–0.0059	0.0118	0.0239
Insurance							–0.0195	–0.0078		
CMU/Med Card							0.0262			
Urban					0.0018	–0.0011			0.0131	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	–0.2606	–0.0362	0.0359	–0.1577		–0.1923	–0.1680	–0.1224	–0.1277	–0.1813	–0.2519
Need	–0.2278	–0.0687	–0.0417	–0.1175		–0.1967	–0.1932	–0.1168	–0.0647	–0.1937	–0.2347
HI	–0.0330	0.0326	0.0776	–0.0401		0.0044	0.0252	–0.0056	–0.0630	0.0133	–0.0172
Income	0.0486	–0.0003	0.0277	–0.0368		–0.0403	–0.0403	–0.0062	0.0305	0.0338	–0.0541
Education	–0.0096	–0.0109	0.0076	–0.0008		0.0000	–0.0003	–0.0199	0.0005	0.0019	0.0127
Activity status	–0.0941	–0.0138	–0.0105	–0.0235		0.0053	–0.0099	0.0254	–0.0524	–0.0221	–0.0330
Region	0.0008	0.0659	0.0025			0.0154	0.0449	–0.0305	–0.0081	–0.0046	–0.0005
Insurance	0.0305								–0.0150	–0.0033	0.0514
CMU/Med Card	0.0018										
Urban	–0.0149		0.0455			0.0125					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.15*b*. **Contributions to inequality in hospital care utilisation (probability)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI	–0.1130	–0.0552	–0.1414	–0.1502	–0.0805	–0.0528	–0.0372	–0.0639	–0.1374	–0.0469
Need	–0.0644	–0.0740	–0.1070	–0.0997	–0.0695	–0.0373	–0.0370	–0.0307	–0.1768	–0.0727
HI	–0.0486	0.0188	–0.0343	–0.0506	–0.0110	–0.0156	–0.0001	–0.0332	0.0395	0.0255
Income	–0.0027	0.0272	–0.0124	–0.0216	0.0344	0.0212	–0.0228	–0.0108	0.0383	0.0379
Education	0.0047	0.0113	–0.0025	0.0034	–0.0026	0.0132	–0.0034	–0.0057	0.0087	0.0251
Activity status	–0.0675	–0.0183	–0.0170	–0.0233	–0.0556	–0.0338	0.0081	–0.0298	–0.0024	–0.0480
Region	–0.0060	–0.0023	0.0023	–0.0076		–0.0080	–0.0023	–0.0019	–0.0131	0.0095
Insurance	0.0252						0.0056	0.0067		
CMU/mcard							0.0037			
Urban					0.0036	0.0016			–0.0031	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	–0.0805	–0.0235	0.0391	–0.0854		–0.0164	–0.0757	–0.0454	–0.0928	–0.0933	–0.1674
Need	–0.1329	–0.0519	–0.0131	–0.0642		–0.1296	–0.1088	–0.0803	–0.0282	–0.1061	–0.1291
HI	0.0530	0.0284	0.0522	–0.0212		0.1133	0.0331	0.0350	–0.0646	0.0133	–0.0383
Income	0.0301	0.0055	0.0139	–0.0109		0.0538	0.0164	0.0043	–0.0342	0.0229	–0.0182
Education	0.0174	–0.0112	0.0111	–0.0003		0.0077	–0.0012	–0.0039	0.0074	0.0008	0.0078
Activity status	–0.0263	0.0017	–0.0154	–0.0074		0.0021	–0.0001	0.0156	–0.0189	–0.0149	–0.0127
Region	0.0440	0.0440	0.0116			0.0211	0.0170	–0.0076	0.0003	–0.0056	–0.0054
Insurance	0.0409								–0.0058	0.0075	–0.0053
CMU/mcard	0.0006		0.0317								
Urban	–0.0011					0.0092					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.16*a*. **Contributions to inequality in dentist visits (total number)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI		0.0793	0.0480	0.1314	0.0719	0.1209	0.0750		0.1044	0.1391
Need		0.0159	0.0153	0.0057	0.0226	0.0183	0.0129		0.0089	0.0168
HI		0.0634	0.0302	0.1256	0.0492	0.1025	0.0621		0.0955	0.1222
Income		0.0412	0.0262	0.1083	0.0346	0.0613	0.0473		0.0299	0.0637
Male		–0.0048	–0.0017	–0.0044	–0.0021	–0.0040	–0.0014		–0.0025	0.0139
Education		0.0123	0.0246	0.0081	0.0059	0.0269	0.0025		0.0467	0.0445
Activity status		0.0067	0.0120	0.0041	0.0051	0.0022	0.0029		0.0074	0.0004
Region		0.0003	0.0009	0.0093	0.0000	0.0064	0.0072		0.0199	0.0130
Insurance							0.0224			
CMU/Med Card							–0.0181			
Urban					–0.0001	0.0029			–0.0086	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	0.1608	0.1075		0.0443		0.2156	0.1494		0.0591		0.1812
Need	0.0312	0.0023		0.0020		0.0194	0.0127		–0.0006		0.0079
HI	0.1300	0.1052		0.0423		0.1962	0.1368		0.0622		0.1733
Income	0.0977	0.0455		0.0297		0.1198	0.0844		0.0459		0.0553
Male	–0.0038	–0.0034		–0.0034		–0.0018	–0.0066		–0.0025		–0.0043
Education	0.0292	0.0143		–0.0001		0.0494	0.0227		0.0116		0.0609
Activity status	–0.0023	0.0105		0.0034		0.0047	–0.0038		–0.0015		–0.0024
Region	0.0057	0.0384				0.0087	0.0104		0.0029		0.0047
Insurance	0.0249										
CMU/Med Card	–0.0089										
Urban	–0.0104					0.0076					

Source: Van Doorslaer, Masseria *et al.* for OECD.

Table 3.A1.16*b*. **Contributions to inequality in dentist visits (probability)**

	AUS	AUT	BEL	CAN	DNK	FIN	FRA	DEU	GRC	HUN
CI	0.0874	0.0645	0.0835	0.1188	0.0630	0.1270	0.0655		0.1177	0.1420
Need	0.0085	0.0149	0.0011	0.0061	0.0168	0.0135	0.0129		0.0179	0.0239
HI	0.0780	0.0496	0.0682	0.1127	0.0462	0.1136	0.0526		0.0998	0.1181
Income	0.0367	0.0293	–0.0105	0.0929	0.0236	0.0688	0.0077		0.0372	0.0542
Male	–0.0028	–0.0027	–0.0009	–0.0033	–0.0014	–0.0037	–0.0007		–0.0016	0.0225
Education	0.0155	0.0138	–0.0064	0.0129	0.0100	0.0164	0.0012		0.0462	0.0442
Activity status	–0.0141	0.0040	–0.0152	0.0041	0.0085	0.0130	0.0016		0.0067	0.0024
Region	0.0039	0.0002	–0.0006	0.0062		0.0034	0.0006		0.0029	0.0108
Insurance	0.0365						0.0038			
CMU/Med Card							–0.0026			
Urban					0.0005	0.0039			0.0023	

	IRL	ITA	MEX	NLD	NOR	PRT	ESP	SWE	CHE	GBR	USA
CI	0.1629	0.1209		0.0326		0.2158	0.1518	0.0544	0.0547	0.0797	0.1670
Need	0.0235	0.0028		–0.0016		0.0154	0.0083	0.0264	–0.0006	0.0180	0.0074
HI	0.1398	0.1181		0.0342		0.2005	0.1434	0.0280	0.0564	0.0629	0.1597
Income	0.0824	0.0617		0.0270		0.1099	0.0671	0.0033	0.0459	0.0401	0.0529
Male	–0.0021	–0.0017		–0.0015		–0.0017	–0.0048	–0.0009	–0.0025	–0.0034	–0.0039
Education	0.0385	0.0167		0.0005		0.0515	0.0433	0.0060	0.0116	0.0192	0.0556
Activity status	–0.0034	0.0051		0.0025		0.0072	0.0049	–0.0089	–0.0015	–0.0011	–0.0006
Region	0.0054	0.0265				0.0046	0.0144	0.0020	0.0029	0.0003	0.0033
Insurance	0.0154									0.0078	
CMU/Med Card	–0.0006										
Urban	0.0013					0.0169					

Source: Van Doorslaer, Masseria *et al.* for OECD.

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Chapter 4

Matching Supply with Demand for the Services of Physicians and Nurses

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The delivery of an appropriate quantity and quality of health care in an efficient way requires, among other things, matching the supply with the demand for the services of physicians and nurses, over time. Shortages of nurses and physicians have now appeared in a number of OECD countries and could worsen unless countermeasures are taken. International migration can help but it raises painful questions when there are net, long term flows of staff from poorer countries with low health status to richer countries with high health status. The alternative is to increase domestic recruitment by improving relative pay or conditions of service, especially in the case of nurses.

The services delivered by physicians and nurses depend on their productivity as well as on their numbers. In the case of physicians, there is good evidence that activity related methods of payment will raise their activity rates but little is known about the effect this has on quality of care. There is growing interest in devising payment systems for physicians which reward quality of care directly. In the case of nurses, there is some evidence that conditions of service and nurse staffing levels are critical factors for their productivity.

A review of skill mix changes between physicians and nurses in the United States and the United Kingdom suggests that nurses can provide care which is equivalent to that provided by doctors, and which is preferred by patients, when they take on certain medical tasks for pre-diagnosed patients. Meanwhile, nurse/physician ratios appear to vary widely across OECD countries.

1. Introduction[2]

The provision of health care requires a well-trained and well-motivated workforce of an appropriate size and mix which is able to deliver safe and effective health services in an efficient way and at an affordable cost. This paper concentrates on the demand for and supply of the services of two key groups of health care workers: physicians and nurses. In general, it is not easy to determine what is the right number of physicians and nurses in a country. OECD countries have made different choices about training and recruiting physicians and nurses, choices which have been inspired by different views about the number needed in these professions. So far, there has been little investigation internationally of the consequences of these variations. Meanwhile, whereas a few countries, or areas within countries, are experiencing surpluses of physicians and nurses, it is much more common to find evidence of shortages, partly as a result of rising demand. In response to this, many member countries are seeking to increase the stock and the productivity of their health care workers. Part of the aim of this paper is to compare the different policies that can be used to match supply with demand in an efficient way.

The paper is organised as follows. Section 2 contains a framework for analysing health employment in OECD countries which: distinguishes the demand for the services of physicians and nurses from the supply; indicates how, in principle, equilibrium levels of demand and supply may differ across countries; and distinguishes two different concepts of shortages and surpluses of health care workers. Section 3 covers variations in levels of employment and whether the implications for health outcomes and costs of these variations can be identified. Section 4 presents some evidence on current shortages and surpluses of health care workers and factors affecting future shortages and surpluses. Section 5 reviews various policies for matching supply to demand, including: training and recruitment methods; levels and methods of remuneration; and conditions of service. The final section presents some concluding remarks on creating a health workforce that meets the demand for medical services.

2. Demand and supply in health employment in OECD countries

Figure 4.1 presents a flow chart depicting the way in which the services[3] of physicians and nurses contribute to the production of health care. The volume and quality of health care services is determined by the supply (stock and productivity) of physicians and nurses, in combination with other health care resources such as other health care workers, pharmaceuticals, equipment, beds, etc. There is corresponding demand for the services of physicians and nurses (and for the services of other health care resources) derived from the demand for health care itself.[4] In any given year, the stocks of physicians and nurses are increased by flows into the professions, originating from newly-graduated and immigrating physicians and nurses, and reduced by flows out of the professions, arising from emigration, career change and retirement. The figure suggests that decision makers and managers can draw on a range of instruments including education and recruitment methods, levels and methods of remuneration and policies on conditions of service to create a health workforce the services of which matches the derived demand.

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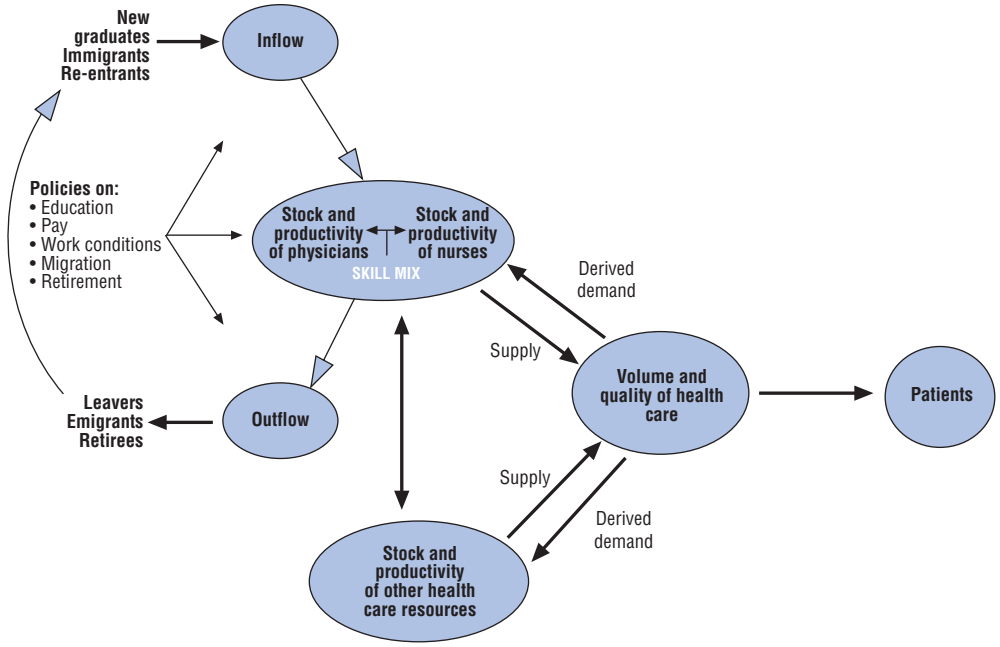
Figure 4.1. **Flow chart of the production of health care**



Source: OECD.

The density of health care workers (*i.e.* workers per 1 million population) will vary across OECD countries if the demand for such labour varies across countries and the supply responds. Variations in the health expenditure share of GDP are among the factors which suggest that there will be demand variations across countries. Variations in the degree to which entry to professions like physicians and nurses are controlled or "left to the market" are among the factors suggesting that there will be supply variations across countries. At any one time, shortages and surpluses of health care workers can occur if wages or fees are set at a level which does not match supply with demand. Additionally, shortages and surpluses can arise if there are changes in demand (or supply) and lags before supply (or demand) can respond (see Box 4.1).

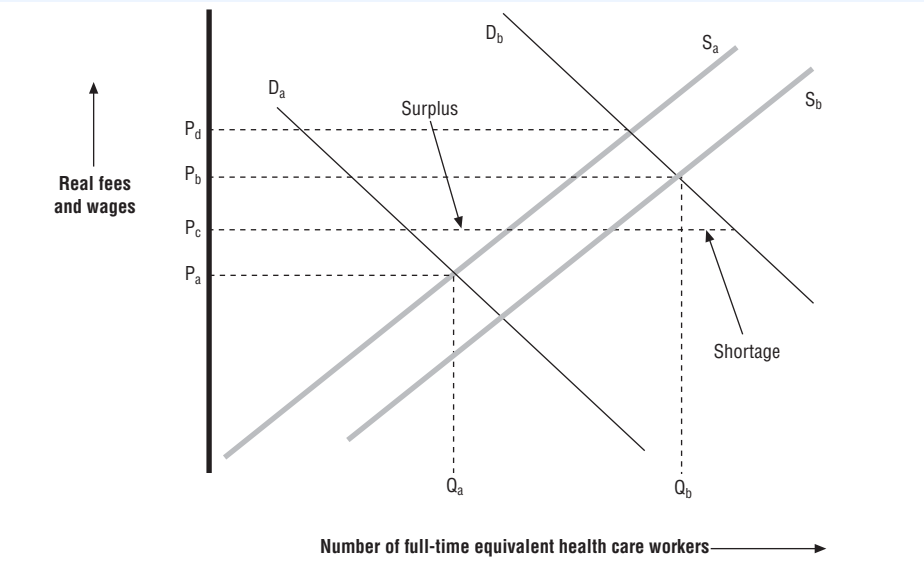
The microeconomic concept of shortages and surpluses set out above, should not be confused with the idea that physician or nurse population densities may not match some predetermined "norm" or benchmark. The benchmark could be a minimum nurse-to-patient ratio or a target number of physicians per capita in rural and remote areas, in relation to which "shortage" and "surplus" areas are then defined. Such norms have been proposed in many countries including Australia, the United Kingdom and the United States.[5]

In fact, the reported employment levels of physicians and nurses per 1 million population vary greatly across OECD countries (see Figures 4.3 and 4.4). There were more than 3.5 physicians per 1 000 population in Greece, Italy, Belgium, Austria, the Slovak Republic and Switzerland; and less than 2 in Japan, Korea and Mexico in 2000. More variation is observed for nurse density, with Ireland, Australia and Switzerland reporting more than ten nurses per 1 000 population, but Spain, Portugal, Korea and Mexico reporting less than five in 2000. Some of these differences are undoubtedly due to the incomplete standardisation of data across countries, but overall they seem to be too great to be due to definitional and coverage differences alone.

Box 4.1. **An economic definition of shortages and surpluses of health care workers**

Figure 4.2 depicts a standard demand and supply model, where the demand for health workers declines with the real wage and the supply increases. Depending on, for example, their levels of health expenditure and institutional arrangements, two countries A and B can have different demand and supply schedules for health care workers, such as Da and Db, and Sa and Sb, respectively. If so, they will have different equilibrium levels of employment of health care workers at Qa and at Qb, respectively.

Figure 4.2. **Derived demand for and supply of health care workers**



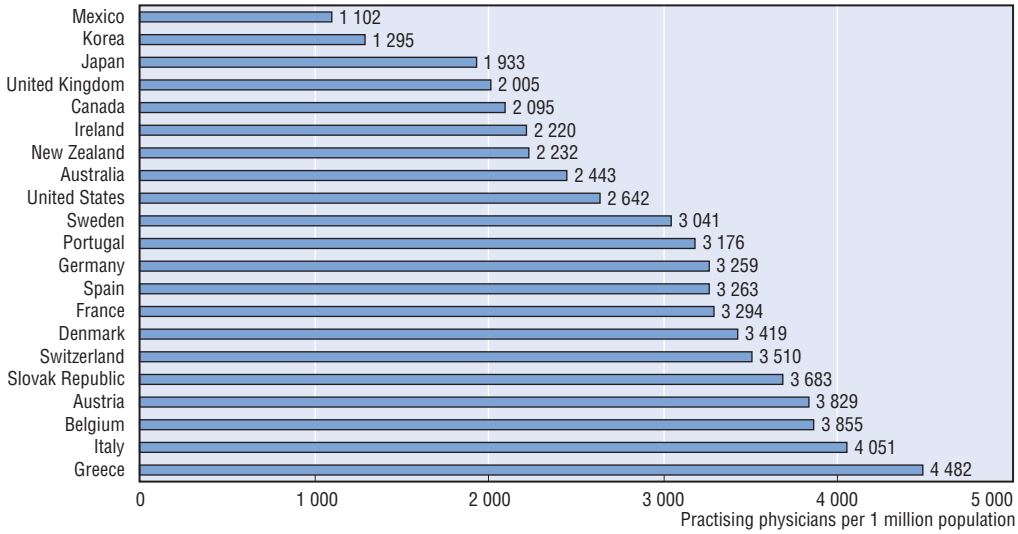
Source: OECD.

Equilibrium between demand and supply would be attained in each of these countries if fees and wages were set at P_a and P_b, respectively. However, if, *purely for the sake of illustration*, real fees and wages in both countries had been set for many years at an intermediate wage, P_c, country A is likely to have developed a surplus of health care workers, and country B is likely to have developed a shortage. In practice, shortages of health care workers may be the more common experience if, for example, the demand for health care has been rising through time and there has been exercise of monopsony power by the dominant public purchasers of health services in setting fees and wages in each country. Figure 4.2 could then be interpreted as depicting a rise in demand in a single country (from D_a to D_b) with use of monopsony power restricting the rise in wages to P_c, below the new level necessary to "clear" the market , at P_d.

3. Analysing the consequences of international variability in health employment

Do variations in physician density affect outcomes and costs? In the case of outcomes, there is some previous OECD work which relates variations in physician density to mortality. It suggests that physician density is inversely associated with avoidable mortality across

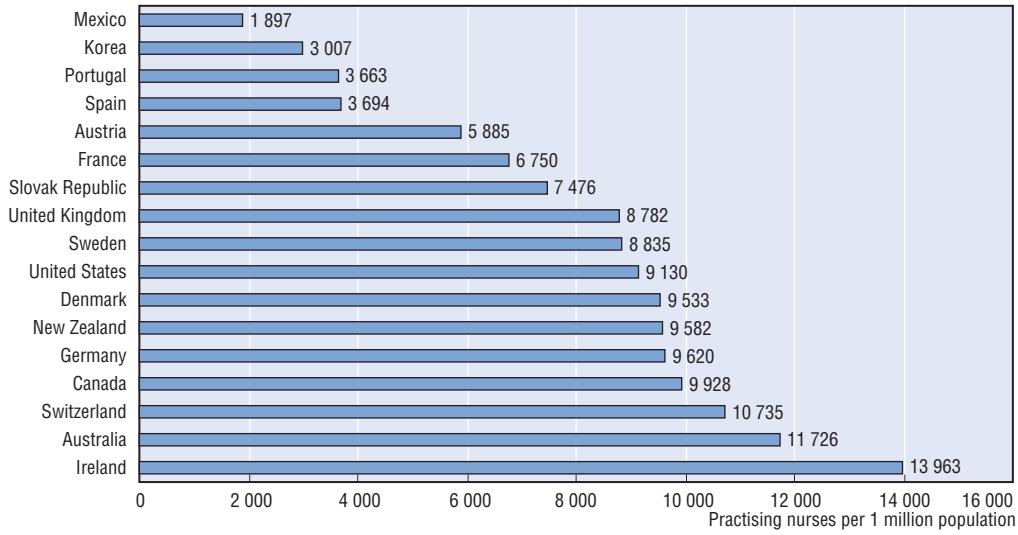
Figure 4.3. **Physician density, 2000**



Notes: Data on British and Mexican physicians do not include physicians practising in the private sector.
Data on Greek physicians include some unemployed physicians.
Date on Irish physician refer to physicians entitled to practise rather than actively practising physicians.
Data on Korean physicians include physicians practising oriental medicine.
Data on Portuguese physicians include some retired physicians.
Data on Slovak physicians include dentists.

Sources: Data for Australia, Austria, Canada, France, Greece, Japan, Korea, Mexico, New Zealand, Spain, Sweden, Switzerland and the United States are taken from the OECD HRHC project. Data for Belgium, Denmark, Germany, Ireland, Italy, Portugal, Slovak Republic and the United Kingdom are taken from *OECD Health Data 2003*, 3rd edition.

Figure 4.4. **Nurse density, 2000**

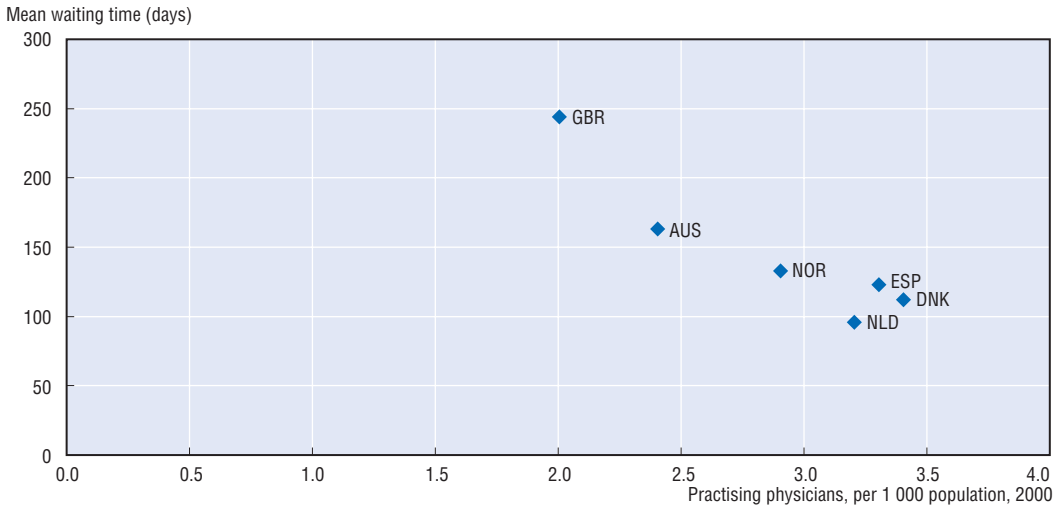


Notes: Data on Austrian nurses refer to nurses employed in hospitals; they do not include nurses working in other health facilities.
Data on German nurses relate to full-time equivalent nurses (not headcounts).
Data on Spanish nurses refer to registered nurses who are employed in the National Health Service.

Sources: Data for Australia, Austria, Canada, France, Korea, Mexico, New Zealand, Sweden, Switzerland and the United States are taken from the OECD HRHC project. Data for Denmark, Germany, Ireland, Portugal, Slovak Republic, Spain and the United Kingdom are taken from *OECD Health Data 2003*, 3rd edition.

countries, other things being equal (see Or, 2000). Turning to responsiveness, the OECD project on waiting times has identified a statistically significant inverse relationship between physician density and waiting times for elective surgery across a sample of countries with waiting times[6] (see Figure 4.5). With respect to nurses, numerous studies have found an association between higher nurse staffing ratios in hospitals and reduced patient risk-adjusted mortality, a lower risk of medical complications, and a higher nurse-assessed quality of care (see, for instance, McGillis *et al.*, 2001; Pronovost *et al.*, 2001; Needleman *et al.*, 2001 and 2002; Aiken *et al.*, 2002a, b). Taken together, these findings suggest that higher densities of physicians and nurses within and between countries tend to be associated with better health outcomes and responsiveness, at least in some respects. However, in the case of the international comparisons, the magnitudes of the effects cannot be estimated with any degree of reliability.

Figure 4.5. **Physician density and waiting times: hip replacement, 2000**

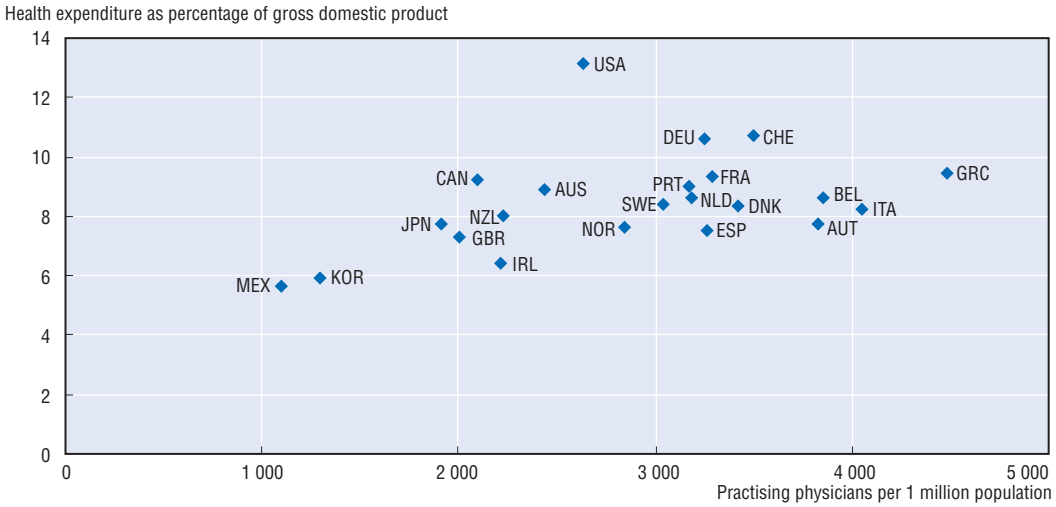


Source: OECD Health Data 2003, 3rd edition and country responses to the OECD Waiting Times Project Data Questionnaire.

Turning to costs, it is often assumed that more physicians lead to higher health expenditure, not so much because of their personal remuneration, but because their treatment interventions mobilise many other health care staff and resources. Figure 4.6 is suggestive of a weak positive association between physician density and health expenditure as a percentage of GDP across OECD countries. Similarly, Figure 4.7 suggests that there are (even weaker) signs of a positive relationship between nurse density and health expenditure as a percentage of GDP. In the case of nurses, this may reflect nothing more interesting than the fact that remuneration is a very large component of health expenditure itself – perhaps 40% in the case of hospital expenditure (Department of Health, 2003b).

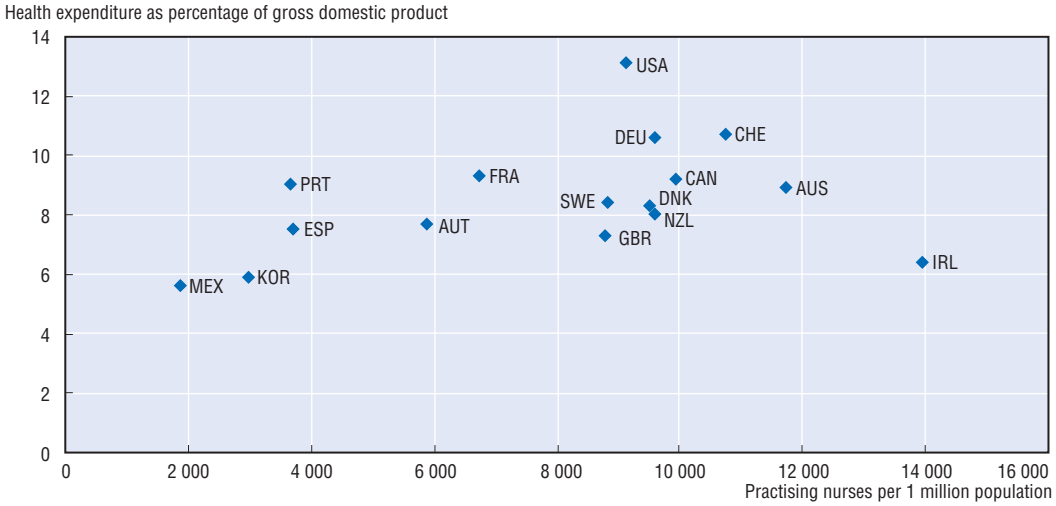
There is some evidence to suggest that the highest shares of GDP spent on health are observed in a group of countries which combine above-average physician density with fee-for service payment (see Table 4.1). This is consistent with a previous econometric study (OECD, 1995) which suggested that overall health expenditure per capita was strongly associated with physician numbers in countries which paid their physicians by fee-for-service, as opposed to payment by salary or capitation.

Figure 4.6. **Physician density and health expenditure, 2000**



Source: OECD Human Resources in Health Care Project and *OECD Health Data 2003*, 3rd edition.

Figure 4.7. **Nurse density and health expenditure, 2000**



Source: OECD Human Resources in Health Care Project and *OECD Health Data 2003*, 3rd edition.

What is the relationship, if any, between physician density and physician productivity? For example, is a higher physician density associated with a lower number of services delivered per physician, or does a higher density of physicians lead to the identification of greater "needs", leading to a higher number of medical acts? It is difficult to measure physician productivity at an international level, as data on physician outputs are not readily available. Outputs do not just consist of levels of activity, but must also include quality of care. As far as activity is concerned, adequate data for cross country comparisons of the activities of specialists are not generally available. However, in the case of general practitioners (GPs) data on the annual number of visits by patients to GPs across certain European countries and Canada exists. Figure 4.8 suggests that there is somewhat less variation in visits to GPs per capita than there is in GP density across countries. Consequently, there is a tendency for higher

Table 4.1. **Physician density and payment method, 2000**

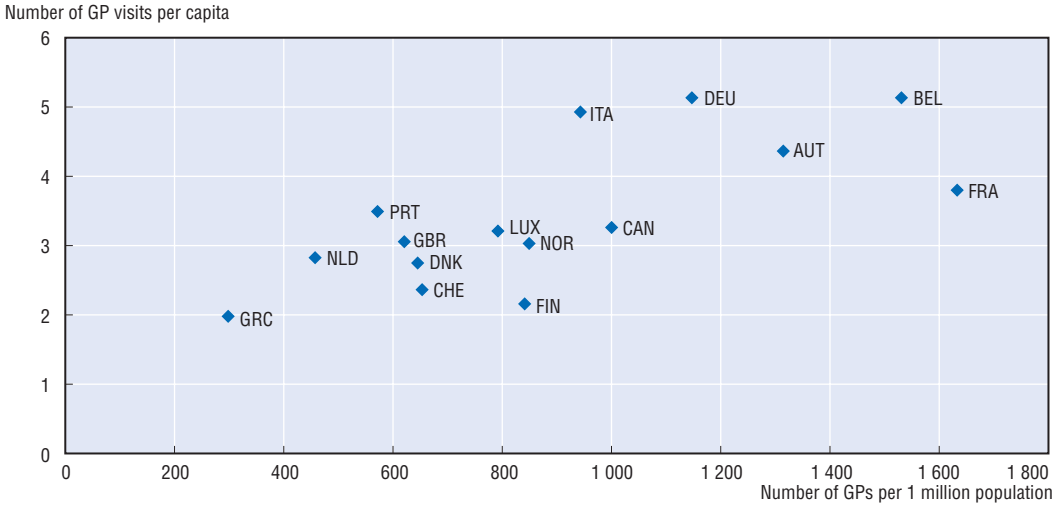
Physician density[a]	Payment by fee-for-service		Mixed payment		Payment mainly by salary or capitation	
	Countries	Health expenditure as percentage of GDP	Countries	Health expenditure as percentage of GDP	Countries	Health expenditure as percentage of GDP
Above average	Austria Belgium France Germany Switzerland	9.4	Denmark Netherlands Greece	8.8	Italy Portugal Slovak Republic Spain Sweden	7.8
Below average	Canada	9.2	Australia Ireland Japan Korea Mexico New Zealand Norway	7.2 (7.7)[b]	United Kingdom	7.3

a) In relation to average physician density of all countries included in the table.
b) Average for countries in this group excludes Korea and Mexico. Health expenditure shares of gross domestic product and physician densities in Korea and Mexico are substantially lower than in the remaining countries.

Source: OECD Human Resources in Health Care Project and *OECD Health Data 2003*, 3rd edition.

GP density to translate into lower number of visits per GP across countries – as indicated by the statistically significant negative relationship shown in Figure 4.9. This suggests, if only weakly, that the scope for GPs to induce visits may be limited. However, it would be wrong to draw any conclusions about an inverse relationship between GP density and GP "productivity" since these comparisons do not tell us anything about variations in the quality of care.

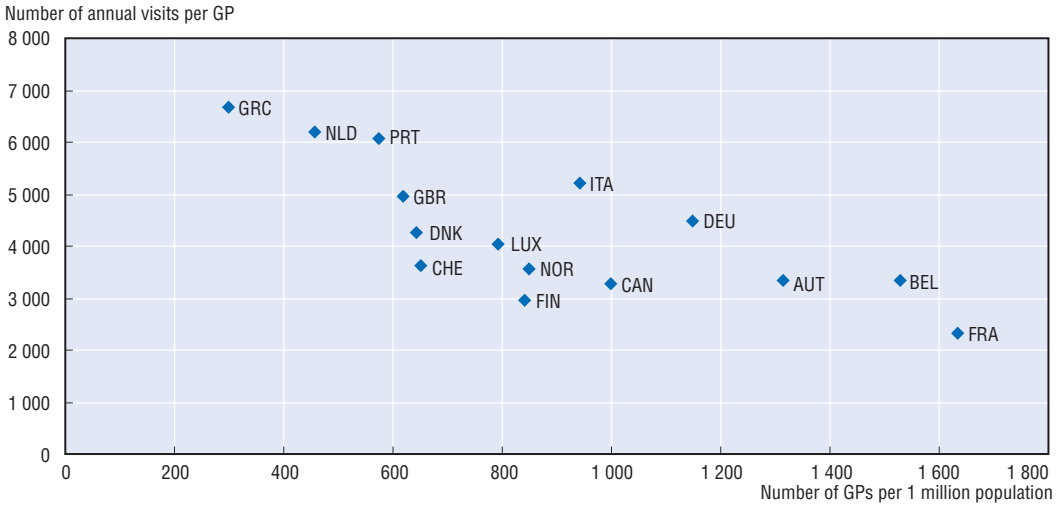
Figure 4.8. **The relationship between general practitioner density and the annual number of visits to general practitioners per capita**



Notes: Data for Germany and the United Kingdom relate to 1996. Data for Switzerland relate to 1997. Data for Austria, Belgium, Denmark, Greece, Ireland, Italy, Netherlands, Portugal and Spain relate to 1999. Data for France and Norway relate to 2000. Data for Canada relate to 2001.

Source: OECD Human Resources in Health Care Project, OECD equity project and *OECD Health Data 2003*.

Figure 4.9. **The relationship between general practitioner density and the annual number of visits per general practitioner**



Notes: Data for Germany and the United Kingdom relate to 1996. Data for Switzerland relate to 1997. Data for Austria, Belgium, Denmark, Greece, Ireland, Italy, Netherlands, Portugal and Spain relate to 1999. Data for France and Norway relate to 2000. Data for Canada relate to 2001.
The following linear regression was fitted to the data:
The annual number of visits per general practitioner = 6.699 – 2.561 (number of general practitioners per 1 million population) with R^2 = 0.64, p-value of F-test on overall model = 0.001.

Source: OECD Human Resources in Health Care Project, OECD equity project and *OECD Health Data 2003*.

4. Evidence on shortages and surpluses of health care workers

4.1. Current shortages and surpluses of health care workers

While a few OECD countries or areas within countries are presently experiencing surpluses of physicians and nurses, it is much more common to find evidence of shortages (see Box 4.2). In part, this is likely to reflect increasing demand for health care workers through time, due to ageing populations, technological advances, higher incomes, and rising patient expectations. Evidence of the strong growth in demand can be seen in the average 4% growth in real health expenditure across OECD countries in 1997-2001 which exceeded that of previous years (3.7% in 1989-1992 and 2.5% in 1992-1997) (OECD, 2003a). Additionally, growth in the supply of health care workers may be failing to match increasing demand for the following reasons: restrictions on medical and nursing school intake in the early 1990s; the lead time in putting students through medical and nursing schools; trends towards fewer hours of work (as a result of rising female participation in the health workforce and the Working Time Directives in the European Union), early and partial retirement; and an ageing health workforce. Physician density grew in most countries during the 1990s but at a lower rate than in previous decades, often sharply so (see Table 4.2). Nurse density also increased during the 1990s, especially in countries that started off with lower levels; but fell in Canada and Sweden (see Figure 4.10). However, where countries experienced growth, it was often insufficient to prevent nurse shortages (see Box 4.2).

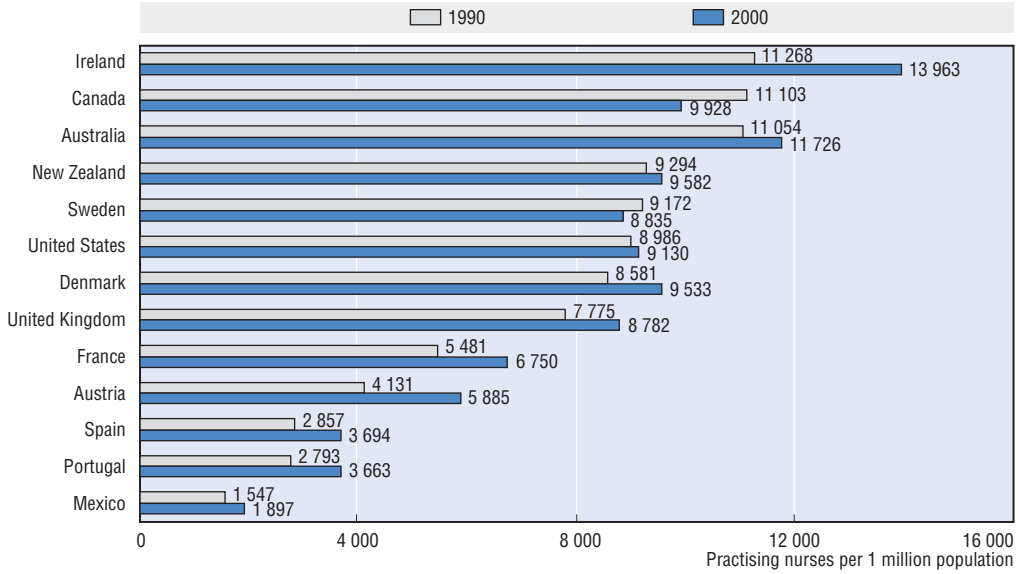
Table 4.2. **Average annual growth rates in physician density, 1960 to 2000**

	Annual growth rate from 1960 to 1970	Annual growth rate from 1970 to 1980	Annual growth rate from 1980 to 1990	Annual growth rate from 1990 to 2000	Annual growth rate from 1960 to 2000
Australia	0.8	4.0	1.8	1.2	1.9
Austria	2.9	3.1	3.0	2.4	2.9
Belgium	1.9	4.1	3.5	1.7	2.8
Canada	2.3	2.3	1.6	–0.1	1.5
Denmark	1.5	4.5	3.6	1.0	2.6
Greece	2.6	4.1	3.3	2.9	3.2
Japan	0.6	1.6	2.6	1.6	1.6
Korea			5.3	4.5	
Mexico			0.5	2.7	
Netherlands	1.1	4.3	2.8	2.5	2.7
New Zealand	0.1	3.7	2.0	1.7	1.9
Norway	1.5	3.6	2.7	1.1	2.2
Portugal	1.6	7.7	3.6	1.2	3.5
Sweden	3.3	5.3	2.7	0.6	2.9
Switzerland	0.7	5.2	1.9	1.6	2.3
United Kingdom	1.1	3.4	1.0	3.3	2.2
United States		1.6	2.4	2.7	

Notes: Data for 1960 refers to 1961 for Australia, Canada and New Zealand. Data for 1970 refers to 1971 for Australia, Belgium and New Zealand.
Data for 1980 refers to 1981 for Australia and Korea. Data for 1990 refers to 1991 for Norway.
Data on British and Mexican physicians do not include physicians practising in the private sector.
Data on Greek physicians include some unemployed physicians.
Data on Korean physicians include oriental doctors.
Data on Norwegian physicians in 2000 refer to whole-time equivalent physicians.
Data on Portuguese physicians include some retired physicians.

Source: OECD Human Resources in Health Care Project and *OECD Health Data 2003*, 3rd edition.

Figure 4.10. **Change in nurse density, 1990 to 2000**



Notes: Data on Austrian nurses refer to nurses employed in hospitals; they do not include nurses working in other health facilities.
Data on Spanish nurses refer to registered nurses who are employed in the National Health Service.

Sources: Data for Australia, Austria, Canada, France, Mexico, New Zealand, Sweden and the United States are taken from the OECD Human Resources in Health Care Project. Data for Denmark, Ireland, Portugal, Spain and the United Kingdom are taken from *OECD Health Data 2003*, 3rd edition.

Box 4.2. **Evidence on physician and nurse shortages and surpluses in OECD countries**

Physicians

Some OECD countries are reported to be facing physician shortages, whereas others seem to be experiencing surpluses. In England, physician shortages can be observed in three-month vacancy rates of 4.7% of all specialist physician posts and 3.3% of all general practitioner posts in England in the year to March 2003 (Department of Health, 2003a). On the other hand, there were claims of a physician over-supply in Belgium in 2000 (European Observatory on Health Care Systems, 2000). Some countries may have physician shortages in specific geographical regions such as rural and deprived areas, but have surpluses in affluent metropolitan areas. Australia reported a shortage of 1 240 general practitioners in rural and remote areas and a supply in excess of benchmark levels of approximately 2 300 general practitioners in metropolitan areas in 1998 (Australian Medical Workforce Advisory Committee, 2000). In other cases, shortages fall solely on certain categories of physicians with specific skills or specialisation. There is some evidence of decreasing employment opportunities for specialists and increasing uptake of family medicine programmes by medical students in the second half of the 1990s (Grumbach, 2002).

Nurses

The majority of OECD countries seem to be suffering from nurse shortages, with some countries publishing estimates of how many headcounts or full-time equivalent nurses would be needed to match demand for and supply of nursing services. The shortage of nurses in Norway was estimated at 3 300 full-time equivalents or about 5.4% of practicing nurses in 2001 (Askildsen *et al.*, 2002). Evidence of rising vacancy rates also points towards nurse shortages, with Germany's Institute of Applied Nursing Research reporting 42 000 nursing vacancies in spring 2002. Unemployment of nurses appears to be marginal or non-existent in most OECD countries, except for Spain which reported an unemployment rate of 7.66% in 1999 (Eurostat Labour Force Survey).

4.2. Future trends in the health workforce

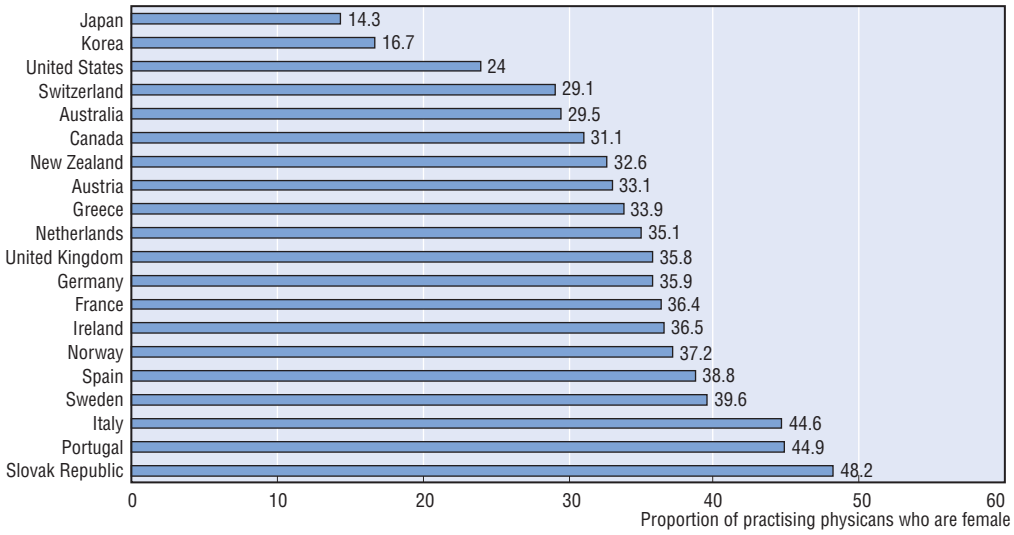
With gaps already appearing between demand for and supply of physicians and nurses in many countries, and further increases in demand expected, it is important to understand better what future trends might affect the supply of workers. Two key issues are examined in this section: female participation in the health workforce and expected ageing of the health workforce.

4.2.1. Female participation in the health workforce

Female participation in the health workforce varies across countries. The female share of the physician workforce ranged from 14.3% in Japan to 48.2% in the Slovak Republic in 2000 (Figure 4.11). The female share of the nurse workforce is illustrated in Figure 4.12, with female participation rates exceeding 85% in all but two of the selected countries.

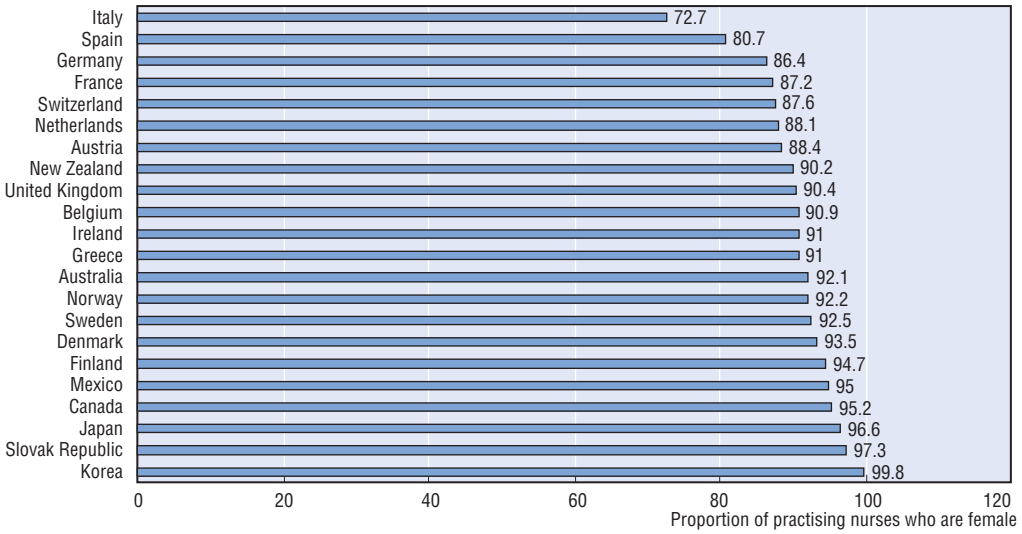
Changes in the extent of female participation can have important consequences for any planning of the supply of health care human resources, given that women health care workers tend to differ from men in how they participate in the workforce. Evidence from Australia and Canada suggests that female physicians prefer primary care specialities, are less likely to work in rural areas, are more likely to leave the practice of medicine or practice at low activity levels during child-bearing age, tend to work fewer hours and are

Figure 4.11. **Female participation in the physician workforce, 2000**



Sources: Data for Australia, Canada, France, Germany, Japan, Korea, New Zealand, Spain, Sweden, Switzerland and the United States are taken from the OECD Human Resources in Health Care Project. Data for Austria, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Slovak Republic and the United Kingdom are taken from *OECD Health Data 2003*, 3rd edition.

Figure 4.12. **Female participation in the nurse workforce, 2000**

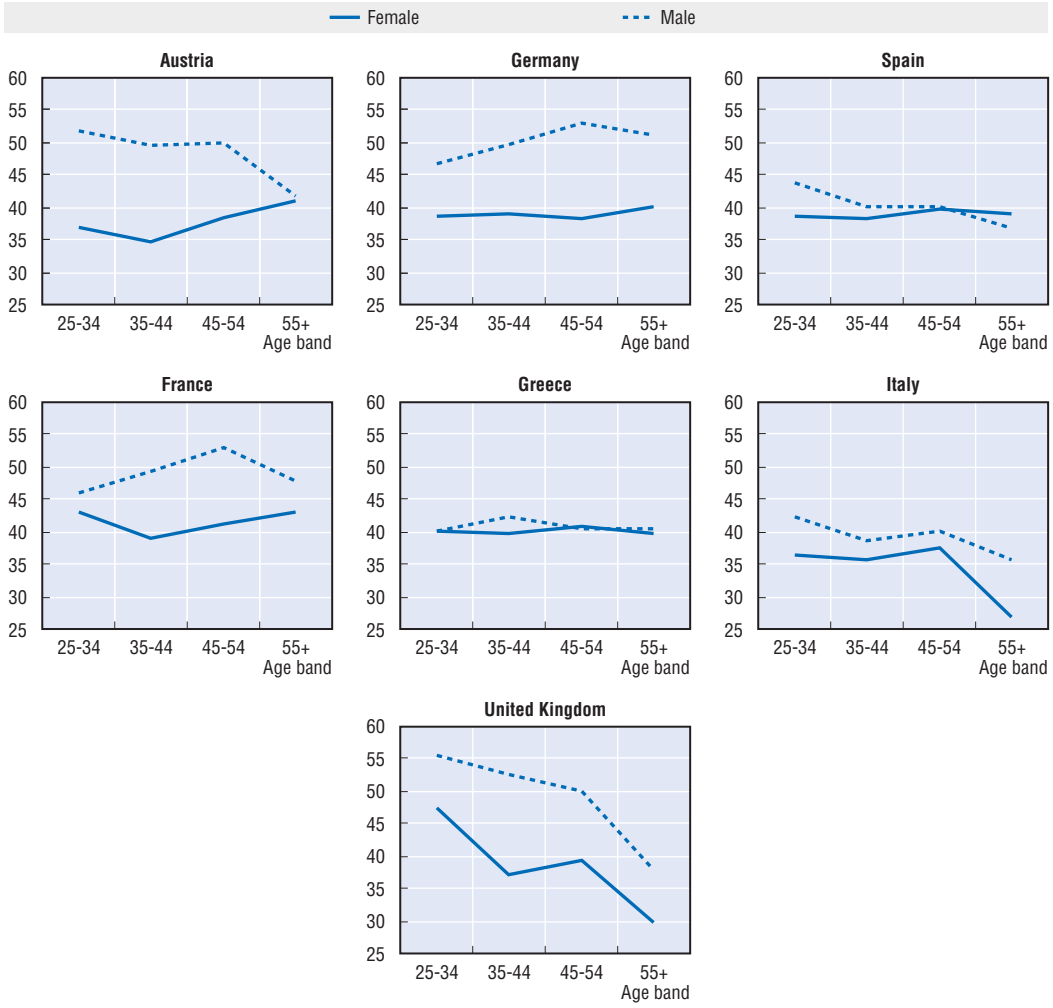


Notes: Eurostat data relate to "nursing and midwifery professionals" (category 223 of ISCO-88 code) and "nursing and midwifery associate professionals" (category 323 of ISCO-88 code) as defined by Eurostat.

Sources: Data for Austria, Canada, France, Japan, Korea, Mexico and New Zealand are taken from the OECD HRHC project. Data for Belgium, Denmark, Germany, Greece, Ireland, Italy, Netherlands, Norway, Slovak Republic, Spain, Sweden, Switzerland and the United Kingdom are taken from Eurostat Labour Force Surveys.

more likely to retire early (see, for instance, Woodward and Hurley, 1995; Australian Medical Workforce Advisory Committee and Australian Institute of Health and Welfare, 1996b; Australian Bureau of Statistics, 1999; and Cohen, 1999). Figure 4.13 suggests that female physicians (for a definition of "physicians", please see notes to Figure 4.13) tend to work fewer hours than male physicians, particularly during childbearing age. Similarly, hours worked by nurses fall from the age of 30-34 years and increase after childbearing age

Figure 4.13. **Average weekly work hours of physicians and others by age and gender, 2000**



Notes: Data relate to the ISCO-88 code 222 "health professionals (except nursing)", which does not distinguish physicians from veterinarians, pharmacists and dentists. However, physicians generally represent the bulk of this three-digit class – usually between 75 and 90% – and thus this provides a fairly good approximation to the aggregate of interest.

For France, physicians who work variable hours during the reference period are excluded from the calculations.

In some cases absolute data are very small and, hence, results should be treated with caution.

Source: Eurostat Labour Force Survey.

(see Figure 4.14). Other things being equal, if the current tendency for female physicians to work fewer hours than their male colleagues persists, more physicians will be needed to supply a given volume of hours of service, if female participation in the physician workforce increases.

4.2.2. Ageing of the health workforce

Ageing of the health workforce is expected to increase flows of staff out of the workforce over the next 20 years in many OECD countries. There is evidence from the Eurostat Labour Force Survey that the average age of physicians and nurses was increasing in many European countries over the period 1992-2001 (for a definition of "physicians", please see the notes to

Figure 4.14. **Average weekly work hours of nurses by age, 2000**

Notes: Data relate to the categories of "nursing and midwifery professionals" (category 223 of ISCO-88 code) and "nursing and midwifery associate professionals" (category 323 of ISCO-88 code) as defined by Eurostat.
Data do not include self-employed nurses.
Work hours refer to all hours including extra hours regardless of whether they were paid or not. Travel time between home and the place of work as well as the main meal breaks are excluded. Nurses who work variable hours during the reference period are excluded from the calculations.
In some cases absolute data are very small and results – especially those for Belgium, Norway and Switzerland – should be treated with caution.
Source: Eurostat Labour Force Survey.

Figure 4.13). An attempt was made to estimate for a subset of these countries the effect of continuation of these ageing trends on physician and nurse density in 2011 and 2021, assuming constant intakes of younger professionals (see Simoens and Hurst; and Simoens *et al.*, forthcoming). This modelling was not entirely successful because of anomalies in the data. Nevertheless, it suggested that physician density would decrease in four out of seven countries and nurse density would decrease in five out of eight countries by 2021 if no countermeasures were taken. Given the expectations of rising demand for health care in most OECD countries, because of population ageing and advancing medical technology, this suggests that significant shortages of physicians and nurses are likely to loom in several European countries during the next 20 years, unless countermeasures are taken. Such countermeasures could include boosting training and recruitment and improving pay and conditions – measures which are discussed further below.

5. Assessing policies designed to match supply with demand for physicians and nurses

5.1. *Ensuring an adequate supply of physician services*

This section examines policies on flows in and out of the physician workforce and policies which influence these flows and the productivity of physicians.

5.1.1. *Policies affecting the stock of practising physicians*

OECD countries have put in place a variety of domestic training, immigration, recruitment and retention policies to influence the flows in and out of the physician workforce and the geographical distribution of physicians.

Domestic education and training. OECD countries differ in whether they plan entry to medical schools or leave it to medical schools to determine total student places. Table 4.3 suggests that about 12 of the 19 countries listed, are now operating some sort of *numerus clausus* – but in some cases this has been adopted only recently. Most of the remaining countries appear to leave entry to medical school to market forces (or, at least to decentralised mechanisms). However, some of these countries may control access to hospital training places after medical students have graduated. These different approaches may go a long way towards explaining why countries differ in physician density. Figure 4.15 suggests that the growth rate of physician density has been much higher in a selection of countries that have not controlled (or have only recently controlled) medical school intake centrally, than it has been in a selection of countries that have controlled intake. Countries which fall into the first group include Austria, Belgium, Greece and Switzerland. Countries which fall into the second group include Canada, Japan, New Zealand and the United Kingdom.

Table 4.3, above, suggests that countries which have planning regimes differ in how tightly these regimes have been applied. For instance, Sweden had a policy of increasing health expenditure and physician employment for several decades, with medical schools educating and training more physicians than were needed to replace flows out of the physician workforce. There was a relatively high annual growth rate of physician density of 2.9% from 1960 to 2000 (see Table 4.2). However, health expenditure and growth in physician density were sharply constrained in the 1990s in many OECD countries. Medical school intake was capped in response to projections of physician surpluses and pressures to contain health expenditure. In the United Kingdom, there was a more constrained approach through several decades. The annual growth rate of physician density was 2.2% from 1960 to 2000. That seems to have been determined by the desire to limit increases in health expenditure, concerns to avoid physician unemployment, and systematic under-estimation of future growth in demand for physicians (Medical Workforce Standing Advisory Committee, 1997).

Table 4.2 suggests also that growth in the physician workforce has been a "stop-go" phenomenon both in some countries which plan entry to medical school and some which do not. The most rapid growth in physician numbers coincided with the 1970s – the decade of "cost explosions" in health expenditure. Meanwhile, Figure 4.16 indicates considerable variation across countries in the inflow of new graduates as a proportion of the existing physician workforce in 2000. The inflow of newly-graduated physicians amounted to 2-3% of practising physicians for most countries in 2000, but exceeded 6% in Ireland and Korea.

Table 4.3. **Planning medical school intake over time**

	Medical school intake
Australia	Medical school intake is controlled by the Commonwealth Government through the funding of university places. In 1973, the Report of the Committee on Medical Schools to the Australian Universities Commission recommended an increase in medical school intake, including the establishment of two new medical schools to provide 1 560 graduates per year by 1991. In 1988, the Committee of Inquiry into Medical Education noted a surplus of GPs in urban areas. Since 1996, the Commonwealth Government has imposed a cap on medical school places to assist in controlling the supply of the medical workforce. The cap applies to domestic medical students only. The number of undergraduate medical school entrants has increased in the late 1990s (from 856 in 1995 to 1 334 in 1999).
Austria	The Government does not restrict the number of students admitted to medical school.
Belgium	In 1997, the Belgian Government fixed the number of physicians who would have access to accreditation for practice at 700 in 2004, 650 in 2005 and 600 in 2006. These numbers break down to 60% Flemish-speaking and 40% French-speaking students.
Canada	Following the introduction of hospital insurance in most provinces, the Hall Commission recommended an expansion in the number of physicians by increasing medical school intake and opening four new medical schools in 1964. These recommendations were progressively implemented and lead to a peak of 1 835 medical graduates in 1985. The 1984 workforce study into physician manpower in Canada (1980-2000) and a subsequent study by Barer and Stoddart in 1991 recommended a reduction in medical school intake in order to avoid a physician surplus. Consequently, the number of medical graduates fell to 1 516 in 1999. Recommendations made in 1999 by the Task Force on Physicians Supply are to increase medical school intake to 2 000 students per year.
France	France has employed a numerus clausus since 1971. Due to concerns over a surplus of physicians, the numerus clausus has been reduced progressively since 1980 to bottom out at 3 500 students in 1993. Since then, the numerus clausus has increased as a consequence of a projected shortage of physicians in 2010-2015. The numerus clausus has been set at 4 100 students in 2001 and 5 100 students in 2002.
Germany	The government does not restrict the number of students admitted to medical school. Intake is determined by the number of places available at medical schools.
Greece	The Ministry of Education determines the number of available places in each medical school on the basis of available financial resources rather than an attempt to match demand and supply. The number of new students entering medical school has been recently stabilised.
Ireland	There are a certain number of state-funded places, but Colleges have discretion to take in more students. The Higher Education Authority determines the number of places available through the process of financial allocation.
Japan	The introduction of a national health insurance system in 1961 led to an increased demand for medical services. From 1970 onwards, new medical schools were set up and medical school intake increased from 4 380 in 1970 to 8 360 in 1982. In 1986, a Ministry of Health and Welfare Committee predicted that supply would outweigh demand by 10% in 2025 and recommended a reduction in medical school intake by 10% until 1995. In 1993, enrolment into medical school had dropped by 7%. In 1998, a Ministry of Health and Welfare Committee again recommended a 10% reduction in medical school intake until 2020.
Korea	There has not been an explicit policy about constraining or expanding the number of medical school admissions.
Mexico	From 1967 onwards, medical school intake increased and new medical schools were created due to higher demand from middle classes for higher education and due to the economic crisis which channelled people who couldn't find a job into the education system. Student enrolment peaked at 93 365 in 1980. The economic crisis implied that the health care system could not absorb the increased number of medical graduates, resulting in unemployment. Since 1980, the population of medical students has declined and the process of creating new medical schools has been halted.
Netherlands	Medical school intake is subject to a *numerus fixus*.
New Zealand	Enrollment into medical school is capped at 285 nationally.
Norway	The number of students entering medical school is limited to 594 medical students.
Spain	Medical school intake is controlled by the Ministries of Health and Education, and the National Conference of University Chairmen. Restrictions on the number of available places were introduced in 1978 and the 1987 agreement of the University Council.
Sweden	Medical school intake is controlled by the central government, mainly by deciding and funding the number of students admitted to medical school. To accommodate a rapid expansion of the health care system, medical school intake was increased and new medical schools were created from 1960 onwards. The number of new medical students rose from 431 in 1960 to 1 026 in 1973. In the early 1980s, concerns over surpluses and a wish to constrain health care expenditure led to the decision to reduce medical school intake to 845 in 1984.
Switzerland	The government does not restrict the number of students admitted to medical school.

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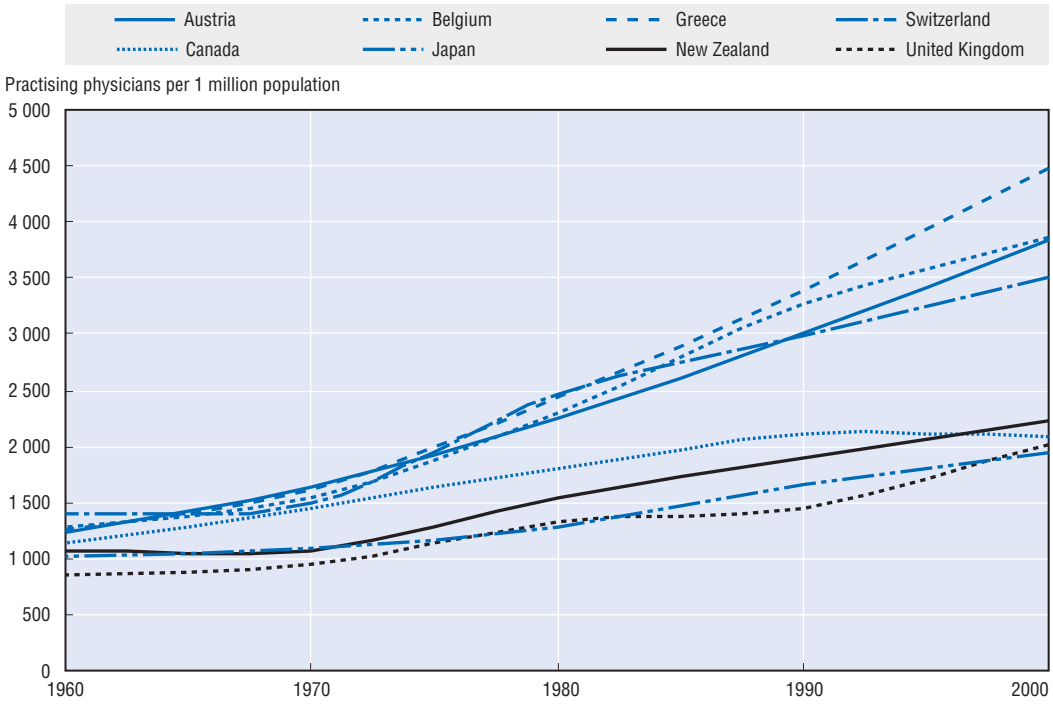
Table 4.3. **Planning medical school intake over time** *(cont.)*

	Medical school intake
United Kingdom	In 1966, the Royal Commission for Medical Education recommended an increase in medical school intake to 4 230 students and the creation of new medical schools. Additional reports by the Todd Committee, the Advisory Committee for Medical Manpower Planning and the Medical Workforce Standing Advisory Committee recommended increases in the number of physicians to meet population need for medical services. The numerus clausus was fixed at 5 091 students in 1998 and 5 600 students in 1999. The NHS Plan 2000 made recommendations for 1 000 more medical school places.
United States	The US.federal government does not impose any limitation on the number of medical school enrolments. However, due to the increasing prevalence of employer-based insurance, the Health Professions Education Assistance Act of 1963 led to the federal government investing in medical education.

Source: European Observatory on Health Care Systems and OECD Human Resources in Health Care Project.

Migration. Although OECD countries generally favour long-term policies of national self-sufficiency to sustain their physician workforces, such policies usually co-exist with short-term or medium-term policies to attract physicians from abroad, on a temporary or permanent basis. Foreign-trained physicians can make a substantial contribution to the physician workforce: this exceeded 20% of practising physicians in Canada, the United States, England and New Zealand in 2000 (see Table 4.4). This, in part, reflects the overall importance of immigration in meeting workforce needs in these countries. Immigration increases the flexibility and reduces the cost of physician supply in the host country. In

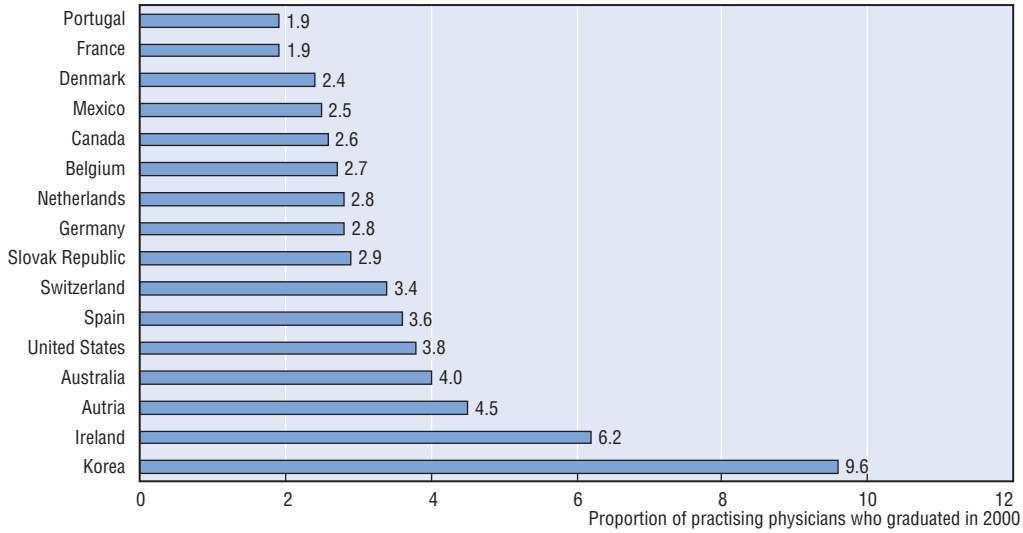
Figure 4.15. **Examining the impact of planning and market regimes on physician density in selected OECD countries, 1960-2000**



Notes: Data for 1960 refer to 1961 for Canada and New Zealand. Data for 1970 refer to 1971 for Belgium and New Zealand.
Data for the United Kingdom do not include physicians practising in the private sector.
Data for Greece include some unemployed physicians.

Source: OECD Human Resources in Health Care Project and *OECD Health Data 2003*.

Figure 4.16. **Graduated physicians as a percentage of practising physicians, 2000**



Notes: Data from OECD HRHC project are based on physicians graduated who started practising during the reference year. Data from WHO Regional Office for Europe Health for All database are based on physicians graduated eligible to practise. French, Irish, Spanish and US data refer to 1999.

Sources: Data for Australia, Canada, France, Korea, Mexico and the United States are taken from the OECD Human Resources in Health Care Project.
Data for the other countries are taken from the WHO Regional Office for Europe Health for All database.

addition, temporary migration may produce benefits in the home country through remittances and an upgrading of skills of those who return to the home country. However, emigration represents a transfer of human capital from the home to the host country, especially if it is permanent, which raises questions about equity if the home country is poorer, and has greater health needs, than the host country.

Table 4.4. **Foreign-trained physicians as a percentage of practising physicians, 1980-2001**

	1980	1985	1990	1995	2000	2001
Australia	35.7	35.5	37.2	19.6		
Japan	1.0		1.0		1.0	
Austria					1.5	1.6
France		9.0	4.0	4.0	3.0	
Norway					12.7	12.4
Switzerland					17.8	
Canada	28.0	26.7	24.3	22.6	21.1	21.0
United States	20.9	21.5	21.4	23.0	24.2	
England				28.0	30.0	30.0
New Zealand				33.3	34.5	

Notes: Australian data refer to 1981 (physicians who have been born abroad), 1986, 1991 and 1995.
Data for England relate to physicians in the National Health Service.
Data for Japan refer to physicians with foreign nationality.
Swiss data for 2000 actually refer to 1998.
US data for 1980 actually refer to 1981.

Source: OECD Human Resources in Health Care Project.

Countries have generally adopted a variety of policies to attract foreign physicians. An international recruitment campaigns was launched involving advertisements in the medical press and participation in job fairs in Germany and language courses for immigrating physicians have been arranged in Norway. Other countries have eased general immigration requirements for physicians. In Canada, changes to the Immigration Act Regulation favour the immigration of physicians and increased efforts are being made to support licensure of foreign-trained physicians. The United Kingdom launched an International Fellowship Programme in 2002, to attract experienced specialists from abroad to selected posts in the National Health Service for periods of one to two years. At the same time, some countries have adopted ethical recruitment policies designed to limit recruitment from developing countries.

Some OECD countries are experiencing physician emigration. For instance, Irish physicians made up 15.2% of the foreign physician workforce in the United Kingdom in 2001. Conversely, 29.2% of foreign physicians in Ireland originated from the United Kingdom. This is sometimes referred to as a "carousel movement". A few countries have implemented policies to reduce physician emigration. New Zealand has undertaken efforts to maintain contact with its expatriate physicians, encouraging their acquiring skills overseas while offering some incentives for their return. In Canada, repatriation programmes were introduced for Canadians who had undertaken a postgraduate training programme in the United States.

Retention. Few countries that completed the policy questionnaire circulated as part of the Human Resources Project, considered that the level of physician retention was a major issue. However, in some countries where it was considered an issue, retention policies have focused on creating more flexible pay and working conditions to reduce the number of physicians that change career. In the United Kingdom, policies have been directed at retaining older physicians in the workforce by offering flexible working patterns and higher pay. In the Netherlands, retention policies have targeted working conditions in general practice. Few of the countries that returned the policy questionnaire have implemented or planned policies to compensate for early and partial retirement. Mexico is considering proposals to increase the retirement age in public health institutions by postponing retirement benefits. In Sweden, proposals are being discussed whether physicians should be encouraged to work beyond the current retirement age of 65 years.

Rural and remote areas. Many countries have been obliged to introduce policies aimed at attracting and retaining physicians in rural and remote areas. Some success has been reported with educational initiatives that attract medical students who come from a rural background and prioritise training programmes that emphasise the rural component of the curriculum (see, for instance, Grumbach and Seifer, 1995; Rolfe *et al.*, 1995; Council on Graduate Medical Education, 1998; Easterbrook *et al.,* 1999; and Rabinowitz *et al.*, 1999). Additionally, policies that provide financial support for practising in rural areas and impose restrictions on practice location appear to be effective in recruiting physicians to rural areas (see, for instance, Bolduc *et al.,* 1996; Holub and Williams, 1996; Maynard and Walker, 1997). A number of studies have suggested that the effectiveness of these policies can be further enhanced by supporting occupational opportunities for spouse/partner, education of children and accommodation (Kamien, 1998; Rabinowitz *et al.*, 1999). On the other hand, initiatives that offer scholarships to medical students in return for a commitment to practice in a rural area for a number of years seem to be less effective, as

students can sometimes buy their way out of their service commitment and few students opt to remain in the rural area after their required period of service expires (Anderson and Rosenberg, 1990; Nigenda, 1997).

5.1.2. *Policies affecting the output and productivity of practising physicians*

The impact of a given density of physicians may be affected profoundly by the productivity of those physicians. Productivity, in turn, may well be affected by remuneration methods (and levels). There is considerable variation in how OECD countries pay their physicians (Table 4.5). Some countries that fund health care through taxation, employ general practitioners directly and pay them a salary for public patients (*e.g.* Greece, Portugal, Spain and Sweden), whereas others contract with general practitioners who are self-employed and who are paid by a mix of capitation, salary and fee-for-service (*e.g.* Australia, Denmark, New Zealand, Norway and the United Kingdom). General practitioners in insurance-based health care systems such as Austria, Belgium, France, Germany, Japan, Korea, Switzerland and the United States (Medicare) tend to be independent contractors who are paid mainly by fee-for-service for public patients. OECD countries generally pay specialists either by salary or by fee-for-service, with salary payment being more common in the public sector.

There is a considerable literature on the impact of physician payment methods and remuneration levels on activity levels, but little if any of this literature has covered the impact on quality of care. Systematic reviews of the literature suggest that fee-for-service payments to physicians increase the quantity of medical services, but reduce rates of referral and the volume of prescriptions as compared to payment by capitation or salary (Gosden *et al.*, 1999 and 2001). However, Norwegian experience suggests that physician practice patterns are not only influenced by payment methods, but also by clinical factors and physician peer control (Grytten and Sorensen, 2001).

Countries' experiences suggest that single, as opposed to mixed, payment methods may produce unbalanced incentives. In countries that have introduced a capitation or salaried system, concerns have been raised that physicians may find it financially rewarding to select people with fewer health needs or actively discourage high-risk people ("cream-skimming"), although there is no conclusive evidence about its occurrence. Fee-for-service payments paid by third-party payers who simply reimburse fees charged by physicians, combined with no controls on the services actually delivered, can lead to high prices, high rates of unnecessary service utilisation and rising expenditures (Barnum *et al.*, 1995). That appears to be consistent with the aggregate comparisons across countries shown in Table 4.1. Meanwhile, policies that have attempted to curb health expenditure by controlling fee levels can be eroded if physicians increase the quantity of medical services that they deliver (as in ambulatory care in Australia and Japan) or switch the mix of services towards those that attract higher fees (such as provision of more on-site diagnostic services, as in France and Germany) (OECD, 2003b). In Belgium and Korea, fee reductions led to some substitution of services with high margins for those with low margins (Kwon, 2003; Marchand, 2003). However, recent US studies suggest that the response of specialist physicians to reductions in fee levels is more complex and depends on a mix of factors including: the margins for particular medical services; the relative market sizes of particular medical services; the share of physician income generated by specific medical services; the ability of physicians to induce demand; the response of demand to physician inducement; and time costs (see, for instance, Tai-Seale *et al.,* 1998; Yip, 1998; and Gruber *et al.,* 1999). Meanwhile, the imposition of fee controls may also

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Table 4.5. **Physician payment methods circa 2000**

	General practitioners	Ambulatory care specialists	Physicians in public hospital	Physicians in private hospital
Australia	75-80% by blended payment (mainly fee-for-service, 10% of income derived from capitation and target payments for immunisation).	Fee-for-service, with no limit on use of services and annual expenditure.	Blended payment (salary for treating public patients and fee-for-service for treating private patients in public hospital).	Fee-for-service and salary.
Austria	60% by fee-for-service and 40% by fee-for-service and capitation.	90% by fee-for-service, 10% by capitation and fee-for-service.	90% by salary and 10% by fee-for-service.	90% by fee-for-service and 10% by salary.
Belgium	Fee-for-service.	Fee-for-service.	Fee-for-service.	Fee-for-service.
Canada	Mainly by fee-for-service, some alternative payment methods.	Mainly by fee-for-service.		Majority by fee-for-service.
Denmark	Blended payment (63% of income from fee-for-service, 28% from capitation).	Not relevant.	Salary.	
England	86% of income by blended payment (capitation, practice allowance, fee-for-service for selected services, target payments for immunisation), 14% by fee-for-service for private work.	100% by salary for public patients, fee-for-service for private patients.	100% by salary for public patients, fee-for-service for private patients.	100% by fee-for-service.
France	Fee-for-service.	Fee-for-service.	Salary.	Fee-for-service.
Germany	100% by fee-for-service.	100% by fee-for-service.	Salary. Fee-for-service for private patients.	100% by salary.
Greece	Salary in public sector, fee-for-service in private sector.	Salary in public sector, fee-for-service in private sector.	Mainly by salary.	Blended payment (fee-for-service and salary).
Ireland	Fee-for-service if higher patient income, capitation if lower patient income.		Salary. Fee-for-service for treating privately insured patients in public hospital.	
Japan	Fee-for-service.	Salary for hospital outpatient services, fee-for-service for independent outpatient clinics.	Salary.	
Korea	100% by fee-for-service	100% by fee-for-service.	100% by salary.	100% by salary.
Mexico	Salary in public sector, fee-for-service in private sector.	Salary in public sector, fee-for-service in private sector.	Salary.	Fee-for-service.
Netherlands	Fee-for-service if higher patient income, capitation if lower patient income.			Blended payment (salary and fee-for-service).
New Zealand	78% by fee-for-service and 22% by capitation.	Majority by salary.	Majority by salary.	Majority by fee-for-service, minority by salary.
Norway	Blended payment (70% of income from fee-for-service and 30% from capitation).	Salary and fee-for-service in public sector, fee-for-service in private sector.	Salary.	
Portugal	Salary in public sector, fee-for-service in private sector.		Salary.	Fee-for-service.

Table 4.5. **Physician payment methods circa 2000** *(cont.)*

	General practitioners	Ambulatory care specialists	Physicians in public hospital	Physicians in private hospital
Slovak Republic	Blended payment (capitation and target payments for preventive care).	100% by fee-for-service.	100% by salary.	Fee-for-service.
Spain	Blended payment (85% of income from salary and 15% from capitation).	100% by salary.	100% by salary.	Mainly by fee-for-service.
Sweden	Salary.	Salary.	100% by salary.	100% by salary.
Switzerland	96% by fee-for-service and 4% by salary.	90% by fee-for-service, 10% by salary.	Fee-for-service, salary and blended payment (fee-for-service and salary).	Fee-for-service, salary and blended payment (fee-for-service and salary).
United States	Blended payment.	Blended payment.	Blended payment.	Blended payment.

Source: OECD Human Resources in Health Care Project.

produce shifts towards areas where fee levels are not limited. In Greece, where social insurance reimbursement rates for physician visits are set at relatively low levels, physicians tend to shift patients to private practice (OECD, 2003b).

To counteract the adverse incentives of individual payment methods, some countries have moved from paying physicians by a simple method towards more sophisticated payment systems. Blended payment methods that combine a fixed component through either capitation or salary and a variable component through fee-for-service for specific cost-effective interventions, can produce a more desirable mix of incentives. For example, in the UK, GPs have been paid by a mix of capitation, fee-for-service and salary payments. In addition, they have received bonus payments for meeting certain targets for vaccination rates among children registered with their practice. Germany has experimented with regulated fee schedules where physicians are reimbursed on the basis of points per service, while the value of a point is determined according to the volume of services delivered by physicians during the reference period, to keep total expenditures within a global budget. In addition to this, regional physician associations monitor the volume of services provided by primary care physicians and financially penalise those physicians with higher-than-average service volumes that cannot be attributed to case mix differences. Moreover, a lump-sum component has been added to the remuneration package of primary care physicians to avoid an excessive expansion of physician activity.

Against a background of growing evidence on shortcomings in quality of care, OECD countries are showing increasing interest in paying physicians by results, *i.e.* rewarding physicians for quality of care both in terms of health improvements and responsiveness to their patients. Payment schemes that reward general practitioners for quality are being implemented in both Australia and the United Kingdom. In the UK, from April 2004, about a fifth of GPs income will be based on 146 indicators of quality, such as: keeping a register of patients with hypertension; recording smoking status for such patients; and recording whether such patients who smoke have been offered smoking cessation advice at least once. Another approach has been to give salaried physicians merit pay for good performance. In the United Kingdom, senior specialist physicians are eligible for a distinction award if they meet objectives such as the adoption of high standards of clinical care; adoption of patient-centred care; commitment to service targets; participation in clinical governance; and use of evidence-based practice (Department of Health, 2003a). However, there is not much evidence, so far, that merit pay acts as a motivator for improved quality and there remain many difficulties in designing an objective performance appraisal system (Ullrich, 1997). The worries about systems of payment which try to reward quality include: whether they will distort practice between areas where quality can be measured and areas where it cannot; whether they will encourage selection of less risky patients; and whether they will distort record keeping. Such schemes may require careful monitoring and regulation.

5.2. Ensuring an adequate supply of nursing services

In general, the supply of nursing services will be affected both by the conditions of service of nurses and by their pay. A combination of these factors is likely to affect entry and exit to the profession, participation in the workforce, hours worked per nurse and turnover. In what follows, the effect of both conditions of service and pay are examined under the headings of “flows of nurses into the workforce”, “hours of work”, “flows of nurses out of the workforce” and “turnover”.

5.2.1. Flows of nurses into the workforce

Domestic education and training. When designing policies to increase flows of nurses into the workforce, it is important to note that nurses say that they are fundamentally attracted to the profession for reasons other than the wage (see, for instance, While and Blackman, 1998; and Meadows *et al.,* 2000). Surveys indicate that the major stated reasons for entering nursing include: satisfaction of working with and caring for people, a long-term desire to nurse, previous experience of care-giving and having relatives in health care occupations. However, what nurses say about their reasons for entering (or quitting) nursing may differ from what determines their behaviour, in practice. Behavioural evidence suggests that starting salaries (both absolute and relative levels) in jobs that have similar educational requirements to nursing are also important reasons for joining the profession. Evidence from the United States, suggests that higher wages have a significant positive effect in attracting new students to first-degree nursing programmes (Chiha and Link, 2003).

Some OECD countries leave the supply of nurses mainly to decentralised market forces. Others have started to regulate nursing school intake, although the extent of involvement is generally more limited than for physicians. Table 4.6 suggests that the number of available nursing places is determined by nursing schools themselves, on the basis of student demand and their assessment of the needs of the labour market, in seven countries (Australia, Belgium, Mexico, Netherlands, New Zealand, Norway and the United States). The role of the government in these countries is limited to the funding of public nursing education. However, in another twelve countries (Austria, Canada, Germany, Greece, Ireland, Japan, Korea, the Slovak Republic, Spain, Sweden, Switzerland and the United Kingdom (England)) the number of places available in nursing schools is planned to a greater extent by the Government (Ministries of Health and Education) at national and/or regional level.

As with newly-graduated physicians, there is considerable variation in the proportion of practising nurses who are new entrants to the profession (see Figure 4.17). A three-fold variation was noted in the proportion of recently graduated nurses to the stock of nurses in 2000, with at one end of the scale Canada, Australia and the United Kingdom reporting an inflow that was less than 3% of practising nurses, and at the other end of the scale Japan, Slovak Republic and Korea reporting an inflow that exceeded 6% of practising nurses. This may reflect mainly the fact that some health systems are growing faster than others. There is some evidence that inflows to nursing in a given country can be subject to a "cobweb" cycle: a cyclical pattern in nursing school intake brought about by the fact that the training period imposes lags in the response of potential entrants to any rises and falls in relative wages, brought on by shortages and surpluses in the stock of nurses.

Countries' experiences show that against the background of falls in the size of cohorts of young people in the population and a long term rise in the availability and attractiveness of alternative occupations, moves to increase nursing school intake have been inhibited by a number of factors including: the public costs of funding additional places in nursing schools; and faculty shortages. On the other hand, advertising and recruitment campaigns in Australia, Ireland, the United Kingdom and the United States seem to have been associated with short term increases in enrolments in nursing schools.

Several countries, including Australia, Belgium, Germany, Ireland, Netherlands, Norway, Switzerland and the United Kingdom, have reviewed or reformed the education paths into nursing to improve the attractiveness of entry into the profession. Reforms of nurse education paths have included upgrading of professional profiles (*e.g.* in Ireland) and making

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Table 4.6. **Determining the number of places available in nursing schools**

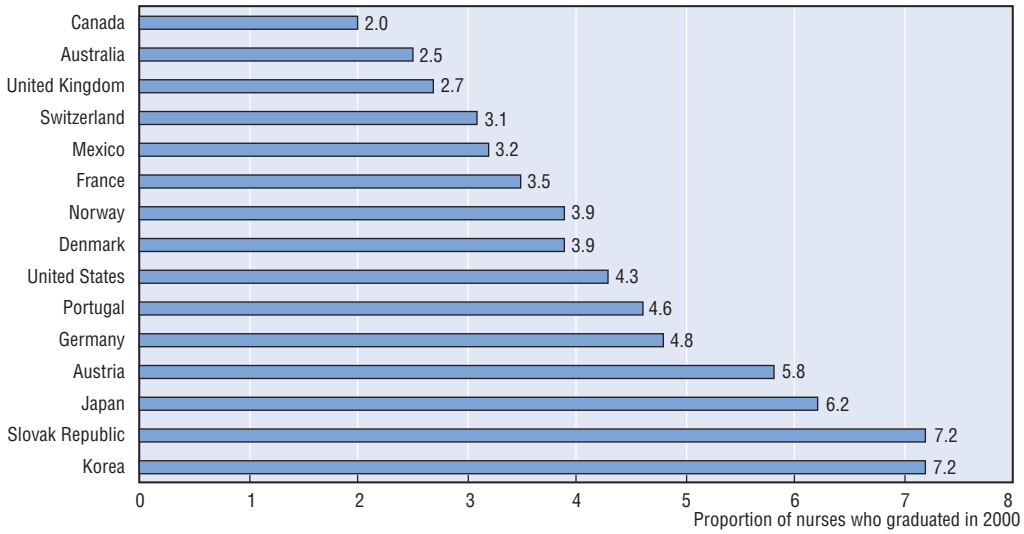
	Nursing school intake
Australia	The number of places available in nursing schools, for registered nurse education, is determined by individual universities. The Commonwealth Department of Education, Science and Training provides funding to universities under the Higher Education Funding Act 1988. Universities are provided block funding and are essentially autonomous organisations that are responsible for the distribution of funds between faculties and schools based on their own assessment of the extent of student demand and the needs of the labour market. When nurse education was transferred to universities in 1993/1994, universities were asked to provide a minimum number of places for basic nurse education to ensure an adequate supply of nurses to each state and territory.
Austria	Federal states determine the number of places available in nursing schools. Nursing associations and labour unions have some influence, but no formal say in determining the number of places available in nursing schools.
Belgium	There is no central authority that determines the number of places available in nursing schools.
Canada	Provincial/territorial governments provide funding to post-secondary educational institutions. The number of places available in nursing schools is based on negotiation between the ministries of health and education. Many provinces/territories have government-funded nursing advisory committees which provide advice to the government on education plans for nurses.
England	The number of places available in nursing schools is determined in partnership between the Department of Health and local Workforce Development Confederations. Workforce Development Confederations identify their own needs and the Department of Health ensures that local plans collectively meet national needs. This process relates to the number of places funded by the Department of Health. Higher education institutions may provide further places for students who fund their own courses.
Germany	The number of places available in nursing schools may be determined by the Federal Lander.
Greece	The Ministry of Education and the Central Health Council determine the number of available places in public nursing schools.
Ireland	The number of places available in nursing schools is determined by the Higher Education Authority with training places being funded by the Department of Health and Children.
Japan	The number of places available in nursing schools is determined by national and each prefecture government.
Korea	The number of places available in nursing schools is determined by the government.
Mexico	There is no central authority that determines the number of places available in nursing schools. Every school determines its own number of positions according to its infrastructure and available resources.
Netherlands	There is no central authority that determines the number of places available in nursing schools.
New Zealand	There is no central authority that determines the number of places available in nursing schools.
Norway	Each nursing school determines the number of available positions.
Slovak Republic	The number of places available in nursing schools is determined by the Ministries of Health and Education.
Spain	The number of places available in nursing schools is determined by the Ministries of Health and Education. The number of nursing places was limited in the late 1990s to about 7 000 per annum.
Sweden	The number of places available in nursing schools is determined by the government.
Switzerland	The number of places available in nursing schools is determined by cantons.
United States	There is no central authority that determines the number of places available in nursing schools, although state's decisions on public nursing education funding has a direct impact on capacity to train nurses.

Source: European Observatory on Health Care Systems and OECD Human Resources in Health Care Project.

nurse education more flexible (*e.g.* in the United Kingdom). In 2001, Ireland announced a sponsorship scheme for experienced health care assistants wishing to train as nurses. Successful candidates were allowed to retain their salary during the four years of the degree programme, in return for a commitment to work as nurses for their public health service employer following graduation. In 1999, the United Kingdom launched a new nurse education strategy "Making a difference for nurses, midwives and health visitors", which allowed students to spread their education over more than three years, by incorporating take-a-break periods. In addition, new pathways into nursing via national vocational qualifications were introduced and a new post of "nurse consultant" was created.

Immigration. In addition to domestically-trained nurses, immigration of foreign-trained nurses can make a substantial contribution to sustaining the domestic nurse workforce.

Figure 4.17. **Graduated nurses as a percentage of practising nurses, 2000**



Notes: Data from OECD Human Resources in Health Care Project are based on nurses graduated who started practising during the reference year.
Data from WHO Regional Office for Europe Health for All database are based on nurses graduated during the reference year.
Data for Australia refer to Australian resident students.
Data for Canada refer to Canadian-trained nursing graduates writing the mandatory registered nurses licensure exam. Midwives are excluded.
Data for Denmark exclude midwives.
Data for Korea and Norway refer to newly-licensed nurses.
Data for the United Kingdom refer to trained nurses first registered with the Nursing and Midwifery Council.

Sources: Data for Australia, Canada, Korea, Mexico, Norway, Switzerland and the United Kingdom are taken from the OECD HRHC project. Data for Austria, Denmark, France, Portugal and the Slovak Republic are taken from the WHO Regional Office for Europe Health for All database. Data for the other countries are taken from the Nursing Workforce

For instance, foreign nurses made up 6.7%, 23.1% and 8.3% of the nurse workforce in 2001 in Austria, Switzerland and the United Kingdom, respectively (Eurostat Labour Force Survey). International flows of nurses appear to be driven by a number of "pull" factors such as opportunities for professional training, offers of higher wages, and better employment opportunities in the host country. "Push" factors such as less attractive living and working conditions in the home country also play a role.

Certain member countries have introduced policies to stimulate immigration of foreign-trained nurses. One type of policy has been to relax the regulatory and certification processes in the host country, making it easier for foreign nurses to obtain registration. However, this may create a tension with the need to maintain standards, with concerns being raised in Greece for example about the qualifications and linguistic skills of foreign nurses and the quality of health care provided by foreign nurses. Countries such as Australia have fast-tracked visa or work-permit applications of foreign nurses. Some countries have also adopted policies of active and targeted international recruitment of nurses within the structure of government-to-government agreements. In England, for example, the National Health Service is recruiting nurses following agreements between the Department of Health and the Governments of Spain, India and the Philippines (OECD, 2003c).

To limit the impact of international recruitment of nurses on developing countries, some OECD host countries have initiated policy statements and ethical guidelines for employers recruiting nurses from such countries. For example, members of the

Commonwealth have agreed to a "Commonwealth Code of Practice for the International Recruitment of Health Workers", which provides Commonwealth governments with guidelines within which international recruitment should take place. However, it has been argued that such guidelines focus more on the practicalities of recruitment, rather than on any moral considerations (Buchan *et al.*, 2003). Additionally, their effect has sometimes been eroded by increased recruitment from other developing countries that are not mentioned in the guidelines (Buchan, 2002). An alternative approach has been taken by Norway, which regulates international recruitment of nurses through government-to-government agreements and which has assigned responsibility to a single government agency for attracting a limited number of foreign nurses (OECD, 2003c).

Participation and re-entry. Concerning the decision of currently qualified registered nurses to participate or not in the nurse workforce, there have been a number of attempts to estimate the responsiveness of nurse participation to changes of nurse wages in the United States. Dusansky *et al.* (1986) found participation elasticities which were mildly inelastic at about 0.9 for registered nurses and about 0.7 for licensed practical nurses. In other words, a 10% increase in wages would raise participation by 9% and 7% for registered and licensed practical nurses, respectively. Link (1992) found considerable variability in estimates of participation elasticities across different sources of data including various US Censuses at different dates and various US National Sample Surveys of Registered nurses at different dates. In the United Kingdom, Phillips (1995) found that participation was quite responsive to wages – at an elasticity of 1.4.

Not surprisingly, most of these and similar studies found that participation for married nurses was negatively associated with: spouse's income; household non-labour income; and the presence of preschool age children; and sometimes positively associated with children aged more than six; other things being equal. Such determinants of participation are not under the direct control of policy makers but the finding in relation to children does suggest that providing child care for pre-school children at the workplace might be effective in encouraging some nurses to increase their participation. Meanwhile, it has often been observed that nurse recruitment improves during economic recessions when other household incomes come under strain.

While nominal wages of registered nurses have risen in the United States, real earnings have been quite flat for about 20 years (National Center for Health Workforce Analysis, 2002). Elementary school teachers, by contrast, have enjoyed a significant increase in both nominal and real earnings over the same period. Additionally, the compressed salary range between the newest and most experienced nurses may serve as a disincentive to staying in nursing because wages top off after just a few years of service. Nurses with five years experience in the United States earn about 15% to 17% more than a new graduate, but only about 1% to 5% less than their senior colleagues who may have graduated 20 years before them (National Center for Health Workforce Analysis, 2002).

A significant proportion of nurses interrupt their participation in nursing to raise children. Many such nurses can be attracted back into nursing when their children reach school age, or later. Several countries, including Australia, Canada, Ireland and the United Kingdom, have reported some success in stimulating the re-entry of nurses into the workforce by offering training courses and by making a financial contribution to tuition fees and/or salary. In some cases, these policies have been accompanied by the requirement that nurses commit themselves to remaining in the workforce for a minimum period of time.

5.2.2. Hours of work

Nurses who are already participating in the nurse workforce may choose to increase their hours of work if wages are raised – perhaps by shifting from part time to whole time work. However, there is also a possibility that the supply curve of hours is "backward bending" at some point – that is, nurses may reduce their hours if wages rise above a level which gives then a satisfactory income at the maximum hours they wish to work. Two literature reviews of relevant studies from the United Kingdom and the United States suggest that the effect of rising wages on hours of work is probably positive but small. A number of studies have suggested that the short-term wage elasticity with respect to hours of work is around 0.3. That suggests that a 10% increase in the real wage of registered nurses would raise hours by around 3% (Antonazzo *et al.*, 2003; Shields, 2003). But results vary from study to study and it is not yet clear whether the supply curve is backward bending or not above some level of wages.

Not surprisingly, hours of work have been found in a number of studies to be negatively associated with husband's wages, household non-labour income and the presence of pre-school age children (Antonazzo *et al.*, 2003).

5.2.3. Flows of nurses out of the workforce

Flows out of the nurse workforce are made up of nurses emigrating to another country, nurses moving into other professions, nurses withdrawing from the workforce, for example to care for relatives, and nurses taking up retirement.

Emigration. Some OECD countries are experiencing emigration of nurses to other countries. Although there is a lack of available data, the magnitude of nurse emigration flows appears to be relatively small: 0.2% of Australian nurses emigrated in 2000; 0.9% of Norwegian nurses emigrated in 2001; and between 0.9% and 1.4% of British nurses emigrated in 2001. To date, there is little evidence of how migration flows impact the distribution of nurses across OECD countries or whether they put pressure on the health care system of a few countries that are net exporters. Recent evidence suggests that nurse immigration to and emigration from Ireland may be a zero-sum game with more than 4 000 foreign nurses working in Ireland and 3 955 Irish nurses working abroad (Health Services National Partnership Forum and Irish Nurses' Organisation, 2003).

One country that has a nurse surplus, has adopted policies to stimulate nurse emigration. Spain has put in place a government-to-government agreement with England to facilitate employment of Spanish nurses in England. On the other hand, few member countries seem to have adopted policies designed to reduce the level of nurse emigration.

Withdrawal from the nurse workforce. There is some evidence about why experienced nurses choose to move out of nursing into other professions. Surveys of registered nurses working in jobs other than nursing in the United States, suggest that reasons for leaving nursing include a desire for: better work hours, a more professionally rewarding job, better home and family time, and less exposure to violence, bullying and other abuse (Bureau of Health Professions, 2000; National Center for Health Workforce Analysis, 2002). Behavioural studies suggest that relative pay also plays a role.

In a predominantly female workforce, the development of family-friendly employment policies that allow nurses to achieve a better balance between work and family responsibilities seems to be crucial to reducing withdrawal from the workforce. The

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United Kingdom, for example, has made available GBP 70 million in the three years from April 2001 to build 150 on-site nurseries with places subsidised at an average of GBP 30 per place per week. The Department of Health has reported that the introduction of a Childcare Tax Credit scheme resulted in fewer nurses leaving the National Health Service (Department of Health, 2001).

Retirement. Policies designed to affect nurses' retirement have been aimed variously at: reducing the rate at which nurses take early retirement; delaying normal retirement; or at attracting retired nurses back into the workforce. Pay increases can be effective in delaying retirement. For example, a number of Belgian hospitals have reported some success in retaining experienced staff by allowing nurses aged 45 years and older to work 36 hours per week and those aged 55 years and older to work 32 hours per week – all for a full 40-hour salary (Peterson, 2001). This is an expensive measure, however: it represents a 25% per hour pay rise for those over 55. Other policies aim to defer the normal retirement of nurses. The United Kingdom flexible retirement initiative encourages staff to stay on beyond the normal retirement age for a limited number of months by offering additional pension contributions. In addition, National Health Service staff in the United Kingdom can retire and start receiving pension benefits whilst carrying on with part-time work.

5.2.4. *Nurse turnover*

Nurse turnover can have both benefits and costs. Possible benefits of turnover include increased productivity from more closely matching the skills of nurses with job requirements and an opportunity for the employer to change the composition of the workforce. On the other hand, turnover generates administrative costs of identifying, selecting and educating nurses and may be associated with short-term productivity losses. A certain amount of turnover is to be expected in an efficient labour market, although to date there is little evidence about what this level of turnover might be or how it might differ across countries. Preliminary results of a study of nursing turnover in Australia, Canada, New Zealand, Scotland and the United States point to a turnover rate of registered nurses of 9.49% (O'Brien-Pallas *et al.*, 2003). This rate seems to be comparable to turnover rates in other professions: 7.5% for US pharmacists (American Society of Health-System Pharmacists, 2003), 9.5% for Norwegian teachers (Falch and Strøm, 2002), and 8.7% for US public school teachers (National Center for Education Statistics, 1995).

Nurse turnover seems to be driven by a number of factors. Fiscal stabilisation measures taken during the 1990s in certain OECD countries, precipitated cost cutting and hospital downsizing, which led to significant reductions in the number of nurses and supporting staff at professional, clerical and ancillary service levels. At the same time, demand for nurses continued to rise due to ageing populations, technological advances and higher patient expectations. These changes were associated with increasing: workload, overtime, injury rates, absenteeism and sickness absence among remaining practising nurses. Although evidence about its occurrence is mixed,[7] there have been claims of use of monopsony power by governments and by hospitals, leading to a lower wage and nurse employment level than would occur in a competitive labour market. Negative perceptions of staffing adequacy and workforce management policies were associated with nurse dissatisfaction with their job in a large survey of registered nurses in Canada, England, Germany, Scotland and the United States (Aiken *et al.*, 2001).

Box 4.3. **United States Magnet Hospitals**

In the early 1980s, the American Academy of Nursing conducted a study to identify which hospitals were successful in retaining nurses and which organisational features were shared by these successful hospitals. As a result, 41 Magnet Hospitals were identified that had a number of common organisational features that promoted and sustained professional nursing practice. These included flat organisational structures, unit-based decision making processes, influential nurse executives and investments in the education and expertise of nurses. These organisational attributes of Magnet Hospitals have been shown to be associated with better patient outcomes and higher levels of patient satisfaction. Nurses at these hospitals have experienced higher levels of job satisfaction, lower rates of burnout, lower rates of needlestick injuries, and increased perceptions of productivity and quality of care. As a consequence, Magnet Hospitals have reported higher nurse retention rates. Although Magnet Hospitals tended to have a higher nurse-to-patient ratio, the higher nurse wage bill was more than offset by shorter lengths of stay and lower utilisation of intensive care unit days.

In the early 1990s, the American Nurses Association through the American Nurses Credentialing Center established the Magnet Nursing Services Recognition Program to recognise excellence in professional nursing practice. This programme of Magnet Hospital designation is available to all hospitals and represents a voluntary form of external professional nurse peer review that is based on a hospital's ability to meet 14 standards of nursing care. Certification as a Magnet Hospital involves a multi-stage process of written documentation and on-site evaluation by nurse experts. The Magnet Nursing Services Recognition Program requires hospital recertification every four years. As of 15 October 2003, there were 88 Magnet-designated hospitals.

Source: Aiken *et al.* (2000).

Workplace strategies to improve retention. Some countries have introduced workplace strategies aimed at retaining nurses by enhancing their skills and empowering them. In the United States, the *Magnet Nursing Services Recognition Program* was established to recognize those hospitals that were successful in retaining nurses (see Box 4.3). Recently, a multi-stakeholder Magnet Advisory Network was created in New Zealand to determine transferability of Magnet manuals developed in the United States and develop timeframes to move the work forward.

Minimum staff/patient ratios. Recognizing that adequate staffing levels are often a prerequisite for creating attractive working conditions, some countries have implemented minimum ratios of nurses to patients. California proposed legislated nurse-patient ratios in January 2002 to take effect in 2003 and 2004. Similar action has been taken by the State of Victoria, Australia. Since implementing its minimum staffing legislation, the Victoria government claims that 2 650 nurses who had not been working in nursing have re-entered the workforce and that demand for places in nursing schools has increased by 25.5%. In the United States, the experience of individual hospitals suggests that minimum staffing ratios have been successful in reducing nurse turnover, although that has sometimes come at the expense of other hospitals in the area (Lafer *et al.*, 2003). However, more evidence is needed about whether savings arising from reduced nurse turnover and shorter patient stays, compensate for increased costs of higher staffing levels. The implications of higher staffing levels on nurse productivity also need to be considered.

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Education levels and continuing education. It appears that the educational composition of the nurse workforce may be associated with turnover. There is recent evidence that hospitals with a higher proportion of registered nurses, exhibit improved nurse retention and lower patient mortality (Aiken *et al.*, 2003). That suggests that there might be a trade-off between the number of nurses and the education of nurses – nurse turnover might be reduced by employing fewer nurses, while raising the proportion who are registered.

Offering opportunities for continuing education and training also appears to be crucial in retaining nurses. Continuing education may allow nurses to keep up with changes in treatment and technology, and advance their careers. In Ireland, the 2000 "Nursing and midwifery recruitment and retention initiative" provided fee support and enhanced salaries to nurses and midwives undertaking part-time nursing and certain undergraduate degree courses or specific courses in specialised areas of clinical practice. In 2002, Nursing and Midwifery Planning and Development Units were established to oversee the provision of continuing nurse and midwife education in each health board area. However, employers have not always been able to operationalise such policies: in many settings, pressure of work and the lack of available back-up staff make it practically impossible for nurses to take advantage of educational opportunities even when they are offered on-site.

Career advancement. Another strand of retention policies, has focused on improving career advancement prospects for nurses. Possible approaches to guide career advancement of nursing staff that have been proposed in the literature include clinical ladders, single or multi-occupation job evaluation and individual or group performance pay (see, for instance, Buchan and Thompson, 1997). In Ireland, the Nursing Careers Centre was set up in 1998 under the management of An Bord Altranais to promote and market nursing and to provide career guidance. In the United Kingdom, a National Health Service Careers service was launched in April 1999 that offers information on careers to nurses, midwives and health visitors. The Department of Health has also promoted career progression by extending the roles of nurses, increasing the number of senior nurses and nurse consultants (Secretary of State for Health, 2000). A survey of American states indicated that 12 states had developed or were developing nursing career ladders in 2002 (Hayes, 2002).

A recurrent theme in the literature is the lack of leadership development of nurses. Nurses who are involved in managing their working lives tend to be more pragmatic and realistic, leading to greater job satisfaction and retention (Meadows *et al.*, 2000). Ireland established a "high-level steering group on the empowerment of nurses and midwives" in 2000 to promote the meaningful involvement of nurses and midwives in the management of services. Amongst its range of initiatives, pilot management development programmes were set up to prepare nurse managers for their role as human resource managers. The United Kingdom has introduced service modernisation sessions where staff can apply the lessons that have been learned in other parts of the National Health Service to re-design local services. Additionally, a new Leadership Centre for Health was created in 2001 which provides tailored support for staff with leadership potential at different stages in their careers and for those already in leadership roles.

Violence and harassment. Some OECD countries have made efforts to reduce violence against and harassment of nursing staff. Ireland, for instance, developed a comprehensive policy for identifying workplace bullying and setting out effective procedures for dealing with allegations of bullying. In the United Kingdom, the National Health Service *zero*

tolerance zone was created in October 1999, which issued guidance to managers and staff on risk assessment and prevention, how to deal with patients and members of the public who harass staff, and how to develop policies to withhold treatment from violent and abusive patients. This was accompanied by an investment of GBP 3 million over a period of three years to support new initiatives that tackled violence against National Health Service staff.

Pay levels. Is raising pay effective in reducing nurse turnover? Studies in the United Kingdom and the United States suggest that a higher wage does reduce the level of nurse turnover, but there is little evidence about whether the reduced costs of turnover exceed the increased costs of pay (see, for instance, Ahlburg and Brown Mahoney, 1996; Gray and Phillips, 1996). The study by Gray and Phillips (1996) concluded that cost effective policies target pay increases at those grades of nurses who are particularly sensitive to the level of remuneration, or where short-term productivity losses are substantial. The authors also found that pay increases across-the-board for all members of the nursing profession were not a cost-effective way of reducing turnover.

More work needs to be done to assess the costs of improving pay and working conditions. Meanwhile, it is arguable that savings arising from reduced nurse turnover costs, lower expenditure on temporary nurses and shorter patient stays could help in funding the necessary improvements in nurse pay and working conditions. For example, the California Nurses Association has claimed that California's minimum nurse staffing ratios are expected to generate annual hospital savings of USD 2 billion due to a combination of shorter patient stays, lower expenditure on temporary nurses, and reduced turnover costs.

6. Changing the skill mix between physicians and nurses

An important potential contribution to the efficient use of the health workforce, is the possibility of skill mix changes – especially between doctors and nurses. "Skill mix" is a relatively broad term which can refer to the mix of staff in the workforce and the demarcation of roles and activities among different categories of staff. Skill mix changes may involve a variety of developments including enhancement of skills among a particular group of staff, substitution between different groups, delegation up and down a uni-discipliniary ladder, and innovation in roles (Sibbald *et al.*, 2004). Such changes may be driven by a variety of motives including service innovation, shortages of particular categories of worker (especially in inner cities or rural areas), quality improvement, and a desire to improve the cost-effectiveness of service delivery.

There are very large differences in reported nurse/physician ratios across OECD countries ranging from 0.9 in the case of Greece to 6.4 in the case of Ireland in 1999 and 2000, respectively. Half of OECD countries report nurse/physician ratios which lie outside the range of 2.0 to 4.0 (OECD, 2003a, Chart 2.8).

A review was carried out for the OECD of selected changes in skill mix between physicians and nurses in recent years, including the emergence of "advanced practice nurses", "nurse practitioners" and "nurse specialists", in both primary care and hospital settings, with a particular focus on the United States and the United Kingdom (Buchan and Calman, forthcoming). About 7% of registered nurses are now equipped for such roles in the United States. The study included: a review of the literature on the effectiveness and cost effectiveness of such enhanced roles for nurses; and two case studies of the key drivers, facilitators and constraints for enhanced nursing roles in the United States and the United Kingdom, respectively.

The literature review carried out by Buchan and Calman was handicapped by: the variety of skill mix changes which had been evaluated; the relatively modest number of studies which met the selection criteria; and a particular shortage of cost effectiveness studies. Nevertheless, the review of studies of the role of advanced practice nurses (APNs) in primary care settings provided firm evidence that nurses can provide care which is equivalent to that provided by doctors in these settings. Patients were generally more satisfied with nurse consultations than with doctor consultations. Nurses ordered more tests than doctors and had longer consultations with patients. Unfortunately, little evidence was forthcoming on the cost effectiveness of different arrangements.

A review of studies of the use of nurse practitioners in hospital emergency departments suggested that nurse practitioners were neither better nor worse than house officers in treating minor injuries. Meanwhile a review of six cost effectiveness studies of the role of APNs came up with mixed results. Implementation of nurse-led services in various settings were variously cost neutral, higher cost and lower cost than doctor-led services.

The authors concluded that the literature supports the view that nurses in advanced practice roles can provide certain types of care which is equivalent to that of doctors, when the diagnosis is established. However, the cost effectiveness of such arrangements is unclear. Moreover, a number of questions remain to be answered including the extent to which nurses, when working with patients with undifferentiated diagnoses, are proficient in identifying rare illnesses and the side effects of treatments.

The two case studies of drivers, facilitators and constraints for the use of APNs were based on interviews with key respondents in the United States and Britain, respectively. Some of the leading drivers identified by the survey were similar between the two countries – including staff shortages and substitution. However, in the US, the pursuit of value-for-money was seen as a leading driver and the spread of APNs was led by nurses. In the UK, the development of new services was seen as a leading driver and the spread of APNs was led by government policy and by the medical profession. The major facilitators of change included the attitude of nurses in the US and government support in the UK. The major constraints included the medical profession in the US and lack of funding and shortages of nurses in the UK. One of the most striking differences between the two countries was the attitude of the medical profession – relatively hostile to the extended role of nurses in the US, and supportive in the UK. That might be caused partly by the predominance of fee-for-service payment of doctors in the US (which puts doctors potentially in competition with nurses for patients) and the predominance of capitation and salary payment of doctors in the UK (which encourages delegation by doctors to nurses and team working). However, it is also interesting to note that the reported ratio of nurses to physicians was 3.0 in the US against 4.4 in the UK in 2000 (OECD, 2003a, Chart 2.8).

The respondents in the US and the UK were asked to identify key issues that other countries, which were thinking of implementing advanced roles for nurses, should consider addressing. The main issues which were identified included: agreeing on the need for APNs; defining the agreed roles for APNs; specifying the associated educational requirements; addressing certification and regulation issues; and agreeing career structures and remuneration systems.

7. Conclusions

The delivery of an appropriate quantity and quality of health care requires matching the supply to the demand for physicians and nurses over time. The evidence presented in this paper suggests that OECD countries have developed very different levels of these two professions per million population. Moreover, reported nurse/physician ratios vary greatly across countries. In the case of physicians, there are clear signs that higher levels of staffing are found in countries which have left the domestic supply of physicians mainly to the market, whereas lower levels of staffing are found in those countries that have planned and controlled entry into physician training for many years.

Whereas controlling numbers of physicians can assist cost containment, there is some evidence to suggest that it will also constrain outcomes and responsiveness. Much will depend on what is happening to productivity. In the case of general practitioners, there is some evidence across European countries that there is an inverse association between GP density and patient consultations per GP – which suggests, if only weakly, that constraining GP numbers, up to a certain point, may not bring about a proportional reduction in patient access. However, little can be said about the implications for GP productivity because, for the time being, there is a lack of measures of quality of care.

In the face of the growing demand for the services of physicians and nurses, and some tightening of the supply, due partly to ageing of the workforce, there is widespread and growing concern about shortages of nurses, and, in some cases, shortages of physicians across OECD countries. There is some evidence to suggest that such shortages may worsen in some countries unless counter measures are taken, such as stimulating recruitment and retention.

In the medium to long term, the most important way for a country to adjust the supply of physician and nurse services to the demand, will be to adjust medical and nursing school intake, particularly if self sufficiency is a long term goal. In future, because of the ageing of many workforces, this may involve attracting an increasing share of smaller cohorts of young people into physician and nurse training, which may in turn require improvements to relative pay and conditions of service.

There is evidence to suggest that there have been cycles of boom and bust in physician and nurse training programmes both in countries which leave the supply of graduates mainly to the market and in countries which try to plan entry to medical and nursing schools. These cycles are likely to arise mainly because of the lags which arise between changes in demand and responses in supply, when training programmes last five or ten years. Better information and forecasting techniques are needed both by market participants and by government planners to reduce such fluctuations in future.

International migration of doctors and nurses can increase the flexibility of the relevant labour markets, especially in the short run, by speeding up the process of reaching equilibrium. However, it raises painful questions about international equity when there are persistent net flows of staff from poorer countries with low and, sometimes, declining health status to richer countries with high and rising health status.

The services delivered by physicians and nurses depends on their productivity as well as on their numbers. In the case of physicians, there has been some investigation of the effect of methods of remuneration on their productivity. A review of the relevant literature, confirms what might be expected: that fee-for-service methods of payment raise activity per physician compared with salaried or capitated methods of payment. However, it is not

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clear what impact, if any, higher activity levels per physician have on the quality of care they deliver. There has been recent experimentation, in a number of countries, with physician payment methods which reward quality of care directly, but these experiments have been limited by technical difficulties in measuring and monitoring quality of care across much of the range of services provided by physicians.

In the case of nurses, attitude survey data suggests that they are motivated more by non-pecuniary factors and by conditions of service than by pay. However, behavioural evidence suggest that relative pay levels do play an important role in attracting nurses into the profession and in raising their participation rates once they are qualified. Hence, pay levels are likely to be important where shortages loom. By contrast, the responsiveness of the hours nurses work to changes in pay levels seems to be quite modest. Meanwhile, there is evidence that nurse participation depends inversely on spouse's income, non-wage income and on the presence of pre-school children in the household, other things being equal. Although these are not factors under the direct control of health policy makers, the last suggests that the provision of childcare services at the workplace would help to raise nurse participation rates.

There is some suggestion that hospitals have used their monopsony power in some local labour markets to drive down the wages offered to nurses leading to lower employment levels. That in turn may lead to low nurse-patient ratios and to high nurse wastage and turnover. In addition, there is some evidence to suggest that the imposition of minimum staff-patient ratios, where appropriate, can reduce nurse turnover.

Research in the US suggests that the workplace strategies adopted by "Magnet" hospitals, which include influential nurse executives, flat organisational structures and investment in nurse skills, have favourable effects not only for the retention of nurses but also for patient outcomes and satisfaction.

A review of the evidence on skill mix changes between physicians and nurses in primary care and hospital settings, focussing on experience in the United States and the United Kingdom, suggests that nurses performing certain "extended" roles can provide care which is equivalent to that provided by doctors, and which is preferred by patients. These findings relate to pre-diagnosed patients. However, the cost effectiveness of different arrangements remains unclear. Such changes seem to be driven by shortages of staff and substitution possibilities in both countries. Extended roles for nurses appear to meet with a more enthusiastic response from physicians in the UK than in the US. That might be due partly to the different remuneration incentives for physicians in the two countries and partly to the fact that compared with the US, doctors are relatively scarce in relation to nurses in the UK. Meanwhile, the modest changes in skill mix between physicians and nurses which have been observed over time in the US and the UK, appear to be dwarfed by the reported differences in aggregate nurse/physician ratios across OECD countries – although these may reflect, in part, differences in the mix of health services provided in different countries.

This study suggests that many questions remain to be answered about the best way to match the supply to the demand for physician and nurse services. Although a range of policy instruments for influencing supply have been identified, there is a lack of systematic evidence about the relative effectiveness and cost-effectiveness of using these different instruments. Similarly, much remains to be discovered about the best way to plan for or regulate entry to the medical and nursing professions, given the tendency for training programmes to experience cycles of boom and bust, arising mainly from the lags inherent in completing long professional training courses. Turning to productivity, further work is

needed to understand what combination of policies is best suited to motivating doctors and nurses – including pay levels, payment methods, conditions of service, staffing levels and workplace strategies. In particular, lessons need to be distilled from the new experiments, now underway in some countries, to reward staff (when it is feasible to do so) for the quality of the services they provide. It would also be useful to shed more light on the scale and determinants of international migration of doctors and nurses and on the benefits and costs of such migration for the host and home countries, respectively. Finally, there appears to be much scope for further investigation of the huge skill mix differences which are reported, at an aggregate level, across OECD countries and to evaluate the cost effectiveness of changes in skill mix within particular countries.

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Notes

1. By the time of publication of this chapter, Steven Simoens had moved to the Department of Pharmaco-economics at the Catholic University of Leuven, Belgium.
2. This chapter is based on a project on Human Resources in Healthcare carried out at the OECD between January 2002 and March 2004. It reports the results of the bulk of the work carried out on the project but investigation of variations in remuneration levels of physicians and nurses across OECD countries, had not been completed at the time this chapter went to press. The Project was advised and steered by an Expert Group which met in April and December 2002. About 20 countries were represented at one or other of the meetings of the Expert Group.
3. The term "services" is adopted to capture the idea that the contribution of physicians and nurses to health care will depend on their productivity in providing services as well as on their numbers.
4. "Demand" is used here in the sense of expressed or financed demand, that is demand which is backed up by current or expected public and private health expenditure, financed by taxation, health insurance or out-of-pocket payments. No assumption is made that this demand is necessarily optimal.
5. In Australia, a benchmark has been proposed of 2.051 full-time equivalent practising physicians per 1 000 population in 1994 (Australian Medical Workforce Advisory Committee and Australian Institute of Health and Welfare, 1996a). The National Health Service Plan set forward a target number of 0.557 full-time equivalent general practitioners per 1 000 population weighted for need in each area in England (Secretary of State for Health, 2000). In the United States, the Council on Graduate Medical Education defined a range of physician requirements of 0.6 to 0.8 general

practitioners and 0.8 to 1.0 specialist physicians per 1 000 population (Council on Graduate Medical Education, 1994). Zurn *et al.* (2002) have expressed concern over the degree of subjectivity involved in establishing such norms.

6. For a fuller account of the findings of the OECD project on waiting times, see Chapter 5 on "Tackling Excessive Waiting Times for Elective Surgery", in this volume.
7. A few studies have found evidence suggesting that hospitals have market power in the labour market for registered nurses and act as monopsonists in setting wages (Staiger *et al.*, 1999). However, others have observed that wages of registered nurses were not related to hospital density (Hirsch and Schumacher, 1995).

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Chapter 5

Tackling Excessive Waiting Times for Elective Surgery

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The OECD Waiting Time Project was designed to address two questions in an international context: What are the causes of variations in waiting times for publicly funded, elective surgery across OECD countries? And which policies are most successful in tackling "excessive" waiting times? In the course of the project, two additional questions emerged, and were addressed, qualitatively rather than quantitatively. They are: Are there optimum rates of surgery? Are there optimum waiting times? The study involved 12 countries which reported waiting time problems. Additional information was gathered from eight OECD countries which do not report waiting time problems.

On the question of causes, the study suggests that variations in waiting times across countries arise mainly because of different constraints on the supply of publicly funded surgery, when it is provided free, or nearly free, of charge to patients. In addition, there are signs that different health systems have different propensities to generate waiting, because of different incentives to manage the demand for surgery.

The best policies to tackle excessive waiting are directly linked to these determinants. A sufficient increase in surgical expenditure and capacity can be highly effective in reducing waiting. Alternatively, countries which pay their surgeons by salary and their hospitals by global budgets may be able to reap a one off improvement in productivity by switching to activity-related payments for surgeons and hospitals. It is also possible to reduce visible waiting times at little or no public expenditure cost by more restrictive management of demand.

1. Introduction

Waiting times for publicly-funded elective surgery are a controversial and, at some times puzzling, phenomenon. There are great variations in waiting times across OECD countries, for which little explanation has been forthcoming, so far.[2] Waiting time problems seem to persist in some countries despite large increases in surgery rates over time. Meanwhile, whereas general public opinion polls in several countries suggest that waiting for elective surgery is seen as the most important health system failing, a number of micro studies of samples of patients who have actually been kept waiting for certain elective surgical procedures, suggest that patients are often quite willing to accept waits of up to 3-6 months for operations, depending on the condition.

This report draws conclusions from the OECD Waiting Time Project.[3] This project was set up to address two questions: *i)* What are the causes of variations in waiting times across OECD countries?, and *ii)* Which policies are most successful in tackling "excessive" waiting times?[4] There is no international agreement about what are "excessive" waiting times but several countries have adopted maximum waiting time targets of 3-6 months for elective conditions in recent years. In the course of the project, two additional questions emerged, and were addressed. They are: *iii)* Are there optimum rates of surgery?, and *iv)* Are there optimum waiting times?

2. Key aspects of the demand for and provision of surgery

It is desirable to consider certain key aspects of the demand for, and provision of, publicly-funded surgery before turning to the problem of waiting for elective surgery. First, there will be a *hierarchy of need* for surgery at any one time, ranging from emergency procedures (such as repairing a ruptured abdominal aortic aneurysm) through urgent interventions (such as operating on colon cancer with obstruction) through non-urgent, elective procedures which can be scheduled (such as hip replacement) to discretionary procedures which may be routinely excluded from public programmes (such as much cosmetic surgery). There will be major and minor procedures within each of these categories. This report is concerned mainly with non-urgent, elective surgery although the other categories cannot be ignored because patients can move between categories and the different categories generally compete for resources. Indeed, waiting lists have much to do with prioritisation between different categories of surgery.

Second, the need for elective surgery is generally associated with chronic diseases which progress slowly, such as arthritis of the hip, cataract of the eye and varicose veins. In any community, there is likely to be an annual flow or incidence of new patients reaching that level of severity, or threshold, at which a representative surgeon would consider that they could benefit, safely, from surgery. That is not to suggest that surgeons generally agree about such thresholds (see below). If the annual supply of such surgery is below this rate of incidence, a growing reservoir of patients "eligible" for surgery will accumulate. These patients may or may not appear on formal waiting lists (see below). Although it is difficult to observe such

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phenomena, it is clearly possible for the reservoir of potential surgical patients in the community to exceed by a considerable margin the annual flow of surgery which would be required to match the annual incidence of new patients becoming "eligible" for surgery.

Third, whereas the patient demands health (reduction of symptoms, improvement in prognosis) it is the physician who, as the patients' agent, turns that into a demand for medical care. Hence, the offer of surgery will always be surgeon-managed and may even be surgeon-led. However, there seem to be large differences in opinion across surgeons about the thresholds for need and the indications for surgery. Such "clinical uncertainty" may arise in part from the relative absence of clinical trials for many surgical procedures (Horng and Miller, 2002). There is indirect evidence of this uncertainty in the large variations that are found in elective surgery rates across small and large geographical areas – variations which are inexplicable in terms of demographic or morbidity variations (Wennberg and Gittelsohn, 1982; McPherson, 1989). There is more small area variability for some surgical procedures than for others and considerable agreement across countries in the ordering of procedures ranked by variability (McPherson *et al*., 1982). This study has confirmed that there is great international variability in surgery rates. Table 5.A1.4 in the annex suggests that international variations in surgery rates are more than three-fold for six out of the eight procedures for which data were collected. They are nearly ten-fold for hysterectomy.

Fourth, there have been dramatic changes in the technology of surgery and anaesthesiology in recent decades which have greatly increased the range of procedures that can be offered and the range of patients to whom surgery can be safely administered. As a consequence, surgery rates for many elective procedures have been rising steeply in OECD countries. For example, in the United Kingdom, operation rates per 100 000 population for a group of 11 major elective procedures increased by 64% between 1990-1991 and 2000-2001 (dominated by rises in cataract surgery, hip replacements and knee replacements). However, within that total, rates for a few procedures, such as surgery for benign prostate cancer, declined because of the development of alternative treatments, by drugs.[5]

Lastly, so far as the expressed, or effective, demand for surgery is concerned, it is generally the case that under public programmes surgery is provided within an ethical framework in which payment is in accordance with ability to pay (at zero or heavily subsidised prices) and treatment is in accordance with need. In pursuit of these aims, there are a variety of different mechanisms for offering publicly-funded surgery across OECD countries. At one extreme, there are some countries where the funding and supply of public surgery are respectively relatively demand-led and relatively autonomous, with few if any controls on surgical expenditure and capacity, with surgeons paid mainly by fee for service and with mainly private hospitals paid by activity-related payments. At the other extreme, there are some countries in which the supply of most surgery is relatively constrained by central or local government, with surgeons paid by salaries and with public hospitals funded by global budgets, fixed annually. However, a significant number of countries have mixed arrangements (see Table 5.A1.1 in the annex).

3. The waiting time phenomenon

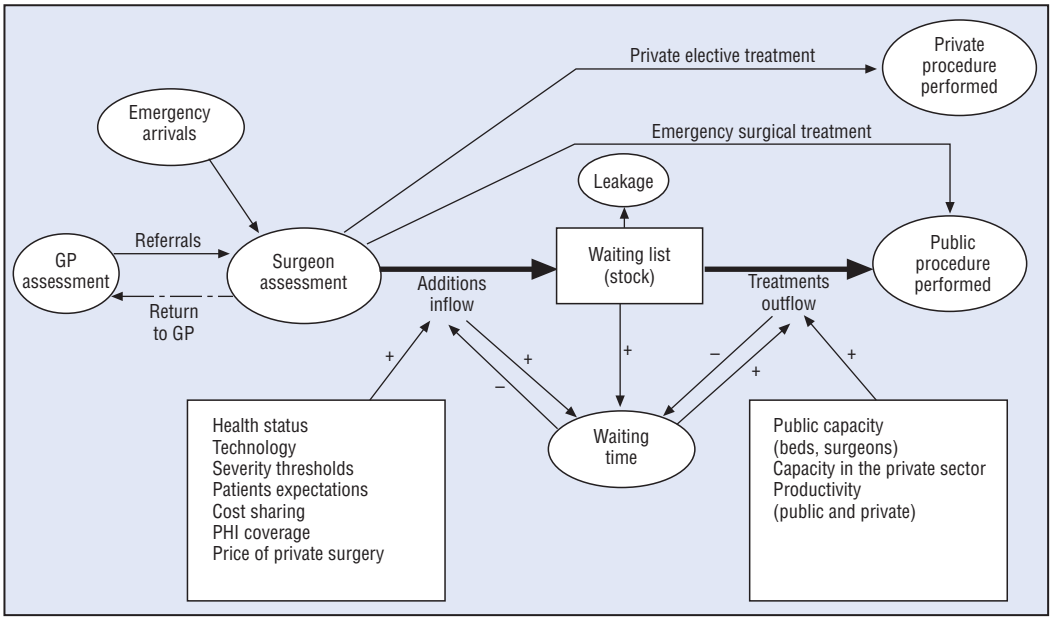
It has been suggested, above, that if the annual incidence of new patients becoming "eligible" for elective surgery exceeds the annual rate of elective surgery, a reservoir of potential surgery patients will build up in the community. Some of these patients will be seen to be visibly waiting, if they are admitted to formal waiting lists for surgery – a

phenomenon which is discussed at length below. However, some may remain invisibly waiting if they are not admitted to lists and continue to be treated medically, or remain untreated, in the community. The extent of hidden waiting will depend partly on how surgeons set their thresholds for admitting patients to waiting lists. Such reservoirs of potential surgery patients "hidden" in the community may help to explain why waiting time problems have persisted in various countries despite periodic efforts to raise surgery rates temporarily to "clear" the visible waiting lists. "Hidden" patients may simply come forward, or be referred, to replace those who are removed from the lists.

A model of the process by which visible "outpatient" and "inpatient" waiting times for publicly-funded surgery arise, and the likely determinants of such waiting, is depicted in Figure 5.1.[6] This model represents a considerable simplification of reality. It relates to countries which have a general practitioner (GP) gate-keeping system. Patients suffering from conditions which might benefit from surgical interventions, arrive for assessment by a surgeon as emergencies or are referred for assessment by GPs (which may be subject to "outpatient" waiting). After assessment by the surgeon, some patients, who do not meet whatever thresholds are set for adding them to the waiting list, are referred back to the GP (or to another specialist), perhaps to become "hidden" waiters. Others will be treated as emergencies or as urgent patients and be offered surgery without waiting. Still others, whose conditions exceed whatever thresholds are set and for whom surgery can be scheduled, may be asked to wait for "elective" surgery ("inpatient waiting") and be given a future date for treatment (booked) or put on a public waiting list (for an indefinite time). Some of this last group may choose to take up private surgery to "jump the queue", provided they can pay for it or are privately insured.

A stock of patients waiting for elective surgery will build up if the flow of additions to the waiting list at some point exceeds the rate at which patients are removed from the list by receiving treatment (Worthington 1987, 1991; Cullis *et al.*, 2000; van Ackere and Smith,

Figure 5.1. **A model of the process by which visible "outpatient" and "inpatient" waiting times for publicly-funded surgery arise**



Source: OECD Waiting Time Project.

1999, 2001). Some of the imbalances may arise from short-term fluctuations in demand, especially from emergency patients (including medical patients), who take priority for beds and staff in general hospitals. Others may be longer term and structural. The hospital or surgical unit will have an incentive to encourage such queues to form and persist because it assists the hospital or surgical unit to keep its beds and operating theatres optimally loaded and its unit costs down, when there are unpredictable fluctuations in the demand for emergency treatment.

It is important to recognise that an elective waiting list is usually not a simple queue governed by "first come first served" behaviour. Rather, a typical waiting list will consist of a number of different streams of patients roughly differentiated by urgency categories (Harrison and New, 2000). Moreover, patients may be moved between urgency streams if their condition deteriorates or becomes unstable.

While the waiting list provides the stock of patients to be treated at a point in time, the waitingtime is determined by the lag of time necessary to treat the patients on the current waiting list through current and future supply of surgical treatments. Given the circumstances outlined above, the determinants of waiting times and lists can be divided into those which affect the demand for treatment – or inflows to the waiting list – and those which affect the supply of treatment – or outflows from the waiting list.

As has been outlined above, the demand for elective surgery is determined by factors which include: the health status of the population; the state of medical technology, which determines the range of conditions which are treatable; and the thresholds for treatment set by surgeons. In addition, demand can be influenced by: patient's expectations; various financial incentives, such as the extent of cost sharing by public patients; the proportion of the population with private health insurance (where applicable); and the price of private surgery. In relation to waiting times, competitive fee-for-service payment of surgeons, unlike salaried payment, may encourage them to offer fast access – that is, to maintain short queues (Iversen and Luras, 2002) – especially where there are no gatekeepers and such surgeons can assume primary care responsibilities for patients. In contrast, allowing dual practice by salaried surgeons (in both public and private sectors) may encourage some surgeons to lengthen the public queues to boost the demand for their private practices (DeCoster *et al.*, 2000; Morga and Xavier, 2001).

The supply of elective surgery depends on both public and private surgical capacity and the productivity with which capacity is used. Evidence on the impact of capacity is provided by Martin and Smith (1999) who showed that in a cross section analysis, waiting times in England were negatively associated with the number of available beds (elasticity equal to –0.24). Similarly, Lindsay and Feigenbaum (1984) found in a cross section analysis that waiting times were negatively associated both with the number of doctors and with the number of available beds.

Productivity is likely to depend, among other things, on the way in which surgeons and hospitals are paid. Primary care physicians paid by fee for service tend to deliver more tests and more procedures per patient than primary care physicians paid by salary (Gosden *et al.*, 2001). In the field of surgery, Siu *et al.* (1988) found lower rates of elective surgery in a staff-model HMO plan in the US compared with a fee-for-service plan. The rate of emergency surgery was similar in the two plans. This study was a randomised trial. Two American studies of surgery, which were not randomised trials, came to similar conclusions. One study in six hospitals which adopted different methods of payment of surgeons, found that the

number of operations per month per surgeon was higher in two hospitals which paid by fee for service (and in two which paid by a mix of salary and a percentage) than in two hospitals which paid by salary only (Wilson and Longmire, 1978). Meanwhile a "before and after" study in one clinic (involving an experimental and a control group) found a 15% decrease in the number of surgical procedures performed after the method of paying surgeons was changed from fee for service to salary (Ransom *et al.*, 1996). There was a statistically significant change in the number of elective sterilisations. There was no significant change for more severe conditions. Meanwhile, Mot (2002) found that in the Netherlands, the replacement of specialists' fee-for-service payments with fixed budget payments, reduced on average the admission rate and increased the waiting times for surgery (the study was conducted in six hospitals). Productivity may also depend on the percentage of the patients treated by day-surgery. Martin and Smith (1999) show that the waiting time is negatively associated with the "proportion of all elective episodes that are day case" (elasticity equal to –0.252).

Turning to hospital remuneration, activity-based funding (for example of the DRG type) is likely to encourage higher productivity compared to funding based on fixed budgets. Some evidence on the effects of changes to hospital payment systems is provided in the section on the review of policies, below.

Waiting times can play an important function by substituting waiting time signals for price signals in equilibrating the demand for and supply of public surgery. That is to say, there are likely to be feedback effects from waiting times to quantities demanded and supplied of elective surgery, as depicted in the lower part of Figure 5.1. High waiting times will help to choke off the demand for surgery and stimulate the supply. Low waiting times will have the opposite effect. For example, a high waiting time may reduce demand by discouraging GPs from making referrals and by deterring surgeons from adding patients to lists (Iversen, 1997). Both may result in additional "hidden" waiting. In addition, a high waiting time may reduce demand for public surgery by encouraging patients to take out private health insurance (Besley *et al.*, 1998) or to buy private surgery, out-of-pocket. At the same time, higher waiting times may increase supply by encouraging the public authorities to allocate more money to public hospitals with longer queues – if "money follows the queue" (Gravelle *et al.*, 2003; Iversen, 1993). Likewise, higher waiting times may be an indirect signal to private hospitals to expand activity.

4. Optimum rates of surgery

In principle, there will be an optimal, or socially desirable, rate of surgery in any publicly funded health programme. The optimal rate of surgery will be that which balances the marginal benefits of surgery (based on the *hierarchy of need*, described above), subject to any waiting, with the marginal costs. The relevant concepts are depicted in Figure 5.2, the upper right quadrant of which shows benefits and costs on the vertical axis and rates of surgery on the horizontal axis. There is a downward-sloping marginal benefit (or demand) curve, which is based on surgeon management of patients and the hierarchy of need mentioned above. There is a horizontal marginal cost curve which assumes that surgery can be expanded at constant marginal cost in the long run. The optimum rate of surgery from the point of view of a hypothetical "informed" policy maker would be at S1 where marginal benefit is equal to marginal cost. However, from the point of view of patients, surgeons and providers, the optimal rate of surgery will be at the higher level, S2, if the price of surgery to the patient is zero and if the surgeons act as perfect agents and (in the case of fee-for-service payment) fees are set to cover marginal cost.

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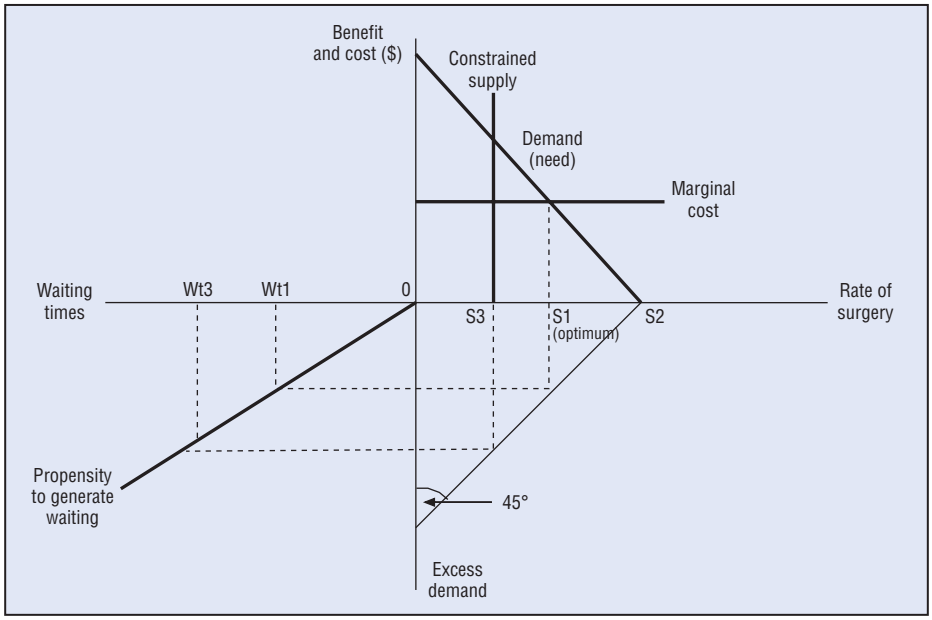
Figure 5.2. **Optimum surgery rates and the propensity to generate inpatient waiting times**



Source: OECD Waiting Time Project.

If policy makers can set the rate of surgery at S1, there will be excess demand equal to S2-S1. The lower is the quantity of surgery supplied, the higher will be excess demand, as depicted in the lower right hand quadrant of Figure 5.2. Under such circumstances, formal (visible) waiting lists and waiting times can take over from prices as the rationing mechanism. The higher is excess demand, the higher will be visible waiting times, depending on the "propensity to generate waiting" schedule, as depicted in the lower left quadrant of Figure 5.2. The "propensity to generate waiting schedule" refers to the way in which surgeons set admission thresholds for waiting lists, thereby determining the division between visible and invisible waiting. A rise in visible waiting times will help to choke off demand by making it likely that there is a compensating rise in "hidden" waiting.

An important question is what effect do longer waiting times, brought about by lower rates of surgery, have on patient welfare. Health status is likely to deteriorate (on average) with waiting and because of the postponement of the benefit from surgery (time preference). However, the Waiting Time Study found surprisingly little evidence, from a review of the medical literature, of significant deterioration of health or worsening of surgical outcomes as a result of waiting for elective surgery in those countries where waiting times are up to three or six months, depending on the condition (Hurst and Siciliani, 2003, Annex 1). Some of the studies suggested that surgeons are good at triage – that is at re-prioritising patients whose conditions become unstable or deteriorate while they wait. For example, in a Canadian study of queuing for coronary artery bypass grafting, where nearly all patients were treated within six months, there were no deaths among 275 non-urgent patients. However, 12.4% of patients required re-classification to higher priorities while waiting, because of worsening symptoms. Only 4% of patients thought that prioritisation on the basis of medical need was unfair but 64% experienced at least some anxiety while waiting. Patients with worsening clinical status were safely accommodated with earlier waiting times but concerns remained

about excessive waiting times and patient anxiety (Cox *et al.*, 1996). Meanwhile, a Swedish study which monitored 124 patients who received hip replacements before and after treatment using two different health status scales, one specific to osteoarthritis, found sharp improvements (on average) in pain, stiffness and function following treatment. Younger patients reached a better score after treatment than older patients. However, there was no difference in post operative outcomes between two groups of patients, one of which waited for a mean duration of two months for this procedure and one of which waited for a mean duration of five months (Nilsdotter and Lohmander, 2002). In addition to such medical studies, a number of studies from the economics literature suggested only low willingness to pay for shorter waiting times among patient waiting in public queues for elective surgery (Hurst and Siciliani, 2003, Annex 1).

Longer waiting may be more problematic. A study of patients on the waiting list for total hip replacement at one hospital in the United Kingdom, using a health status score specific to hip pathology, found evidence of significant deterioration and that the deterioration was greater the longer the wait. The median wait, here, was about one year (Kili *et al.*, 2003). Similarly, a study of patients waiting for varicose vein surgery in the UK found "considerable deterioration" in their condition while waiting for surgery (Sarin *et al.*, 1993). In this case, the median wait was 20 months. However, neither of these studies addressed the question of whether (long) waiting affected the final outcome of treatment. A disadvantage of all the studies cited above is that they do not cover any periods of hidden waiting – delays before patients join a waiting list.

In general, policy makers are not well informed about marginal benefits and costs. Also, as has been mentioned already, there are important differences between countries in the way that surgery is funded and supplied. Some countries have chosen funding and delivery mechanisms where surgery is relatively "demand-led" and autonomous, as well as free of charge at the time of use. Supply can expand along the marginal cost curve (if the level of fee payments makes that profitable). Here, the risk will be that the supply of surgery may exceed the optimum level by moving beyond S1 towards S2. Other countries have chosen "supply-led" mechanisms, with firm constraints on surgical expenditure and capacity. Here, supply will be represented at any one time by a vertical line, such as that labelled "constrained supply", which might be at S1 (with good guesswork by policy makers), might be to the right of it, or might be to the left (as depicted). If the volume of surgery is to the left of S1, at S3, waiting times will be higher than is socially desirable, at Wt3.

In addition, different countries may have different propensities to convert excess demand into waiting times – because of different incentives to form queues and the possibility of adopting different clinical thresholds for adding patients to the lists. In other words, the management of demand may vary. For example, under competitive fee for service, there may be disincentives for surgeons to form visible queues because such queues may deter future patients and "money follows the patient". Meanwhile, in systems which use global budgets which are set administratively each year in accordance with perceptions of "need", there can be incentives to form queues because "money follows the queue". Such differences in propensities to generate waiting/demand management, will cause the schedule depicted in the lower quadrant of Figure 5.2 to swing to the left or to the right, around the origin, raising or lowering waiting times for any given level of excess demand.

To reiterate, the assumption is that in systems in which the publicly funded supply of surgery is relatively "demand led" and there are fee-for-service incentives, there will tend to

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be high surgery rates, less excess demand, and a low propensity to generate waiting. In systems which have firm constraints on the supply of surgery and salaried incentives, there will tend to be low surgery rates, high excess demand and a high propensity to form queues.

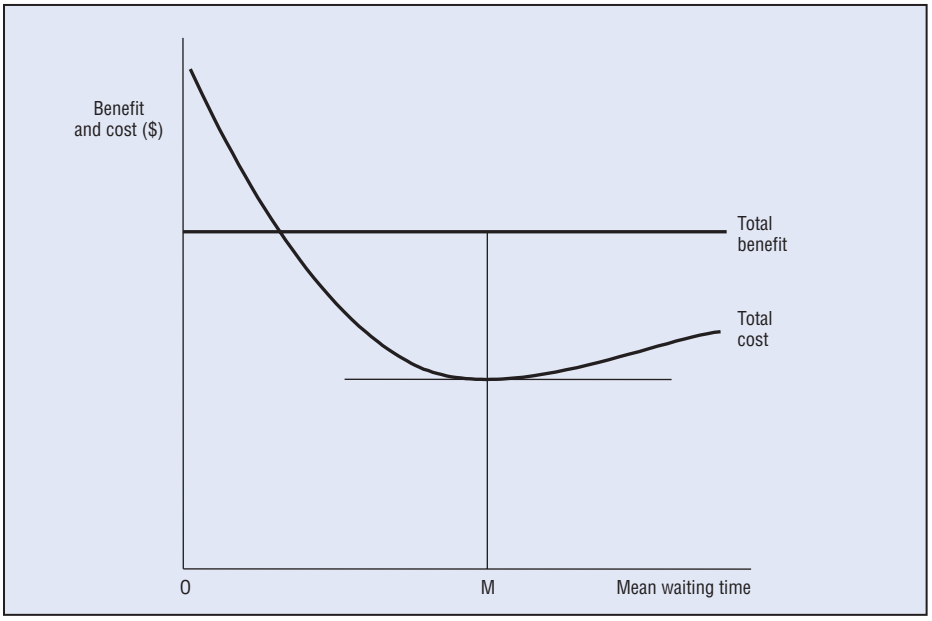
As has been mentioned, finding the equilibrium level of publicly-funded surgery, S1, will not be an easy task for governments. Information about marginal benefits and costs is not readily available. Knowledge about benefits will be mainly in the possession of surgeons (and, to some extent, their patients). In addition, the lower slopes of the *hierarchy of need* are shrouded in uncertainty and variations in clinical opinion, as has been indicated above. Moreover, although Figure 5.2 is static, reality is dynamic. In particular there continues to be rapid change in surgical technology and anaesthesiology, which means that demands and costs are shifting through time.

5. Optimum "inpatient" waiting times

The suggestion can be made (following Cullis and Jones, 1986; and Iversen, 1993) that for any given rate of surgery there is an optimum mean waiting time for patients on the inpatient and day case waiting lists.

Figure 5.3 depicts hypotheses about the effect of different waiting times on the benefits and costs of surgery. Mean waiting time is shown on the horizontal axis. The total benefits and costs of surgery are shown on the vertical axis. The total benefits of surgery will be constant at a given rate of surgery, which might, or might not, be the optimum rate. That is because waiting times can only be varied for a given rate of surgery if surgeons vary their clinical thresholds for admitting patients to lists. This will not in itself affect benefits because changes in formal waiting must be offset exactly by equal and opposite changes in hidden waiting. Only if the surgery rate changes, will the benefit curve depicted in Figure 5.3 change – by shifting upwards or downwards.

Figure 5.3. **Optimum mean waiting time on inpatient waiting list for elective surgery**



Source: OECD Waiting Time Project.

Meanwhile, the total costs of supplying surgery for different waiting times are assumed to be roughly U-shaped. At first, costs fall as waiting times increase. That is because there can be considerable savings in surgical and, in general hospitals, medical capacity if a waiting list is formed and additional elective patients are called in for treatment when there are lulls in the flow of emergency patients (Cooper, 1981; Goddard *et al.*, 1995). This reduces the probability that supply exceeds demand, leaving capacity unused.[7] However, the administrative costs of a well-managed waiting list will increase with the length of the list and waiting times, as will the diversion of clinical resources into regular reassessment of patients on the list (Iversen, 1993). Beyond a certain point, rising administrative and clinical costs are likely to outweigh falling capacity costs, as the length of the list increases.

It can be deduced that there is a socially optimum waiting time, above zero, at the point, OM, where the slopes of the total benefit and total cost curves are equated – that is where marginal benefit and marginal costs are both zero. However, it is easy to imagine that financial incentives may discourage attainment of this optimum. Under a social health insurance system, where "money follows the patient" and there is competition between providers, the total revenue curve facing a surgical unit may slope downwards. Although some surgeons, with high reputations, may build up long waiting lists there are likely to be other surgeons, with lesser reputations, who will seek to make a living by offering rapid access to procedures (Iversen and Luras, 2002). Under such incentives, marginal revenue and marginal cost will be equated somewhere to the left of M. However, under public integrated health systems, "money may follow the queue" and surgeons often work in both the public and private sectors, which gives them incentives to maintain long waiting lists for public patients (Iversen, 1997). Under these circumstances, the total revenue curve will rise with waiting times and the point at which marginal benefits and marginal costs are equated may lie somewhere to the right of M. By altering the propensity to generate waiting, different financial incentives may lead to quite different visible waiting times, for a given level of surgery, across different types of health system.

6. Evidence on variations in waiting times across OECD countries

6.1. Evidence from existing literature

This section presents evidence on variations in waiting times for elective surgery across OECD countries.[8] It reports evidence from the available literature, which is mainly based on small-sample surveys. It also reports evidence gathered through the OECD Waiting-Times project from large national administrative databases.

There is a small amount of comparative waiting-time data available from international surveys. One advantage of international surveys is that they report evidence for countries where waiting times are not a policy concern. However, they are often based on small, and possibly biased, samples of respondents.

Table 5.1 shows some data on waiting for surgery in eight European countries, from a report over a decade old at the time of writing (Fleming et al., 1992). It provides figures on the proportion of patients, who in 1990 waited longer than 12 weeks between specialist appointment and surgery, as reported by samples of GPs for samples of their patients in each country. It reports Portugal as the country with the highest percentage of patients waiting longer than 12 weeks (58.1%), followed by the United Kingdom (41.7%), Italy (36.3%), Norway (28%), Germany (19.4%), Spain (18.5%), Switzerland (16.1%) and the Netherlands (15.2%). A major limitation of this survey is that the information was reported by GPs and not directly by

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Table 5.1. **Waiting between specialist appointment and surgical intervention**

% of patients waiting for surgery more than 12 weeks (1990)

Countries where waiting times are not reported to be a policy concern	
Germany	19.4
Switzerland	16.1
Countries where waiting times are reported to be a policy concern	
Italy	36.3
Netherlands	15.2
Norway	28.0
Portugal	58.1
Spain	18.5
United Kingdom	41.7

Source: Fleming *et al.* (1992).

specialists or their patients. In the case of countries like Germany and Switzerland, where patients have direct access to specialists, the data may be unrepresentative and potentially misleading.

Table 5.2 shows data from two recent studies (Donelan *et al.*, 1999; Blendon *et al.*, 2002) for five English-speaking countries, which recorded the percentage of respondents to phone surveys in 1998 and 2001, who had experienced elective surgery in the last two years and who said they had waited longer than four months for elective surgery. In 2001, it was found that 38% of patients had been waiting for at least four months in the United Kingdom, 27% in Canada, 26% in New Zealand, 23% in Australia and 5% in the United States. However, those waiting over four months had risen in all countries since 1998.

Table 5.2. **Percentage of patients waiting for elective surgery more than four months**

	Base: Those with elective surgery in the past 2 years	
	Year 1998	Year 2001
Countries where waiting times are not reported to be a policy concern		
United States	1	5
Countries where waiting times are reported to be a policy concern		
Australia	17	23
Canada	12	27
New Zealand	22	26
United Kingdom	33	38

Source: Donelan *et al.* (1999) and Blendon *et al.* (2002).

Table 5.3 summarises the information contained in three further surveys. Carroll *et al.* (1995) focused on waiting times for cardiovascular procedures in four countries. They found that the percentage of the respondents in need of elective coronary bypass who had been waiting for more than three months was 88.9% in the United Kingdom, 46.7% in Canada, 18.2% in Sweden and 0% in the United States. For elective coronary angiography the percentage was 22.8% in the United Kingdom, 16.1% in Canada, 15.4% in Sweden and 0% in the United States. Similarly, Coyte et al. (1994) found that surveyed patients in need of knee replacement had a median waiting time of eight weeks in Canada (Ontario) and three weeks in the US. In Germany, self-reported mean waiting times for cataract surgery was equal to 35 days in 2000 (Wenzel *et al.*, 2001; the survey was based on 450 institutions and 926 operating ophthalmologists).

Table 5.3. **Inpatient waiting times**

	CABG % waiting more than 3 months (year 1993)	**PTCA** % waiting more than 3 months (year 1993)	**Knee replacement** Median waiting time (weeks) (year 1985-1989)	**Cataract surgery** Median waiting time (weeks) (year 2000)
Countries where waiting times are not reported to be a policy concern				
Germany				5 weeks
United States	0	0	3 weeks	
Countries where waiting times are reported to be a policy concern				
Canada	46.7	16.1	8 weeks (Ontario)	
Sweden	18.2	15.4		
United Kingdom	88.9	22.8		

Source: Caroll *et al.* (1995); Coyte *et al.* (1994); Wenzel *et al.* (2001).

Finally, for some OECD countries, there is anecdotal evidence that waiting times are low. Imai *et al.* (2000, p. 2) report that "the health system in France is regarded as delivering high quality services, with freedom of choice and generally no waiting lists for treatments". For Belgium, WHO (2000, p. 33) reports that "Patients do not usually have to wait long, if at all, for access either to general practitioners or specialists". A feature article in a British newspaper in October 2003,[9] which noted waiting times of 6-9 months for major elective procedures in the United Kingdom, reported that: patients could be seen in a week for CABG in Berlin; there was no waiting for hip replacements in Lille (France); there was less than a week's waiting for hysterectomy in Grenoble (France), there was no waiting for hernia repairs in Recklinghausen (Germany), and there was three weeks waiting for cataracts in Antwerp (Belgium).

6.2. Data collected in this study

In this study, data on waiting times were requested by questionnaire for ten elective procedures in 12 countries in which waiting times are reported to be a policy concern. The results are shown in Tables 5.4 and 5.5. The preferred definition of waiting times was "The time elapsed for a patient on the elective surgery waiting list from the date they were added to the waiting list for the procedure, after specialist assessment, to the date they were *admitted* to an inpatient or day-case surgical unit for the procedure". This definition is commonly referred to as "the waiting time of the patients *admitted*" or "inpatient waiting time". The main reason for choosing this measure is that it is the one most widely available in OECD countries.

This measurement is available in eight countries, at least for some surgical procedures. Alternative measures such as the "waiting time of the patients *on the list*" or "total waiting" (inpatient plus outpatient) were available for a few countries. Measures of the inpatient waiting time of the patients on the list were available for Spain (Insalud) (mean), Ireland and Sweden (percentage of patients waiting longer than 12 months). Measures of total waiting (from GP referral to treatment) were available in Denmark and Norway (see Annexes 2 and 3 of Siciliani and Hurst, 2003 for more details).

Tables 5.4 and 5.5 report respectively the mean and median inpatient waiting time of the patients admitted.

The countries with highest waiting times were the United Kingdom (England) and Finland, followed by Denmark, Norway, Australia and Spain (Insalud). The country with the shortest waiting times was the Netherlands. It is interesting to note how the waiting times for less urgent procedures (for example hip and knee replacement, cataract surgery) are

Table 5.4. **Mean inpatient waiting times of patients admitted by surgical procedure, 2000**

For eight countries where waiting times are reported to be a policy concern
Number of days

	Hip replacement	Knee replacement	Cataract surgery	Varicose veins	Hysterectomy	Prostatectomy	Cholecystectomy	Inguinal and femoral hernia	CABG	PTCA
Australia	163	201	179	216	54	69	83	87	44	
Denmark	112	112	71	99			75	73		
Finland	206	274	233	280	100	81	159	125	42	30
Norway	133	160	63	142	64	75	103	109	46	53
Netherlands	96	85	111	107	61	60	71	75		18
Spain (Insalud)	123	148	104	117	102	62	107	102	39	81
Sweden			199							
United Kingdom (England)	244	281	206	227	159	52	156	150	213	80

Note: More details on "Sources and methods" are contained in Annex 2 of Siciliani and Hurst (2003). Australia: includes Queensland, South Australia and Western Australia. Norway: cataract waiting time refers to 2001. Spain: includes INSALUD population only. United Kingdom: includes English population only.

Source: OECD.

Table 5.5. **Median inpatient waiting times of patients admitted by surgical procedure, 2000**

For eight countries where waiting times are reported to be a policy concern
Number of days

	Hip replacement	Knee replacement	Cataract surgery	Varicose veins	Hysterectomy	Prostatectomy	Cholecystectomy	Inguinal and femoral hernia	CABG	PTCA
Australia	98	120	120	94	38	24	48	46	22	
Canada	112 (BC)	136 (BC)	80 (BC)							
	105 (MN)	105 (MN)							23 (ON)	
	162 (SK)	291 (SK)							10 (SK)	
Denmark	87	90	36	69			57	46		
Finland	148	202	189	155	70	39	90	74	34	20
Norway	99	132	28	110	37	47	63	74	25	18
United Kingdom (England)	211	261	182	178	110	37	97	95	191	58

Note: More details on "Sources and methods" are contained in Annex 2 of Siciliani and Hurst (2003). Australia: includes Queensland, South Australia and Western Australia. Canada: BC = British Columbia, MN = Manitoba, ON = Ontario and SK = Saskatchewan. Norway: cataract waiting time refers to 2001. United Kingdom: includes English population only.

Source: OECD.

systematically higher than the waiting times for more urgent procedures (for example hysterectomy, CABG, PTCA). This provides evidence that specialists do prioritise patients according to their urgency.

As the waiting time distributions tend to be positively skewed, the mean and median can be significantly different. The mean is consistently larger than the median. This is because there is a small proportion of patients with very long waits (Sanmartin, 2001). Comparing waiting times in Tables 5.4 and 5.5, the difference between mean and median varies between 22-43%, depending on the procedure considered.

7. Evidence on causes of waiting time variations across OECD countries

7.1. Tabular and graphical analysis of the evidence collected in this study

This section reports on a tabular and graphical analysis of the cross-country evidence on waiting times and determinants collected within the OECD Waiting Time Project, informed by the model described above. As has been mentioned, an initially puzzling feature of OECD countries is that while some countries report significant waiting, others do not. Waiting times are a major health policy issue in the 12 countries which were involved in the Waiting Time Project (Australia, Canada, Denmark, Finland, Ireland, Italy, Netherlands, New Zealand, Norway, Spain, Sweden, and United Kingdom). Meanwhile, waiting times are not reported to be a policy concern and are not recorded administratively in a second group of countries (Austria, Belgium, France, Germany, Japan, Luxembourg, Switzerland, and the United States). Meanwhile, waiting times in these countries are anecdotally (informally) reported to be low. The investigation below explores the reasons for waiting time variation both within the first group of countries and between the first and second group of countries. Since we do not have waiting time data for the second group of countries, the graphical analysis *assigns* a value equal to zero for waiting times in the second group of countries.

Ideally, the investigation of waiting times for elective surgery would require data on surgeons, number of surgical beds, surgical expenditure and surgical need. However, these data are not currently available, partly due to cross-country comparability problems. In particular, an attempt to collect data on the number of surgeons and the number of surgical beds was not successful. The number of surgeons was reported by three countries and the number of surgical beds by only two countries. Hence, the analysis below falls back on *total* numbers of specialists and doctors, as a proxy for the number of surgeons, the *total* number of acute care beds, as a proxy for the number of surgical beds, and the *total* public and private health expenditure as a proxy for surgical expenditure. The implicit assumption is that the surgical share of these aggregate variables is reasonably similar across countries. Finally, it is difficult to find good measures of need for elective surgery. This is unfortunate because of the supposition, advanced above, that there could be reservoirs of unmet need for surgery in some communities. For example, for cataract surgery a good indicator of need would be the incidence of the population affected by cataract, not yet operated upon. Such data are not available at an international level. Consequently, in this study we have used as a proxy for need the percentage of the population over 65.

7.2. Do countries which do not report waiting times spend more?

Table 5.A1.2 in the annex shows that total and public health expenditure per capita (US$PPP), were respectively 31% (19%, excluding the United States) and 16% higher on average in those countries not reporting waiting times in year 2000. A t-test suggests that the difference in the health expenditure means for the two groups is different from zero at a significance level below 5% in the case of total health expenditure and below 10% in the case of public health expenditure.

Figures 5.A1.1 and 5.A1.2 in the annex, show plots of the mean waiting times for three common surgical procedures (hip replacement, cataract surgery and cholecystectomy) against total and public health expenditure per capita, respectively, in 2000. These three procedures have been selected because they are representative of the waiting times within a country and tend to be correlated with the waiting times for other procedures. Correlations suggest in general a weak negative association between health expenditure per capita and waiting times.

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There are also signs of a negative association between health expenditure *as a share of GDP* and waiting times when countries which have universal health insurance coverage for surgery are grouped, and waiting times are compared with average health expenditure as a share of GDP across groups. Using health expenditure as a share of GDP, rather than health expenditure per capita, adjusts roughly for the strong positive association between health expenditure per capita and GDP per capita, which is likely to be due partly to higher wages in higher income countries. Looking at Table 5.4, above, there are two countries which usually have high waiting times, Finland and the United Kingdom (England). There are four countries which usually have middling waiting times (Denmark, the Netherlands, Norway and Spain). Of these, Spain (Insalud) has been excluded from the following comparison because by 2000 it had adopted strong financial incentives for reducing waiting times directly (see below) which may confuse the comparison. As has been mentioned above, there are eight countries which do not report problems with waiting (Austria, Belgium, France, Germany, Japan, Luxembourg, Switzerland, and the United States). Of these, Luxembourg has been excluded from the following comparison because its small size and large cross-boundary flows may make its health expenditure and GDP estimates unreliable. The United States has been excluded because, unlike the other countries, it does not have universal health insurance coverage for surgery. The average total health expenditure shares of GDP in the three groups of (remaining) countries with high, middling and low waiting times, respectively, were 7.0%, 8.2% and 9.1% in 2000 (see OECD, 2003). The average public health expenditure shares of GDP in these three groups were respectively 5.5%, 6.3% and 6.4% in 2000. The former probably provide more informative comparisons because they allow for the contribution of private health expenditure to waiting time differences between the second and third groups of countries. The suggestion is that among countries with universal health insurance, it can take roughly an additional 1% of GDP devoted to health expenditure to graduate from being a country with a high waiting time to being a country with a middling waiting time, and another additional 1% of GDP to graduate from being a country with a middling waiting time to being a country with a low waiting time, other things being equal.

7.3. Do countries which do not report waiting times have higher capacity (bed and physician numbers)?

It was shown in Siciliani and Hurst (2003) that countries not reporting waiting times had on average 66% more acute care beds (per 1 000 population) in 1998 than countries reporting waiting times. For example, in 1998 the average number of acute care beds was 5.8 (per 1 000 population) for the countries not reporting waiting as opposed to 3.5 for countries reporting waiting times.[10] A t-test suggested that the difference in the acute beds means for the two groups was different from zero at a significance level below 1%.

It was also shown in Siciliani and Hurst (2003) that countries not reporting waiting times had on average 13.4% and 23.4% more practising physicians and specialists, respectively, in 1998, than countries reporting waiting times. For example in 1998, countries not reporting waiting had 2.9 practising physicians (per 1 000 population) compared with 2.6 for countries with waiting times. In the same year, they had 1.7 practising specialists per 1 000 population compared with 1.4 for countries with waiting times. A t-test suggested that the difference in the means for the two groups was different from zero at a significance level below 5% in the case of the practising physicians and below 10% in the case of practising specialists.

7.4. Do countries which do not report waiting times provide more surgical activity?

The model presented in Figure 5.2, above, suggests that higher surgical activity for a given demand leads to a lower waiting time for surgery, other things being equal. Table 5.A1.3 in the annex below reports on total surgical inpatients and day cases per 1 000 population for countries which do and do not report waiting times. Note that information on day-surgery is generally not available for the countries that do not report waiting times. The information on inpatient surgery includes only four countries in the group without waiting times and eight in the group with waiting times. Nevertheless, this table suggests that in 1998 inpatient surgical activity (per 1 000 population) was on average 68% higher in the countries without waiting times.[11] A t-test suggests that the difference in the inpatient activity for the two groups is significantly different from zero.

Table 5.A1.4 in the annex reports on nine surgical procedure rates in 2000 both for countries which do and do not report waiting times. In all cases, countries which do not report waiting times have on average higher levels of activity than countries which do report waiting times. The average rates are 57% higher for hip replacement, 84% for knee replacement, 43% for prostatectomy, 53% for hysterectomy; 44% for CABG, 56% for inguinal and femoral hernia, 17% for cataract surgery, 72% for cholecystectomy and 91% for varicose veins. A t-test suggests that the difference in the means for the two groups of countries is different from zero at a significance level below 5% for hip replacement, knee replacement, prostatectomy, inguinal and femoral hernia, cholecystectomy and varicose veins. This is not the case for hysterectomy, CABG and cataract surgery.

7.5. Do countries which do not report waiting times have higher productivity?

Table 5.A1.5 in the annex shows some productivity indicators based on the number of "surgical inpatients" per practicing specialist and per practicing physician. Unfortunately the data are available for only four of the eight countries with no reported waiting times for years 1998 and 1999. The number of surgical inpatients per practising specialist and practising physician are respectively 64% and 88% higher on average in the countries with no reported waiting times. However, a t-test suggests that the difference in the productivity means for the two groups is not significantly different from zero for the first measure (inpatients per specialist) and it is different at a significance level below 5% for the second measure (inpatients per physician). One limitation of this comparison is that it does not include day-surgery activity, as data are not available for the countries with no reported waiting times.

7.6. Is higher surgical activity associated with lower waiting times?

Figures 5.A1.3-5.A1.10 show plots of surgical activity rates against waiting times for eight surgical procedures (hip replacement, inguinal and femoral hernia, varicose veins, cholecystectomy, prostatectomy, hysterectomy, cataract surgery and knee replacement) both for countries which do and do not report waiting times. It is important to point out how the relationship between waiting time and activity for individual surgical procedures is a complex one. The level of activity is determined by supply factors (such as beds and doctors) but also by demand factors (such as the level of need). If the level of demand is constant across countries but supply varies, then the association between activity and waiting times is likely to be negative. If capacity is constant across countries but demand varies, then the association between activity and waiting times is likely to be positive. In other words, some countries may have high supply and high waiting times compared to other countries, simply because they have higher need.

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In addition, for a given level of activity provided and for a given level of need, countries may have different propensities to add patients to the list. In other words, thresholds for adding patients to the list may differ across countries. A low waiting time may be a sign of a high threshold rather than a sign of any differences either in need or in supply.

These cautionary notes need to be taken into account when interpreting the relationship between activity and waiting times. Figures 5.A1.3-5.A1.5 are suggestive of negative relationships between activity and waiting times for hip replacement, "inguinal and femoral hernia" and varicose veins.

However, a different picture is obtained for cholecystectomy, prostatectomy and hysterectomy (Figures 5.A1.6-5.A1.8). For these procedures, although on average, countries which do not report waiting times have higher activity, several countries without waiting times can be identified that report similar levels of activity to countries with waiting times. Moreover, there is little association between the two variables among countries reporting waiting times.

Figure 5.A1.9 in the annex shows that for cataract surgery, a *positive* association between activity and waiting times can be found for countries with waiting times. Figure 5.A1.10 shows an analogous figure for knee replacement. One possible explanation for these findings is that in 2000, GPs in countries such as Finland, Sweden and Australia were referring for surgery backlogs of elderly patients who could benefit from relatively recent advances in cataract surgery and knee replacements. Finland, in particular, may have been catching up on deferred demand after a sharp cut in health expenditure in the early 1990s. In other words, demand variations may obscure any hypothesised inverse relationship between procedure rates and waiting times.

Finally, it is worth stressing how difficult it is at this stage to obtain fully comparable figures on surgical procedure rates. A variety of methodological problems may bias the measurements, such as variations in hospital activity classification systems, including variations in whether patients or procedures are counted (some patients receive multiple procedures during one surgical admission).

7.7. Are countries which do not report waiting times characterised by different remuneration systems for doctors and hospitals?

As the productivity indicators, reported above, have limitations, it is interesting to investigate also the varied structural constraints and incentives imposed on surgeons and surgical units in different countries. These are summarised in Table 5.A1.1 in the annex. As has already been mentioned, some countries have relatively constrained ways of paying for surgery, remunerating surgeons by salary and hospitals by global budgets. Others have much less constrained arrangements, remunerating specialists by fee for service and hospitals by activity-related payments. Many countries have mixed methods of payment.

Table 5.A1.1 suggests that there is a tendency for the countries with strong constraints on the supply of surgery to report waiting times whereas the countries with weak constraints do not tend to report waiting times. Meanwhile, countries with mixed financing (medium constraints) sometimes do and sometimes do not report waiting times.

7.8. Do countries which do not report waiting times have younger populations?

It was reported in Siciliani and Hurst (2003), that a possible indicator of the need for elective surgery, the percentage of the population older than 65, was on average 14.6% in

the countries which did not report waiting times as opposed to 15.6% in the countries which did report waiting times in 2000. However, a t-test suggested that this difference was not significantly different from zero. The percentage of the population older than 80 was 3.6% in both groups of countries.

7.9. Do countries which do not report waiting times have sicker populations?

It was also reported in Siciliani and Hurst (2003) that mortality rates, another possible proxy for need, were slightly lower, on average, in the countries which did not report waiting times than in the countries which did report waiting times. However, excluding Japan from the sample, the rates looked very similar. Mortality rates may not be a very satisfactory indicator for measuring the need for elective surgery at a point in time unless there is a good correlation between the factors causing chronic illnesses and the factors causing premature mortality across countries, and account is taken of the proportion of the population at risk that has already been treated surgically.

7.10. Are countries which do not report waiting times characterised by higher levels of co-payment?

Table 5.A1.6 in the annex reports the degree of cost-sharing for inpatient care in the two groups of countries which do and do not report waiting times. There is a pronounced difference between the two groups of countries. In most countries which do not report waiting times there are co-payments. In most countries which do report waiting times, inpatient care is free of charge to patients, or characterised by very low co-payments (as in Sweden and in Ireland for Category II patients). However, the co-payments in non-waiting time countries seem to be too low to suggest that price rationing could be playing a major role in preventing queues from forming.

7.11. What is the role of gate-keepers?

Table 5.A1.7 in the annex indicates that countries which do not report waiting times almost invariably lack GP gatekeepers. Meanwhile most of the countries which do report waiting times almost invariably have GP gatekeepers. This striking association does not have an easy explanation. The term "gatekeeper" suggests that general practitioners (GPs) should control the demand for access to specialists, avoiding unnecessary referrals, thereby lowering waiting times. However, it may be that when there is a clear division of labour between generalists and specialists, GPs feel that they have a responsibility to pass on to surgeons any patients they consider could benefit from surgery, creating an upward pressure on demand. In addition, GPs who are salaried or capitated will not suffer financially and will reduce their workload when they refer such patients to specialists. By contrast, where specialists (surgeons) have offices outside the hospitals and can be approached directly by patients, they may become skilled at handling excess demand by adopting "watchful waiting", without adding patients to formal hospital lists.

These arguments will not apply, to the same extent, to GPs who are paid by fee-for-service, as in many social health insurance systems. Nor will they apply, to the same extent, to GPs holding a hospital budget on behalf of their patients, as in the United Kingdom. The latter have to pay a price for referrals and for admissions for their patients. There is evidence that budget holding GPs reduce admissions among their patients compared with non-budget holding GPs (Gravelle *et al.*, 2002).

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8. Multivariate regression analysis

This section contains the results of cross-country, regression analyses which explored the "partial" effects on waiting times of certain individual determinants of waiting times for which data were available – such as indicators of capacity, total health expenditure, payment methods and need, respectively. The analysis was designed to separate out the simultaneous demand and supply effects which cloud the interpretation of Figures 5.A1.1-5.A1.10. The regression results themselves are reported in Tables 5.A1.8-5.A1.10 in the annex. Further details are provided in Siciliani and Hurst (2003). The analyses were handicapped by limitations in data and the results should be treated with caution.

Two sets of analyses were carried out. The first, investigated certain determinants of *variations in mean and median waiting times* for 10 surgical procedures, pooled together, across the eight countries from which we collected waiting time data [Australia, Denmark, the United Kingdom (England), Finland, Norway, the Netherlands, Spain (Insalud) and Sweden]. The second explored certain determinants of *the probability of reporting waiting times* across a much larger group of countries including all 12 in the OECD study and eight countries which do not report waiting time problems (Austria, Belgium, France, Germany, Japan, Luxembourg, Switzerland and the United States).

The approach followed was broadly consistent with the one adopted by Martin and Smith (1999) and Lindsay and Feigenbaum (1984). Other related empirical studies are Goddard and Tavakoli (1998), Blundell and Windmeijer (2000), Propper *et al.* (2002) and Gravelle *et al.* (2002).

8.1. Explaining variations in mean and median waiting times among the countries which report waiting times

The statistically significant results of the analysis of *mean and median waiting times* across the eight countries which provided waiting time data may be summarised as follows:

- more physicians, acute beds and specialists are associated with lower waiting times;
- a higher percentage of procedures carried out in day-surgery is usually associated with lower waiting times (but not always with statistical significance across regression models);
- higher total and public health expenditure are both associated with lower waiting times;
- and (in relation to testing for variations in need) a higher percentage of elderly people in the population is usually associated with higher waiting times (but not always with statistical significance across regression models).

8.2. Explaining the probability of observing waiting times across OECD countries

The statistically significant results for the *probability of reporting waiting times* across the 20 countries which do and do not report waiting times, may be summarised as follows:

- more acute beds and specialists are associated with a lower probability of reporting waiting times;
- higher health expenditure (public and total, respectively) per capita is associated with a lower probability of reporting waiting times;
- fee-for-service remuneration, as opposed to salaried remuneration, of specialists is associated with a lower probability of reporting waiting times;

- weak constraints on hospital activity, as opposed to strong constraints, are associated with a lower probability of reporting waiting times in some models but not in others.[12]

Although the expenditure and method-of-payment effects, here, are independent of one another it is not possible to quantify their respective contributions to waiting times.

9. Review of policies

An evaluation of policies for tackling excessive waiting times for publicly funded elective surgery was undertaken for the 12 countries involved in the OECD Waiting Times Project. The 12 countries responded to a questionnaire on their policies and a literature review was undertaken. In addition, some countries were able to supply some time-series data on waiting times.

The model set out in Figures 5.1-5.3, above, suggests that countries can try to intervene to affect excessive waiting times either by taking measures to affect the supply of surgery or to affect the demand (partly via the propensity to generate waiting), or to affect both supply and demand simultaneously. Policy makers are likely to intervene on the supply side if they feel that the supply of public surgery is inadequate. They are likely to intervene on the demand side if they feel that the supply of public surgery is either adequate or is as much as they wish to fund. They can attempt to influence demand by affecting the propensity to generate waiting (Figure 5.2). Alternatively, they may try to influence waiting times directly without any preconceptions about whether the desired adjustments will be made on the supply side or on the demand side. In practice, it is common to find a mixture of these policies.

The following three sub-sections contain a review of policies classified under those affecting supply, those affecting demand and those aimed directly at waiting times. There is often a lack of waiting time data to evaluate such policies. In some cases countries were able to supply time-series data on waiting times before and after new policies were introduced. However, they suffer from the limitation of all "before and after" comparisons: we do not know the counterfactual – what would have happened in the absence of the policy changes in question. Moreover, the review of literature and the responses to the questionnaire suggested that many OECD countries with waiting time problems adopted a mixture of policies to tackle excessive waiting at any one time. An evaluation of the effects of (mixed) policies on waiting times is left mainly to a fourth section, below.

9.1. *Supply-side policies*

On the supply side, many initiatives to reduce waiting times by increasing expenditure on surgery – often temporarily – were reported. There have been at least three different ways in which such extra funds have been tied to the achievement of waiting time objectives. They may be allocated to hospitals: *i)* conditional upon high waiting times (as in England after 1986); *ii)* conditional upon delivery of extra activity (as in Sweden between 1987 and 1989, in the Netherlands between 1997 and 2000, and in Australia, under the Medicare Agreements, between 1993 and 1998); or *iii)* conditional upon delivery of extra activity *and* reduction of waiting times (as in Spain between 1996 and 2000 and in Victoria, Australia, in 1993).

In general, a temporary increase in activity will have a temporary effect. Policy makers may think of a waiting list as a complete register of patients needing surgery that can be cleared through a one-off introduction of dedicated funding. However, such a perspective

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ignores both the possibility of hidden waiting and the likelihood of stimulation of demand if waiting times begin to fall. Also, demand is generally growing through time.

Moreover, policies of the first type, above, may have limited success if hospitals have the expectation that funds will be withdrawn once waiting times have been reduced (Iversen, 1993). Under policies of the second type, there may be difficulty in distinguishing ordinary and additional activity (Gonzalez-Busto, 1999). Policies of the third type seem likely to be the most effective way to obtain significant reductions in waiting because they provide incentives not only to boost supply but also to control any consequent upsurge in demand, which can be done by maintaining appropriately high clinical thresholds.

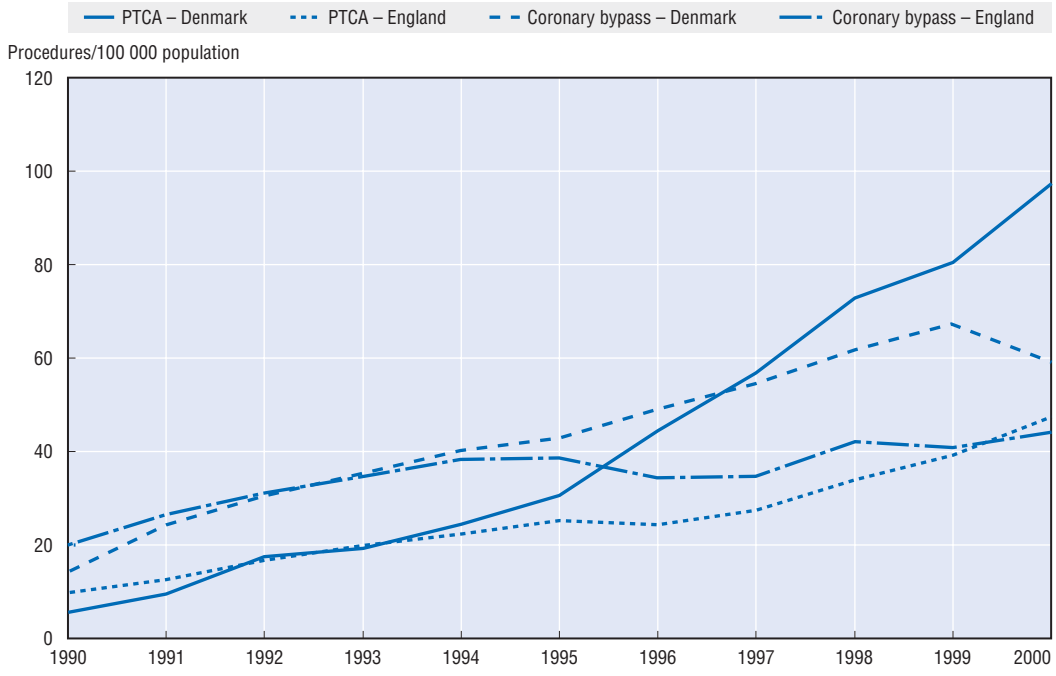
Policies of the kind described above may purchase activity at below average cost in public hospitals if there is spare capacity. However, if hospitals are already working at full capacity, temporary purchase of extra activity may incur short run, marginal costs which are above average costs. For example, surgeons and theatre nurses may have to be paid overtime rates to be willing to operate outside normal hours, say in the evenings or at weekends.

In the longer term, policy makers may choose to invest in extra public capacity while sustaining a higher level of expenditure. Physician numbers have increased in all of the 12 countries in the Waiting Time Study in the past two decades, except Canada and Sweden. Acute beds have often been falling but that has probably been more than offset by the development of day surgery capacity. Two countries, England and Ireland, have recently announced large planned increases in public beds, physicians and nurses in the context of tackling excess waiting times. If surgical capacity is increased in pace with expenditure, additional activity can be purchased at long run marginal costs which may well be close to long run average costs.

It is interesting to compare how Denmark and England reacted differently in the 1990s to the upsurge in demand for revascularisation procedures [coronary artery bypass grafting (CABG) and percutaneous coronary angioplasty (PTCA)]. In Denmark, it was recognised in the late 1980s that rates of revascularisation were low and waiting times were high. Following the "National Heart Plan" of 1992, the government decided to commit 700 million Danish Crowns from 1993 to increase investment in operating theatres and to hire more staff. Doctor numbers per capita had been above the OECD average in 1980 and they increased by 50% in the following 15 years. Following the "Heart Plan" procedure rates increased rapidly – by 70% for CABG and nearly five fold for PTCA between 1993 and 2000 (Figure 5.4; Videbaek and Madsen, 2001). This brought down waiting times in a sustained way. Patients waiting more than four weeks for PTCA and CABG declined from 50% to 29% for both procedures combined, between 1994 and 2001 (Figure 5.5). Data on median waiting times, available from 1996, suggest a decline by about 50% for both PTCA and CABG between 1996 and 2001 (Figure 5.6).

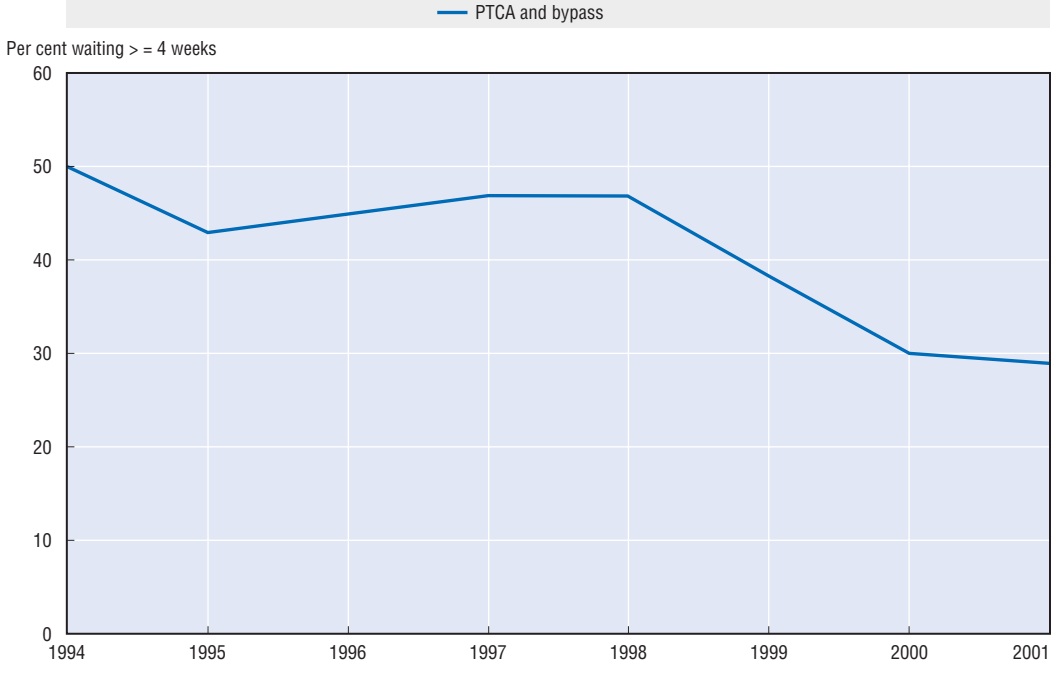
Meanwhile, in England, it was not until 1999 that a Government Plan for treating coronary heart disease was published (Department of Health, 2001). Fifty million pounds was earmarked at that time for extra facilities and staff for coronary care. Britain had fewer physicians per capita than Denmark in 1980 (only two thirds of the OECD average) and numbers had increased by only 23% in the following 15 years. By 1995, Britain had half the number of physicians per capita of Denmark. Although England had slightly higher rates of PTCA and CABG than Denmark in 1990, growth rates for these procedures grew more slowly than in Denmark in the following decade (Figure 5.4). Whereas in Denmark, waiting

Figure 5.4. **Procedure rates for bypass and PTCA, Denmark and England, 1990-2000**



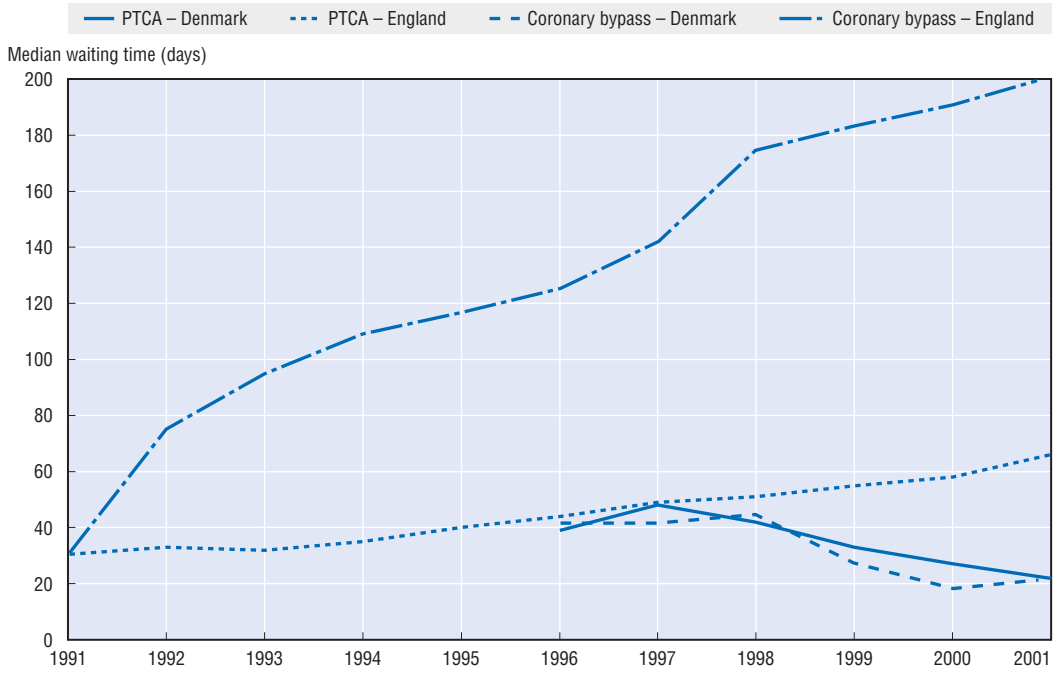
Source: Department of Interior and Health, Denmark; and Department of Health, England.

Figure 5.5. **Percentage of patients waiting longer than four weeks for bypass and PTCA, Denmark, 1994-2001**



Source: Department of Interior and Health, Denmark.

Figure 5.6. **Median waiting time for patients admitted for bypass and PTCA, Denmark and England, 1991-2001**



Source: Department of Interior and Health, Denmark; and Department of Health, England.

times for these procedures fell, in England they rose steeply. Median waiting times rose to 65 days for PTCA and 200 days for CABG in 2001 (compared with 19 days and 21 days, respectively, in Denmark). These figures may not be strictly comparable across the two countries because the Danish figures include outpatient waiting and may include patients who are admitted as urgent cases.

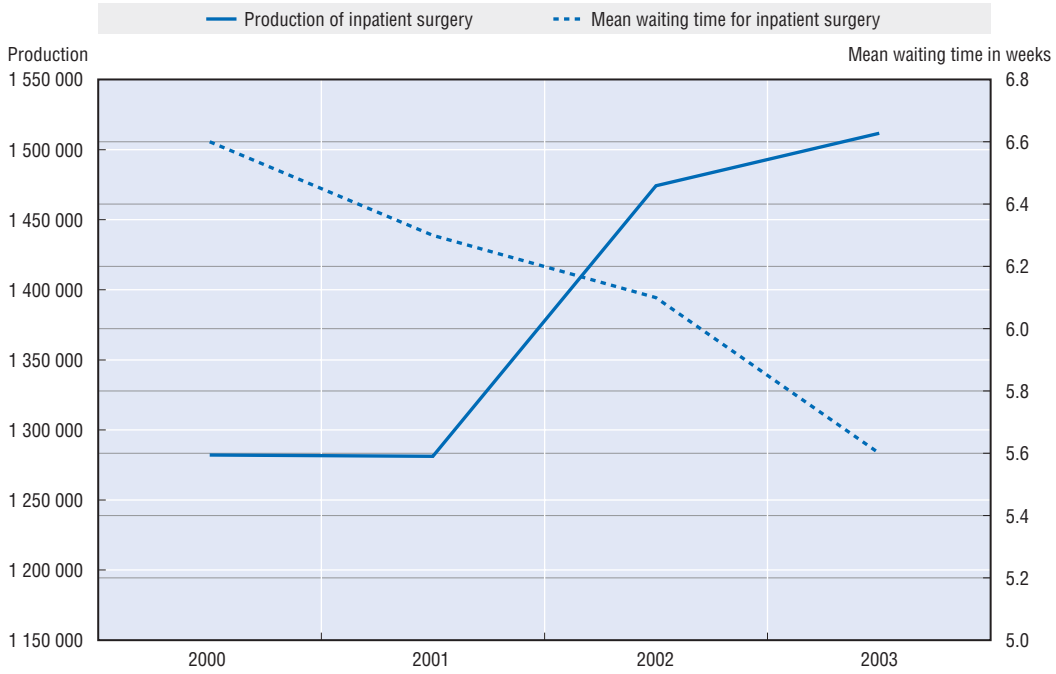
A number of countries have been purchasing extra activity from private hospitals or have been sending patients abroad for elective surgery. Countries which have made new use of private providers include Australia, England, New Zealand, and Spain (Insalud). Indeed, England has recently commissioned a number of new "Diagnostic and Treatment Centres" from the private sector to help tackle waiting lists. Buying from the private sector may be a quick way to gain additional access. It may also provide a competitive spur to public hospitals. A potential disadvantage is that private units may compete with public units for a limited supply of surgeons and theatre nurses, at least in the short run. In that case, contracting with hospitals abroad may be an attractive option. Such contracting has been used in Denmark, England, Ireland, the Netherlands and Norway.

There have also been recent attempts to boost the supply of surgery by increasing the productivity of existing surgical units. One approach has been to introduce activity-related funding into units previously funded by fixed budgets. England is introducing activity-related funding for hospitals from 2003 through the use of a fixed price schedule for patients classified by health resource groups starting with elective surgery. The Netherlands introduced activity-related funding for hospitals from 2002, based on "diagnosis treatment combinations". This followed the introduction of an initiative to reduce waiting lists under the "Right to Care" policy and real increases in health expenditure of 2.6% and 5.3%, respectively, in 2001 and 2002 (Statistics Netherlands, 2004).

The insurers were expected to negotiate with the hospitals about using the extra expenditure to increase activity and reduce waiting times. There were sharp increases in inpatient and day surgery between 2000 and 2003 accompanied by pronounced falls in mean waiting times for these two categories of patient (Figures 5.7 and 5.8). Norway introduced partial activity-based payments covering, initially, 30% of the average diagnosis related group (DRG) cost per inpatient (50% since 1999 and 55% since 2002). A study of 48 acute hospitals between 1992 and 2000 suggested that the policy led to a rise in the annual growth rate of activity from 2% between 1992 and 1996 to 3.2% between 1997 and 1999 (Biorn *et al.*, 2002). No information is available on their effect on waiting times. In Denmark, activity-related payments based on DRGs were introduced, initially for elective activity, in early 2002. Activity for 18 common surgical procedures rose by 18% during 2002 and waiting times fell by 17% (Figure 5.9; Clemmesen and Hansen, 2003). It was found necessary to extend the activity-related payment to all activity during the year because of difficulty in distinguishing elective care and other hospital care. In addition, plans were made to reduce the rate of DRG payment in 2003 because of upward pressure on expenditure.

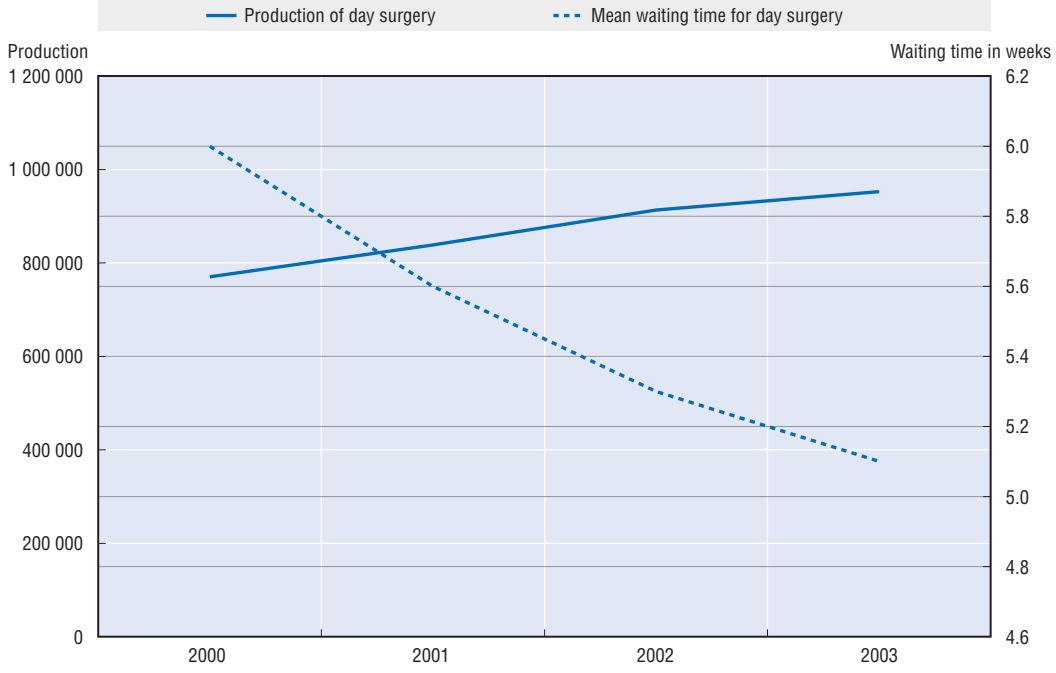
Another approach to raising productivity is to try to change the incentives facing surgeons. One alternative is to seek to link surgeons' remuneration to increases in activity or reductions in waiting times, where such links are absent. Spain introduced bonuses in 1997 for specialists who achieved waiting time reductions (Pancorbo and Moral, 2002). However, the Netherlands took steps in the opposite direction, introducing fixed budgets for hospital specialists in place of open-ended fee for service arrangements in the interests of cost control, in 1997. A pilot experiment in six hospitals between 1995 and 1997 found that admissions went down and waiting times went up in five hospitals (Mot, 2002).

Figure 5.7. **Inpatients treated and mean waiting times (weeks), the Netherlands, 2000-2003**



Source: Ministry of Health, Welfare and Sports, The Netherlands.

Figure 5.8. **Day surgery patients treated and mean waiting times (weeks), the Netherlands, 2000-2003**



Source: Ministry of Health, Welfare and Sports, The Netherlands.

Figure 5.9. **Changes in surgical activity for 18 specific operations (inpatients) and waiting times, Denmark, 2000-2002**

Source: Department of the Interior and Health's Internet based waiting information and system (Denmark) and The Danish National Register.

Another alternative is to try to limit the extent to which surgeons have "dual practices" – working in both the public and the private sectors. Several researchers have pointed out how a conflict of interest may arise in such a situation (Yates, 1987; Iversen, 1997; Morga and Xavier, 2001). Specialists working in the public sector will have an incentive to maintain long waiting lists to boost their private practices. Dual practice seems to exist in all the countries in the Waiting Time Project except Canada and the Netherlands, albeit with restrictions in many. In England and in Ireland, there have been proposals to bar dual practice for newly qualified physicians for a number of years after they enter practice.

Another approach to raising productivity is to substitute day surgery for inpatient surgery. Such a shift has been aided by the introduction of better anaesthetics and less invasive methods of surgery, as well as by changing medical opinions about the value of "bed rest". There has been a marked shift towards day surgery in most of the countries for which we have data.

An attraction of policies to raise productivity is that they can reduce unit costs at the same time as increasing activity, if they are successful. However, it is difficult to find methods of raising productivity which reduce unit costs more than they increase volume. Hence the overall pressure on costs tends to be upwards.

A policy which is complementary with introducing activity-related payment is increasing patient choice. Traditionally, public integrated systems with fixed budgets have not encouraged patient choice but several countries, including Denmark, England, Norway and Sweden, have introduced more choice of provider with "money following the patient", often made conditional upon the patient having already waited a certain time for treatment, such as two or three months. Private providers and providers abroad may be included in the exercise of choice. Part of the logic is to improve equity: patients can move from areas with high waiting times to areas with low waiting times. Another part of the logic is to introduce or enhance competitive pressures on providers. However, Chalkley and Malcomson (1998) have pointed out that if there remains pervasive excess demand, hospitals losing patients may not feel under much competitive threat. An important requirement for choice is patient information about waiting times which is found increasingly on government websites.[13]

9.2. Demand-side policies

The review of policies yielded several examples of countries which have tackled excessive waiting times by adopting policies for influencing the propensity to generate waiting, by managing or influencing the demand for public surgery.

One approach has been to encourage surgeons to raise their clinical thresholds for admitting patients to public waiting lists. The most important example is New Zealand which has developed a priority scoring system for major elective procedures which is used to rate patients for need whenever they are assessed for public treatment by surgeons. The scoring system is based on factors such as: the severity of the condition; the urgency of treating it; and the ability of the patient to work, give care and live independently. In effect, this makes explicit the place of each patient on the "*hierarchy of need*" for each procedure. Such assessments are coupled in New Zealand with the introduction of a booking system for elective procedures and a requirement that all patients with sufficiently high scores, and who are accepted for surgery, should be treated within six months. Patients with lower scores, who cannot be treated within six months, are referred back to their GPs for "active

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care and review" (Hefford and Holmes, 1999). If their condition changes, they may be reassessed. This system has been designed partly to prevent what were regarded as inappropriate additions to waiting lists, partly to improve equity of access to surgery across New Zealand and, in addition, is said to give "certainty of eligibility" for treatment.

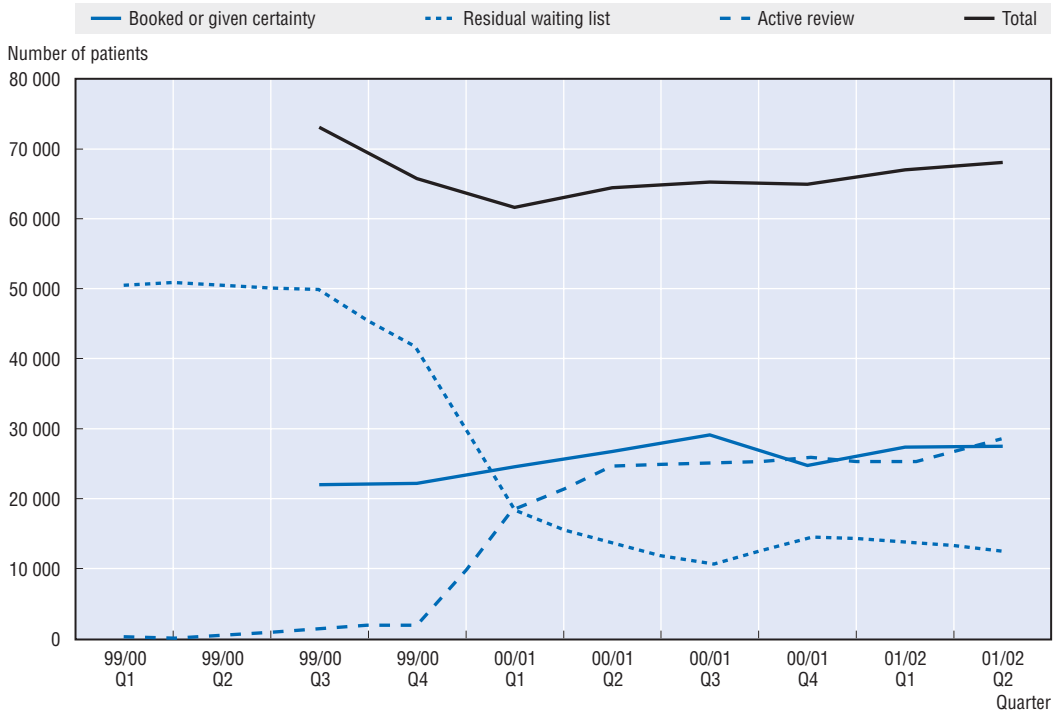
After the introduction of this policy, the number of patients waiting longer than six months decreased from 35 500 in the first quarter of 1999-2000 to 16 900 in the last quarter of 2001-2002. Initially, there was a "residual waiting list" but this has been dwindling. A new category of patients under "active care and review" has emerged, as has a steady flow of patients booked or given certainty of treatment within six months (Figure 5.10).

Such an approach amounts to a systematic attempt to involve clinicians in changing the propensity to generate "inpatient" waiting. Such a policy is cheap to adopt once it has been negotiated with specialists and GPs and once there has been investment in scoring systems. However, it can be criticised for suppressing the signals of excess demand for surgery. Also, it could be said that there is now "waiting to join the waiting list".

A number of other countries have been experimenting with patient scoring systems, usually with the aim of making access to surgery fairer across patients. Canada has had several trials of such systems including the Western Canada Waiting List Project (Noseworthy and McGurran, 2001).

An alternative approach to influencing demand, is for the government to provide tax incentives for patients to purchase private health insurance with a view to their obtaining surgery in private rather than public hospitals. Australia has been pursuing such a policy. The percentage of the population covered by private health insurance (PHI) fell from 50% to

Figure 5.10. **Status of the patients on the waiting list, New Zealand, 1999-2001**



Source: Department of Health, New Zealand.

about 30% between 1984 and 1998. To reverse this trend, the Government introduced tax rebates in the 1997 and 1998 PHI incentive schemes and in the 2000 "lifetime health cover" scheme. PHI coverage had increased sharply to about 44% by 2002. There was an increase in the private share of activity and a pronounced fall in median waiting times for five out of nine conditions for which we have data, between 1999/00 and 2000/01 (Table 5.A1.11). There were also declines in overall mean waiting times for public patients in a couple of States (Hopkins and Frech, 2001). The shift towards private care must be counted as a success because part of the Government's policy was to enhance choice and diversity of provider in the Australian health care system. However, it remains unclear whether the tax expenditure incurred would have achieved a larger or a smaller reduction in waiting times had it been spent in public hospitals.

9.3. Policies aimed directly at waiting times

Some policies to tackle excessive waiting are aimed directly at waiting times and may act by affecting either the demand for or the supply of surgery.

A significant number of countries have introduced targets or guarantees for maximum waiting times for elective surgery. Some are unconditional – such as, "no patients should wait longer than 12 months". Others are conditional – such as "all patients with higher needs should be treated within three months" or "x% of patients waiting should be treated within six months". Such policies have met with some success. For example, in England, waiting more than 24 months, and then waiting more than 18 months, were successively eliminated during the 1990s. This coincided with sharp reductions in waiting times for patients on the list but little change in the mean waiting time of those admitted. In Sweden, the introduction of a three month unconditional waiting time guarantee was associated with an initial fall in median waiting times from 12 weeks to eight weeks between 1992 and 1993 but a subsequent return to 12 weeks in 1995-1996 (Hanning, 2001). In Norway, a six-month conditional guarantee for patients in higher need was abandoned in 1997 because it was not seen as binding on providers (Christensen, 2001).

It is possible to identify at least two problems with maximum waiting time guarantees. First, they can conflict with clinical prioritisation, by, in effect, elevating responsiveness above clinical need. In England, the National Audit Office (2001) reported that 20% of specialists frequently treated patients in different order to their clinical priority in order to avoid patients exceeding the (then) 18 month waiting time target. For that reason, they are unpopular with surgeons. Also, from this perspective, they are a crude device compared with the development of priority scoring systems, as in New Zealand and Canada. Second, they are like squeezing a balloon, unless resources or productivity are increased, or clinicians are persuaded to raise their thresholds for admitting patients to lists. That is to say, if long waiters are given priority over short waiters, then the longer waits of the latter will match the shorter waits of the former, other things being equal. Mean waiting times of those admitted will be unaffected.

An alternative approach to tackling waiting times directly is to reward hospitals or surgeons financially or non-financially for reducing waiting times. Such measures contrast with earlier policies which, in effect, rewarded providers for longer waiting times (when "money follows the queue"). The rewards may be financial through the implementation of premiums and bonuses (as in England, Ireland, Spain and Australia (Victoria). They may be non-financial through rewards such as "earned autonomy" for hospitals [as in the United Kingdom (England)]. Table 5.A1.12 suggests that the introduction in Spain (Insalud) in 1998

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of financial rewards for surgeons (up to a maximum of 3% of their salary) and other staff for waiting time reductions, may have contributed to the sharp reductions in waiting times observed for nine elective procedures between 1998 and 1999.

Such incentives might have some effect on supply by boosting productivity. However, it is more likely that they will encourage surgeons to raise their thresholds for entry of patients to the list. As evidence, there are signs from Figures 5.A1.1 to 5.A1.2 that waiting times in Spain (Insalud) for particular conditions are lower than might be expected for a country with its level of total and public health expenditure. That suggests that Spain may have achieved a lower propensity to generate waiting compared with other "waiting time" countries. Meanwhile, such incentives, unlike maximum waiting time guarantees, should not conflict with clinical priorities, especially if they are combined with policies to develop priority scoring systems [as was the case in Spain (Insalud)].

The Canadian Medical Association (CMA), a national voluntary organisation which represents Canada's practicing physicians, has suggested that targets could be set for waiting times, guided by a priority scoring system, which would make it binding on the government either to increase capacity or to fund care outside the system if the waiting time targets were exceeded (Canadian Medical Association, 2003). This would be the mirror image of the arrangements in New Zealand for meeting the maximum waiting time target. Under CMA proposals, waiting time targets would be achieved by adjusting supply to demand rather than by adjusting demand to supply.

9.4. Mixed policies

Most countries which have struggled with excess waiting times have implemented a mixture of the policies, set out above, at any one time. That makes it difficult to distinguish the effect of any one policy. Nevertheless, we do have time series data on waiting times for a couple of countries which may be used to shed some light on the effectiveness of different packages of measures over time against a background of rising demand.

For example, Figures 5.11 and 5.12 show, respectively, mean and median waiting times of patients admitted; and of patients on the list, in England from March 1989 to September 1999. There were many policies applied over this period to raise surgery rates and to tackle excess waiting times including extra funding, investment in day surgery facilities, extra staff, the introduction of purchaser/provider separation for hospital services, a certain amount of competition between hospitals in the "internal market", the gradual spread of GP "fund holding", efficiency targets for hospital activity, use of the private sector and maximum waiting time targets. As a result, England saw a rise of over 60% in surgery rates for the 11 major elective procedures which dominated these lists. Yet there was almost no change in the mean waiting time of those admitted and a slight rise in median waiting (Figure 5.11). It seems likely that rising supply barely kept pace with rising demand (the latter driven by technological changes and population ageing). However, there *was* a pronounced fall in the waiting times of those on the list at each point in time (Figure 5.12). It is likely that this was due to the successful application of maximum waiting time targets (including associated "cleaning of lists").

A mixture of policies was also adopted in Spain over the period 1996-2000. For example, under Insalud's "Surgical Waiting List Reduction Programme", a series of measures were introduced in 1996 to reduce waiting times including extra spending, list "cleaning", the setting of maximum waiting time targets, activity-related funding (for

Figure 5.11. **Mean and median waiting time of patients admitted, England, 1989-1999**

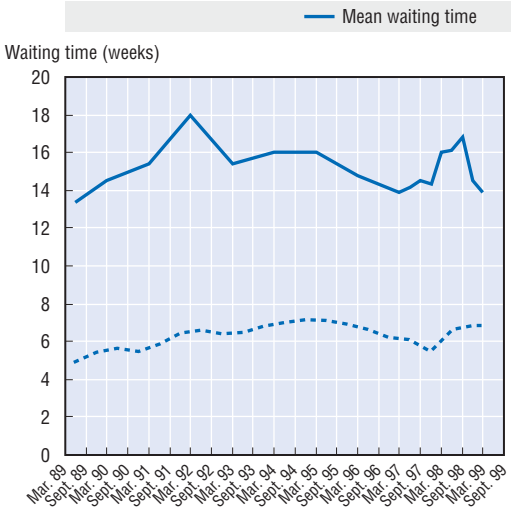
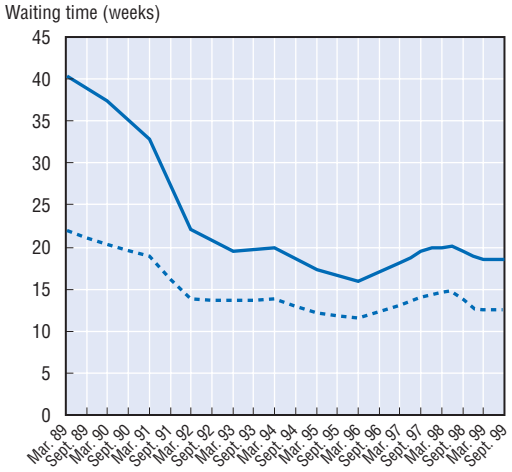


Figure 5.12. **Mean and median waiting time of patients on the list, England, 1989-1999**

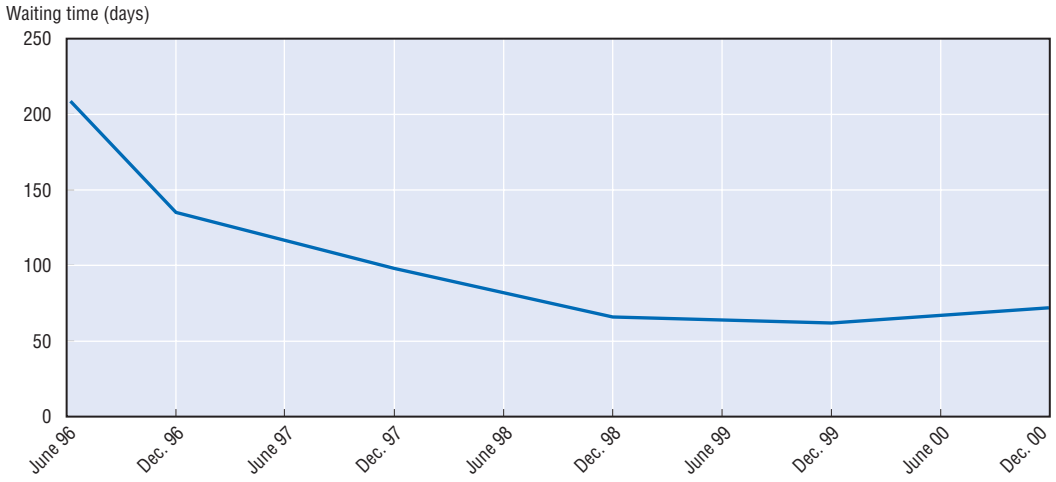


Source: Department of Health, England.

certain elective conditions), use of private hospitals and the development of guidelines for surgical interventions. In addition, in 1997, staff bonuses were introduced both for managerial and professional staff contingent on the achievement of activity and waiting time targets. Moreover, from 1998, hospital funding was linked not only to activity but also to the achievement of both maximum and mean waiting time targets.

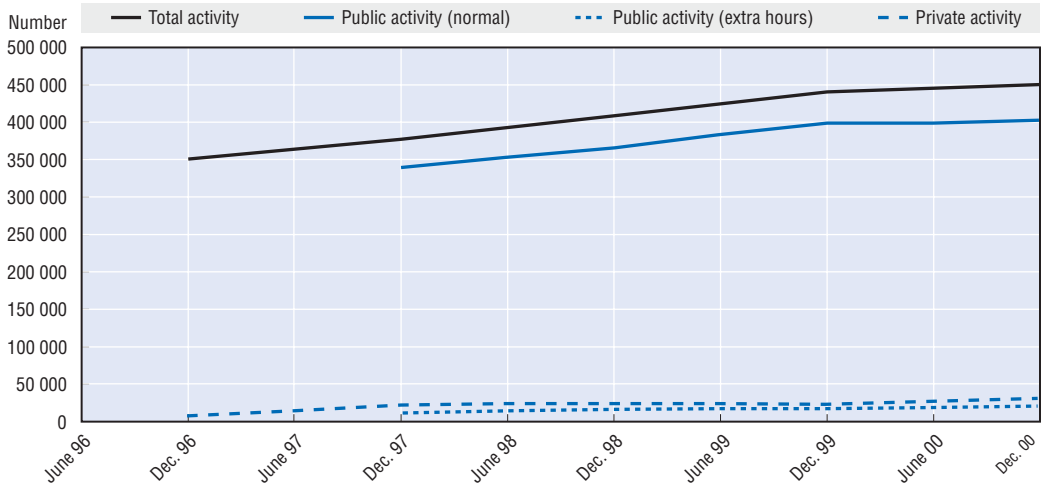
Figure 5.13 suggests that this mix of policies brought down the mean waiting time of all the patients on the list from over 200 days to about 60 days between June 1996 and December 1998, partly by increasing activity by about 28% between 1996 and 2000 (Figure 5.14). Table 5.A1.12 suggests that there were further reductions in the waiting time

Figure 5.13. **Mean waiting time (days) for patients on the list, Insalud, Spain, 1996-2000**



Source: Ministry of Health and Consumer Affairs, Spain.

Figure 5.14. **Surgical treatments provided, Insalud, Spain, 1996-2000**



Source: Ministry of Health and Consumer Affairs, Spain.

of those on the list for certain procedures between 1998 and 1999. Unfortunately, we do not have a time-series for the waiting time of those admitted. However, the waiting time of those admitted (Spain, Insalud) is available for one year: 2000. When these figures are put in scatter diagrams (Figures 5.A1.1-5.A1.2) they suggest, as has been mentioned already, that Spanish (Insalud) waiting times are below the level which might be expected for a country with Spain's level of health expenditure.

10. Conclusions

This study has put a spotlight on the major challenges now facing public provision of elective surgery in OECD countries. Rates of elective surgery have been growing rapidly and seem set to continue that path with the ageing of populations and the advance of technology. At the same time, there are huge and inexplicable variations in surgery rates across small and large geographical areas. It is impossible to believe that all of these variations are optimal. Meanwhile, many countries are experiencing "excessive" waiting times for elective surgery – here taken arbitrarily as waiting times in excess of 3-6 months, depending on the condition.

The OECD Waiting Time Project was set up to address two questions: *i)* what are the causes of variations in waiting times for elective surgery across OECD countries? and *ii)* which policies are most successful in tackling excessive waiting times? In the course of the project, two additional questions emerged, and have been addressed qualitatively, but not quantitatively. They are: *iii)* are there optimum rates of surgery? and *iv)* are there optimum waiting times?

10.1. What are the causes of variations in waiting times?

On the question of the causes of waiting time variations, this study has provided considerable support for the model of the potential determinants of waiting times set out in Figures 5.1 and 5.2, above. To recap, briefly: the model suggests that there are two necessary conditions for waiting times to occur for publicly funded surgery: *i)* a highly subsidised or zero money price for the patient; and *ii)* varying constraints on the public

supply of surgery below the level demanded at a zero price. These conditions precipitate excess demand for surgery. In these circumstances, waiting times tend to take the place of prices in rationing demand. In addition, there may be: *iii)* varying "propensities" to generate waiting for any given level of excess demand for surgery, depending on the incentives facing surgeons and hospitals. It is easy for surgeons to "manage" the length of the (visible) delay by raising or lowering the thresholds for admitting patients to lists.

Turning to the evidence gathered in this study, both the literature review and the cross-country multivariate analysis reported upon above (Tables 5.A1.8-5.A1.10) confirm that waiting times are lower where surgical capacity is higher, in terms of acute beds and physician numbers, other things being equal.

This study has added several new findings to those found in the literature. First, waiting times have been shown to be statistically associated with the payment of providers by constrained budgets and salaries, as opposed to the payment of providers by activity-related methods, other things being equal, at least in some models. Second, not surprisingly in view of the findings just reported, waiting times are lower across countries when total health expenditure is higher. On average, it seems to cost very roughly one percentage point of GDP to graduate from being a high waiting time country to being a medium waiting time country and a further one percentage point of GDP to graduate from being a medium waiting time country to being a low waiting time country, other things being equal. However, this estimated relationship will be sensitive to – and may have been affected by – variations in the propensity to generate waiting. Third, there are also some signs that waiting times are higher when demand is higher – in the form of a higher share of elderly people in the population.

These capacity, productivity, expenditure, and demand factors, will all help to determine the scale of excess demand. What about evidence on different propensities to generate waiting? The multivariate analysis is not very conclusive on that point. The finding that waiting times are lower when the payment of providers is related to activity, as opposed to being constrained by budgets and salaried payments, might be mainly or partly a "propensity" effect rather than a productivity effect, but we cannot be sure. For example, surgeons paid by fee-for-service in a competitive environment may refrain from allowing visible queues to form because they might deter prospective patients. Similarly, the observation that GP gate keeping is strongly associated with high waiting times might be a propensity effect (lax gatekeepers referring patients to surgeons inappropriately) or it might be a spurious correlation, dependent on the fact that countries which have GP gate keeping also tend to have strong constraints on the supply of surgery (Tables 5.A1.1 and 5.A1.7).

10.2. Which policies have been successful in tackling excessive waiting times?

The review of policies to tackle excessive waiting times has provided evidence of some successful policies to tackle excessive waiting times. For example, the impact of different rates of increase in surgical expenditure and capacity on waiting times at a time of rising demand was illustrated by the comparison of growth rates of revascularisation procedures in Denmark and the United Kingdom (England) in the 1990s (Figures 5.4-5.6). A favourable effect of activity-related payments on activity and waiting times seems to have been demonstrated recently in Denmark (Figure 5.9). Combinations of policies involving both extra expenditure and changes to incentives have brought down the average waiting times

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of patients admitted in the Netherlands (Figures 5.7 and 5.8) and of patients on the list in both England and Spain (Figures 5.12 and 5.13).

Turning to evidence on policies which have successfully changed the propensity to generate waiting, the review has provided at least two examples of how reported waiting times can be brought down by raising clinical thresholds for admitting patients to queues. The leading demonstration of such a policy is to be found in New Zealand, which has successfully implemented a six month maximum inpatient waiting time scheme with the help of a clinical scoring system for prioritising elective surgery patients. Patients who do not reach a certain threshold of "need", and who, consequently, cannot be guaranteed surgery within six months, are referred back to their GPs for "active care and review". This may mean that patients that have been inappropriately added to waiting lists (who do not "need" surgery) are now treated at a more appropriate level in the health care system. Alternatively it may mean that invisible "waiting to join the waiting list" has been substituted for visible waiting on the waiting list. There is also some evidence from Spain (Insalud) that suggests that reported inpatient waiting times for certain elective procedures were brought down sharply following the introduction of direct financial payments for staff (and hospitals) for achieving waiting time targets (Table 5.A1.12). In 2000, Spain (Insalud) tended to have lower waiting times than would be expected given its level of health expenditure (Figures 5.A1.1-5.A1.2).

10.3. Which policies have been less successful in tackling excessive waiting times?

Meanwhile, the review of policies has uncovered several examples of unsuccessful, or partially successful, policies to tackle excessive waiting times. Many short run initiatives to boost spending on surgery have had only temporarily favourable effects on waiting times. That is not surprising against a background of secular rises in demand for many elective procedures, the possibility of hidden backlogs of patients, and "feedback" effects (falling waiting times can stimulate new demand). Even long term initiatives to tackle waiting times may have only modest results. Despite prolonged expansion of elective surgery in the United Kingdom (England) throughout the 1990s, during which rates of surgery for 11 elective procedures rose by 64%, the waiting time of those admitted (as opposed to the waiting time of those on the list) was merely stabilised at a high level compared with other OECD countries (Figure 5.11). Presumably, demand rose at a similar rate, leaving excess demand roughly constant at a high level.

Meanwhile, several countries, including the United Kingdom, introduced maximum waiting time guarantees and targets in the 1990s. These were often successful in reducing or eliminating long-waiting patients and in reducing the waiting time of those on the list (Figure 5.12). However, in the case of England, as has just been noted, the waiting time of those admitted merely stabilised. Moreover, maximum waiting time polices tend to lead to clashes with clinical priorities and have been abandoned in many countries. The New Zealand approach is different – it is based on the development of an explicit scoring system for the prioritisation of surgical patients, carefully negotiated by government with clinicians. The Spanish (Insalud) approach was to combine waiting time targets with financial incentives for clinicians and managers.

As has been mentioned above, two additional questions emerged during the study and have been addressed. They are: *i*) are there optimum rates of surgery? and *ii*) are there optimum waiting times?

10.4. Are there optimum surgery rates?

On the question of optimum surgery rates, Figure 5.2 above suggests that in principle there must indeed be such rates if the marginal benefits of surgery decline with volume and the (long run) marginal costs rise or remain stable. On the question of benefits, there is some evidence to suggest that raising surgery rates to eliminate all waiting for elective surgery would yield only modest benefits. Although the health of patients will generally deteriorate with waiting, and they may be in pain and anxious while they wait, surgeons seem to be quite good at triage between urgent and elective patients – keeping waiting only those patients whose conditions warrant it. Several studies of patients awaiting elective procedures suggest that patients are quite understanding and sanguine about waits of up to three or six months, depending on the condition. Also, their willingness to pay for reductions in waiting seems to be quite modest. Meanwhile, there are likely to be large savings in capacity from imposing some waiting on elective patients.

Optimum surgery rates will vary somewhat from country to country depending on demand and supply and they will vary over time as demand and supply change. However, given the huge size of the variations in surgery rates for nine procedures observed across countries (three-fold for cataract surgery and nearly ten-fold for hysterectomy, Table 5.A1.4), it is hard to believe that all countries are operating at the level that would be judged to be optimal were decision makers fully informed about benefits and costs. Unfortunately, finding these optima is a difficult task because there has been little evaluation of the effectiveness of many surgical procedures and there is much clinical variation among surgeons in the perception of need. There is also little information about the costs and productivity of surgery. That suggests that given the scale of public funding of surgery, there is a need for many governments to examine the benefits and costs of surgery more carefully to inform their *judgements* on whether their public surgery rates are too high or too low (see policy recommendation, below).

10.5. Are there optimum waiting times?

On the question of optimum waiting times, Figure 5.3 above suggests that there will indeed be such rates, which will not be zero, for any given level of surgery (and hence level of excess demand). As has been mentioned above, there can be significant savings in capacity from forming queues for elective surgery because there are fluctuations in demand from emergency patients. However, as queues lengthen, administrative costs will rise. Meanwhile, the financial incentives facing surgeons and hospitals may lead to waiting times above or below the optimum. These include: whether "money follows the patient" or "money follows the queue"; and whether surgeons are permitted dual public/private practice.

This project has identified an apparent paradox: long waiting times for elective surgery are seen by the *general population* in a number of OECD countries as the most important, or one of the most important, failings of the system of health care; whereas, as has been mentioned already, a number of surveys of *patients* actually waiting for elective surgery suggest that they are often quite sanguine and understanding about waiting up to three or six months for elective operations, depending on the condition. At present, policy in many countries seems to be based more on public opinion than on patient experience. There may well be an implication, here, about the potential gains from improvement in public understanding of the experience of waiting.

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11. Recommendations for further research and for data collection

One of the main obstacles to improving the efficiency of the public provision of surgery, and to achieving optimal waiting times, is the uncertainty which surrounds the phenomenon. There is both "clinical uncertainty" and "policy uncertainty". One cause of this uncertainty is the comparative lack of evaluation of effectiveness in the field of surgery. There are difficulties in conducting clinical trials for new procedures. Nevertheless, there should be more evaluation of new and old techniques. There may well be scope for more international cooperation, here, as in the field of pharmacoeconomic assessment (Dickson *et al.*, 2003).

Allied to the question of evaluation, is that of guidelines and priority scoring of patients. Priority scoring systems such as those developed in Canada and New Zealand are needed to make the clinical and social consequences of rationing clearer at the margin to patients, surgeons and policy makers. That should help equity as well as resource allocation decisions at the macro and micro levels. Further investment in priority scoring systems is recommended.

Similarly better information is needed for benchmarking levels of elective surgery both within and between countries. The data available at international level on surgery (particularly day surgery) rates are full of gaps, especially for some countries which appear to have demand-led programmes. That is surprising, in view of the fact that these countries often have the more severe problems with cost containment. Data are also lacking on inputs to the surgical process such as surgeons, theatre nurses, surgical inpatient beds and surgical day case beds. Consequently there is almost no possibility of making international comparisons of productivity for these expensive and growing services. Coupled to this, is a lack of evidence on prices and costs of surgery across countries. In these respects, further improvements to OECD health data are recommended.

Finally, in publicly funded health systems where, for very good reasons, price signals have been suppressed, waiting times for elective surgery can provide alternative signals about the size of excess demand, subject to some "noise" arising from different propensities to generate waiting. There would seem to be merit in extending the possibility of international benchmarking of waiting times. This project has shown that reasonably comparable data on waiting times are now available for seven or eight member countries for at least ten procedures, from administrative sources. The measure which seems to be most widely available is the mean waiting time of the patients admitted to surgical units, measured from the time that patients are put on the waiting list. Some other countries might be able to provide similar data at moderate cost with only modest modifications to their existing data collection methods. An alternative approach would be to commission sample surveys of, say, ex-surgery patients in a wider range of countries, asking them about their experience with waiting. The possibility of obtaining such data in a few countries has been demonstrated by the Commonwealth Fund Surveys (Table 5.2 above).

12. Recommendations for policy

Some countries seem to be presiding over open-ended, demand-led (or surgeon-led) public surgery programmes with high rates of surgery and negligible waiting times. Others are tightly constraining supply, judging by their low rates of surgery and *average* waiting times for some elective conditions which exceed six months. These macro and micro variations suggest that there are major opportunities in the OECD area to improve both the efficiency and the equity of the provision of surgery within public programmes.

This study has suggested that if countries find that they have excessive waiting times and if they consider that their surgery rates are too low, then they can bring down waiting times by sufficient increases in surgical capacity. However, such an approach will incur high costs – expansion at long run marginal costs which are likely to be at or close to long run average costs. Moreover, such countries may have two mountains to climb – given the secular rise in demand for surgery, which appears to affect all countries.

For countries which have been paying their hospitals by global budgets and their surgeons by salaries, they are likely to be able to increase their surgery rates and bring down waiting times by introducing an element of activity-related payment for hospitals and surgeons. However, that is likely to achieve only a one-off improvement in efficiency and unless measures are taken to require providers to pass on the efficiency gains in the form of lower prices, costs to the public programme may rise as much as under capacity enhancement. Moreover, under activity-related payment, surgical expenditure may be more difficult to forecast and control. Efficiency gains may also be possible by further switching procedures to day surgery, where appropriate.

If waiting times are regarded as excessive, yet the public supply of surgery is judged to be adequate, or as much as the government is prepared to fund, then waiting times can be brought down by changing the propensity to generate waiting, in effect by tighter management of demand, as in New Zealand, or by use of financial incentives to encourage providers to shorten queues, as in Spain. A great attraction of such policies is that they can impact waiting times at low cost, once the cooperation of surgeons and providers has been obtained. They may lead to care taking place at the most appropriate level in the health care system. However, a possible disadvantage of such policies is that if they are misjudged, they may suppress waiting time signals which convey information about the underlying state of excess demand for surgery.

An approach which can be complementary with either of the strategies outlined above is to impose maximum waiting time targets (such as, "no patients should wait longer than one year"). However, if these are imposed without sufficient additional resources, or without the support of a clinical priority scoring system and agreed demand management policies, they are likely to clash with clinical priorities. Moreover, they may be like squeezing a balloon – long waits go down but short waits (those with the highest clinical priority) go up. A recent proposal from the Canadian Medical Association has been for the government to commit itself to increasing resources if maximum waiting time targets are not achieved. That would be the mirror image of the approach in New Zealand. However, governments may be unwilling to accept the possible implications for the fiscal sustainability of their health systems of adopting such "demand-led" policies.

Yet another alternative is to encourage, or even to subsidise, private health insurance with the intention of bringing down demand for public surgery. However, unless there is spare capacity, such subsidies may lead to resources being sucked out of the public system, with disappointing results for public waiting times, at least in the short term.

Finally, given the divergence between public opinion and patient experience of waiting times, reported at the end of the Conclusions, above, there may well be a case for some governments to improve the information available to the public about the costs and benefits of waiting for elective surgery.

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Notes

1. By the time of publication of this chapter, Luigi Siciliani had moved to the University of York.
2. A recent international study (Council of Europe, 2000) which focused mainly on the management of waiting lists at hospital level recommended – among other things – that further research be carried out into waiting times on a pan-European basis.
3. Twelve countries which report waiting times problems participated in the project: Australia, Canada, Denmark, Finland, Ireland, Italy, the Netherlands, New Zealand Norway, Spain, Sweden and the United Kingdom England). These countries responded to questionnaires both about their data and their policies. In addition, for comparative purposes more limited data and information was collected from eight countries which do not report any problems with waiting: Austria, Belgium, France, Germany, Japan, Luxembourg, Switzerland and the United States. The project lasted from September 2001 to September 2003.
4. On the first question, see Siciliani and Hurst (2003). On the second, see Hurst and Siciliani (2003).
5. *Source*: UK response to OECD data questionnaire.
6. Defining and measuring waiting times for surgery is not a simple matter. There are a number of choices both about the starting point and the end point of waiting. A hypothetical starting point would be the moment in time when a patient with a condition that could benefit from surgery would

be assessed by a representative surgeon as reaching a certain threshold of "need" for a given procedure, despite the fact that such an assessment does not actually take place. This raises the possibility of "hidden" waiting. A more tangible starting point is the time when a patient is first referred by a general practitioner (or by a non-surgical specialist working in a primary care capacity) to a surgeon for assessment for surgery. The period which elapses between such a referral and assessment by the surgeon will be referred to as the "outpatient" waiting time. Some countries with GP gatekeeper systems collect administrative statistics on waiting times for surgery which include this period. Note that if the surgical service is overloaded, it is possible that the patient may be referred back to the GP – perhaps for continued medical treatment – despite the patient's having passed the threshold for treatment. That is likely to result in another category of unrecorded or "hidden" waiting. A third possible starting point is the time at which the patient is assessed as requiring surgery by a surgeon and is booked for future treatment or placed on a formal waiting list for an operation – having agreed to undergo such a procedure. The time which elapses from placement on the list to the time that the patient is admitted for the procedure to be carried out, will be referred to as "inpatient" waiting time or the "waiting time of the patients admitted" (the term "inpatient", here, should be taken as including day case treatment). This measure will exclude patients who join the list but who do not receive treatment – because, for example, they recover their health, change their minds about surgery, move house, or die while on the waiting list. An alternative measure of "inpatient" waiting which includes such patients at a point in time, involves taking a census of the patients on the waiting list at a point in time and calculating the average time elapsed between patients' placement on the waiting list and the census date. That will record all incomplete waits. Such a measure is available in some countries and will be referred to as "the waiting time of the patients on the list". This report is concerned mainly with "inpatient" waiting but from time to time it will refer to "outpatient" and "hidden" waiting, since policies designed to tackle "inpatient" waiting may lead simply to higher "outpatient" waiting or higher "hidden" waiting.

7. Of course, it is also possible to run hospitals at too high a level of capacity leading, for example, to queuing for emergency services. Maintaining some level of spare capacity is essential for efficient handling of emergencies.

8. For a discussion on definitions of waiting times, see note 4 above.

9. "Where to go in Europe to Beat the NHS Queues", *Evening Standard*, London, 6 October, 2003.

10. In comparing the numbers of acute care beds, some cautionary notes should be considered. Irish data do not include beds in private hospitals. Finnish data are based on the number of occupied bed days. Both these figures are then downward biased. On the other hand, data for Luxembourg and the Netherlands include day care beds, which bias upwards their figures. A further limitation of these comparisons is that the figures on acute care beds include all hospitals (publicly and privately owned, publicly and privately funded). It is the number of publicly-funded beds (either publicly or privately owned) which is likely to affect most the waiting times for public patients. The number of privately-funded beds may also help to reduce waiting times, as long as patients are induced to opt for private treatment. Another limitation of the above data is that the number of beds refers to all acute care (medical, surgical, elective, and emergency) while the waiting times relate to selected elective procedures.

11. For Ireland and the United States, the data refer to procedures, as opposed to patients. More than one procedure may be recorded for each patient.

12. Explanatory variables were based on the information presented in Table 5.A1.1.

13. See for example, *www.nhs.uk/waitingtimes/waitingtimes.asp* for England; *www.swl.hlth.gov.bc.ca/swl/index.htm* for British Columbia, Canada; *www.venteinfo.dk/ventelister/* for Denmark; *www.wachtlijstaanpak.nl/* for the Netherlands; *www.sykehusvalg.net/* for Norway; *www.lf.se/vantetider/* for Sweden.

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ANNEX 5.A1

Table 5.A1.1. **Potential constraints on the supply of surgical treatments (up to 2002)**

Constraints on activity	Strong	Medium	Low
Specialists working for publicly-funded hospitals	***Salary***	***Mixed payment or FFS with restrictions on volumes***	***Mainly FFS (with no restrictions on volumes)***
Countries not *reporting waiting times*	Japan, Germany, France (public hospitals)	Austria (salary + extra charges), Switzerland (salary + additional payments), US (Managed Care)	Belgium, France (publicly-funded private clinics), Germany (ambulatory care), Luxembourg, US
Countries reporting waiting times	Denmark, Finland, Ireland, Italy, New Zealand, Netherlands, Norway, Sweden, UK	Australia (either salary or FFS), Spain (Insalud) (salary + bonuses)	Canada
Payments for publicly-funded hospitals	***Mainly fixed budgets (including case-mix adjusted budgets through DRG, HRG)***	***Mixed financing (part of the budget is directly related to activity)***	***Mainly Activity-based funding (with no restrictions on volumes)***
Countries not *reporting waiting times*	France (public hospitals)	Belgium (mixture of fixed budgets and ABF), Germany (ABF with penalties for high volumes of activity), Luxembourg, Switzerland (per diem), US (HMOs)	Austria (ABF based on modified DRGs), Japan (ABF based on cases and bed-days); France (private hospitals), US Medicare (ABF based on DRG prospective tariff)
Countries reporting waiting times	Denmark, Finland, New Zealand, UK	Australia (varies among States and Territories), Canada (varies among Provinces), Ireland, Italy (varies among regions), Norway (50% of budget is activity-based), Netherlands, Spain (Insalud), Sweden	

Abbreviations: ABF = activity-based funding; FFS = fee for service; HMO = health maintenance organisation; HRG = health related group; DRG = diagnosis related group.

Source: OECD Waiting Time Project.

Table 5.A1.2. **Total and public health expenditure**

USD PPP

	Total expenditure on health per capita			Public expenditure on health per capita		
	1998	1999	2000	1998	1999	2000
Countries without waiting times						
Austria	1 888	2 006	2 170	1 316	1 390	1 505
Belgium	1 971	2 114	2 260	1 418	1 526	1 630
France	2 096	2 211	2 387	1 593	1 681	1 810
Germany	2 520	2 615	2 780	1 886	1 957	2 086
Japan	1 730	1 852	1 984	1 339	1 445	1 554
Luxembourg	2 361	2 685	2 719	2 182	2 361	2 386
Switzerland	2 952	3 080	3 160	1 619	1 704	1 758
United States	4 095	4 287	4 540	1 824	1 895	2 005
Average[a]	**2 452**	**2 606**	**2 750**	**1 647**	**1 745**	**1 842**
Countries with waiting times						
Australia	2 079	2 224	2 350	1 412	1 545	1 618
Canada	2 288	2 433	2 580	1 617	1 713	1 828
Denmark	2 238	2 344	2 398	1 835	1 927	1 979
Finland	1 528	1 608	1 699	1 166	1 211	1 276
Ireland	1 438	1 623	1 793	1 100	1 182	1 314
Italy	1 778	1 883	2 060	1 277	1 356	1 511
Netherlands	2 176	2 310	2 348	1 401	1 461	1 488
New Zealand	1 431	1 527	1 611	1 102	1 183	1 257
Norway	2 439	2 550	2 755	2 066	2 172	2 347
Spain	1 353	1 426	1 497	976	1 028	1 073
Sweden	1 903	2 053	2 195	1 633	1 760	1 866
United Kingdom	1 563	1 704	1 813	1 253	1 371	1 468
Average[a]	**1 851**	**1 974**	**2 092**	**1 403**	**1 492**	**1 585**

a) Unweighted point average. Not valid for comparisons over time.

Source: OECD Health Data 2003.

Table 5.A1.3. **Surgical inpatients and day surgery cases**

Per 1 000 population

	Total surgical inpatients			Day surgery cases		
	1998	1999	2000	1998	1999	2000
Countries without waiting times						
Austria	128.4	129.8	130.1			
Belgium						
France						
Germany	72	77.6				
Japan						
Luxembourg	128.6	129.4	129.2	88.1	87.8	85.9
Switzerland						
United States[b]	86.2	85.4	82.4			
Average[a]	**103.8**	**97.6**	**105.8**			
Countries with waiting times						
Australia	51	51.2	50	36.7	40.5	38.4
Canada	35.2	34.6	33.9			
Denmark	76.9	76.4	75.7			
Finland	61.9	60.1	58.9	27.2	29.8	31.2
Ireland[b]	78.7	90.5	100.5	58.1	63.5	69.6
Italy	108.9	109.1	110.4	27	29.5	34.3
Netherlands	40.2	39.1	37.7	31.6	32.1	32.6
New Zealand	29.4	29.5	30.7	16.5	17.6	18.4
Norway		67	68.2		27.8	28.3
Spain	52.9			10.6		
Sweden	50.7	51.5	52.6			
United Kingdom						
Average[a]	**61.8**	**64.1**	**65.1**	**29.7**	**34.4**	**36.1**

a) Unweighted point average. Not valid for comparisons over time.
b) Procedures, not patients.

Source: OECD Health Data 2003.

Table 5.A1.4. **Surgical procedure rates**

Per 100 000 population

	Hip replacement (inpatient)	Knee replacement (inpatient)	Prostatectomy (inpatient)	Hysterectomy (inpatient)	CABG (inpatient)	Inguinal and femoral hernia (total, inpatient and day surgery)	Cataract surgery (total, inpatient and day surgery)	Cholecystectomy	Ligation/ stripping veins (total, inpatient and day surgery
Countries without waiting times									
Austria	217	120.7	230	95	56.7				
Belgium	195.6		336	150	98[b]				
France	184.6	80.1	286	120	40.1	273	726.2	183.7	294.6
Germany	314.3	149.2	320	236	122.7	349	425.9	311.4	253.6
Japan									
Luxembourg	185.1	105.6	222	375	40.7	307.4	713.7	175.6	260.5
Switzerland									
United States	102.3	115.8	133	143	204.8				
Average[a]	**199.8**	**114.3**	**254.5**	**186.5**	**93.8**	**309.8**	**621.9**	**223.6**	**269.6**
Countries with waiting times									
Australia	126.3	96.8	246	165	89.4	227.4	712.3	241	97.9
Canada	93.1	88.5	167	108	68.6				
Denmark	158.6	48.2	195	45	66.2	228.6	429.6	119.6	238.8
Finland	98.2	104.6	175	400	80.3	229.1	638.9	173	182.4
Ireland	(136)	29.4	120	53	26.8	125.6	446.7	105	103.4
Italy	117.6	40.9	197	74	48	300.1	659.9	166.8	164.6
Netherlands	132	49.5	151	87	92.9	191.9	548.6	117.1	125.6
New Zealand	120.9	65.3	119	63	103.3	111.7	242.8	99.6	
Norway	171.4	46.7	215	206	76.1	165.5	514.2	77.7	124.2
Spain	72.8	48.3		45	17				
Sweden	166.3		194	174	72.8		726	127.8	
United Kingdom	132.5	63.8		42	40.8	209.5	406.1	73.9	90.9
Average[a]	**127.1**	**62.0**	**177.9**	**121.8**	**65.2**	**198.8**	**532.5**	**130.2**	**141.0**

a) Unweighted average.
b) Year = 1997.

Source: OECD Health Data 2003; OECD Waiting Time Project.

Table 5.A1.5. **Productivity indicators based on surgical inpatients**

	Surgical inpatient per practicing specialist			Surgical inpatient per practicing physician		
	1998	1999	2000	1998	1999	2000
Countries without waiting times						
Austria	75.5	76.4	72.3	42.8	43.3	42.0
Belgium						
France						
Germany	34.3	37.0		22.5	24.3	
Japan						
Luxembourg	80.4	76.1	80.8	53.6	51.8	51.7
Switzerland						
United States	61.6	61.0		31.9	31.6	
Average[a]	**62.9**	**62.6**	**76.5**	**37.7**	**37.7**	**46.8**
Countries with waiting times						
Australia	46.4	46.5	41.7	20.4	20.5	20.8
Canada	32.0	31.5	30.8	16.8	16.5	16.1
Denmark	36.6	36.4	34.4	23.3	22.5	22.3
Finland	44.2	42.9	42.1	20.6	19.4	19.0
Ireland[b]				35.8	39.3	45.7
Italy						
Netherlands				13.9	12.6	11.8
New Zealand	42.0	42.1	43.9	13.4	13.4	14.0
Norway		33.5	34.1		23.9	23.5
Spain	29.4			18.2		
Sweden			23.9	18.1	17.8	17.5
United Kingdom						
Average[a]	**38.4**	**38.8**	**35.8**	**20.0**	**20.7**	**21.2**

a) Unweighted point average. Not valid for comparisons over time.
b) Procedures, not patients.
Source: OECD Health Data 2003.

Table 5.A1.6. **Level of co-payment for inpatients**

Countries without waiting times	
Austria	No co-payments
Belgium	BEF 250 (1999)
France	€ 11 per day (1999)
Germany	No co-payments (for shared room); otherwise € 7.16 per day (1999)
Japan	Between 10% and 30% for employed public insurees and their dependents, less for elderly
Luxembourg	€ 5.43 per day (1999)
Switzerland	CHF 10 per day (2000)
United States	Varies with type of insurance
Countries with waiting times	
Australia	No co-payments
Canada	No co-payments
Denmark	No co-payments
Finland	€ 25 per day (inpatient) (2001)
Ireland	Category I: no co-payments Category II: € 40 per day (2003)
Italy	No co-payments
Netherlands	No co-payments
New Zealand	No co-payments
Norway	No co-payments
Spain	No co-payments
Sweden	Max SEK 80 per day; varies by county council (1999)
United Kingdom	No co-payments

Source: OECD Waiting Time Project.

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Table 5.A1.7. **Presence of gate-keeping**

	Can public patients access elective surgery without GP referral?
Countries without waiting times	
Austria	GPs act as gatekeepers to some extent
Belgium	Direct access
France	Direct access
Germany	Direct access
Japan	Direct access
Luxembourg	Direct access
Switzerland	Direct access
United States	Varies with type of insurance
Countries with waiting times	
Australia	Gate-keeping is incentivised. Medicare reimburses a higher rate if patient is referred by the GP
Canada	GPs are usually the initial contact and control access to most specialists
Denmark	GPs act as gatekeepers (Group 1 patients). Group 2 (2.5% of pop.) can consult directly the specialist at the risk of extra billing
Finland	Public patients need a referral from health centre physician. However, in the private sector, there is direct access to specialists
Ireland	GPs act as gatekeepers
Italy	GPs act as gatekeepers
Netherlands	GPs act as gatekeepers
New Zealand	GPs act as gatekeepers
Norway	GPs act as gatekeepers
Spain	GPs act as gatekeepers
Sweden	Most of the access to hospitals follows a referral, but this is not compulsory and many patients access specialists directly
United Kingdom	GPs act as gatekeepers

Source: OECD Waiting Time Project.

Table 5.A1.8. **Multivariate regression analysis, mean waiting time**

	Dependent variable – mean waiting time			
	Model 1	Model 2	Model 3	Model 4
	Coefficient			
Acute care beds	**–55.8*** **	**–9.5***		
Physicians	**–82.5*** **			
Specialists		**–63.5*** **		
Total health exp.			**–0.066*** **	
Public health exp.				**–0.056*** **
% day-surgery	**–69.8** **	**–72.0** **	**–6.5**	**–15.6**
% pop. over 65 years	**0.3**	**26.5*** **	**2.2**	**11.3*** **
Mean age of the patients	**2.4** **	**–1.4**	**–0.5**	**–1.1**
% female	**–63.7**	**–149.0** **	**–145.8** **	**–145.1** **
Dummy variables				
Cataract	183.0***	259.5***	204.7***	211.5***
Cholecystectomy	152.6***	145.7**	153.3***	141.9**
Coronary bypass	23.5	24.4	25.0	22.6
Hip replacement	153.8***	197.4***	192.4***	191.0***
Hernia	141.0***	77.2**	66.4**	57.4**
Knee arthroscopy	201.1***	124.2**	104.6**	91.4
Knee replacement	180.2***	234.0***	227.7***	227.0***
PTCA	24.5	16.3	21.5	16.7
Hysterectomy	141.4**	159.4**	172.2**	160.7**
Varicose veins	252.0***	234.2	215.3***	206.5***
Year 1997	5.0	16.9	13.1	13.2
Year 1998	6.2	26.7**	24.8**	24.1
Year 1999	16.7	34.7***	36.0***	33.2*
Year 2000	7.2	17.7**	30.1**	20.4*
Year 2001	16.9	31.5	59.1***	45.3***
Constant	292.9***	–132.4	165.6**	33.0
Sample size	224	224	224	224
R-squared	0.75	0.64	0.65	0.63
Adj R-squared	0.73	0.61	0.62	0.59

* 10% significance level, ** 5% significance level, *** 1% significance level.

Source: OECD Waiting Time Project.

Table 5.A1.9. **Multivariate regression analysis, median waiting time**

	Dependent variable – median waiting time			
	Model 1	Model 2	Model 3	Model 4
	Coefficient			
Acute care beds	**–46.9*** **	**6.4**		
Physicians	**–75.6*** **			
Specialists		**–88.5*** **		
Total health exp.			**–0.061*** **	
Public health exp.				**–0.061*** **
% day-surgery	**–83.0** **	**–34.9**	**3.21**	**4.7**
% pop. over 65 years	**11.4*** **	**27.3*** **	**16.35*** **	**22.3*** **
Mean age of the patients	**–1.5**	**–0.4**	**0.05**	**0.1**
% female	**–20.5**	**–9.5**	**–117.1* **	**–106.2* **
Dummy variables				
Cataract	191.6***	138.9***	174.41***	165.7***
Cholecystectomy	48.7	54.0	135.19**	128.2**
Coronary bypass	10.3	15.2	38.60*	36.9*
Hip replacement	129.6***	119.8***	178.26***	171.9***
Hernia	62.5**	60.3**	64.54	63.7*
Knee arthroscopy	72.5	65.9	96.64**	92.9*
Knee replacement	163.4***	151.4***	215.66***	208.5***
PTCA	–11.2	–5.5	23.94	21.8
Hysterectomy	32.7	41.9	157.19**	147.6**
Varicose veins	131.2***	119.0***	180.11***	173.1***
Year 1997	10.5	19.8**	14.89	13.6
Year 1998	11.5	29.4***	23.83**	22.0**
Year 1999	22.5**	38.5***	34.66***	31.4***
Year 2000	14.2	39.7***	48.32***	43.2***
Year 2001	22.0**	52.2***	57.39***	51.8***
Constant	297.2***	–273.1***	–135.24	–249.8***
Sample size	188	188	188	188
R-squared	0.79	0.78	0.73	0.73
Adj R-squared	0.76	0.75	0.7	0.7

* 10% significance level, ** 5% significance level, *** 1% significance level.

Source: OECD Waiting Time Project.

Table 5.A1.10. **Probit estimates**

	Dependent variable is the dummy variable Y, with Y = 1 if there is presence of significant waiting times			
	Model 1	Model 2	Model 3	Model 4
	Coefficient			
Acute care beds	**–0.88*** **	**–1.25*** **		
Physicians	**–0.87**			
Specialists		**–4.56** **		
Total health exp. per capita			**–0.0028*** **	
Public health exp. per capita				**–0.0019*** **
% pop. older than 65	**0.20** **	**0.60** **	**–0.73*** **	**–0.26*** **
Hospital remuneration	**–0.83**	**–0.39**	**–2.52*** **	**–1.59*** **
Specialist remuneration	**–1.03*** **	**–1.14*** **	**–1.45*** **	**–1.01*** **
Time trend	–0.05	–0.03	0.26***	0.14***
Constant	92.6	6.9	–509***	–279***
Sample size	148	135	197	193
Pseudo R2	0.62	0.72	0.63	0.43
Log likelihood	–38	–26	–49	–73
LR chi2	125	133	166	110
Prob > chi2	0	0	0	0

* 10% significance level, ** 5% significance level, *** 1% significance level.

Source: OECD Waiting Time Project.

Table 5.A1.11. **Australia: activity and median waiting times (of patients admitted)**

	Procedures/100 000 pop. Privately funded patients		Procedures/100 000 pop. Publicly funded patients		Procedures/100 000 pop. Total (public and private)		Procedures/100 000 pop. % of private activity		Median waiting times for public patients
	Annual growth rate 93/94-98/99 (%)	Annual growth rate 99/00-00/01 (%)	Annual growth rate 93/94-98/99 (%)	Annual growth rate 99/00-00/01 (%)	Annual growth rate 93/94-98/99 (%)	Annual growth rate 99/00-00/01 (%)	Annual growth rate 93/94-98/99 (%)	Annual growth rate 99/00-00/01 (%)	Annual growth rate 99/00-00/01 (%)
Cataract surgery	9.8	6.4	10.9	2.3	10.1	5.3	–0.3	1.0	–9.20
PTCA	10.9	10.5	17.6	2.0	13.9	6.3	–2.6	3.9	
Coronary bypass	–1.0	–3.1	4.3	–6.4	1.5	–4.8	–2.4	1.8	–13.6
Cholecystectomy	0.8	12.7	5.2	–5.8	3.2	2.2	–2.3	10.2	–10.4
Inguinal and fem. hernia	–0.5	4.9	3.1	–5.4	1.0	0.3	–1.5	4.6	0.0
Prostatectomy	–6.7	2.8	–3.9	–3.4	–5.7	0.4	–1.2	2.4	16.7
Vaginal hysterectomy	–0.1	10.5	7.9	–11.3	3.4	–0.2	–3.4	10.8	2.6
Knee arthroscopy	–7.3	0.8	–3.1	–11.5	–6.1	–4.0	–1.3	5.1	
Hip replacement	4.2	9.6	4.3	–3.5	4.3	3.8	0.0	5.6	–15.3
Knee replacement	7.9	12.3	9.7	–2.8	8.6	6.8	–0.6	5.2	–22.6
Varicose veins	–1.7	1.9	2.7	–16.6	0.1	–6.1	–1.7	8.4	10.6

Source: Department of Health and Aged Care, Australia.

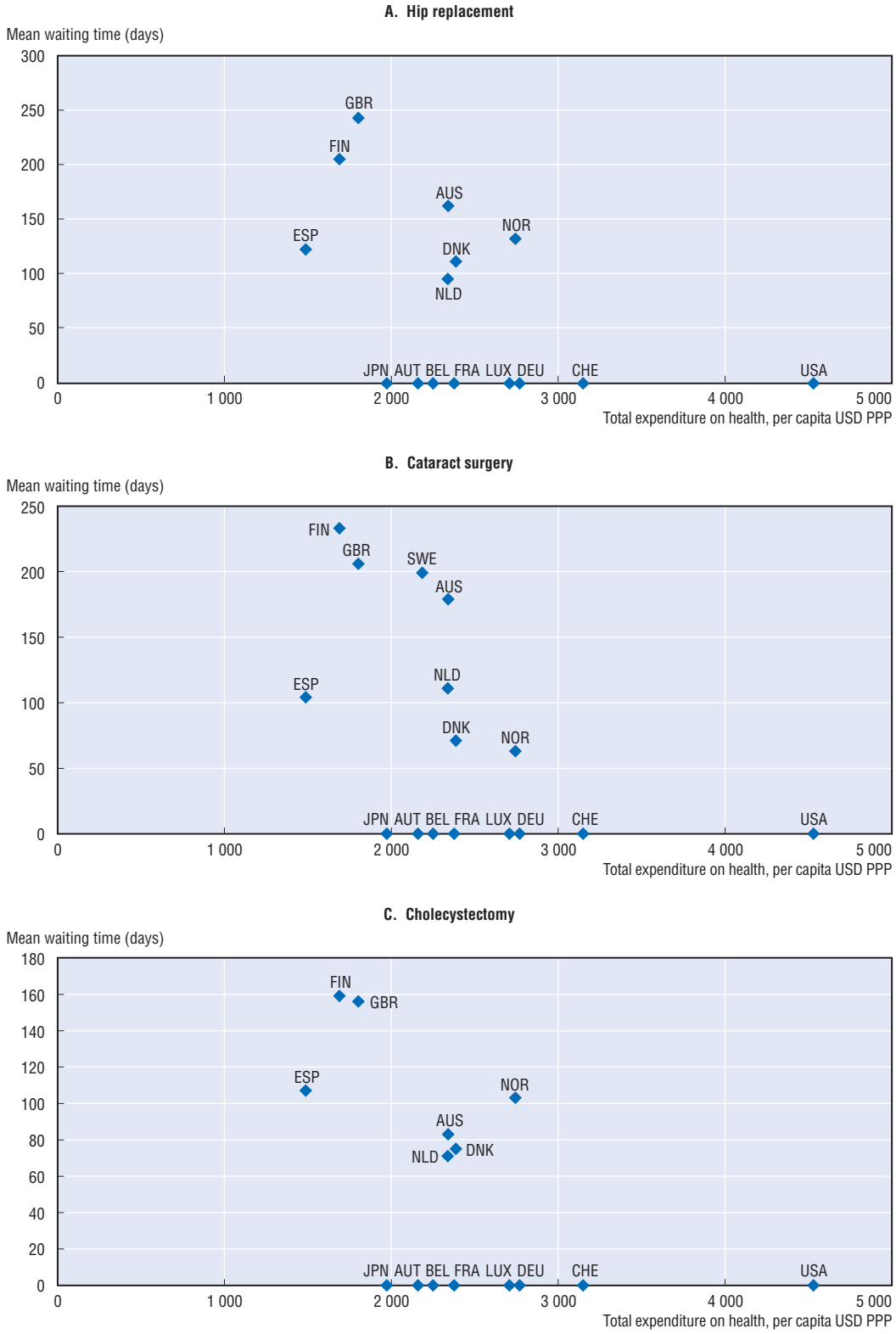
Table 5.A1.12. **Spain: mean waiting times on the list for publicly funded patients, 1992-2000**

Days

	1992	1993	1994	1995	1996	1997	1998	1999	2000	1994-2000 Avg.% growth rate	1996–2000 Avg.% growth rate
Cataract surgery	68.1	62.1	61.6	54.5	58.2	55.4	55.5	47.6	47.6	–4.2	–4.9
Cholecystectomy	103.4	58.3	50.4	48.2	60.8	56.0	62	53.2	53.8	1.1	–3.0
Inguinal and femoral Hernia	84.6	50	47.0	48.3	59.4	47.9	54.9	44.4	48.3	0.4	–5.0
Prostatectomy	119.4	46.9	81.7	49.4	55.9	38.5	56.1	39.2	42.7	–10.3	–6.6
Vaginal hysterectomy	71.1		19	25.3	44	58.7	55.7	41.3	52.5	18.5	4.5
Knee arthroscopy	51.4	82.2	65.8	71.4	72.5	61.0	58.2	61.3	53.8	–3.3	–7.2
Hip replacement	271.4	77.3	81.5	97.2	80.7	70.0	72.3	63.7	59.8	–5.0	–7.2
Knee replacement	91.3	75.6	88.9	104.9	79.9	74.7	71.9	60.1	63.4	–5.5	–5.6
Varicose veins	232.8	80.4	57.2	69.4	66.1	57.0	78.3	58.6	50.6	–2.0	–6.4

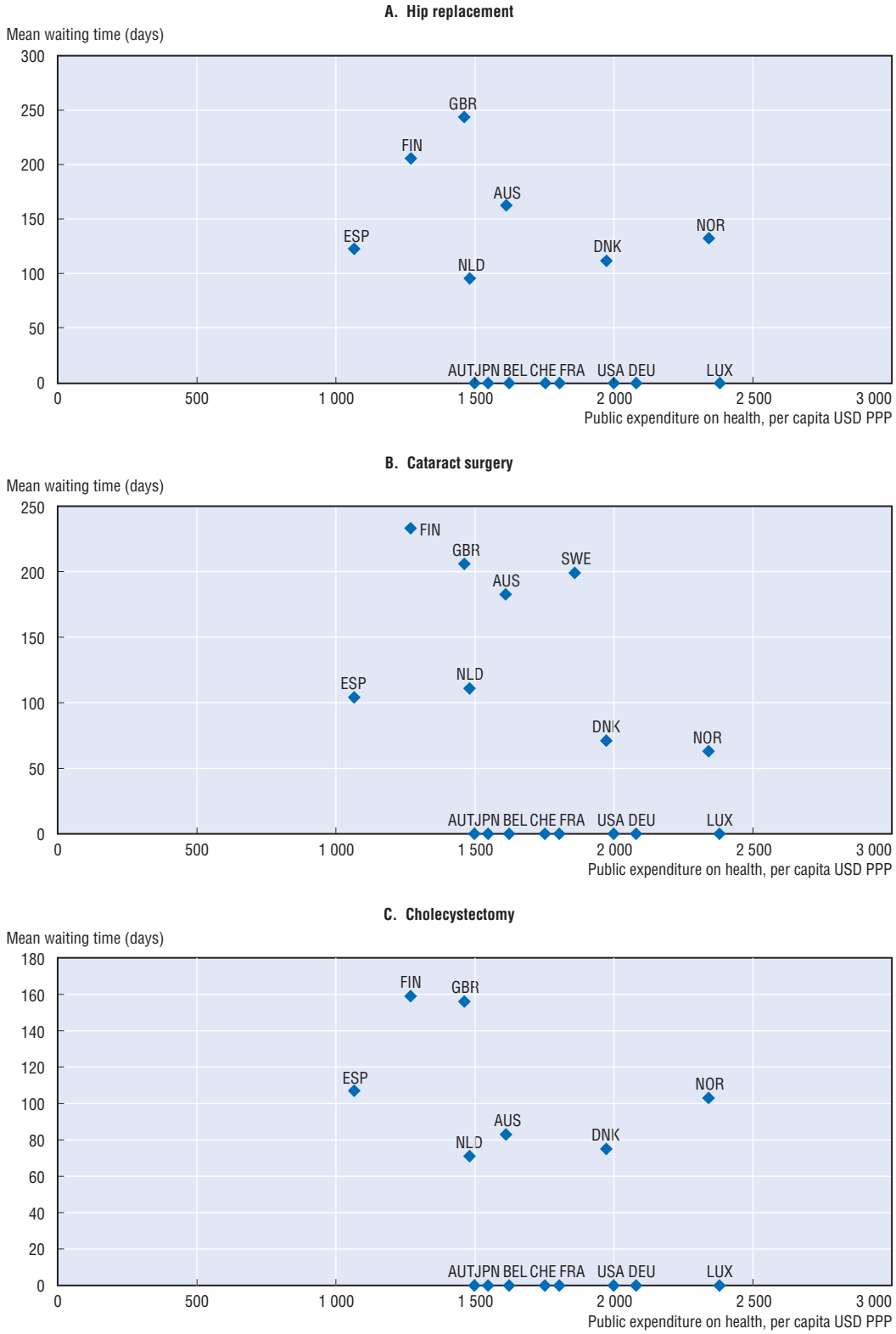
Source: Ministry of Health and Consumer Affairs, Spain.

Figure 5.A1.1. **Mean waiting times and total health expenditure per capita, three surgical procedures, 2000**



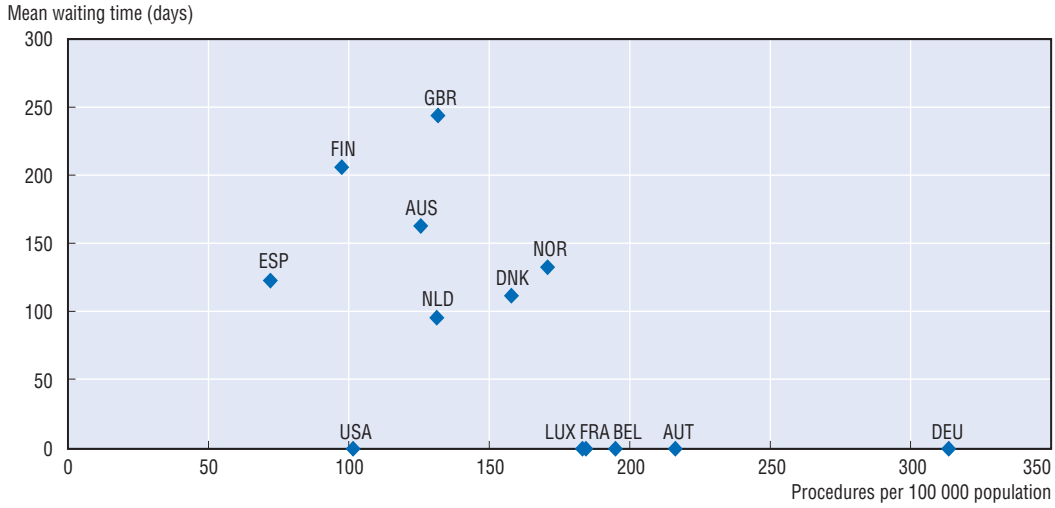
Source: OECD Waiting Time Project.

Figure 5.A1.2. **Mean waiting times and public health expenditure per capita, three surgical procedures, 2000**



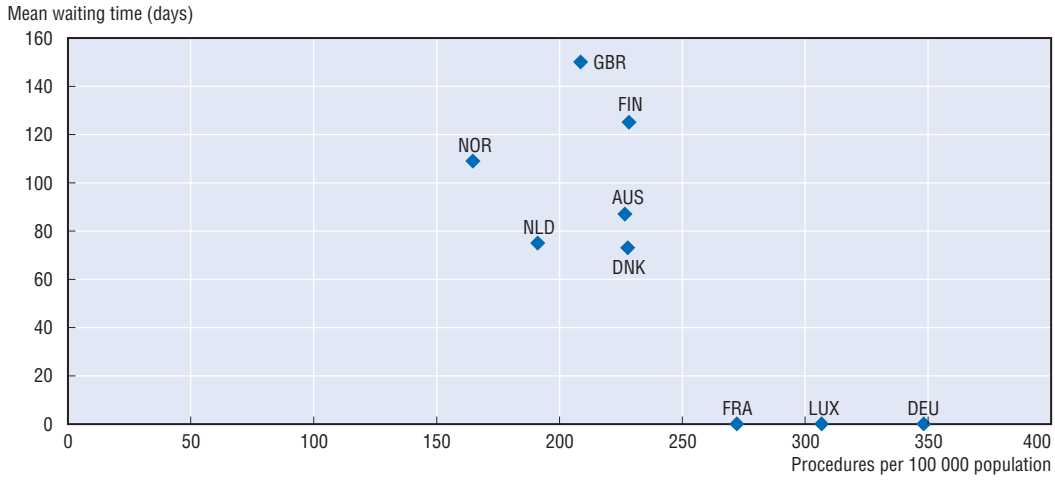
Source: OECD Waiting Time Project.

Figure 5.A1.3. **Waiting times and surgical activity: hip replacement, 2000**



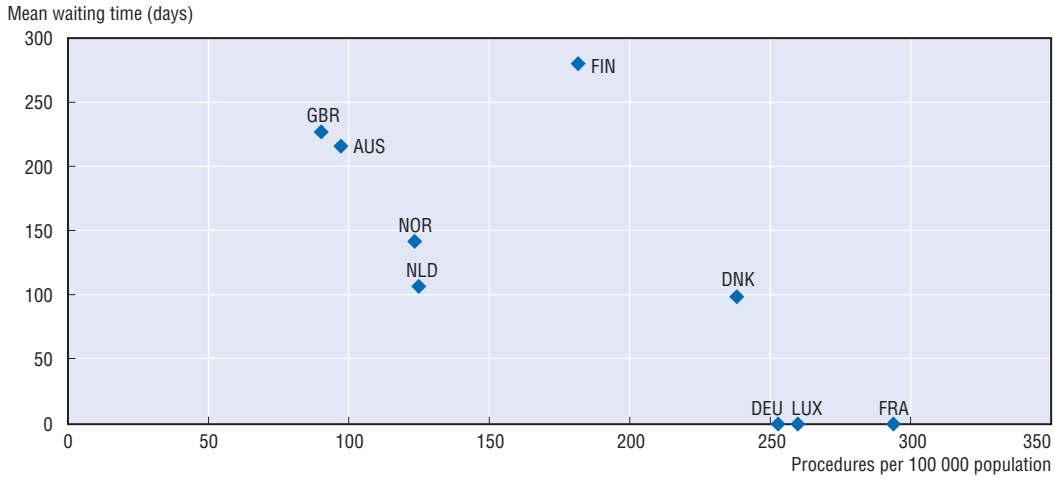
Source: OECD Waiting Time Project.

Figure 5.A1.4. **Waiting times and surgical activity: inguinal and femoral hernia, 2000**



Source: OECD Waiting Time Project.

Figure 5.A1.5. **Waiting times and surgical activity: varicose veins, 2000**

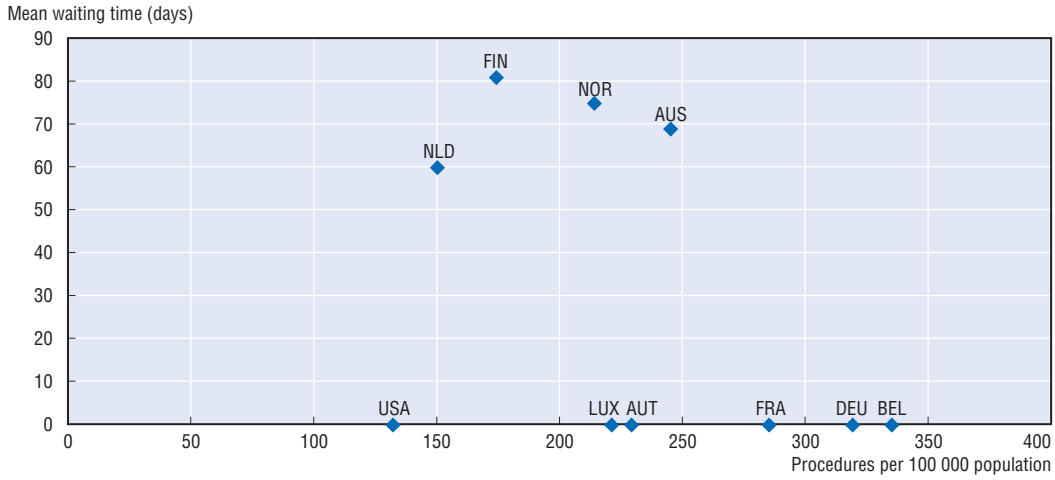


Source: OECD Waiting Time Project.

Figure 5.A1.6. **Waiting times and surgical activity: cholecystectomy, 2000**

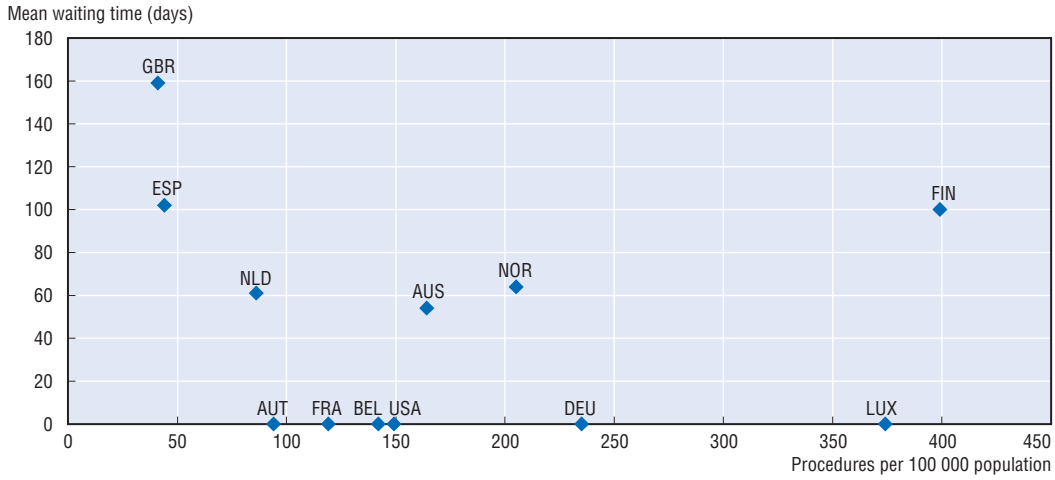
Source: OECD Waiting Time Project.

Figure 5.A1.7. **Waiting times and surgical activity: prostatectomy, 2000**



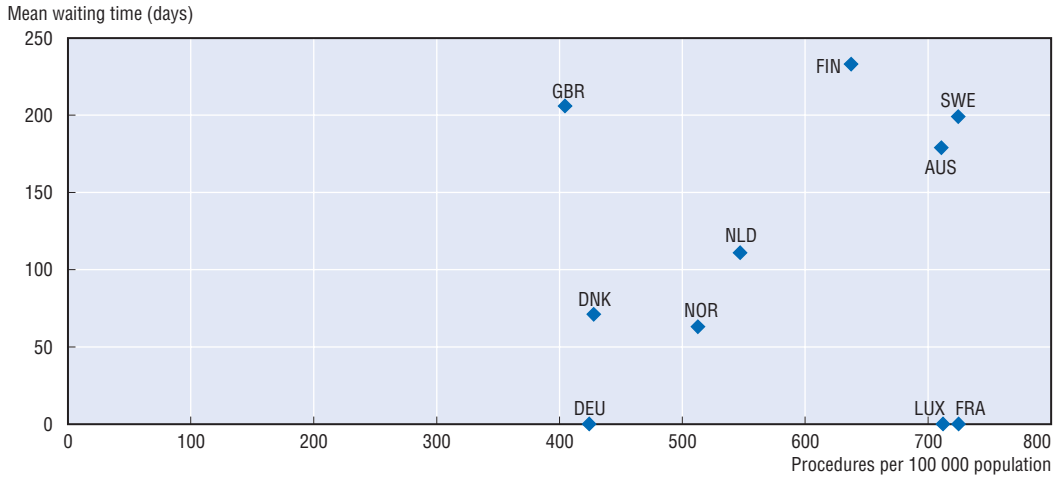
Source: OECD Waiting Time Project.

Figure 5.A1.8. **Waiting times and surgical activity: hysterectomy, 2000**



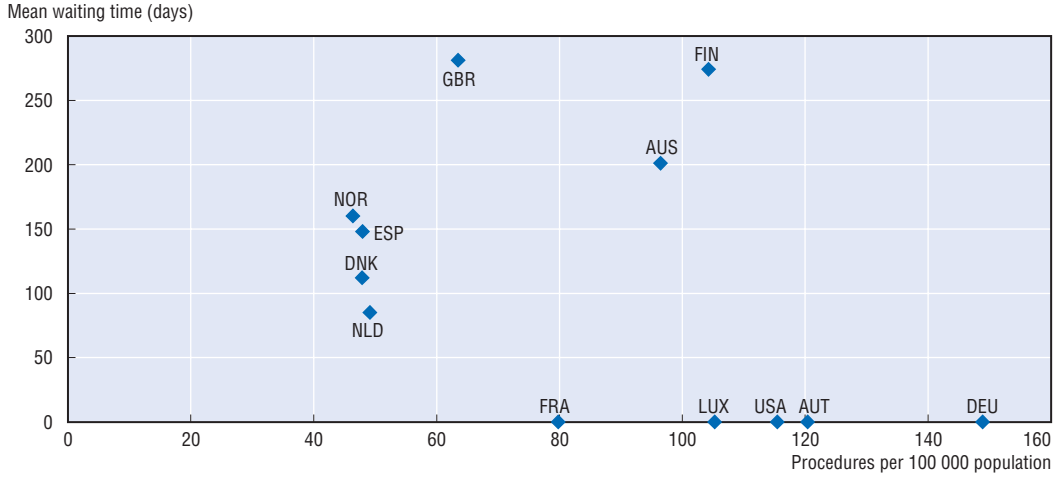
Source: OECD Waiting Time Project.

Figure 5.A1.9. **Waiting times and surgical activity: cataract surgery, 2000**



Source: OECD Waiting Time Project.

Figure 5.A1.10. **Waiting times and surgical activity: knee replacement, 2000**



Source: OECD Waiting Time Project.

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Chapter 6

Private Health Insurance in OECD Countries: The Benefits and Costs for Individuals and Health Systems[1]

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While private health insurance (PHI) represents, on average, only a small share of total health expenditure (THE) across the OECD area, it plays a significant role in health financing in some OECD countries and it covers at least 30% of the population in a third of the OECD members. It also plays a variety of roles, ranging from primary coverage for particular population groups to a supporting role for public systems.

This paper assesses evidence on the effects of PHI in different national contexts and draws conclusions about its strengths and weaknesses. Private health insurance presents both opportunities and risks for the attainment of health system performance goals. For example, in countries where PHI plays a prominent role, it can be credited with having injected resources into health systems, added to consumer choice, and helped make the systems more responsive. However, it has also given rise to considerable equity challenges in many cases and has added to health care expenditure (total, and in some cases, public) in most of those same countries.

PHI also raises certain challenges that cut across its different roles. Policy makers will need to intervene to address market failures in order to assure PHI access for high-risk groups. In doing so, they can choose from a range of tools. They need to balance the sometimes competing goals of access and the maintenance of a broad and diverse pool of covered lives, particularly in voluntary markets.

1. Introduction

Governments often look to private health insurance (PHI)[4] as a possible means of addressing some health system challenges. For example, they may consider enhancing its role as an alternative source of health financing and a way to increase system capacity, or promoting it as a tool to further additional health policy goals, such as enhanced individual responsibility. Yet private health insurance is a complex financing mechanism that affects and interacts with public systems in multiple ways. This is why, when assessing the current and potential role for private health insurance, policy makers need to consider the intricate interactions arising between public and private coverage, and the effects that PHI has upon the health system under different public-private mixes.

While private health insurance represents, on average, only a small share of total health funding across the OECD area, it plays a significant role in health financing in some OECD countries and it covers at least 30% of the population in a third of the OECD members. It also plays a variety of roles, ranging from primary coverage for particular population groups to a supporting role for public systems. Policy makers in some countries regard PHI as a key element of their health coverage systems, and seek to guide PHI markets towards desired health system outcomes. However, especially in countries with more limited PHI markets, the question of whether private health insurance should cover larger population segments or finance a larger portion of the costs currently funded by public health systems is often controversial.

Debates over the role of PHI are often clouded by strongly held beliefs on both sides and a mixture of proffered, but theoretical, gains and costs. Some have argued that the private sector has the ability to find more responsive and efficient answers to policy challenges facing health systems, and would enable governments to cut public health sector costs. Driven by the need to attract clients and sometimes also by a profit motive, it is argued, competing insurers improve customer service and efficiency in administering insurance plans and can enforce pressures on health service providers to minimise costs, while providing more and better quality care. As a result, supporters see PHI markets as more dynamic, innovative, and sensitive to individual preferences and consumer demands than public systems, which are conversely plagued by bureaucratic slowness and rigidities. Proponents also observe that PHI represents an additional funding option, providing enhanced choice to people wishing to purchase additional health care goods or services.

On the other hand, critics argue that the capacity of private health insurance to deliver equitable outcomes and efficiently manage health care costs is not yet demonstrated. For example, they say that coverage provided by multiple competing insurers can be administratively costly, thus taking away resources from actual health service delivery. PHI can contribute to higher cost borne by the public purse in other respects, for example by spurring demand. Furthermore, the same incentives that encourage insurers to be responsive to consumers' needs and limit costs could steer them towards enrolling more

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healthy individuals and away from more difficult-to-manage and costly cases – thus raising equity concerns for portions of the population who may face diminished or no access to coverage. Critics also claim that competition is less likely to develop, or may develop around undesirable activities – such as through risk selection – rather than upon service, quality and efficiency. Market failures linked to information asymmetries also call into question private health insurance markets' ability to deliver desired social outcomes.

However, the debate surrounding PHI markets in OECD countries is generally plagued by limited evidence on their functions and impact on health systems. This is particularly the case for those countries where PHI markets are small or insignificant, but is also true for some countries with more sizeable markets. This paper assesses evidence on the effects of PHI in different national contexts and draws conclusions about its strengths and weaknesses in order to contribute to this policy debate. In doing so, it identifies factors behind favourable or undesirable performances of PHI markets, and the impact of PHI on health systems broadly.

2. Analysis of PHI markets in OECD countries reveals a large heterogeneity of experiences

Private health insurance refers to diverse health funding arrangements in different national contexts across the OECD area. The diversity of private health insurance markets can be seen in dimensions such as market size (in terms of population covered or PHI's share in total health expenditures), functions within the health system, types of insurers and their market conduct, regulatory frameworks and fiscal environments.

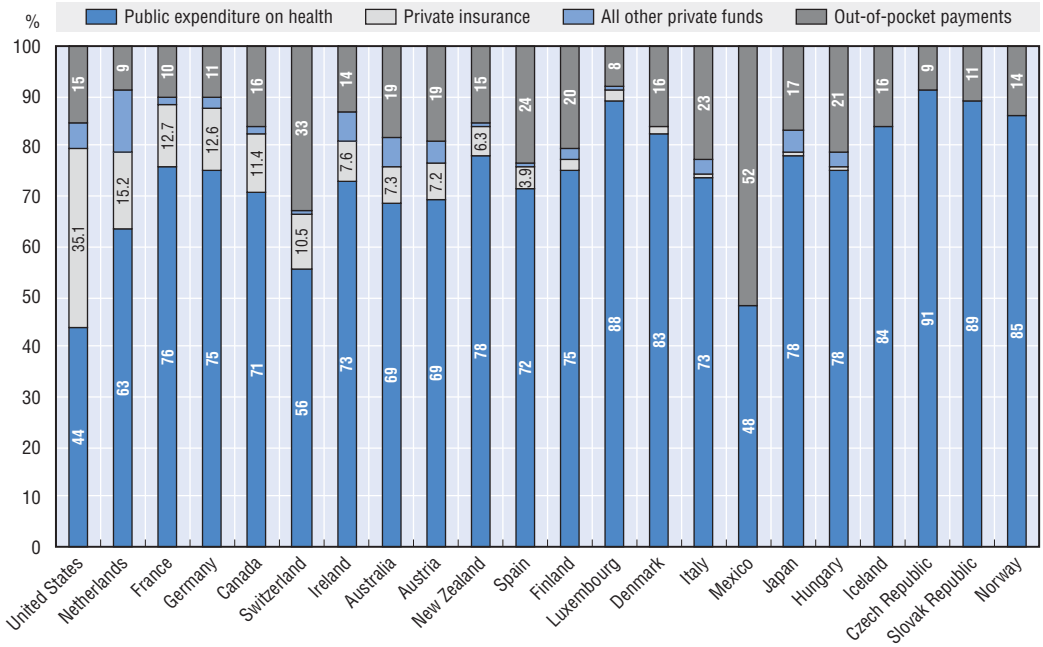
2.1. Market sizes differ, are not correlated to GDP levels and are weakly related to total spending on health

Although PHI accounts, on average, for 6.3%[5] of total expenditure on health (THE), its importance in funding OECD health systems varies significantly (Figure 6.1). The United States is the only OECD country where voluntary health insurance represents the main health financing and coverage system for most of the population, explaining why PHI accounted for 35% of THE in 2000. In France, Germany, the Netherlands and Canada, the share of financing accounted for by private health insurance ranges from 10% to 15% of THE. A similar level is found in Switzerland, where 10% of total health expenditure comes from the voluntary supplementary health insurance market.[6] Australia, Ireland, Spain, New Zealand, and Austria have levels of PHI financing between 4% and 10%. Private health insurance in all other OECD countries contributes much less than 4% to funding total health expenditures.

Countries with the highest shares of PHI (above 10%) show lower shares of out-of-pocket (OOP) expenditure in total health spending. However, there does not appear to be a strong inverse relationship between the importance of PHI and OOP in financing health spending for the OECD area as a whole (Figure 6.2). The contribution of PHI to total health financing increased only slightly between 1990 and 2000, although some of the smaller markets, such as New Zealand, have experienced the fastest growth rates.

Countries can be grouped into different clusters by population coverage as well (Table 6.1). There is some, but not complete, overlap between countries with a high share of PHI financing of total health expenditure and a large privately insured population. France, Switzerland, the United States, the Netherlands[7] and Canada have population coverage above 60%. Participation in PHI markets is also high – between 30% and 60% – in

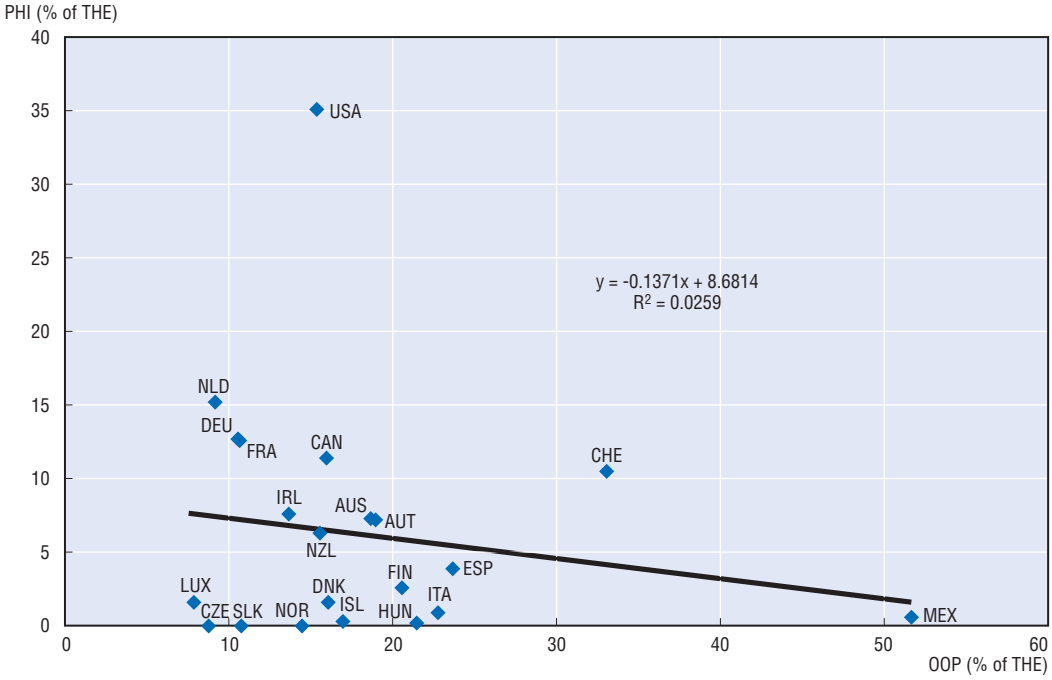
Figure 6.1. **Health expenditure by source of health financing, 2000 (%)**



Countries are ranked by decreasing size of PHI.

Source: *OECD Health Data* 2003, 2nd edition.

Figure 6.2. **Out-of-pocket expenditure (OOP) and PHI as a share of total health expenditure (THE), 2000**



Note: The United States is included. If it is excluded, the equation becomes $y = -0.0979x + 6.6266$, with $R^2 = 0.0351$. There is therefore no relationship between out-of-pocket payments as a share of total health expenditure and PHI as a share of total health expenditure.

Source: *OECD Health Data* 2003, 2nd edition.

Table 6.1. **Coverage by public schemes and private health insurance in OECD countries, 2000**

	Public health expenditure as % of THE[1]	Public system coverage[1]	Eligibility for public coverage[2]	PHI as % of THE[1]	Population covered by PHI, %[3]	Types of private coverage
Australia	68.9	100	All permanent residents are eligible for Medicare (the tax-financed public health insurance system). Eligible persons must enrol with Medicare before benefits can be paid.	7.3	44.9 40.3[4]	Duplicate, Complementary Supplementary
Austria	69.4	99	Almost all labour force participants and retirees are covered by a compulsory statutory health insurance. Social assistance claimants and prisoners receive health benefits and services from the state authorities. 1% are without coverage.	7.2	0.1 31.8	Primary (Substitute) Complementary, Supplementary
Belgium	72.1	99	Compulsory statutory health insurance includes one scheme for salaried workers and one scheme for the self-employed people (about 12% of the population in 1999). The latter excludes coverage of "minor risks" such as outpatient care, most physiotherapy, dental care and minor operations.	n.a.	57.5[a]	Primary (Principal), Complementary, Supplementary
Canada	70.9	100	All population is eligible for public coverage financed by Federal and Provincial taxation.	11.4	65.0 (est.)	Supplementary
Czech Republic	91.4	100	All permanent residents are eligible for statutory health insurance coverage.	0 (est.)	Negligible	Supplementary
Denmark	82.5	100	All population is eligible for public coverage financed by State, County and Municipal taxation.	1.6	28 (1998)	Complementary, Supplementary
Finland	75.1	100	All population is eligible for public coverage financed by State and Municipal taxation.	2.6	10	Duplicate, Complementary, Supplementary
France	75.8	99.9	The social security system provides coverage to all legal residents. 1% of the population is covered through the Couverture Maladie Universelle (CMU).	12.7	86.0 (92 including CMU)	Complementary, Supplementary
Germany	75	90.9	All employed people and their dependents are covered by statutory health insurance coverage. This does not include self-employed individuals and civil servants. Employees with an income above an income threshold can opt out of the social sickness fund system. Fulfilling certain requirements, social security insurees can choose to "stay in" the public system on a voluntary basis even if they are allowed to opt out of the system. Self-employed may also join on a voluntary basis.	12.6	18.2 *of which*: 9.1 9.1[b]	Primary (Substitute) Supplementary, Complementary
Greece	56.1	100	All population is eligible for public coverage, financed by a combination of taxation and social health insurance contributions.	n.a.	10[5]	Duplicate, Supplementary
Hungary	75.5	100	All permanent residents are eligible for statutory health insurance coverage. Only 1% of the population was not covered in 1999.	0.2	Negligible	Supplementary
Iceland	83.7	100	All permanent residents are eligible for statutory health insurance coverage.	0 (est.)	Negligible	Supplementary
Ireland	73.3	100	All resident population is eligible for public hospital coverage, financed by general taxation. Only about one third of the population with medical cards is eligible to GP and other outpatient coverage.	7.6	43.8	Duplicate, Complementary, Supplementary
Italy	73.4	100 (1997)	All population is covered by the National Health Service system, financed by general taxation.	0.9	15.6 (1999)[5]	Duplicate, Complementary, Supplementary
Japan	78.3	100	All population is covered by a statutory social health insurance system.	0.3	Negligible	n.a.
Korea	44.4	100	All population is covered by a statutory social health insurance system.	n.a.	n.a.	Supplementary
Luxembourg	87.8	99	All population is covered by a statutory social health insurance system, apart from civil servants and employees of international institutions (1%).	1.6	2.4	Complementary, Supplementary

Table 6.1. **Coverage by public schemes and private health insurance in OECD countries, 2000** *(cont.)*

	Public health expenditure as % of THE[1]	Public system coverage[1]	Eligibility for public coverage[2]	PHI as % of THE[1]	Population covered by PHI, %[3]	Types of private coverage
Mexico	47.9	45-55 (est.)[c]	Public social security schemes cover all the population working in the private formal sector and government workers, *i.e.* excluding independent self-employed workers, informal sector workers and unemployed people. From 2004, the System of Social Protection in Health offers a new public health insurance scheme that has been implemented to provide voluntary public health insurance to the population previously excluded from social security.	2.5 (2001)	2.8	Duplicate, Supplementary
Netherlands	63.4	75.6	Eligibility to statutory health insurance is determined by income. Individuals above a threshold are not covered (28.9% in 2000).	15.2	92 *of which*: 28.0 64 (est.)[b]	 Primary (Principal) Supplementary
New Zealand	78	100	All population is eligible to public coverage financed by general taxation.	6.3	35[6]	Duplicate, Complementary, Supplementary
Norway	85.2	100	All population is eligible to public coverage financed by State, County and Municipal taxation.	0 (est.)	Negligible	n.a.
Poland	70	n.a.	All eligible groups are entitled to statutory health insurance cover. People who are not specified in the eligible groups by the Act of 6 February 1997 can purchase the social health insurance voluntarily.	n.a.	Negligible	Supplementary
Portugal	68.5	100	All population is covered by the National Health Service system, financed by general taxation.	1.5 (1997)	14.8	Duplicate, Complementary, Supplementary
Slovak Republic	89.4	100 (1999)	All population is covered by a statutory social health insurance system.	0 (est.)	Negligible	Supplementary
Spain	71.7	99.8 (1997)	Almost all the population is covered by the National Heath System, financed by general taxation. Civil servants and their dependents are covered through a special scheme. A minor group of self-employed liberal professionals and employers are uncovered.	3.9	13 *of which*: 2.7[7] 10.3[7]	 Primary (Substitute, Principal) Duplicate, Supplementary
Sweden	85	100	All population is covered by a statutory social health insurance system, financed by local taxes and state grants.	n.a.	Negligible	Complementary, Supplementary
Switzerland	55.6	100[d]	All permanent residents are mandated to purchase basic health insurance.	10.5	80[d]	Supplementary
Turkey	71.9 (1998)	66 (1997)	Population coverage through three social security schemes for private sector employees, blue collar public sector employees, self-employed persons and retired civil servants.	0.7 (1994)	< 2[8]	Complementary, Supplementary
United Kingdom	80.9	100	All UK residents are covered by the National Health Service system, financed by general taxation.	3.3 (1996)	10.0	Duplicate, Supplementary
United States	44.2	24.7	Individuals eligible to public programmes include those older than 64 and severely disabled (Medicare), poor or near poor (Medicaid) and poor children (SCHIP). Eligibility thresholds to Medicaid are set by states.	35.1	71.9	Primary (Principal) Supplementary, Complementary

Note: (est.): figures are estimated; CMU: "Couverture Maladie Universelle", a publicly financed programme providing complementary health insurance to eligible low-income groups. PHI: Private Health Insurance; THE: Total Health Expenditure; negligible indicates a proportion covered of less than 1%; n.a. indicates not available.

a) For Belgium, data include voluntary PHI policies for hospital care offered by sickness funds as well as PHI policies offered by commercial companies. They exclude policies for hospital care that are compulsorily offered by several sickness funds to their members, that guarantee insurees a limited lump sum (mostly less than 12.4 euros per day (Office de Contrôle des Mutualités et des Unions Nationales de Mutualités, 2002, *Rapport Annuel*, p. 81) and covered about 67% of the population in 2000.

b) For the Netherlands and Germany, the data refer to supplementary PHI policies purchased by individuals who belong to the social health insurance system. Some of the individuals with primary PHI are also covered by supplementary PHI policies, which are sometimes packaged with primary PHI policies.

Table 6.1. **Coverage by public schemes and private health insurance in OECD countries, 2000** *(cont.)*

c) These coverage figures relate to social security schemes, which include workers in the private formal sector and civil servants. Important to note that public health expenditure as a percentage of THE includes all public health spending, *i.e.* both social security spending and other public spending, such as resources used to finance health care provision for the uninsured population through the states' health services. Estimates vary depending on the source used; population survey data report lower figures, official administrative data report higher figures but no roster of individuals covered by the social security system is available.

d) For Switzerland, data on PHI refer only to voluntary private health insurance coverage. Mandatory health insurance covering the entire population is reported in *OECD Health Data* as public coverage, although it is a border line case.

Source: Specific data sources have been indicated below; information was also supplied by OECD member countries or obtained from official publications.

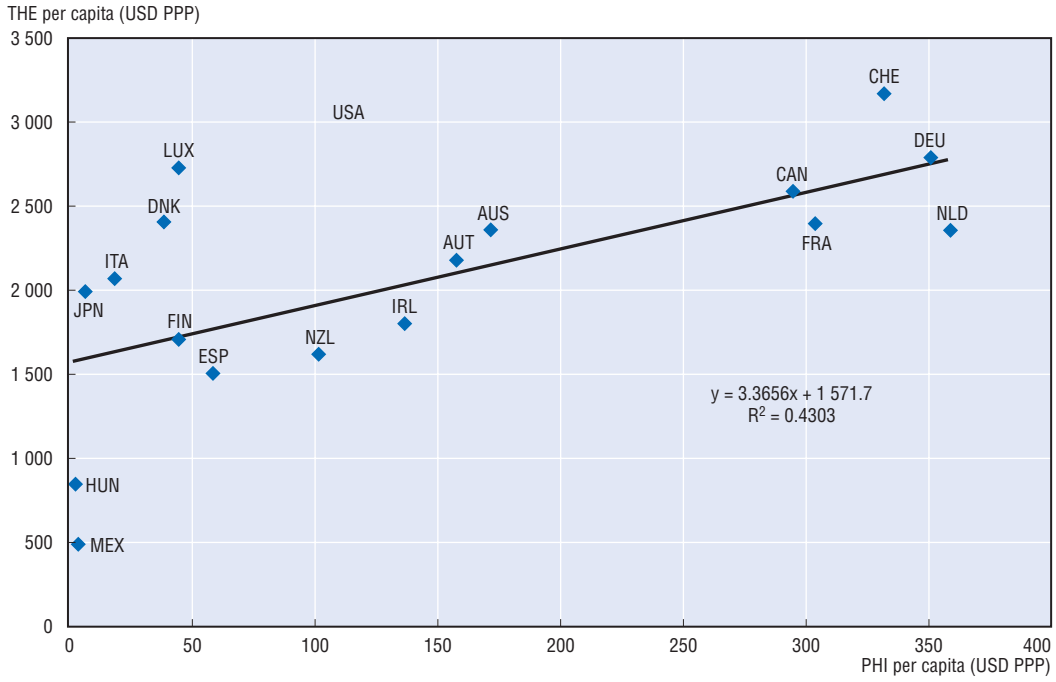
1. *OECD Health Data 2003*, 2nd edition, 2000 data unless otherwise indicated.
2. OECD PHI Regulatory Questionnaire, 2003 and other official sources.
3. OECD PHI Statistical Questionnaire, 2000 data, unless otherwise specified.
4. PHIAC (2002), *Operations of the Registered Health Benefits Organisations Annual Report 2001-02*. Data refer to June 2001.
5. Mossialos and Thomson (2002), *Voluntary Health Insurance in the European Union*.
6. European Observatory on Health Care Systems (2001), *Health Care Systems in Transition. New Zealand*.
7. Ministry of Health, Spain (2003), *National Health Survey 2001*. According to another estimate population coverage was 16.2% in 2002 (11.3% duplicate and 4.9% substitute) (Data from UNESPA, December 2003).
8. UK Trade and Investment, "Health Care and Medical Market in Turkey", *www.tradepartners.gov.uk/healthcare/turkey/profile/overview.shtml*; note that this figure does not distinguish between PHI alone and PHI offered as riders to life insurance policies.

Australia, Austria, Ireland, the Netherlands[8] and Belgium. It ranges between 10% and 30% in Germany, Spain, Portugal, Italy, Finland and the United Kingdom. Other OECD countries have small or negligible PHI markets. When PHI represents the sole available coverage for population groups, the level of privately insured population reflects – at least to a degree – the lack of public health coverage programmes for certain groups. Otherwise, there is no generalised link between population covered and specific functions of PHI within the health system.

Market size – determined by the share in total health expenditure or the share of population covered – does not appear to have a strong link to the level or growth in economic development across OECD countries (Figures 6.3 and 6.4). While the prominence of PHI in financing THE has expanded with economic growth in a few countries which have below-average GDP per capita, such as New Zealand, there is no evidence of a similar pattern at the OECD level. Similarly, strong economic growth has coincided with an expansion of population covered by PHI in Ireland but not in other fast-growing economies, such as some Eastern European countries or Luxembourg. Despite increased importance in financing total health expenditure, the percentage of the population with PHI in New Zealand has been decreasing steadily.

These trends have implications for the analysis of health system performance. First, the increased reliance on private financing sources for some countries,[9] including out-of-pocket expenditures and private health insurance, reduces the progressivity of the health financing mix. However, no clear conclusion can be drawn concerning how the degree of progressivity of the funding mix is evolving in the OECD area, as various sources of financing health care have become more or less progressive depending upon the country.[10]

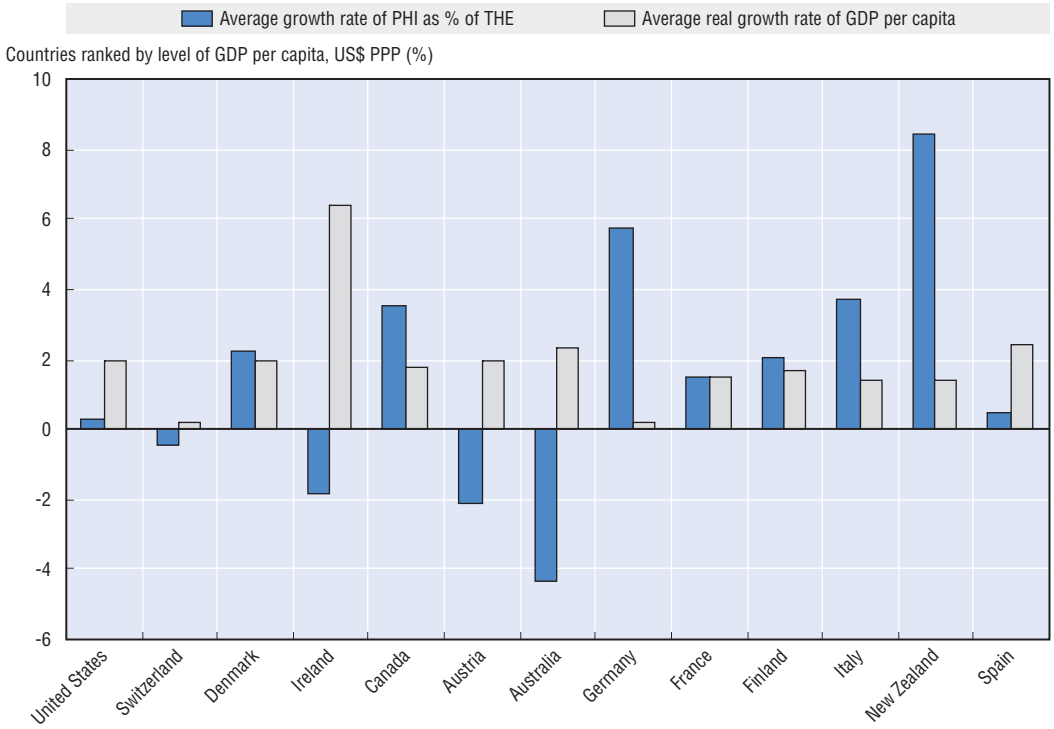
Figure 6.3. **PHI per capita and THE per capita, 2000**



Note: The United States is excluded. If it is included, the equation becomes: $y = 1.9258x + 1759.4$ with $R^2 = 0.6281$.

Source: *OECD Health Data* 2003, 2nd edition.

Figure 6.4. **Average growth rate of PHI as a percentage of THE and of GDP per capita, 1990-2000**



Countries are ranked by level of GDP per capita, USD PPP.
Source: OECD Health Data 2003, 2nd edition.

Second, a growing role for private health insurance may affect incentives for health expenditure growth. Countries with the most significant PHI market size, in terms of population covered or contribution to total health expenditure, tend to be those with the highest health spending levels per capita, such as the United States, Switzerland, Germany, and France.

Third, levels of population coverage have implications for market stability. For example, the fluctuations in the privately insured population in Australia that occurred during the 1990s have been associated with changes in levels of participation in PHI markets of younger and healthier population groups, while Netherlands and Germany have experienced more stable PHI markets and Ireland has seen a fast growth in coverage.

2.2. PHI functions across OECD countries depend on the interaction with publicly funded systems

PHI markets have largely developed around public health coverage systems. The interaction between public and private coverage, along with other factors, determines what functions PHI plays (OECD, 2004b). While it represents the sole form of health coverage for significant population segments in a few countries,[11] in most OECD countries, PHI plays a supporting role to public systems. In Australia, Ireland, the United Kingdom and Spain, for example, it provides a private alternative to public coverage, furnishing insurees with access to privately financed providers, separate from public delivery systems (duplicate role). Private health insurance in France is somewhat unique within the OECD

area, because its main function is to complement and "top up" reimbursements by the social security system (complementary role). The Medicare supplementary market (Medigap) has a similar role in the United States.[12]

Most OECD countries have some PHI policies supplementing services covered by public programmes (supplementary role). The benefits offered by supplementary PHI can be packaged together with other coverage types, as in many OECD countries, or can constitute separate policies, as in Australia (ancillary PHI), Switzerland (voluntary policies), the Netherlands, and Germany. Notably, in Canada, private health insurance is only allowed to have a supplementary role and is generally prohibited from covering medically necessary hospital and doctors' services already included under the public system.[13]

While PHI tends to cover certain typical services, there is diversity across OECD countries in both the health services and providers accessible by privately insured individuals. Such diversity reflects the scope of public coverage, and is affected by regulation and insurers' strategies. In almost all OECD countries, private health insurance covers what could be termed as "small risks" or ancillary and supplementary services, such as dental and optical treatments, choice of provider, upgraded hospital accommodation, and luxury services not covered, or only in part reimbursed, by public systems. In most countries, private health insurance also covers hospitalisation and doctors' expenses. However, this coverage is more comprehensive where PHI provides the primary form of insurance for particular population groups. In other cases, coverage is limited to access to private hospital facilities, often focussing on elective treatments, choice of treating doctors, and hospital hotel amenities.

The diversity of coverage experiences seems to indicate that there is no type of service that is per se more or better "insurable" by public or private coverage. There are nonetheless some trends towards greater reliance on public or subsidised private coverage for individuals facing higher health care cost, such as the elderly and those with chronic conditions, even where PHI plays a significant or primary role. In the United States, the Medicare programme itself was created at a time when many elderly persons faced challenges finding affordable coverage within private PHI markets (Marmor and McKissick, 2000). Two schemes were established: a universal coverage programme for the elderly, funded primarily through social security contributions and general revenues (Medicare), and a means-tested programme to provide health care coverage for certain non-elderly poor populations and additional health coverage for a small group of the elderly (Medicaid).

A more specialised health care insurance market – private long-term care (LTC) insurance – is absent or very limited in countries with comprehensive public long-term care benefits, such as in Scandinavia, the Netherlands, Japan and Luxembourg. In Germany, LTC cover is statutory for every resident. It is obtained from sickness funds for individuals covered by social insurance, and from private insurers, for those individuals holding primary private health coverage, as well as for a small number of individuals opting voluntarily for private LTC insurance and for employees of the railway and postal services companies (Verband der Privaten Krankenversicherung, 2003). It is, however, non-existent or embryonic in most other OECD countries, even where there is no or limited public long-term care coverage. The main markets are found in France and the United States, although LTC insurance is also sold in Germany and the United Kingdom.[14] A combination of low demand[15] and limited supply[16] may explain such low rates of diffusion.

Different PHI functions give rise to specific policy challenges. Primary PHI markets often create access-related challenges, especially for high-risk and vulnerable groups,

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where they represent the sole form of cover for some population groups.[17] Where public and private delivery systems are linked to different funding sources, as in systems with duplicate private health insurance, differences in access to care, choice levels and utilisation patterns occur between individuals with and without private insurance. Providers' and individuals' incentives to consume health care are particularly affected in complementary PHI markets that provide coverage for cost sharing under public programmes. The moral hazard implications of these incentives need to be weighed against the equity implications of a lack of coverage of these costs. Finally, while supplementary PHI policies insure services not provided by the public system, interactions between public and private coverage systems remain. Risk selection incentives and limited individual mobility across social insurers can also arise if the same insurers, or their affiliates, offer both types coverage.

2.3. A combination of historical and policy-related factors affects the development of PHI markets

The heterogeneity of experiences with private health insurance within OECD countries is the result of several factors.

Private non-commercial arrangements, such as mutuals, go back a few hundreds of years, or more, in several OECD countries, pre-dating many public health coverage or social insurance programmes. Many of the countries where private health insurance has a prominent role – for example, the United States, Australia, Ireland, the Netherlands, France –have some tradition of private financing and private provision of health services. Public health insurance systems developed on top of, and in some cases replaced, pre-existing voluntary health insurance arrangements in Australia, Ireland and the Netherlands. The newer public entitlements then changed the role of private coverage and sometimes reduced the permitted scope of PHI. In the United States, insurance has been historically provided on a private and voluntary basis. No general government compulsion to purchase private cover accompanied the introduction of public programmes for the elderly and certain of the poor (Medicare and Medicaid) in the mid-1960's. In France, the "mutuelles", which currently provide the majority of complementary health insurance contracts, predated the development of a universal social security system. They insured two-thirds of the French population by the start of World War II.

Public policy is the primary determinant of the role and the size of current private health insurance arrangements in most OECD countries. Rules under public and statutory health systems shape the borders of private health insurance markets, and to a large extent determine their role.[18] Private health insurance typically focuses on coverage of eligibility gaps based on categories of individuals, health services or providers not covered by public health systems. Markets have nonetheless shown different levels of responsiveness to changes in the expansion of public system coverage. PHI stepped in to insure delisted dental benefits in the Netherlands in the 1990s. However, large levels of out-of-pocket payments in Korea have not resulted in high PHI coverage levels.[19] The structure and regulation of health delivery systems – for example price regulation in the public and private sectors, doctors' ability to practice in both sectors, public hospitals' ability to treat privately financed patients and private hospitals' financing arrangements – have also impacted upon the size and roles of PHI markets.

The prominence of private health insurance has been buttressed by government interventions directed at PHI markets in several OECD health systems, although the

effectiveness of policies aimed at increasing market size and fostering outcome quality has differed widely. Australia, Ireland, the Netherlands, Germany, Switzerland and the United States have promoted and maintained a large and viable private health insurance market because policy makers have concluded that mixed public-private coverage systems can better deliver desired health policy and social outcomes. These governments have used regulation[20] and fiscal instruments to steer and encourage PHI markets. In Ireland and Australia, regulation has been one main factor in encouraging consumer demand for PHI products, resulting in a large and widening proportion of individuals buying private cover.[21] Fiscal subsidies and other tax advantages have been introduced to stimulate the take up of private heath insurance in many OECD countries, among which Australia, Ireland, France,[22] the United States and Canada. Their impact on coverage seems to vary, indicating different levels of price elasticity of demand for PHI by individuals and other purchasers such as employers.

While prominence in health policy greatly affects the size of the PHI market – in terms of population coverage, contribution to health financing or scope of government interventions – there is no necessary link between the three factors. There are sizeable PHI markets in a range of health systems with diverse mixes of public and private financing. The size of PHI markets may also result from consumer demand for better choice and more comprehensive cover, even where there is little stimulation through policy levers. Likewise, there is a large variety of institutional arrangements and different policy views towards PHI in the countries where private health cover plays a minor role. Nordic countries have comprehensive public programmes and policy makers do not appear to be as interested in private health insurance. Conversely, some Eastern European countries – such as Slovakia, Hungary and Poland – foresee and desire a role for private health insurance alongside their social health insurance system, despite the absence of a market today.[23]

2.4. Demand for private insurance is linked to income and gaps in public systems, and is fostered by employers

While PHI market size is not linked to the level of economic growth of a country, high-income groups are more likely to purchase private health coverage in most countries. The uninsured in the United States are concentrated among the poor or near-poor working population.[24] In the Netherlands and Germany, primary PHI is purchased by upper income brackets, due to different entitlements to social health insurance by income level. In other countries with universal public coverage systems, the wealthier are more likely to have purchased an additional PHI policy.

Employers play an important and growing role in sponsoring private health cover as a work-related benefit. A large part of private health insurance policies in OECD countries with the highest levels of PHI population coverage are provided through the workplace. For example, this is the case in the United States and Canada (almost 90% of PHI policies), the Netherlands (60%), and France (50%). Despite the expansion in eligibility for public health programmes, PHI coverage in Ireland has shown an uninterrupted growth over the past decades, linked to its increasing provision by employers within a fast growing economy. Employers appear to be more powerful agents than individuals in negotiating coverage conditions with competing insurers and benefit from greater risk pooling than do purchasers of individual policies – with larger employer groups accruing particular advantage from such pooling.[25]

Real and perceived quality gaps in public coverage and delivery systems serve as an impetus for PHI purchases in some countries. Waiting times, increasing demand for choice,

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and perceptions of inadequacy of public systems are leading motivations in Ireland, Australia, Denmark, and the United Kingdom. Where public cover is not provided, primary PHI policies are purchased mainly to minimise the financial risks associated with illness. Finally, the diversity in consumer attitudes and preferences is difficult to compare across countries. Cultural factors and differences in risk aversion across national contexts may account for a higher inclination to buy private cover in some countries. For example, nearly all those ineligible to social sickness funds insurance buy a primary PHI policy in the Netherlands, and over 90% of the socially covered population buys supplementary insurance.

2.5. Diverse markets supply PHI but competition is limited

Different types of insurers operate in OECD private health insurance markets. European markets have been historically dominated by non-profit mutual and provident associations, although commercial insurers have entered several national markets. Private health cover can only be offered by specialised health funds in Australia and Germany, and is almost entirely sold by non-profit sickness funds in Switzerland. Non-specialised commercial insurers dominate the Canadian market, while a variety of for-profit and not-for-profit insurers operate in the United States.

The number and type of insurers affect intensity of competition. Several OECD markets are concentrated and dominated by few carriers, which tend to control the market with limited consumer switching. A few OECD countries include a large number of insurers – the United States, Switzerland, France, Australia and the Netherlands – although in practice enrolees' mobility is minimal in several among them.[26] Furthermore, several of these markets, such as the United States and Australia, remain concentrated, with a smaller number of insurers holding significant market share – although the concentration of US PHI markets varies among the states (Chollet *et al.*, 2003, p. 5). The presence of for-profit and not-for-profit entities has resulted in an evolution in insurers' practices in some markets. In the United States and France, competition between commercial and not-for-profit insurers has posed challenges to non-profit or mutual companies operating according to more solidarity-based practices. In several EU markets, insurers behave similarly regardless of their profit orientation. In countries with both group and individual coverage, employer-sponsored markets tend to be more price competitive than individual markets, because of the bargaining power exercised by employers and insurers' desire to attract large groups.

The ownership of insurers and the scope of their activities may also pose market challenges. While competition is arguably limited by the presence of few players, such as in the Irish insurance system, the existence of several players is not the only measure of market competitiveness. Mobility across insurers is low in many OECD countries. It is also sometimes challenging to establish incentives for "healthy" and equitable competition among PHI insurers, as they face incentives to concentrate on good risks, thereby failing to cover more vulnerable individuals. The involvement by private health insurers who are affiliates of social insurers in differently regulated statutory and voluntary health insurance compartments may pose challenges for competition and consumer mobility in both the public and private insurance systems (as in the Netherlands and Switzerland). This is because individuals find it difficult or impractical to change PHI insurers, rather than maintain the same insurer for social and private cover; for example, risk selection within the private component can present difficulties for both types of coverage.

3. PHI has contributed to health system performance[27]

The contribution of private health insurance to health system performance can be assessed from several perspectives. Access to care and financial protection, responsiveness and choice, quality, and cost are among the most prominent dimensions of performance.

3.1. Access to care and financial protection

Private health insurance has offered a primary source of coverage for population groups ineligible to public programmes, and contributed to provide insurance protection against other public system coverage gaps. It has helped to inject resources into health systems, enabling an expansion in capacity and services. It also enhanced access to timely care in some systems experiencing prolonged public sector waiting times. However, all of these advantages have depended upon the structure and regulation of delivery systems, insurers' strategic behaviours, the role that PHI plays, and regulation of public and private coverage. Furthermore, clear trade-offs have emerged. When resources and supply are scarce, it may be efficient to ration services on the basis of willingness to pay, for example, through voluntary purchase of PHI. However, inequities arise as well. The advantages offered by PHI in terms of access to care have actually created inherent disadvantages for those populations without private health insurance. If PHI enrolees benefit from more timely care, policy makers must often balance trade-offs between equity concerns and a desire to promote enhanced choice and access through PHI.

PHI has served as a sole source of insurance coverage for certain populations

PHI provides a source of insurance in systems with targeted, non-universal access to health care coverage. It plays a particularly large role in countries with a history of private health coverage and an absence of universal coverage. For example, in the Netherlands, nearly all of the population without access to social insurance purchases PHI (about a third of the population), and the majority of the socially insured rely on PHI for coverage of services not included within social insurance. In the United States, the majority of the non-elderly population without public insurance are covered by PHI. However, unlike the case in the Netherlands, significant gaps in coverage remain in the United States, as a large population subgroup lacks either public or private cover.

On the other hand, PHI does not play as significant a role as might be expected in some other countries without universal public coverage or where there are significant out-of-pocket payments. For example, while the Korean National Health Insurance system pays 44% of total health cost, a significant degree of out-of-pocket expenditure remains (41%). Limited development of a private health insurance market could be explained by the lack of a history of private and voluntary coverage in Korea, where individuals have historically financed health expenditures out of their pocket, dating back to the time prior to the establishment of public health cover. Other reasons could be found in the tradition of family solidarity, manifest through self-pay of health costs as well as cultural factors that may make insurance less appealing. Similarly, in Greece and Mexico, the proportion of public spending in THE remains well below the OECD average, yet a meaningful PHI market has not developed in these countries. Turkey has experienced recent growth in its private health insurance market, although at present less than 2% of the population have such cover.

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PHI has enhanced patients' access to timely hospital care in some health systems

The structure of health systems and PHI roles influence differences in access to health care by insurance status. In OECD countries with no observed waiting times for elective surgery – such as the United States, France, Switzerland, Japan, Belgium and Germany – all insured individuals enjoy timely access to care irrespective of whether their main form of coverage is public or private health insurance. These countries generally include insurance-based systems (public or private), where money follows the patient, specialists are paid fee-for-service rather than on the basis of salaries, and there are lower overall constraints on activity than occurs in health systems with tighter caps on activity and spending (Siciliani and Hurst, 2003). Conversely, privately insured individuals enjoy better access to more timely care in some health systems where publicly financed delivery is plagued by long waiting times, representing a clear advantage offered to those who purchase PHI. In particular, private health cover has enhanced access to timely elective care in countries where it has a duplicate function, and private delivery facilities with additional capacity have developed.[28]

Ireland, Australia and the United Kingdom are the most notable examples of enhanced access to timely elective care through PHI, although faster access for the privately insured occurs also in Denmark, Italy, and New Zealand among others. There is indeed a strong link between demand for private health insurance and waiting times for elective surgery in some of these countries.[28] Uncertainty over the length of waiting times for publicly financed elective treatments and dissatisfaction with public health systems are among the main reasons for buying private health cover. Those who lack private insurance in these countries have a comparatively reduced choice over providers and the timing of care, unless individuals choose to self-pay for such care.

The ability of privately insured individuals to obtain faster access to care is significantly influenced by governmental policies and approaches. Allowing public providers to treat both private and public patients and to receive different remuneration levels for these separate activities can encourage their involvement in the private sector. This spurs the development of a market for PHI products offering access to more timely elective care in the private sector. For example the growth of privately financed facilities alongside publicly-financed hospitals has affected, and been influenced by, PHI's stepping in with products offering improved access to timely care, as in Australia. PHI can also sometimes provide quicker access to care within public facilities, as in Ireland for elective surgery.[30]

Having private health insurance obviously also improves access to needed care at the right time if no other form of health coverage is available and "safety-net" providers (who provide services irrespective of ability to pay) are in the minority. In the United States, there is evidence suggesting that uninsured individuals wait to receive treatment until they need emergency care – for which hospitals are under an obligation to provide services to those in need – but obtain less primary and preventative services (Docteur *et al.*, 2003). Governmental policies promoting access to health coverage for the uninsured can improve access to timely care for these population groups.

Individuals can benefit from enhanced peace of mind, less anxiety and less pain – and better health outcomes when waiting times are very long[31] – when provided with speedier access to care, as afforded by private health insurance in duplicate PHI markets. There are nonetheless trade-offs with other policy goals, such as equity, which have led policy makers in the Netherlands to make different policy choices. Despite the existence of a private delivery system and waiting times for elective care, purchasers of PHI do not gain

better access to care compared to those without such cover in the Netherlands. The system is designed to channel patients towards the same type of care irrespective of their insurance status. This promotes equal access to services characterised by long waiting times regardless of insurance status, and thereby diminishes certain potential advantages of PHI (more timely access to care and choice of provider). The extent to which policy makers encourage (or do not prohibit) the development of PHI markets offering faster access to care reflects the different values and priorities placed on providing the option of more timely care through private health insurance versus equity of access.

PHI has increased service capacity and supply in some systems

Private health insurance has injected financial resources into some health systems, which has contributed to the financing of additional capacity and services.[32] On the other hand, it has also increased demand in several cases, putting pressures on health systems, and at times skewing resource allocation.

PHI increases supply. Duplicate PHI has provided financing for capacity development in the private hospital sector in some countries, thereby helping to alleviating consumer inconvenience generated by non-price rationing in public hospitals. Only a few OECD countries have both long waiting times and high levels of population covered by PHI. Australia has especially emphasised the role private cover plays as the main mechanism for shifting demand away from overburdened public hospitals, while Ireland has instead placed more emphasis on the role of the public system in addressing waiting concerns. Cross-country comparisons of levels of waiting for elective surgery suggest longer waiting times in Ireland than in Australia, despite similar levels of private coverage (Hurst and Siciliani, 2003). This can be partly explained by the larger role played by PHI in financing treatments delivered in private hospitals in Australia, especially for elective surgery. Public subsidies to the cost of private inpatient medical treatment also contributed to the development of a larger private hospital sector (whereas in Ireland the private hospital sector is entirely privately financed). In countries where duplicate PHI covers a less significant portion of the population, but where some private insurers have purchased hospital facilities, such as the United Kingdom and Spain, PHI has boosted capacity somewhat.[33]

The financing contribution of private health insurance is also likely to have spurred development of overall capacity in systems without waiting times. By covering the share of cost not reimbursed by the social security system, PHI has helped to finance doctor and hospital treatments in France. In the United States, private health insurance has also furnished substantial financing to hospitals.

PHI has often financed the delivery of larger treatment volumes by offering higher payments to providers. Financial incentives linked to payment mechanisms exert a direct impact upon doctors' productivity.[34] This has contributed to a growth in the volumes of private hospital treatments in several countries where doctors have both public and private sector engagements, as in Australia and Ireland (Colombo and Tapay, 2003 and 2004b). Policy makers in many OECD countries allow differential doctors' payments[35] between public and private practice and permit dual appointments in order to keep the workforce motivated. Similarly, some countries – including Australia and Ireland – allow public hospitals to treat privately financed patients. This provides a mechanism to improve revenue collection because public hospitals can draw on this private financing source. It also assures better retention of doctors within the public sector

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due to this additional physician income stream, while providing private patients with free choice of doctor and upgraded hospital accommodation.

But it also increases demand. The ability of PHI to reduce demand pressures on the public system has nonetheless proven to be constrained. Increases in the population covered by PHI in Australia and Ireland have not resulted in unambiguous signs of decline in the level of waiting (Colombo and Tapay, 2003 and 2004b). PHI membership has not only shifted demand across public and private hospitals but has also increased overall demand, thereby limiting the impact on waiting times. In some countries, incentives created by higher payment levels in PHI markets have also encouraged providers to maintain long queues in the public system or refer patients to owned private facilities in order to sustain their private practice (Hurst and Siciliani, 2003; Rodwin, 1993; DeCoster *et al.*, 1998; Yates, 1995).

In sum, the extent to which PHI finances private-sector capacity is likely to be one factor explaining cross-country variations in levels of waiting.[36] Yet it has proven difficult to ascertain the precise effects of increases or decreases in the privately insured population on the length of waiting times within each country. Differential payments for doctors involved in publicly and privately financed practise stimulate higher productivity and satisfaction. However, the increase in overall volumes of care offset in part the shift of demand and utilisation between public and private hospitals. Moreover, it is unknown how much of the higher utilisation induced by private health cover is due to latent need – spurred, among others, by the ageing of the population and increased demand for better care – or to unnecessary demand resulting from moral hazard. The impact on health outcomes has also not been fully investigated.

PHI has created two-tiered accessibility to services in some countries

Private health insurance has created differences in access to care based on insurance status.

Private health insurance has created differences in access to care based on insurance status in some OECD countries. Evidence from a comparative study on utilisation of health services indicates that private health insurance – which is predominantly purchased by higher-income groups – encourages a pro-rich distribution of physician use in Ireland, France, the United States, and to a limited extent, Australia and the United Kingdom (Van Doorslaer *et al.*, Chapter 3 in this volume).[37] In Ireland, Italy, Portugal, Spain, and the United Kingdom, access to private health insurance has also been found to have had a positive effect on the probability of visiting a specialist (Jones *et al.*, 2002).

Differences in access to care by insurance status, where they occur, arise from the financial incentives created by PHI coverage. First, utilisation increases with comprehensiveness of insurance (Manning, *et al.*, 1987), hence when PHI covers benefits in addition to those covered by existing public programmes it is likely to result in higher utilisation. Second, where private health insurance gives individuals access to providers that they cannot finance through public coverage, PHI affords them an increased level of care, as in Ireland, Australia, the United Kingdom, and other duplicate PHI countries.[38] Third, different payment mechanisms for publicly and privately insured patients can encourage providers to furnish more services in the private sector.

But the extent of government concerns over such differences in access vary. The extent to which policy makers are concerned about the creation of "two-tiered" access to services due to differentiated access to care or speed of access to care by insurance status varies by

country, and so do their responses to this issue. The simultaneous presence of a PHI market and waiting times does not necessarily generate differences in speed of access to care by insurance status, for example, this has not been the case in the Netherlands. Instead, design characteristics of the health system, such as the link between financing sources and delivery structures, as well as government policies, affect the likelihood that such access differentials will occur.

In Ireland and Australia, for example, policymakers have encouraged PHI as a means to offer a level of care or choice above that of the public system to those willing to pay (Colombo and Tapay, 2003 and 2004b). Inequities in access to care linked to insurance status have caused particular concern in Ireland when these have occurred in public hospitals, because access to treatment in these facilities is supposed to be provided without regard to insurance status.[39] When PHI results in significant access advantages, such as may occur in countries with long waiting lists, policy concerns grow. Yet the presence of access advantages for the privately insured does not necessarily reflect negatively on PHI; instead, it may highlight necessary improvements in public coverage.

Equity issues may also arise when doctors operate in both public and private hospitals. In these cases, higher physician payments on behalf of privately insured individuals may modify the elasticity of the medical supply between public and private practice, resulting in a reduction in the quantity and quality of physicians' time devoted to public patients.[40] If "under the counter" payments are common, policymakers may wish to promote private health insurance as part of a desired shift towards a more formal payment structure. This is what some countries in Eastern Europe, such as Slovakia, would like to accomplish (Colombo and Tapay, 2004a).

In those countries or care settings where differentiated access to care according to insurance status is not deemed acceptable, policy makers have intervened in various ways. Some have regulated prices charged for privately financed patients, or established explicit rules for access to care and requirements on doctors' engagement in public and private practice to minimise the risk of inequities.[41] In the Netherlands, the system is designed to channel individuals to the same level of care and choice, irrespective of insurance status, through uniform provider fees across insurance types and universal access to all providers (Tapay and Colombo, 2004).[42] The Irish government monitors access to publicly financed services in order to ensure continued access to medically necessary care for the entire population. In France, where low-income individuals without private complementary insurance were found to be disadvantaged relative to the privately insured (86% of the population in 2000), the government introduced a publicly-financed complementary insurance programme to minimise inequities in access to care by insurance status (CMU).[43] Yet the effectiveness of such approaches varies, requiring monitoring as well as strengthening in some cases. Notably, diverse payment systems may result in preferential treatment being accorded on the basis of patients' insurance status. This may even occur where systems are designed to avoid such risk.[44]

PHI is not always affordable and accessible

The proportion of countries' populations covered by PHI varies greatly across OECD countries. Governmental policies encouraging or requiring PHI coverage, a strong cultural predisposition to insure, linkages between PHI and public programme comprehensiveness, and/or a high degree of employer-sponsored group coverage explain higher participation levels in PHI markets in some countries.

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The extent to which lower or nonexistent levels of PHI coverage represents a policy concern varies depending on the role that PHI plays within health systems. On one side of the spectrum, in primary markets, uninsurance generally implies a lack of health coverage and is therefore problematic. On the other hand, in supplemental markets where PHI largely covers luxury and amenity health services, it could be argued that low levels of PHI coverage raise little concern. In public/private health financing mixes that lie between these two extremes, differential access to PHI may raise concerns, and the specific policy problems depend upon PHI's role within, and interaction with, the public coverage programme.

In primary PHI markets, the often voluntary nature of PHI, and its reliance on private financing, can combine to exacerbate the potential for uninsurance. In order to improve access to needed care for the entire population, Switzerland mandated the purchase of comprehensive basic coverage by its population, thus eliminating the potential for uninsurance for basic services. Where PHI purchase is not mandatory, there are surprising differences among OECD countries in the extent to which those without access to public coverage purchase PHI voluntarily. In the Netherlands, where about a third of the population, corresponding to the proportion of individuals above an income threshold, is not eligible for social insurance, the vast majority of this population group voluntarily purchases private health insurance; higher coverage costs for the high-risk privately insured are subsidised by premium surcharges imposed on the rest of the market. A combination of an ostensible cultural preference to insure, affordable PHI premiums, assured PHI access for those of high risk, together with the availability of supplementary policies from social insurers' affiliates, explains this extensive purchase of PHI.

In the United States, conversely, while there is a high degree of PHI purchase (72% of the population), the absence of a universal public system, combined with voluntary PHI purchase, has resulted in a significant uninsured population (14% in 2000). There is a large debate about approaches to improve access to needed coverage for this large population segment, spanning from the expansion of public programmes to tax advantages towards PHI purchase, particularly by individuals (Docteur *et al*., 2003).

In many OECD countries, employers play a significant role in enhancing PHI coverage. Employer-sponsored PHI presents advantages for employees, because employers are often able to negotiate better coverage solutions. This coverage is often tax-free for employees and tax-deductible for employers, although this is not the case in all countries (*e.g.* Australia subjects such benefits to a fringe benefit tax). While employer-provided PHI may raise labour costs, it certainly plays an important "social role" by facilitating access to PHI in several OECD countries.

In the remainder of OECD countries, PHI coverage generally reaches less than half of the population. This often reflects the existence of more comprehensive, universal public health insurance programmes, limited consumer interest, the lack of a tradition of PHI, high premiums, and often limited policy prominence attributed to PHI. Both Australia and Ireland stimulate PHI coverage though tax incentives and other interventions, and coverage levels very nearly approach half of their respective populations.

Several barriers to access to PHI exist. PHI is becoming more expensive relative to general inflation, thereby limiting affordability for consumers in both primary and other PHI markets, and may thus make future PHI enrolment patterns less stable. Low-income groups are particularly less likely to purchase cover as premiums increase. In addition, PHI

may be difficult to access because insurers may not accept applicants with greater anticipated health needs. The Netherlands faced such access concerns before they implemented a safety-net program for higher-risk persons ineligible for social health insurance. This remains a concern for persons seeking individual insurance in many US states as well. Most countries where PHI plays a primary role have implemented some type of programme to assure a certain degree of access to PHI by high-risk groups, yet the scope of these programmes vary. EU law generally prohibits the imposition of access-related standards for this market, except in cases where PHI plays a significant role. The consequent absence of explicit access standards or provisions in many EU countries, coupled with PHI market dynamics and insurer behaviour, has resulted in access barriers in non-primary PHI markets within the EU.[45]

PHI offers a potential source of coverage for long-term care costs but market development is low

PHI has the potential to cover part of individuals' long-term care costs – although consumer demand to date has been limited in most OECD countries.[46] Demographic and labour market changes, such as an ageing population and the increasing participation of women in the workforce, are likely to increase the need for formal coverage of LTC cost in the future. In some countries, policymakers have made a choice to finance such cost collectively. In others that do not have public LTC coverage, out-of-pocket payments and informal caring continue to be the dominant forms of financing long-term care cost. While the burden of long-term care cost is rising in all OECD countries, it is unlikely that private LTC markets will develop to significant extent in most OECD countries in the near future. This can partly be attributed to the complexity of the market. It is difficult for insurers, given complex and unpredictable actuarial issues surrounding premium calculations as well as difficulties in maintaining a diverse insured population over time. It is also difficult for consumers, whose understanding of this market is limited. It is finally complex for regulators, who are confronted with new or changing markets. Its development is also hampered by the typically high cost of policies (especially relative to younger groups' perceptions of their level of risk and elderly populations' often fixed incomes) and limited insurer offerings.

Determinations relating to whether to finance LTC expenditure through public or private sources of funding remain country-specific decisions, based on policy objectives, policy and cultural priorities, population groups or services targeted for public funding, and available resources. Nonetheless, in the absence of public coverage of LTC cost, and if private LTC markets develop in their countries, policymakers may wish to consider intervening to regulate access and benefits, and establish consumer protection mechanisms for these policies. This may increase consumer confidence in buying private LTC insurance. Given the links with policy in the areas of private pension and disability coverage, coordinating policy efforts in these areas would be important.

Ability to choose PHI over public coverage may diminish the risk pooling within public insurance

When persons are given the ability to choose between publicly and privately financed coverage – or between public and private carriers offering public coverage, the interaction between publicly and privately financed programmes has given raise to some problems. Countries providing this option include Germany, for higher income persons, and Spain,

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for civil servants.[47] "Opting out" can have an impact on the risk profile within the public system. In the case of Germany, the privately insured tend to be younger and healthier, thereby depriving the social risk pool of some of the less expensive risks. While many of the youngest workers do not meet the threshold permitting them to opt out and move therefore to statutory insurance, the number of people switching to social health insurance were only a third of those moving to private health insurance from sickness funds in 2002 (Verband der Privaten Krankenversicherung, 2003). Germany has imposed strong limits on the ability to opt back into social coverage as part of an effort to protect the risk pool within social insurance. It also has the authority to trigger a risk equalisation mechanism that would require certain privately insured to cross-subsidise some of the cost of coverage of the elderly under the standard tariff policy,[48] although to date this has not been deemed necessary.

Nonetheless, concerns remain regarding the impact of this "opting out" option on the breadth of the social insurance risk pool. In the United States, elderly Medicare beneficiaries may choose to receive their public coverage through private "Medicare+Choice" carriers, sometimes receiving additional benefits, such as drug coverage, through this choice. Historically, Medicare+Choice plans have enrolled healthier, lower-cost individuals than traditional fee-for-service Medicare (Dallek *et al.*, 2003), leaving a larger proportion of less healthy individuals in the traditional programme. These trends must be considered in setting reimbursement levels, and in structuring public/private financing mixes, in order to prevent private health plans from profiting from their better risk profiles, to the detriment of the remainder of the public programme.

Useful practices and policy recommendations

When policy makers consider two-tiered accessibility to care by insurance status to be undesirable, they can choose to intervene to help minimise the risk of certain inequities. Explicit rules can be set to assure equity of access to services, for example by allocating elective care on the basis of a single waiting list for both publicly and privately insured patients, or guaranteeing that all providers treat all patients in the same care settings and are subject to the same reimbursement levels. Providers' responsibilities with respect to publicly insured patients can also be clarified and monitored. Furthermore, provider discretion to treat patients differently depending upon their insurance status can be minimised by assigning the management of waiting lists to a disinterested party.

Where limits in access to PHI coverage exist and raise policy concerns, certain programmes or standards can improve access to PHI coverage (see also Section 4 below). For example, programmes furnishing enhanced access to coverage, such as well-funded high-risk pools offering affordable, comprehensive coverage, or other safety net schemes providing standard PHI policies to eligible high-risk individuals offer meaningful insurance to those who are unlikely to have access to affordable coverage in the PHI market. Regulatory standards on all or a portion of the PHI market can also enhance access.

3.2. Responsiveness of health systems

In many OECD countries, PHI enhances choice in several ways. First, the very opportunity to buy PHI often inherently offers consumers additional choice with respect to financing their health care. Secondly, PHI frequently improves individuals' choice over health providers, treatments, and timing of care – although the scope and nature of this added choice depends upon the regulation of supply in public systems, standards for

insurer practices, as well as insurers' strategies. PHI markets also typically offer an array of diverse coverage plans, with different benefits and cost-sharing features. However, some of the added choice afforded by PHI carries trade-offs, and may call for government intervention, such as in the area of product disclosure.

Availability of PHI affords choice

The very presence of a PHI market affords consumers with increased flexibility in financing their health care in most OECD countries. In the absence of such a market, they may not have any ability to insure against health costs not covered publicly; PHI provides them with the choice to do so. Benefits of PHI can include coverage of public system co-payments (complementary PHI), insurance coverage of drug costs or providers not included in some public coverage (supplementary or duplicate PHI, respectively), as well as the ability to purchase private insurance if no public coverage is available (principal PHI) or if individuals can "opt out" of public cover (substitute PHI). In all of these cases, in the absence of PHI, consumers would have to rely on out-of-pocket payments and personal savings tools to cover these costs, which are a more regressive source of financing health care.

Privately insured individuals have more choice (providers, benefits, cost-sharing) in some OECD countries

Private health insurance enhances choice of health care providers and care settings in several OECD countries, although in most of the cases, it has done so for a limited population segment only. The extent to which PHI enhances provider choice depends upon the structure of the health delivery system, and, in particular, whether public and private schemes cover all or a portion of the providers within the health system – rather than intrinsic differences between public and private health insurance per se. For example, in the duplicate systems, PHI provides enrolees with a broader choice of providers because it reimburses the cost of care in private hospitals which are not, or only partly, publicly funded. As private hospitals have spare capacity and offer mainly elective care, PHI also provides quicker access to non-emergency treatments, as in Ireland, Australia, New Zealand and the United Kingdom. Doctors' ability to charge higher fees to PHI enrolees in several countries' with duplicate PHI cover has provided the privately insured with preferential access to the doctors of their choice, an advantage not offered by certain public systems.[49] In the United States, the degree of choice afforded by PHI plans and by public programmes varies by coverage type (indemnity versus managed care) and specific private plans offerings. For example, individuals enrolled in traditional Medicaid may face diminished provider choice when compared to those insured with indemnity private coverage and the traditional fee-for-service Medicare programme, because the networks of physicians and providers participating in Medicaid are not always as widespread. Individuals covered by managed care plans – whether private, Medicare or Medicaid – also face restricted provider choice, depending on specific plan characteristics. US private insurers offer a large choice of plans featuring differing degrees of free choice of provider, ranging from health maintenance organisations (HMOs) to preferred provider organisations (PPOs) to indemnity plans.[50]

Conversely, in most health systems characterised by unrestricted freedom of choice of provider, PHI affords the same or very similar options. In both the primary PHI markets in the Netherlands and Germany, PHI has not resulted in much additional choice of provider for its enrolees, because neither sickness funds nor private insurers have significantly

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restricted individuals' choice of provider. This is surprising in the case of Germany, where private and social insurers often reimburse at different levels, unlike the situation in the Netherlands.

PHI insurers also often offer a considerable array of products to their consumers and therefore have the potential to promote choice of benefits and financial protection schemes and better meet individual preferences. PHI markets in Australia and the United States, for example, are characterised by an exceedingly broad choice of health care plans. However, the advantages of such wide choice are not always clear. Readily understood comparative information is often not generally available, thwarting consumers' ability to take meaningful advantage of PHI product choice.[51] Furthermore, when PHI products offer a wide range of cost-sharing arrangements, and differ in the extent to which they cover expensive services particularly needed by high-risk persons, product choice can undermine risk pooling within the market. Lower risk individuals are likely to be attracted by products with higher cost-sharing and less comprehensive benefit coverage, while higher risk persons will respond in the opposite manner, seeking to minimize their out-of-pocket exposure, as in the US individual market and Australia. In contrast, in Ireland's PHI market, where most insurer offerings generally focus on five similar packages, a high degree of consumer satisfaction is reported. This indicates that a wide selection of health care insurance products may not be necessary in order to provide consumers with meaningful and satisfactory choices.

PHI has promoted innovation

Insurers have responded to consumer demand by tailoring products, finding innovative and flexible coverage solutions, and quickly adopting coverage of new benefits. Following removal of dental services from the social insurance package in the Netherlands, health insurers responded by promptly covering these benefits. In the United Kingdom, as demand for PHI is linked to excess waiting times, some insurers have designed low-cost products covering only elective treatments in private hospitals. In Ireland, insurers have recently started to offer primary care products to fill gaps in eligibility to public coverage for two-thirds of the population. In several OECD countries, private insurers tailor the premiums to individual needs by varying levels of cost sharing and benefits covered on different polices.

The presence of multiple purchasers (both public and private) has been a factor stimulating the adoption and diffusion of medical technologies in the United States, especially across hospitals. Competition in the hospital sector encourages the early adoption and a fast rate of diffusion of technologies, which is in part encouraged by competition between multiple insurers.[52] Both enrolees of public insurance programmes and private insurees may benefit from the higher intensity of treatments delivered by US hospitals. Private insurance markets are often credited with higher responsiveness than public insurers in making reimbursement decisions about new and emerging technologies, although there is limited evidence as to whether this has happened. The implications of rapid adoption and diffusion of technology are nonetheless not always clear, including their impact on quality and health outcomes. Investments in technology are likely to have diminishing returns, prompting the need for careful assessment of their value for money.[53]

While PHI has offered privately insured individuals innovative and flexible coverage approaches in many OECD countries, policymakers have sometimes intervened to limit the scope of insurers' activities, through various regulatory tools. This is because insurers face

incentives to use product variation as a means of improving their risk profile. For example, the proliferation of products in Australia has resulted in risk segmentation by some funds, because insurers are able to develop benefit packages that are tailored to – or appeal to – individuals of particular risk profiles. Individuals can then select the plan best matching their risk profile and insurers' risk profiles vary as a consequence of such consumer choice (Colombo and Tapay, 2003). Policymakers may wish to consider standardisation of benefit packages – as is mandated for US Medicare supplemental ("Medigap") coverage purchased by individuals – as a way to promote consumers' ability to make informed choices and reduce confusion and the purchase of unnecessary coverage, as well as certain risk-selection activities.[54] However, the extent to which such intervention is appropriate may depend on the role of PHI coverage and the market in question. More generous standard benefit packages can be subject to adverse selection – as can also occur in PHI markets without such standardisation. If insurers are not required to offer all standard products, some may consequently drop such coverage. Moreover, if statutory or regulatory standards do not enable standardised packages to be readily updated, changes or innovation in response to market changes might be inhibited.[55] Equity concerns have also prompted policymakers in the Netherlands to discourage some insurer-supported innovations in health care provision for fear that they would create inequities in access to care between privately insured individuals and those without it.[56] Obviously, countries assess the advantages and disadvantages of PHI differently, including resulting innovations and inequities, prompting varied levels of support for diverse PHI market activities and different levels of regulation.

Overall, demand pressures upon insurers have led them to innovate and tailor their offerings to individuals' demands. These pressures arise from competition from other insurers, as insurers fear that they would lose clients if they do not react similarly to their competitors, as well as by the lack of a statutory obligation to purchase cover in most PHI markets. Even a monopolist insurer faces pressures to improve responsiveness to consumers' desires if take-up of insurance is on a voluntary basis, especially when PHI is not a primary form of cover, and individuals may perceive coverage to be less needed. Policymakers have nonetheless sometimes limited the scope for insurers' flexibility and innovation in order to avoid limitations in access to PHI coverage for more vulnerable groups.[57] This is especially the case in countries where PHI plays a more significant role, either in terms of population covered or health financing share. PHI markets clearly raise trade-offs between innovation and access concerns, not to mention cost.

Useful practices and policy recommendations

In sum, while PHI has enhanced choice in several OECD countries, the extent to which this has occurred depends on several factors. Health system structure, provider reimbursement systems and the scope of provider choice afforded by public and private coverage arrangements influence whether – and to what degree – private health cover furnishes added choice of benefits, providers or other advantages. The lack of regulatory safeguards and adequate comparative information concerning PHI products has restrained individual choice in many PHI markets. Governments or voluntary bodies in some countries have disseminated comparative information on the quality, features and cost of health plans. In the absence of effective voluntary efforts, such as industry-led initiatives to improve market transparency and product comparability (*i.e.* Internet-based or broadly disseminated information services) regulations can improve PHI's ability to enhance choice of insurer and of benefit packages, while safeguarding access to care for both the privately

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and publicly insured. Finally, the availability of a small menu of insurance products, either due to limited insurer offerings or as a consequence of regulations limiting insurers' potential products, does not necessarily mean choice is limited in a harmful way. In fact, it can enhance individuals' understanding of PHI products and improve their confidence. Policy makers need nonetheless to weight trade-offs between improving ability of consumers to make informed choices and enabling insurers to respond to innovate in response to market changes.

3.3. Quality of care

Private health insurers can promote the delivery of high-quality care if they utilise tools to influence the delivery of health care, such as selective contracting based upon quality indicators, or other means. They have not done so in most OECD countries, however, with the exception of some activities to improve quality of care by managed care plans in the United States and other less extensive experiences in some OECD countries. In the United States, while evidence on outcomes is mixed, there have been some experiences of improved quality of care through managed care tools. Pressure from employers and purchasers for cost-effective care has supported the development and spread of these techniques within the PHI industry in the United States, as have regulatory requirements in some states. In other countries, however, insurers have not yet attempted to modify clinical practice patterns and influence the provision of evidence-based care. This is not entirely surprising, given the limited involvement of private health insurers in decisions around the delivery of health care in most OECD countries, either because of the way the health system is structured, or because of what role and activities insurers are permitted to have, or because of limited insurers' financial and regulatory encouragement to do so. The lack of adequate incentives that reward quality care, such as value-based provider payments, and inadequate information are among the reasons why insurers still do little in this area.

With exceptions, private insurers have not served as an impetus for quality improvement

Traditionally, responsibility for quality assurance rested with the medical profession and provider community, but monitoring and improving quality of care has become a priority issue for policymakers confronted with evidence of quality problems in many OECD countries. Several countries have started to intervene by reforming institutions of professional self-regulation or increasing regulatory oversight of the medical sector. Further instruments to influence quality of care, including a larger role of purchasers and greater involvement by the public, are also emerging (Mattke, Chapter 2 in this volume).

In most OECD countries, private health insurers have not engaged in significant efforts to influence the quality of the health care services they finance. Several factors are likely to contribute to this trend. First, efforts to improve quality typically require significant resource investments, which may not be warranted where PHI plays a limited role. In addition, such interventions often result in efforts to steer consumers to certain providers, an activity that may restrict choice and therefore be unwelcome in countries where consumer demand for PHI is highly linked to its provision of additional provider choice. Policymakers have seldom established quality of care standards for private insurers. Instead, policy attention with respect to quality is generally focussed upon providers as an accountable unit, rather than on insurers. Quality of care is also often self-regulated by the

provider community or voluntary accreditation bodies. Significant political resistance on the part of providers is likely to accompany the introduction of an additional – and non-provider – actor into this realm.

One important exception to this trend, however, has been the United States, where insurers and employer-sponsored health plans, particularly "managed care" companies, have been very involved in directing and overseeing certain aspects of care delivery. By exerting better leverage over the care they purchase, insurers seek to secure a competitive advantage through products offering good "value and quality for money". These efforts have largely stemmed from a combination of market developments, voluntary accreditation efforts, and consumer and purchaser demand, such as from employers.[58] There also has been some regulatory impetus by the states. Insurer efforts have often focussed on reducing the provision of unnecessary care and promoting preventive care, where appropriate. Their activities have ranged from selective networks of approved providers, pre-approval of certain services, and the implementation of disease management programmes. Similar efforts have been active or are emerging in a small number of other countries, but involving fewer insurers and activities, as in the United Kingdom and Australia.[59]

Public or private insurer involvement in the delivery of care introduces an additional player into the provider-patient relationship. US managed care plans' involvement in approving the delivery of specific interventions gave rise to some of the most vehement opposition by consumers and providers, and at times raised quality concerns,[60] resulting in what is often termed the "backlash" against managed care. To the extent to which insurers have engaged in efforts to manage care that impact upon the delivery of care, it is important that such efforts aid – and do not harm – the quality of health care. In order to make sure insurer practices do not put patients at risk, many US states impose quality-related requirements on health plans. For example, there are standards relating to the timeframes and decision-maker expertise for insurers who require prior approval of certain services, such as hospitalisation, prior to its delivery.[61] There is also a significant, successful effort to prepare report cards comparing plan performance, through the privately developed Health Plan Employer Data and Information Set (HEDIS) which enables purchasers in the United States to compare plan performance according to numerous standardised measures.[62] These efforts, however, are still not systematically applied.

While managed care PHI markets in the United States have demonstrated some effectiveness in promoting quality of care, the overall evidence of the impact of managed care, when compared to indemnity insurance is mixed: managed care has not yet fundamentally changed clinical processes or uniformly improved quality of care (Miller and Luft, 1997 and 2002). Plan characteristics, arrangements with providers, and quality controls are heterogeneous across plans and continue to evolve, while prevention and disease management programmes are not used by all plans. Perverse payment incentives that do not reward plans' efforts to improve quality, providers' own success in improving quality of care and still inadequate quality-measurement and reporting systems explain the still limited impact of PHI on quality improvements, even where insurers have sought to implement activities in this area.

Given its limitations, PHI may actually not be the best lever to improve health care quality, particularly where its role in a health system is small. The question of whether insurers are the appropriate entities to engage in quality improvement efforts depends upon the countries' health systems structure and policymakers' choices. In many OECD

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countries, insurers have had neither the levers nor the incentives to invest significant resources in this area. Policymakers wishing to include or enhance private insurers' role in the promotion of quality health care must understand that such efforts involve a significant investment of resources on the part of insurers and that enrolees may bristle at limitations on provider choice, which thereby limit insurers' ability to selectively contract based upon quality-related criteria. Policymakers will need to furnish insurers with adequate incentives to invest in quality-improvement initiatives and foster value-based competition. They may also need to provide consumers with assurances that restrictions on provider choice will enable them to access high-quality providers.

Useful practices and policy recommendations

There is not one unique path to improve quality of care, and much is still unknown about what works best (Mattke, Chapter 2 in this volume). Efforts to improve quality could well occur through value-based competition in health insurance markets, as well as consolidated and cooperative efforts by governments, as suitable given countries' health system structures and policymakers choices. Where quality-related activities have been promoted by private insurers, they have not been accompanied by the right incentive framework, stimulating inconsistent changes in clinical patterns and medical practices. Sometimes these activities have been accompanied by unpopular restrictions on provider choice or access to care, and in some cases have led to undesirable outcomes, meriting regulatory oversight to ensure the delivery of medically necessary and appropriate care.

Regulatory oversight is in fact needed to guarantee that minimum quality standards are maintained and ensure the delivery of medically necessary and appropriate care. Adequate financial of fiscal incentives might also be necessary to entice insurers to implement quality initiatives. Policymakers can also provide leadership by reforming payment systems to reward quality of care within public programmes. Quality-reporting systems need strengthening, which could require direct supply or subsidisation by the public sector. Finally, policymakers need to consider how best to promote and coordinate public and private sector quality improvement efforts.

3.4. Cost

The review of the experience of OECD countries with PHI markets highlights an overall limited contribution of PHI to total or public cost-containment efforts. Private health insurance has not shifted significant cost from the public to the private sector. Some cost shifting occurs in systems with duplicate PHI markets, although this impact is limited because insurees often continue to utilise the public system for the most expensive services. It also has had less impact in systems with small PHI markets and has been offset by public subsidies in others. Most delisted services have been ancillary or marginal benefits, hence this has had limited impact on public sector cost. Private health insurance has also resulted in higher public and total health cost in most countries where it has a prominent role, as a result of higher health prices (including elevated reimbursement levels that may also spill over into public programmes), increased utilisation, or both. Obviously, the desirability or acceptability of cost increases depends upon what benefits result from this higher health care expenditure.

PHI has removed little cost pressure from public health financing systems

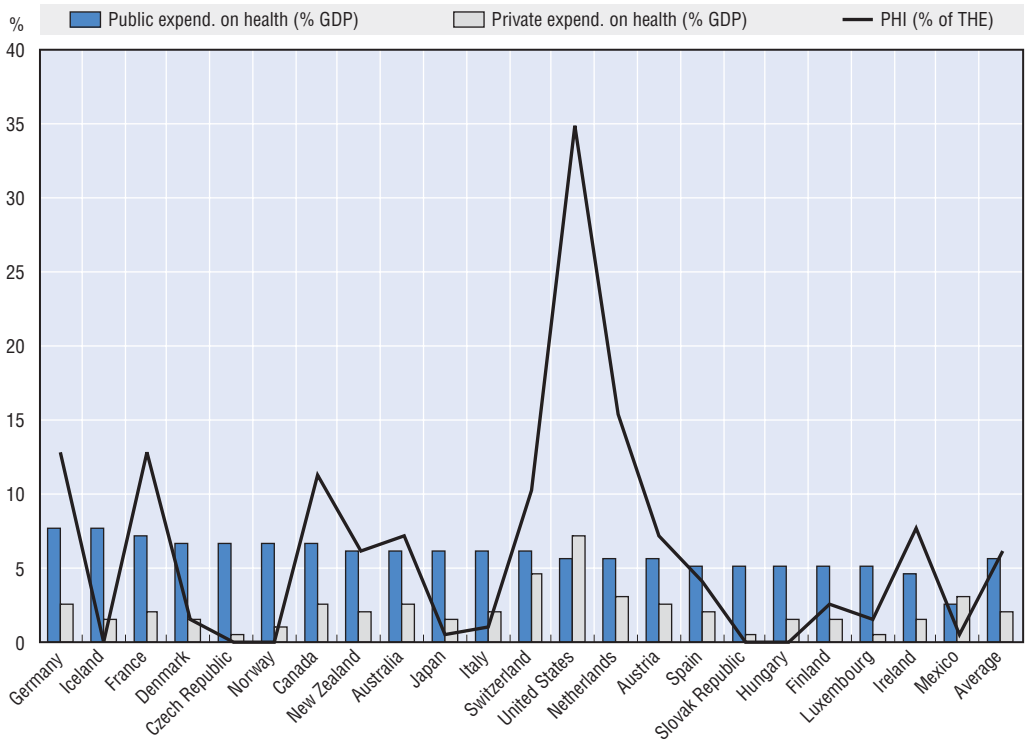
Several OECD countries encourage the development of private health insurance markets in order to shift cost pressures from public health systems to the private sector. Policy makers have done so in three main ways. In Australia, Ireland, and the United

Kingdom, among others, PHI is allowed to duplicate coverage offered by universal public programmes. In some of these countries this reflects a primary policy goal of diverting some demand and cost pressures from publicly funded to privately funded hospitals. Germany, the Netherlands and the United States have chosen to set income or population-based eligibility criteria for public health insurance, or permitted certain populations to opt out of public coverage. In other countries, there has been a delisting of coverage for some services – thereby creating a potential niche for PHI coverage (for example, dental care in the Netherlands and Australia.

While in principle PHI can help shift cost from the public sector, a review of the evidence indicates that this has only occurred to a small extent. The cost-shifting potential of private health insurance is limited because the privately insured often continue to use publicly financed health services in duplicate systems, even when these same services are covered by private health insurance. This stems in part from differences between public and private providers. Private hospitals concentrate on treating minor risks and elective care, while the cost of more expensive care, such as complex cases and emergency services, rests with the public system in several countries with duplicate PHI. Furthermore, PHI has resulted in overall increases in utilisation, which only partly represent a shift of demand from publicly financed activity, as in Australia.[63]

Despite limited eligibility to public coverage programmes in the United States, Netherlands and Germany, public spending as a share of GDP is fairly high in those countries, although the public cost would be even higher if all population groups were covered by the public system (Figure 6.5). PHI in these markets often covers healthier and younger

Figure 6.5. **Public health spending as a share of GDP and health financing by PHI, 2000**



Source: OECD Health Data 2003, 2nd edition.

population groups, while higher risks and/or older cohorts, representing the large majority of total health spending, are enrolled in public programmes. The US health care system features higher health care prices than any other OECD country (Docteur *et al.*, 2003). This can be partly explained by the presence of multiple competing payers, who drive the higher rates of diffusion of technologically advanced services (McClellan *et al.*, 2002).

Excluding certain services from public coverage systems certainly helps to limit public sector cost. In Canada, publicly funded coverage does not cover the cost of out-patient prescription drugs[64] – and provinces provide only limited coverage – which represent almost half the cost of total claims to private insurers.[65] Yet, services that are typically candidates for delisting, such as optical and dental care, do not generally account for a large share of health systems' cost. The extent to which this cost is picked up by private insurers, as opposed to out-of-pocket financing by individuals, varies by country. In France, the Netherlands and Australia, a large segment of the population buys PHI policies offering coverage for dental care either only partly (France, Netherlands) or not at all covered publicly (Australia). At the same time, it is often politically challenging to delist more expensive services from public coverage. These attempts will likely raise concerns about the implications of the loss of cover for medically necessary care. Hence, delisting discussions have often centred on services that may be deemed alternative or less medically necessary, or which may be more readily paid for on an out-of-pocket basis by a majority of the population.

PHI has increased total health care expenditure

Private health insurance markets have resulted in increased overall health costs in several OECD countries. First, by bringing more financial resources into the health care system, it raises total health expenditure. Second, cost-control measures – such as global budgets, price regulation and capacity controls – have been applied to the public sector in virtually all OECD countries. Conversely, the private financing sector in virtually all OECD countries, except the Netherlands, has not been subject to such centralised, governmental cost controls. This has resulted in less tight control over activities and prices in the private sector. Third, private insurers in most OECD countries do not have the same bargaining powers over the price and quantity of care provided to insurees as public systems do, although within concentrated PHI markets insurers can exert stronger pressure, as in the case of Ireland.[66] Payment options such as global budgets that have helped public systems to contain costs in several countries (Mossialos and Le Grand, 1999) are hard for private insurers to negotiate – or may not be options at all. PHI carriers have generally exerted little leverage over costs – as they might if they engaged in more selective contracting.

In the United States, private insurance has been less effective than the public Medicare programme in controlling costs. Growth in per enrolee payments for a comparable set of services in private health insurance outweighed Medicare over the period 1970-2000, reflecting the higher payment rates to providers paid by private insurers (Boccuti and Moon, 2003). While "managed care" delivered some cost control in the 1990s, PHI premiums have resumed double-digit growth since 2001 (Levit *et al.*, 2004).

Cost control is also more problematic to achieve in systems with multiple competing payers, including most PHI markets. Not only their purchasing position relative to providers is weaker, but also shifting cost onto other purchasers, whether public systems or other private insurers, is a more attractive strategy for insurers than restraining cost. This is despite opportunities offered by multiple payer systems for a "spill-over" effect, disseminating innovative practices. Cost-containment initiatives implemented in PHI

markets may be adopted by public programmes and private insurer may conversely turn to cost-containment strategies following public programmes.[67]

PHI also risks increasing public expenditure on health. This is because, while PHI may serve as an independent source of health funding, its effects are rarely entirely disconnected from the publicly funded system.

Subsidies to private health cover, as in Ireland, Australia and the United States, increase public sector expenditure and have an opportunity cost, sometimes increasing overall utilisation levels as well. Even in the absence of direct or indirect subsidies, PHI has given rise to higher public cost in several countries with a significant PHI market because of the way it interacts with the public system.

This is especially the case in complementary PHI markets, though it has also occurred within systems with duplicate and supplementary PHI. While both duplicate and complementary PHI are prohibited in Canada for publicly covered hospital and physician services, even with this more "segregated" role, there may still be an impact on the public system. In this country, the privately covered see doctors more often in order to get a prescription because PHI covers prescription drugs outside of hospitals (Stabile, 2001).[68] Private health insurance coverage of cost sharing on publicly financed health services, as in the French complementary insurance system and US Medicare supplementary system, removes price signals and incentives to consume care parsimoniously, resulting in an overall increase in demand and public system utilisation (Imai *et al.*, 2000; Christensen and Shinogle, 1997). In addition, when PHI is offered by employers and its cost is in part or entirely invisible to insurees, as in the case of about half the PHI contracts in France, insurees' lack of awareness of PHI cost also increases incentives to consume.

There is also evidence of PHI-induced utilisation increases in duplicate systems. In New Zealand, privately treated patients generate some costs that are in fact met by the public systems, such as laboratory tests and prescriptions drugs. In Australia, allowing private insurers to cover the difference between inpatient fees charged by doctors on privately financed patients and the regulated share reimbursed by Medicare (so called "gap") seems to have had an initial inflationary effect. While it is too early to assess the longer-term impact of this measure, which was introduced in 2000, coverage of the gaps risks removing price signals and increasing moral hazard incentives. This can raise both public and total cost because Medicare finances a large share of the cost of private hospital treatments (Colombo and Tapay, 2003).

Finally, governments in countries with significant PHI markets, including the US, do not spend less on public health systems as a share of GDP than do other countries (Figure 6.5), while they tend to have higher private health spending. For example, in Germany, France, Australia and Switzerland both public spending on health and private spending on health are higher, as a share of GDP, than the OECD averages. In the United States, public spending is around the OECD average, although private spending is much higher. In the Netherlands, the public share is slightly lower than the OECD average, although total and private spending is higher.

Obviously, not all increased utilisation is bad, if it furnishes individuals with access to needed services they may otherwise not have been able to afford.[69] In countries where there is evidence of adverse selection in private health insurance, as is the case in the US Medicare supplement market, higher utilisation rates may also be partly or largely attributed to the less favourable health status of PHI enrolees (Ettner, 1997; Atherly, 2001). Certainly, if cost-

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sharing is high, as in the US Medicare programme, complementary coverage by PHI promotes access to care.[70] Yet some modest cost-sharing likely could remain without having significant access implications, particularly if low-income persons were exempted.

Useful practices and policy recommendations

Multiple factors influence the extent to which private health insurance impacts upon the cost pressures on health systems. Cost shifting will be more effective if people buying PHI do not rely on public health systems for services covered by PHI. The savings arising from cost shifting also needs to be weighed against the cost of any subsidy directed towards PHI markets. The role that PHI plays in the system, particularly the nature of the interaction between public and private health coverage, also affects cost within the health system overall. Prohibiting PHI from covering all or some cost-sharing imposed by public systems helps to contain cost because it maintains individual cost-awareness. However, it may compromise goals relating to access to care in the absence of adequate exemptions from cost-sharing for low-income groups. Finally, the way private health insurance is regulated, and particularly the structure of any cost controls, affects overall health systems' cost. Cost-control measures implemented within the overall health system may improve the ability to control cost within private health insurance markets.

3.5. Efficiency

While private health insurance is often viewed as a tool to enhance efficiency, the evidence reviewed has revealed that PHI has not contributed much to health system performance in this area. This has occurred for several reasons. First, insurers incur higher transaction and administrative costs in order to attract and retain insurees, and provide them with a diversity of insurance plans. Multiple contractual negotiations with providers have also added to insurers' administrative burdens. Second, insurers' desire not to restrict individual choice, requirements to reimburse all providers in some countries, and the cost of engaging in serious activities to manage care cost-effectively have deterred insurers from engaging in significant efforts to influence the cost-effectiveness of care in most OECD countries. Conversely, where managed care has operated for several years, as in the United States in the 1990s, providers and consumers have opposed many of the most restrictive practices – some of which contributed to the plans' earlier success in controlling cost. Difficulties in extracting efficiency improvements from PHI markets are in part due to incentives created by competition across insurers. In the absence of regulation, and sometimes even despite regulation, insurers often compete through cost-shifting and selection of risks.

Achieving value-based competition has proven difficult

Policy makers in several OECD countries promote competition in insurance markets as a tool to extract better efficiency and responsiveness from their health systems. Competition is viewed as the mechanism to stimulate performance improvements because private insurers seek to attract and retain insurees and, often, to maximise profits. Germany, the Netherlands and Switzerland have also encouraged regulated competition in their social and basic health insurance systems, with the aim of improving patients' choice and encouraging insurers to reduce cost.

However, competition in PHI markets has been limited by several factors. Individual switching across insurers has been limited by high transaction costs, and complicated in

some countries by the lack of portability of private cover and the absence of comparative information on insurers' performance.[71] The size of PHI markets, particularly where this is not the main source of coverage for the population, may limit opportunities for insurers to enter the market profitably, thereby limiting the extent of competition.[72] For historical reasons, some PHI markets are dominated by insurers that draw membership from given regions, employment groups, or other groups.[73]

Furthermore, competition, where it has actually occurred, has not automatically delivered performance improvements in PHI markets. This is because insurers have often appeared to compete by selectively good risks or shifting the cost of certain risks onto other payers (public payers and other insurers), particularly in markets where PHI is the only or main form of coverage for population groups. In the United States, pressure from rising health care cost has recently driven insurers and employers to increasingly shift cost onto insurees by raising cost-sharing and reducing the comprehensiveness of PHI policies (Tollen and Crane, 2002). In Ireland, a new recent entry into the PHI market has attracted a significant portion of the younger and healthier enrolees, while competitive pressures have not encouraged either of the two main insurers to enhance care and cost management to date (Colombo and Tapay, 2004b). In France, despite large consumer mobility in PHI markets, insurers do not engage in efforts to improve cost-efficiency of care. In fact, competitive pressures deriving from the entry of commercial insurers into the market seem to have induced non-profit mutual insurers to apply stricter actuarial assessments (such as risk-rating). This pressure is similar to that experienced by some of the US non-profit Blue Cross/Blue Shield plans, which are only sometimes permitted to risk-select (Buchmueller and Couffinhal, 2004). Such insurer actions have sought to avoid adverse selection by enrolees, which occurs when insurers attract a disproportionate share of higher-risk individuals compared to their competitors.

Many countries with social health insurance and private supplementary systems have prohibited social insurers from offering private coverage as part of an effort to avoid unfair competition, given social funds' relationships with consumers. However, in countries such as the Netherlands and Switzerland, PHI is offered by affiliates of social insurers who, while legally separate, share administrative efficiencies and sometimes offer combined social and private insurance packages whose separation is either invisible to consumers or impractical for them. This can impact the potential for competition among social insurers because it limits insurees' mobility and because information gathered through social coverage can be used by insurers to identify bad risks. For example, individuals with combined packages of private and social benefits may be unable to change social insurer if they are unable to obtain the same private supplementary benefits from another social insurer (or their affiliate), due to their health status or other factors, as can occur in the Netherlands (Tapay and Colombo, 2004) and Switzerland (Colombo, 2001).

Insurers incur high administration costs

Private insurers face high overhead costs. Marketing and underwriting represent the largest fraction of administrative expenses, but insurers also incur the cost of billing, product-innovation, and distribution, and contracting with providers. It is to no surprise, therefore, that private insurers incur larger administrative costs (per person insured and as a fraction of total cost) than do public health coverage programmes.[74] In the United States, the average administrative cost of private insurers (11.7% in 1999) exceed those of the public programmes Medicare (3.6%) and Medicaid (6.8%) (Woolhandler *et al.*, 2003). Similarly, the administrative cost of Medicare in Australia (3.7% in the year 2001-02) is well

below the PHI industry average (11.1%). High administrative cost for private insurers are also found in other OECD countries, such as the Netherlands (10.4%), Canada (13.2%), Ireland (9.7%) and Germany (14%)[75] (OECD, 2004a).

Administration costs are larger in multiple payer systems compared to those with single payers. This is explained by duplication in functions, for example in provider contracting and claim processing, and the need to account for the high administrative costs incurred by providers. Fragmentation of coverage and financing sources, for example, create large administrative expenses for providers and insurers in the United States (Davis and Cooper, 2003). While no evidence is available on the optimal size of overhead, there is no clear indication that higher administrative costs lead to improved health care quality and outcomes (Woolhandler *et al.*, 2003).

Insurers have implemented few measures to enhance cost-effectiveness of health care

Private insurers have not implemented significant measures to enhance the cost-effectiveness of care in a majority of OECD countries,[76] with the notable exception of the efforts of managed care plans in the United States. Several explanations for the limited involvement of insurers in managing care[77] are plausible, including, among others, complexity and cost, resistance by the medical profession, lack of incentives, and the desire not to restrict individual choice.

Tools for managing care require sophistication in practices, and organisations or insurers may have limited incentives to invest in their application, especially if they do not expect significant gains, or anticipate opposition by stakeholders such as professional associations. In several OECD countries, negotiations between providers and public purchasers have also traditionally occurred on a collective basis, while there are limited traditions of selective contracting and negotiations.

Insurers face few incentives to manage care, especially for high-risk and high-cost cases, because their exposure to risk and cost is generally limited in countries where PHI does not have a primary role, or where it has a minor role in financing more costly care. Management of care – and its cost-effectiveness –is not a priority for insurers in many OECD countries.

Furthermore, incentives to manage care are challenged by some regulatory instruments. Mandatory or voluntary pooling, or "risk-equalisation" arrangements, can help spread the cost of caring for less healthy populations in primary PHI markets (as in the Netherlands) as well as other markets (*e.g.* duplicate PHI in Australia[78]). They have been introduced in order to counter any risk selection by insurers in these markets. Yet they carry trade-offs. While they promote equitable risk pooling across insurers, they do not encourage insurers to manage care efficiently if they compensate inefficient insurers for their higher costs. Some OECD countries are seeking to refine these arrangements as part of an ongoing effort to strike an improved balance between these two objectives. However, in addition to technical challenges, the development of such systems also entails policy choices about the priority to be given to the goals of promoting efficient care management versus the need to compensate insurers for their different risk profiles.

Insurers in the United States have actively sought to influence health care delivery patterns, volumes and costs to a much larger extent than have most other OECD countries. However, the backlash against managed care in the United States shows some of the constraints and resistance private insurance markets may face if they seek to promote

improvements in the cost-efficiency of health care delivery. At the same time, it highlights private health insurers' need and ability to respond to purchaser and consumer demand, by modifying unpopular practices.

Useful practices and policy recommendations

Incentives or regulatory requirements may be necessary in order to assure the appropriate balance between insurer cost-control efforts and the delivery of appropriate and needed health care services – a particular issue in primary markets. Regulatory interventions may also be needed if policymakers wish to use PHI markets as a lever for improving cost-effectiveness of care, for example by permitting selective contracting, removing obligations to contract with all providers, or providing incentives for insurers involved in preventative care or care management. This is because insurers may otherwise lack incentives to invest in such activities or to maintain adequate standards in this area. Policymakers designing risk equalisation systems also need to carefully assess the trade-offs between promoting equitable risk pooling and the maintenance of incentives for insurer efficiency. While striking a balance between these two goals is difficult in practice, some principles may help design effective risk equalisation systems.[79]

Better regulatory safeguards and improved information disclosure are also needed to enhance fair competition in a PHI market because of market imperfections such as information asymmetry and insurers' incentives to select risks. Individuals need transparent information and consumer protection regulation in order to become confident in, and knowledgeable about, the products they are buying. Improved consumer information can facilitate more meaningful competition among insurers, although it does not in and of itself remove the risk that vulnerable groups could be priced out of the market. Governments in several OECD countries, particularly those where PHI plays a primary financing role for population groups, have often intervened to protect access for vulnerable individuals, who may not be able to purchase coverage within some competitive markets.[80] Yet regulations that promote access by imposing benefit-related requirements arguably carry a price, as they may limit the scope for insurers to innovate and respond to individual preferences.

4. Policy makers' interventions in PHI markets: remaining challenges to achieve policy goals

PHI's contribution to health system goals largely depends upon health system structure, insurers' strategic behaviours and governmental interventions. Rather than representing a single financing option with unchanging characteristics, private health insurance arrangements can mirror social or public insurance systems, although this depends upon their role and the level of government intervention. Some intrinsic characteristics of unregulated PHI markets, such as information failures or asymmetries and incentives for insurer risk selection present important challenges.

Policymakers have sought to address these issues through a variety of interventions – with mixed success (Table 6.2 provides a synthesis of PHI regulation in OECD countries). Countries with significant PHI markets generally regulate PHI markets more heavily. In the case of EU countries, EU law restricts the ability of most countries to impose non-financial standards on PHI markets, with the exception of private primary or substitute coverage schemes, to which it accords added flexibility. Hence, most OECD countries impose limited non-prudential standards on these markets. For those that do, regulations can address

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Table 6.2. **Key PHI-related laws and regulations**

	PHI insurers must issue all or certain products	Requirements for contract renewal	Portability protections	Consideration of health risk related factors permitted in premium setting	Risk sharing or risk adjustment requirements/mechanisms
Australia	Yes. All products	Not applicable (contracts have infinite terms).	Yes	Lifetime health cover permits calculation based on age of entry.	Yes. Risk Equalisation Scheme funds benefits for those over 65 years of age and those experiencing over 35 days of hospitalisation per year.
Austria	No	No	No	Yes	No
Canada	No	None	No	No	In Quebec, for private drug insurance plans for high drug claims in excess of specified dollar amounts.
Germany	Yes. Access to standard tariff policy	Effectively, for substitutive cover, as it is offered on a lifetime basis. For other types of coverage, cancellation by insurer is prohibited after a certain number of years.	Yes, if moving from social to private insurance. Limits on general waiting periods and specified limits on coverage exclusions for certain conditions.	Substitutive cover must be offered on a lifetime basis; premiums determined by age of entry and gender (and benefits); health status risk surcharge may be imposed (except for civil servants switching from public cover to standard tariff). New entries may not be charged less than already insured of same age (not including ageing reserve). Premium cap: substitutive coverage.	PHI contracts include an option to impose a surcharge to pay for premium cap on standard tariff package, but this option has not been invoked. Insurers participate in a risk equalisation scheme for standard tariff policies, as the number of aged insurees varies across companies.
Ireland	Yes. All products	Yes. "Lifetime cover" requirement.	Yes	Introduction of premiums differentiated according to age at policy inception is permitted by law but regulation is required in order for it to be implemented.	Yes. Risk equalisation system being implemented.
Mexico	No	Requires insurers to specify if there is compulsory renewal, and, if so, the maximum age for renewal.	No	Limits on age-based variation established through a legally established premium range	No
The Netherlands	Yes. Standard package for elderly and high risk	Policies generally include an automatic one-year extension unless notified by the insured.	Insurer voluntary code requires ability to convert from group to individual policies on same general terms; voluntary code also promotes portability between group plans. No exclusions permitted for WTZ policies.	Premium for WTZ package subject to limitation. Limit is above average premium levels in the PHI market. No limits for supplemental coverage.	Compensation scheme between social insurance and PHI where privately insured pay a contribution to cover for social insurance covering more of the health care costs of the elderly. Pooling scheme for WTZ scheme pools costs exceeding WTZ premiums, and divides and spreads this cost through surcharge imposed on all privately insured.
Poland	No	None	No	Yes	No
Portugal	No	None	No	Yes	No
Slovak Republic	No	None	No	Yes	No
Spain	Yes for civil servant substitute coverage	Yes for civil servant coverage.	No exclusions permitted for civil servant coverage.	Yes; some entities set premiums according to age groups and others base them upon the criteria for mutuals.	No

Table 6.2. **Key PHI-related laws and regulations** *(cont.)*

	PHI insurers must issue all or certain products	Requirements for contract renewal	Portability protections	Consideration of health risk related factors permitted in premium setting	Risk sharing or risk adjustment requirements/mechanisms
Switzerland	Yes for primary coverage No for supplementary coverage	Yes for primary cover; not for supplementary cover.[a]	No exclusions permitted for primary cover; allowed for supplementary cover	No variation by health status is permitted under primary coverage; there are is some variation permitted for children and students, and for geographic area. Permitted for supplemental coverage.	Yes. A risk equalisation fund compensates insurers for cost differences in primary coverage arising from risk, based on age and gender factors. Continuation of risk equalisation scheme after 2006 is under debate.
Turkey	No	No	No	Yes	No
United Kingdom	No	No, but it is the traditional practice.	No regulatory limits.	Yes	No
United States	Yes. Some products and markets	Yes	Yes for group contracts; some states require it for individual contracts	Many states restrict health status-based rating ("experience rating") in small group market and some require community rating with varying degrees of permitted variation by age, gender and geography. Individual market requirements vary. Some states require community rating in the Medicare supplement market.	Many states have voluntary risk equalisation schemes in their small group markets; some are mandatory. Some states have risk equalisation in individual markets. 30 states offer high risk pools (coverage offered by separate pools, often subsidised by charges on insurers or other taxes).[b]

Source: OECD Regulatory Questionnaire on Private Health Insurance unless otherwise specified.

a) Colombo (2001).

b) Chollet *et al.* (2003).

certain challenges, but may also raise their own difficulties. Furthermore, it is important to consider the interactions between interventions, and the extent to which regulations have "loopholes" that can undercut their effectiveness; these may also need to be addressed through regulation. Finally, the timing and manner of implementation can also affect their impact and success.

4.1. Regulation can promote access to PHI

OECD countries have utilised a range of regulatory tools to promote access to PHI coverage across population groups, particularly for those with higher anticipated health costs. PHI markets without such requirements or targeted interventions often present access problems for high-risk individuals, as earlier experiences in the Netherlands and the United States have indicated. Lack of access is a particularly important concern where PHI plays a primary role, or where policymakers consider it important to afford individuals a private alternative to public coverage systems.

Issuance requirements are one primary tool to improve access to PHI coverage. Several countries, including Germany, the Netherlands and some US states, have required insurers to issue at least one standard package to all applicants. One disadvantage to this approach is that it tends to segment the PHI market by risk, as such policies tend to be held by higher risk persons who are unable to purchase other policies.[81] On the other hand, this segmentation reduces the impact of this higher risk population on the premiums of other PHI policy holders. Furthermore, this approach assures the offering of a meaningful, comprehensive package to all applicants. Another approach – taken in Ireland and Australia and certain states in the United States – is to require insurers to make all of their products available to all applicants. This method assures a broad choice for all applicants, but may result in overall price increases, and these may be less acceptable to those with lower health risk – a particular challenge in voluntary markets. There is no clear preferred choice between these approaches as long as meaningful coverage is available to all. In selecting the desired mechanism, policymakers will have to weigh the above-described tradeoffs and reflect cultural and political priorities. In the absence of any interventions, PHI markets are likely to suffer from some degree of risk selection. This is a greater concern in the case of primary markets or other markets where PHI's role is significant, but is arguably a policy concern in all markets – particularly if equity of access to coverage is a policy priority.

Requirements relating to policy insurance alone are not sufficient to promote access to coverage. For this reason, countries often couple access requirements with standards relating to PHI premiums. Again, as with the issuance requirements, approaches may fall into two broad classifications.

First, there are market-wide restrictions on insurers' ability to consider health status when calculating premium rates. These can range from prohibitions on the consideration of risk factors, to restrictions on their use. These standards apply broadly to PHI products and affect the rates charged to low and higher risk individuals alike. They have the advantage of spreading the risk across the entire privately insured population. However, in voluntary markets, these policies may run the risk of inducing lower risk individuals to drop coverage if overall premiums rise as a result. Allowance for some variation, such as permitting age-related variation within defined bands, or delimiting the extent to which premiums may vary based on health status, may reduce the risk of undesired coverage declines, and may in fact be preferable. It also helps maintain a broader risk pool, while still limiting risk-based premium differentials.

Ireland and Australia, and many US states, in their small group markets, have accompanied these rating reforms with risk-equalisation schemes which seek to compensate insurers covering a higher risk population. These schemes can also help promote fair competition among insurers. Phasing in the implementation of rating reforms over time, rather than implementation in a single step, may also help avoid market instability and dramatic shifts of covered individuals between insurers or in and out of insurance. New York and Vermont present contrasting experiences in this regard, as New York implemented its PHI community rating reforms rapidly, whereas Vermont phased in their implementation, with less resulting instability (White, 1994).

A second approach to PHI affordability is the imposition of caps on the premiums of coverage that must be issued to high-risk persons. Both Germany and the Netherlands limit primary PHI premiums in this way for their standard PHI packages. In both cases, premiums are well below the cost of insuring the higher risk populations and surcharges are imposed on parts or all of the rest of the PHI enrolees in order to help subsidise these lower premiums. In this way, the broader PHI market participates in the cost of these policies, which often include higher risk persons, but it does so through a mechanism that segregates these costs into a separate coverage pool. As is the case in issuance reforms, each approach carries trade-offs. The most important issue is the availability of affordable coverage for all and the limitation of cost variations based upon risk. To this end, some mechanism of cross-subsidisation is likely necessary – whether it is community rating with risk equalisation or a premium cap on coverage for those with higher anticipated health costs, with the cost differentials funded through surcharges on other insureds or other taxation. Another approach is to move outside the PHI market entirely, and offer coverage for "higher risk" individuals through public or quasi-public entities funded through industry contributions or other mechanisms (*e.g.* the "high-risk pools" in many US states). In the latter case, it is important that any such pools offer meaningful, affordable coverage and be well funded, whether by public or private sources.

Additional regulatory tools can bolster the effectiveness of access and premium-related requirements. For example, renewability requirements, such as exist in Ireland and the United States, among other countries, are a useful and fairly straightforward means of promoting continuity of coverage and risk pooling. Under such requirements, insurers must renew coverage contracts, as long as the insuree still wishes to do so. This type of standard prevents insurers from selectively renewing only those policies with a history of low claims or costs and thereby promotes access as well as the maintenance of a diverse risk pool. In addition, many countries have limited the length of "pre-existing condition exclusions" that insurers have imposed and prevented the re-imposition of such provisions when a person changes insurers, if they have maintained continuous coverage. These exclusions limit insurers' obligation to cover conditions existing at the time of purchase (and hence seek to minimise adverse selection against insurers). However, they can be misused if imposed for undue lengths of time or for persons who have maintained coverage. Australia, Ireland and the United States explicitly limit the length of such provisions, and other countries, such as Germany, place limits on the coverage exclusions insurers can impose. When the above-described regulatory protections are employed in combination with issuance and premium-related standards, these joint provisions help promoting the efficacy of each single measure. Otherwise, there is the potential that access or affordability requirements could be undercut by exclusions or insurer policy cancellations.

Access-related standards pose particular challenges as they are inextricably intertwined with affordability challenges – which are linked to broader health care cost-control concerns.

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They also confront one of the most difficult aspects of PHI markets – the tendency for insurers to try to select "good risks" and avoid "bad" ones and the tendency for individuals in good health to prefer less expensive, less generous coverage, or not to purchase coverage at all. These behaviours, while enabling insurers to reduce costs and premiums, and also maximise profit, respectively limit access to private coverage and deprive the insurance pool of "better risks," thus driving up the premiums of those who retain insurance.

4.2. Regulation can improve consumer confidence in PHI markets

Governments can shape the scope of PHI markets by imposing standards or limits on the benefits that PHI insurers can offer. Again, policy makers within OECD countries have generally adopted interventions falling into two broad categories.

First, they can specify required benefits through minimum benefit standards, as in Ireland, Australia, and many US states. These standards have the advantage of spreading the burden of covering certain higher cost benefits across insurers, and helping governments link PHI with health promotion goals. At the same time, they enable insurers to retain discretion in benefit design around non-required benefits. By focussing on covered benefits, rather than the design and comparability of benefit packages, however, these standards do not address consumers' ability to compare product offerings across insurers. Some markets suffer from such challenges more than others; for example, Australia has initiated some policy initiatives to confront difficulties, while Ireland does not face the same level of challenges in this area.

A second approach to regulating benefits, and promoting product comparability, is the requirement that insurers offer a limited number of specified benefit packages. This approach enhances consumers' understanding of product offerings and lends itself to more ready price comparisons. It can be of particular use for more vulnerable populations, such as the elderly, and indeed has been found to promote consumer understanding when required for the US Medicare supplement market (which offers complementary coverage to those 65 years of age and older). There has been less experience with these requirements than with minimum benefit standards in OECD countries, outside of the US Medicare supplement market. While some are in place in a handful of US states, they do not appear nonetheless to have been widely adopted. In contrast, requirements that certain standard policies be offered alongside other coverage options are more common, such as in Germany, the Netherlands, and many US state small employer markets.

Disclosure requirements can work together with benefit standards to promote and reinforce consumers' understanding of their PHI products and coverage options. In recognition of the complexity and uniqueness of certain issues arising within private health coverage markets, several OECD countries developed and impose health insurance specific disclosure standards (*e.g.* Australia, Portugal, Germany, Mexico and the United States). In another approach, in the United Kingdom, the industry requires compliance with certain voluntary standards as a condition of membership in the insurer trade association.[82] When combined with standardised packages or minimum standards, these requirements can promote purchaser familiarity with their coverage options because they assure more similarity or comparability among the products of competing insurers and make it easier for plans or governments to describe certain benefit plan characteristics. In other cases, disclosure standards apply to all insurers offering health and non-health products alike (*e.g.* Germany, the Netherlands, Poland, Portugal and Spain), and are sometimes applied in conjunction with health insurance specific standards.

Consumer confidence in PHI markets and their coverage can also be strengthened by mechanisms which provide policy holders with cost-free or low-cost means to appeal certain plan decisions, when insurees have not been able to resolve disputes through plan internal appeal and complaint mechanisms. "Ombudsman programmes" can help resolve disagreements without costly litigation – an avenue which many persons might not pursue due to its lengthiness and cost. In a number of countries, there are bodies focusing exclusively on health insurance related complaints (*e.g.* Australia, Germany, Switzerland and most US states), whereas in others, these entities adjudicate health insurance complaints as well as other insurance-related disputes (*e.g.* Ireland, Poland, the Netherlands and Spain) or grievances against the financial services industry (United Kingdom). Experiences with these independent bodies have generally been quite positive and they appear to be well regarded by industry and consumers alike.

4.3. Effectiveness of regulation requires constant monitoring and flexible adaptation

Of course, the efficacy of regulatory instruments ultimately depends upon industry compliance and governments' ability to both monitor plan conformance with standards and impose penalties for non-compliance. To this end, OECD countries invoke a range of tools, including policy review, civil monetary penalties, and requirements for corrective action, among others. Furthermore, PHI markets are commonly regulated by multiple agencies, drawing from relevant government departmental expertise, and thereby maximising the input of relevant government expertise and enforcement efforts (*e.g.* Australia, Ireland, the Netherlands and many US states) For example, it is not unusual for PHI financial standards to be overseen by the relevant financial authority, while PHI health care related standards are often (but not always) overseen by the agency with jurisdiction over health care financing and/or provision. Furthermore, PHI markets are generally subject to broader competition standards as well. The division of government responsibilities can vary without compromising regulatory efficacy, as long as it permits the development of well-designed regulation and promotes government's ability to respond in a quick and flexible fashion to market developments.

4.4. Governments can use other instruments and approaches to foster desired policy goals

Tax incentives or advantages connected with the purchase or offering of PHI (Table 6.3) have encouraged and shaped the development of PHI markets in several OECD countries, although price elasticity of demand for PHI varies widely across OECD countries. For example, the presence of tax incentives favouring the offering and take-up of employer coverage is credited with the development of a significant employer-sponsored PHI market in the United States and Canada, among other countries. One significant incentive is the absence of individual taxation of employer-sponsored benefits, such as occurs in the United States, Ireland, and several other countries. Conversely, disincentives, such as the imposition of a fringe benefit tax on employers offering such coverage in Australia, have hampered the development of a group PHI market in this country, where PHI policies are largely purchased on an individual basis.[83] The impact and desirability of individual tax incentives, however, have been the objects of debate on equity and cost grounds. While such fiscal incentives can shape purchase patterns, they alone are less likely to address some of the more entrenched challenges of PHI markets – namely access challenges due to insurer underwriting practices – particularly those that restrict acceptance and increase

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Table 6.3. **Tax and monetary incentives**

Australia	30% premium rebate to individual purchasers of ph insurance. Medicare Levy Surcharge on taxable income of high income earners who do not take out private health insurance.[1]
Austria	Single people (deduction limited amount and available up to an income threshold) and sole earners (subject to limit) can deduct 25% of VHI premiums from their taxable income. Firms can deduct employer-paid premiums from tax.[a]
Belgium	Self-employed people can deduct premiums for substitutive PHI from taxable income. Firms can deduct employer-paid premiums from tax.[a]
Canada	Tax credits, allowances, deductions and exclusions.
Denmark	Firms can deduct employer paid premiums from tax.[a]
Finland	None.[a]
France	Employees can deduct amount PHI premiums paid by employers from taxable income.[a]
Germany	Premiums for PHI as well as contributions for social insurance are deductible up to a limit. Health care costs not covered by insurer may deducted up to a maximum amount (which is based on income).
Greece	VHI premiums are deductible from taxable income up to a maximum deductible amount (€ 587 per year).[a]
Ireland	Tax allowances: Applicable to all taxpayers, deducted by insurers at the standard tax rate, limited to health insurance premiums for registered health insurance undertakings. Tax relief is also available for out-of-pocket medical expenditures not covered by PHI, at the higher, "marginal" rate. Rebates: If not claimed as a tax allowance. From 1 January 2004, employers are to pay "Employers Pay Related Social Insurance Contributions" (PRSI) on a broad range of 'benefits in kind' provided to employees, including employer-paid health insurance premiums.
Italy	VHI premiums for group commercial policies and all (group and individual) mutual policies are deductible from taxable income at standard rate up to a ceiling (€ 1 250).[a]
Luxembourg	Individuals can deduct mutual VHI premiums from taxable income up to a ceiling (ceiling for all insurance premiums).[a]
Mexico	Tax allowances: Amount of tax allowance equals the premium amount, there is no limitation or additional requirements.
The Netherlands	Tax Credits: Tax credit for young disabled (< 65). Credit deducted from tax that persons (entitled under Wajong law) have to pay € 500 (2002). Tax allowances: Healthcare costs are income tax deductible (costs directly related to illness or invalidity). Must exceed a certain threshold (11.2% of income with a max of € 5 594 (2002) in order to become deductible. Premiums for private (industrial) disability are deductible.
Portugal	Tax allowances (deduction from income tax, not taxable income):[a] 25% premium amounts, limit € 71.75 for single persons, € 143.50 for married persons for each child an extra € 35.88.
Spain	No tax on insurance premiums (re: all policy subscribers). Employees/workers (Income Tax): The premiums or quotas paid by companies to insurance entities are not considered as earned in kind up to a limit: Limits: € 360.61 per year (individual); € 1 202.02 per year (if the insurance includes the spouse or dependents). The amount in excess is considered in kind income. Employers: (Corporate Tax) premiums paid are considered deductible expenses. If the taxpayer (in business activities) is the insured: (In come Tax), the amount of the premium is deductible in the direct estimation regime under the same terms of the Corporate Tax.
United Kingdom	None for individuals nor firms (since 1997),[a] although firms can deduct premiums from taxable profits.
United States	Tax Credits: 60% of premium applicable to trade-displaced persons on Qualified Health Insurance products (Health Insurers must be licensed). Tax allowance, deductions or exclusions: 100% for employers and 85% for self-employed.

1) Medicare Levy Surcharge (MLS) was introduced in 1997 to encourage high income earners to purchase phi and remove some of the burden from the public hospital system. The surcharge is additional to the compulsory Medicare Levy.

a) Mossialos and Thomson (2002), Table 16, p. 91.

Source: OECD Regulatory Questionnaire on Private Health Insurance unless otherwise specified.

premiums based on enrolee or applicant health status. Unless tax incentives can vastly increase the level of population coverage and result in large numbers of higher and lower risk persons – which they are less likely to do unless they are coupled with access or premium standards that assure access to higher risk persons[84] – certain challenges found in unregulated markets likely will remain.

Voluntary standards or less stringent, benchmark standards can form a useful part of regulatory approaches, although the potential effectiveness of the latter remains untested. Several ombudsman programmes and industry disclosure standards, among others, have been instituted on a voluntary basis by industry accord, or on a plan-by-plan basis. Benchmark standards are under development in Australia as part of an attempt to lighten the regulatory load on the industry and to measure their compliance with broader regulatory standards through specified outcome targets, rather than more detailed standards. This innovative approach merits further monitoring and may prove to be an interesting model for government oversight.

EU PHI markets provide an interesting laboratory for testing the effects of deregulation on PHI markets. With the exception of certain primary and duplicate PHI markets – which can be subject to more stringent standards under EU law – member countries have generally been prohibited from imposing requirements beyond prudential standards since the mid-1990s. EU policy makers have begun to question and explore whether these markets merit different, and perhaps more intensive, intervention than other insurance markets.[84] Given their connection to national health systems, the need to assure sales across country lines may merit less concern in this market than other insurance markets which are arguably less country-specific. At the same time, deregulation has the advantage of utilising less government resources and providing the industry with free rein to innovate. Policymakers may also be less concerned with access and equity-related issues arising from supplemental or complementary markets, and decide to leave these markets largely unregulated. As described herein, such a decision will likely result in access and risk selection challenges, in the absence of voluntary industry adherence to certain solidarity principles. However, if governments in EU countries wish to consider changed or increased roles for PHI, it may be useful for them to have enhanced flexibility regarding potential regulatory instruments.

The above-described regulatory approaches and government interventions have met with a good degree of success. However, challenges sometimes arise and it is therefore important for governments to continue to monitor the effects of their initiatives, to ascertain whether changes or refinements are warranted.

Useful practices and policy recommendations

A combination of issuance and rating reforms, such as adjusted community rating or modified experience rating combined with risk equalisation, or the imposition of premium caps along with cross-subsidies, can alleviate some challenges – such as insurers using another mechanism (*i.e.* selective premium increases) to select risks if they are subject to issuance requirements. However, challenges relating to PHI affordability and access are likely to persist as they are often the product of complex interactions within the PHI market and between the PHI market and other players in health systems. Policymakers thus need to continue to devise creative solutions to these problems. In addition, the continued presence of access-related problems may not, in and of themselves, signal a failure of certain regulations, but rather display their limitations. Regulations, particularly when carefully designed and implemented, can help stabilise markets and promote risk-spreading and fair competition.

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Selected regulatory mechanisms have been shown to promote purchasing of PHI by population groups that previously did not regard purchasing PHI as a good use of their disposable income or for whom premiums are unaffordable. Fiscal incentives and subsidies can also boost the purchase of insurance and shape a market (*e.g.* through promoting employer coverage) by reducing the net price of insurance take-up. However, untargeted subsidies do not favour price cross-subsidisation across individuals of different risk, while targeting of fiscal subsidies are complex to implement. Furthermore, given price elasticity of demand, eliminating, or significantly reducing, disparities in access to PHI between population groups of different incomes and health status, will require the investment of significant financial resources, in some cases beyond the levels of current tax or fiscal advantages. Where publicly funded systems provide meaningful and adequate access to needed health services, the need for such regulatory and fiscal interventions is debatable. Yet where PHI provides the only available coverage, such action is essential if affordable health coverage is to be available to all.

5. Conclusions

Private health insurance presents both opportunities and risks for the attainment of health system performance goals. For example, in countries where PHI plays a prominent role, it can be credited with having injected resources into health systems, added to consumer choice, and helped make the systems more responsive. However, it has also given rise to considerable equity challenges in many cases and has added to health care expenditure (total, and in some cases, public) in most of those same countries.

The impact of PHI on OECD health systems stems in part from the incentives PHI markets create for various health system actors. However, several variables, such as PHI market characteristics and structures, the function that PHI plays within the health system, and policy interventions, have a substantial impact upon its actual performance. In many cases, the degree and types of government intervention influence whether challenges arise or are successfully addressed.

Private health insurance is one of many instruments that can help promote health system responsiveness, further governments' health system goals and meet consumer and societal demands. Given trade-offs that often arise in this area, however, some may decide that PHI's benefits are not worth their accompanying costs. Yet most OECD countries have, and will continue to have, some type of PHI market. For many, a key policy question is therefore how best to make use of PHI markets – what role and significance should PHI have within a given health system – rather than the question of whether any market should exist. Country responses to this question will vary, depending upon policy priorities and the historical and health system context. For example, policymakers may have explicit goals for primary PHI markets, and design and impose policies targeted to this type of coverage. At the same time, they may choose not to invest significant resources in regulating other types of PHI, concentrating instead on encouraging equity of access through public coverage. Consumer demand will also influence market developments and help shape policy makers' thinking.

As emphasised in this report, the advantages and disadvantages of PHI often depend upon its role within health systems and its interaction with public coverage. Key strengths and weaknesses arising from different PHI roles are:

- A system based on competing primary private insurers can improve responsiveness and consumer choice, but this will come at increased cost. Where private health insurance is primary for certain population groups, ensuring access to affordable coverage will be an

important policy consideration. However, regulations to address common primary market failures and promote equity have costs, both in terms of government resources, as well as in terms of diminished insurer flexibility and ability to innovate. Furthermore, it may be particularly challenging to assure adequate access to private coverage for vulnerable populations.

- Duplicate PHI markets can serve as a policy lever to improve systems' responsiveness when policy makers consider it efficient to ration public health expenditure according to persons' willingness to pay. Yet, this type of insurance generally results in differences in access to care and coverage according to insurance status. The degree of differential access that occurs, and the extent to which these access variations are perceived to be equity challenges vary by country. In addition, while it can help reduce some of the capacity pressures faced by public health systems, it does not significantly reduce public health expenditure.
- In the presence of significant cost-sharing within public systems, complementary health insurance helps ensure access to needed care. However, full private coverage of public sector cost-sharing encourages moral hazard-induced utilisation. Unless some cost-sharing is retained to maintain individual cost awareness, PHI coverage hinders efforts to control public systems' outlays.
- Supplementary PHI markets are less intertwined with public coverage systems, in contrast to other PHI roles. Supplemental coverage of services removed, or delisted, from public coverage can reduce public expenditure. However, insurees' utilisation of supplemental services may still be linked to publicly financed services, resulting in increased public costs as well. Also, since PHI markets generally have less universal reach than public coverage, decisions to de-list services need to balance the desire to reduce public sector cost with the equity implications of no longer covering certain services publicly.

PHI also raises certain challenges that cut across its different roles. For example, access to PHI coverage can be an important social objective in systems with universal coverage, where policymakers wish to offer consumers an alternative to universal publicly-financed providers, or where certain medically necessary health services and products are not covered publicly. Yet, policy makers will need to intervene to address market failures in order to assure PHI access for high-risk groups. In doing so, they can choose from a range of tools. They need to balance the sometimes competing goals of access and the maintenance of a broad and diverse pool of covered lives, particularly in voluntary markets. In addition, governments and insurers should make further strides to ensure meaningful disclosure of policy terms and better dissemination of information in order to enable consumers to make informed decisions between competing PHI products. This would enhance consumer understanding as well as promote transparency and more meaningful competition. Even then, sometimes too great a choice may hamper purchasers' ability to make informed coverage decisions. Policymakers will need to address some of these issues or they will risk undermining their stated goals.

This report has provided an overview of some of the more effective instruments and system designs employed by OECD countries with diverse insurance mixes, as they seek to address challenges raised by mixed funding arrangements, encourage access to PHI and bolster consumer confidence in these products. It has highlighted the advantages and disadvantages of various approaches, including the demonstrated strengths and limits of

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certain fiscal and regulatory instruments, as well as the implications of using one tool in lieu of another. Problems arising from PHI markets can be ameliorated through government intervention, although several issues continue to pose challenges, including how to maximise the effectiveness of various actions. The report has also drawn attention to a number of trade-offs that policy makers must balance when deciding how to best promote their particular policy choices through a mixed public-private insurance system.

It is important to be realistic about the potential benefits of competitive PHI markets and what they most likely will *not* achieve. For example, cost-containment within health systems is often best achieved through means other than an expansion of private health insurance's role. Unregulated PHI markets, especially in the absence of other mechanisms to offer affordable coverage to high-risk persons, are inadequately equipped to promote access to coverage for people with chronic conditions and other high-risk persons. On the other hand, serious consideration ought to be given to the value of health system responsiveness, an area where private health insurance has contributed positively to health system performance. Whether or not it is intended or desired, PHI markets interact with health provision and delivery systems in several ways, some of which are advantageous and others less so. The role of PHI should be structured around policy goals for health financing, as well as broader health systems' policy objectives, to ensure policy coherence. Flexible policy making is also needed to address promptly any problems and undesirable outcomes that may emerge from the interaction of private PHI markets with public systems.

Some important questions also merit further investigation. For example, the impact of private health insurance on quality of care is still under-researched. The mechanisms through which competition in PHI markets can foster health system efficiency are also not well understood. There is limited information about the role of PHI markets in adopting and diffusing new and emerging medical technology, and the way this process interacts with technology assessment in public systems. The pros and cons of private long-term care insurance, as opposed to public health financing, also deserve closer investigation, as clearly do the links between private pension and disability coverage, on the one hand, and PHI markets, on the other. The public at large would benefit from enhanced and expanded efforts to educate them about health coverage options, and the implications of coverage decisions. Furthermore, improved availability of data on private health insurance markets would help to improve policy making and comparative analysis on PHI across OECD countries. Finally, there is room for further reflection regarding how best to strike a balance between the sometimes competing goals of ensuring equity, promoting flexibility, and preserving efficiency incentives within PHI markets. While the desired and permitted role for PHI remains a country-specific policy choice, answers to these and other questions would advance evidence-based policy making in this area.

Notes

1. This paper is a summary of key findings and policy lessons of an OECD study on private health insurance. It is based on a larger report on the role and impact of private health insurance across OECD countries (OECD, 2004a). This paper has also been released as an OECD Health Working Paper, No. 15, by Francesca Colombo and Nicole Tapay.
2. Francesca Colombo is with the OECD Health Policy Unit. At the time the work was conducted, Nicole Tapay was with the OECD Financial Market Division.
3. Private health insurance is coverage of a defined set of health services financed through private non-income-related payments (premiums) made to an insuring entity. This coverage guarantee is

usually set forth in a contract between a private party and the insurance entity that spells out the terms and conditions for payment or reimbursement of health services. The insuring entity assumes much or all of the risk for paying for the contractually-specified services.

4. Unweighted average for 22 OECD countries for which reliable data are available or estimated for 2000. It excludes the following countries: Belgium, Greece, Korea, Poland, Portugal, Sweden, Turkey and the United Kingdom.

5. The mandatory, competition-based, health insurance system in Switzerland accounts for an additional 40% of total health expenditures.

6. For supplementary PHI policies.

7. For primary health insurance.

8. Countries with high shares of private health financing, such as Korea, Mexico and the United States, have shown a trend towards an increasing importance of public health funding over time. The contrary is occurring in countries with high levels of public expenditure on health, where private health expenditure is increasing. These data may indicate a convergent trend in public-private financing mixes across the OECD area (OECD, 2003a), although it is unknown whether the past trend will continue.

9. See Wagstaff *et al.* (1999) for further discussion on equity of financing across several OECD countries. At least in principle, one can compensate for a lack of progressively funded health care by making the general tax system more progressive.

10. In the United States the elderly (including the vast majority of those age 65 and above), qualified disabled persons, and those with end-stage renal disease have Medicare. Certain poor populations are eligible for Medicaid or State Children's Health Insurance Program, and some of the poor elderly or disabled persons have both Medicare and Medicaid. Conversely, in the Netherlands a more limited segment of the population, the upper third of the income threshold, is responsible for buying their own private coverage. In Germany, high-income population groups are able to opt out of the sickness fund system by buying a private health insurance policy.

11. In the United States, persons eligible for Medicare can buy supplemental "Medigap" policies covering co-payments and gaps in coverage of benefits offered by Medicare.

12. The most important benefit covered by PHI in Canada is prescription drugs outside of hospitals, which are not funded through the public coverage system, although some provinces have public drug coverage programmes for the most vulnerable groups. Other benefits primarily covered by PHI include dental and optical services. Prohibitions on PHI coverage of other publicly funded hospital and physician services vary by province, and exist in the majority of provinces. See also Flood and Archibald (2001).

13. In France, private LTC insurance provides fixed benefits in the form of monthly annuity payments, while in the United States it mostly provides indemnity reimbursement of incurred expenses (Scor, 2003). In Germany, individuals with primary PHI policies are compelled to also purchase a private LTC policy, according to the principle that LTC insurance is to be provided by the same insurer offering basic health insurance (about 10% of the population has private LTC insurance in Germany). In the United Kingdom, LTC insurance policies are developing, but high premiums have hindered demand.

14. Private LTC products are complex and tend to have high premiums. Furthermore, individuals may not feel the need to buy such a policy in their young age, and the price of private LTC policy is higher, and may hence be unaffordable, in their old age. However, there may be some demand for LTC products supplementing public LTC coverage. For example, in Spain one survey indicates that about 16% of the population would be willing to purchase insurance (Costa-Font, 2002).

15. Regulators often face challenges with LTC products, which are relatively new and fast-changing products in several markets. Rate-setting for this type of product requires a deal more sophistication than that required for most health care insurance products, along with a long-term understanding of care needs and costs. Premiums are often high, may fluctuate significantly, and may not match typical consumer perceptions of the appropriate cost for this risk. The lack of broad-based experience with this product makes regulation difficult, for example the best manner to structure premiums and ensure adequate funding of these policies is still not well established.

16. This may be a reason why nearly all OECD countries have public programmes covering elderly and poor people.

17. In some OECD countries voluntary health insurance arrangements have been crowded out by the establishment or expansion of social and public coverage programmes. For example, the establishment of a basic mandatory health insurance system with comprehensive benefits in

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Switzerland in 1996 resulted in a reduction in the supplementary PHI market. In Australia, the population covered by PHI declined after the introduction of universal public coverage, Medicare, in 1984.

18. In the case of Korea, half of the PHI market includes disease-specific products providing the insuree with cash benefits should a certain critical illness occur, while another half is accounted for by compulsory car accident insurance providing cash benefits against the medical costs incurred after an automobile accident (OECD, 2003b).

19. Regulatory frameworks differ to large extent, although they broadly aim at protecting consumers, particularly most vulnerable groups, while encouraging insurers' competition.

20. In Australia, population coverage had decreased steadily during the 1990s. A package of government interventions including fiscal incentives and regulatory requirements intended to foster PHI purchase has been implemented since 1997. Regulatory changes in particular have been effective in stimulating a large take up of PHI from 31% in 1999 to 45% in 2001. In Ireland, the recent significant increase in PHI take-up has been supported by the strong economy and growing employer market rather than being attributed to any government interventions.

21. Mutual insurers benefited from corporate tax advantages derived from their status as mutual insurers ("mutuelles").

22. The absence of a history of private health coverage in these countries, and in some cases a relatively low degree of cultural familiarity with insurance, together with their less wealthy populations, may pose obstacles to the creation and development of a meaningful private health insurance sector. The relationship of any PHI market to public health insurance schemes, which is currently the object of legislation for example in Slovakia, will affect the impact of PHI on health system performance (Colombo and Tapay, 2004a). It will also delimit the scope of potential government intervention. In fact, the European Union requires that many regulations be justified in the interest of the "general good", as documented in the third non-life insurance directive, although it provides countries with enhanced flexibility where PHI is expected to play a more substantial coverage role.

23. These include people with incomes between 100% and 200% of the federal poverty level. Nearly two-thirds of the uninsured (64%) US population are low-income individuals, or from low-income families. Over a third of the poor (37%) and a quarter of the near-poor (24%) are uninsured. The term "low-income," as used here refers to those making less than 200% of the federal poverty level, or USD28 696 for a family of three in 2002 (Kaiser Commission on Medicaid and the Uninsured, 2003).

24. There can, however, be downsides to employer purchase of PHI, including the potential for it to insulate individuals from the real costs of coverage and care.

25. For example, there is little consumer switching in Switzerland, the Netherlands and Australia, although in Switzerland (for basic cover) and Australia, open enrolment means that consumers are entitled to switch at certain times (Switzerland) or any time (Australia). Limited switching of insurers can be explained with high transaction and informational cost. Several countries have enacted "portability" provisions to enable consumers to change insurers without certain penalising exclusions, including Australia, the United States, and Ireland.

26. Evidence in this section is mainly drawn from selected countries for which detailed analytical studies have been prepared, such as Australia, Ireland, and the Netherlands. The analysis also draws from other countries where sufficient evidence is available, for example the United States, France, Germany and the United Kingdom, among others. However, the overall country examples remain limited, reflecting a small number of OECD countries where PHI plays a significant role and for which a meaningful assessment of its impact on the health system is possible.

27. In such systems, public health coverage is tied to public delivery structures (such as public hospitals and doctors in public practice), while a parallel private sector caters to individuals paying out-of-pocket or through their PHI policy.

28. See Hurst and Siciliani (2003), Mossialos and Thomson (2002) and case studies on Australia and Ireland (Colombo and Tapay, 2003 and 2004b).

29. In Australia, the public insurance system, Medicare, covers the cost of medical (specialists) fees for inpatient treatments in private hospitals. In Ireland, about 20% of public hospitals' acute beds are designated for treatment by private patients These factors impact on the ability of privately insured individuals to obtain faster access to elective care.

30. Available evidence indicates that moderate waiting times for non life-threatening conditions (three to six months depending on condition) do not worsen patients' health and surgical outcomes, while longer waits can be more problematic (Hurst and Siciliani, 2003).

31. Another private insurance market – medical malpractice insurance – has recently posed challenges to the supply of medical providers in some OECD countries. Medical malpractice insurance has raised policy and cost challenges in several OECD countries and in some cases has threatened physician supply due to provider concern over its costs.

32. Yet, in Spain the public sector has purchased capacity from the private sector in some regions.

33. The Human Resources for Health Care study discusses in particular the effects of different payments methods on productivity (Chapter 4 in this volume).

34. Such as allowing doctors to charge higher fees to private patients. Differences also exist when doctors are paid on a salary or capitation basis for their public practice, and on a fee-for-service basis in their private practice.

35. Capacity is indeed a key factor behind cross-country variations in waiting times across countries (Siciliani and Hurst, 2003).

36. In Australia and Ireland, PHI's contribution to the overall level of inequality in access to care is pro-rich for hospital utilisation, although the distribution of hospital care in Australia (in terms of probability of utilisation) favours the poor ("pro-poor" distribution).

37. In Ireland, private hospitals are not included within the publicly reimbursed health system and therefore are largely dependent on income from PHI. Irish physicians in public practice can augment their incomes through private practice, where they have increased flexibility to charge additional fees. In Australia, France, Germany, and several other OECD countries, PHI can pay for additional fees above the government fee schedule for in-hospital private treatments.

38. In both Australia and Ireland, people can elect to receive privately financed treatment in public hospitals. While they are not supposed to obtain preferential access to care compared to publicly financed patients, in Ireland, trends in utilisation of public hospital facilities by public and private patients have given rise to concerns that private patients might receive priority treatment for elective surgery. This does not seem to have been a concern in Australia.

39. While this concern has been raised in several countries, such as the United Kingdom and Ireland, evidence that this has occurred in practice is very limited. Policy makers have nonetheless in a few systems regulated the extent to which public doctors can engage in private practice. For example, doctors are prohibited from practicing in both the public and private sectors in Sweden, Luxembourg, Greece and Italy in order to limit the risk that doctors would neglect their public patients in order to engage in the remunerative treatment of private patients. The new NHS contract offered to consultants in the United KIngdom in 2003, for example, was introduced with the purpose of reducing this bias. In Ireland, the consultants' collective contract also specifies a commitment to public practice.

40. For example, prices are uniform across publicly and privately insured patients in the Netherlands. Patients are put on the same waiting list regardless of their insurance status, and access to care is according to need. In Australia, no a priori allocation of beds between public and private patients exists in public hospitals, and patients are supposed to be admitted purely on the basis of need.

41. At the same time, this reimbursement system precludes PHI from offering the advantages it provides in some countries.

42. Couverture Maladie Universelle. Evidence from Van Doorslaer *et al*. (see Chapter 3 in this volume) indicates that the introduction of the CMU has in part compensated for the pro-rich effect of PHI on the utilisation of doctor visits.

43. In Ireland, despite a 20% allocation of public acute beds to private patients, private patients have accounted for almost 30% of admissions to public hospitals in 2000, raising equity concerns (Wiley, 2001). In Australia, there is some limited evidence that the revenue potential offered by private patients for public hospitals and doctors created some incentives for preferential treatment of private patients.

44. Mossialos and Thomson (2002) note, among other areas, the following limitations of the EU third non-life insurance directive: "While harmonisation initiatives appear to be a necessary prerequisite for the creation of a single market in insurance, *they may pose problems for member states that attempt to reach a compromise between deregulation and consumer protection*. Home country control effectively removes the right of member states to operate material regulation in the insurance sector (…). The third non-life insurance directive outlawed price and product regulation in the expectation that competition would benefit the consumer by lowering prices and increasing choice, but *to date there is no clear evidence to suggest that this expectation has been fulfilled*." (Mossialos and Thomson, 2002, pp. 43-44, emphasis added.)

45. Most private long-term care insurance markets are voluntary, except for Germany, where purchase is mandated for those with private primary (substitute) health insurance.

46. In Spain, the vast majority of the civil servants opt out of public coverage (European Observatory on Health Systems, 2000). Health Care Systems in Transition. Spain, p. 38). In Germany, only those with monthly incomes above € 3 825 (in 2003) may opt out of social insurance. In 2002, individuals eligible to opt out of social insurance who remained voluntarily insured by sickness funds represented around 12% of those socially insured, or 10% of the German population (Verband der Privaten Krankenversicherung, 2003).

47. Germany requires insurers to offer a policy with specified standard benefits at a capped premium ("standard tariff policy") to eligible elderly and other individuals.

48. For example, in Australia, providers can charge fees above the government fee schedule and PHI may cover such costs if incurred in a hospital setting. Those covered by PHI may be less restricted in their choice of provider as they are able to be reimbursed for the costs of seeing a more expensive provider. However, PHI does not always provide full coverage of such gaps, and private patients may face out-of-pocket expenditures. The government requires, therefore, that doctors obtain "informed financial consent" from the patient before they proceed to deliver a treatment involving such financial gaps.

49. Within "pure", traditional HMOs, enrolees can only receive health services of the HMO's panel of medical providers. In PPOs, enrolees can access the services of a selected network of providers, and may go outside the network by paying a greater percentage of costs on an out-of pocket basis. In indemnity insurance plans, choice of provider is unrestricted and insurees generally claim reimbursement from insurers, although in some cases, providers may seek reimbursement directly from the insurer.

50. Several governments have taken initiatives to assist consumers in their selection of private health insurance plans. For example, the Australian government prepares informative brochures on several topics related to private health insurance plans. Comparative information on the features and cost of health plans is also disseminated by the government or voluntary bodies in parts of the US's primary market and in Switzerland's mandatory insurance market.

51. McClellan *et al.* (2002) argue that reliance on competition among insurers and providers in the United States resulted in physicians trying to attract patients through intensity of treatment, amenities and other aspects of quality, while hospitals also attracted patients and physicians by similar mechanisms.

52. Health technology is one driver of health systems' expenditure. However, the optimal rate of adoption and diffusion of medical technology, the point at which each additional unit of technology for a given population will add less to total health improvements than before, is for most technologies not known.

53. In fact, these problems were found in the US Medicare supplement market prior to the standardisation requirements enacted in 1990.

54. In order to avoid standard package to become out of date, regulators can be provided with enhanced flexibility to update such packages (such as specifying them through regulations that can be changed, rather than by statute).

55. In the Netherlands, employers have been in the forefront of trying to help address certain shortages in supply, through initiatives such as employer clinics to help speed employees' re-entry into the workforce. Insurers have promptly stepped in to cover services offered in employer clinics. However, the government was concerned that this might result in inequalities in access according to willingness to pay, and prohibited such initiatives (Tapay and Colombo, 2004).

56. These include, for example, restrictions on insurers' ability to impose exclusions on pre-existing conditions, premium-related requirements, benefits standards and restrictions on insurers' the ability to selectively contract with providers.

57. See *e.g.*, efforts of the National Committee on Quality Assurance in the United States (a private, voluntary effort in which insurers widely participate) to develop Health Plan Employer Data and Information Set "HEDIS" report cards assessing plan performance in several key areas.

58. In the United Kingdom, one insurer has set up partnership agreements with some providers. Doctors agreeing to charge up to the maximum benefits paid by the insurer and to fulfil a range of personal quality criteria receive from the insurer an annual 10% supplement for all their qualifying charges to insured patients. In Australia, some large funds organise diabetes educational programmes to encourage patients to purse preventative care and less costly outpatient treatments.

59. For example, there was concern that pre-authorisation requirements might take too long and therefore compromise the provision of care, or that appropriate exceptions to such standards need to be made in the case of emergency room treatment.

60. While parts of these standards seek to assure insurance coverage of certain care, they also seek to assure that insurer decision making processes are timely and performed by persons with the appropriate expertise, thereby not compromising the provision of timely and quality care.

61. For example: National Committee on Quality Assurance (NCQA), "NCQA's Health Plan Report Card", Interactive Tool, *http://hprc.ncqa.org*.

62. Some of the PHI-induced utilisation derives from individuals that would, in the absence of PHI, self-finance private care, thereby not using the public system altogether (Vaithianathan, 2000). In Ireland and Australia, public funding as a share of total health spending has increased between 1990 and 2000, while the proportional contribution of PHI to THE has conversely diminished, despite increases in the privately covered population in both countries.

63. Outpatient drugs are not publicly covered unless a person is either admitted to a hospital or eligible under a special programme for targeted groups such as seniors. PHI coverage for prescription drugs outside of hospitals represents almost half of the cost of total claims to private insurers.

64. In Canada, PHI accounts for 11.4% of total health expenditure (THE) in 2000. *Source*: *OECD Health Data* (2003).

65. In Ireland, there are two main large insurers operating on the market, while the private hospital industry is rather fragmented and comprised of relatively small hospitals. This has resulted in monopsonistic insurers exercising relatively strong bargaining powers over providers.

66. The private health insurance industry may seek to mimic effective public cost-containment efforts. Conversely, successful cost-control mechanisms used by private health insurers may be adopted by the public sector.

67. In the case of services where there is less of a link with publicly funded services (*i.e.* no need for a related doctor visit such as is needed for a prescription), as is the case with dental care, no utilisation impact on the public sector was found.

68. In the case of the US Medicare programme, assessment of the desirability of this impact is complicated by the fact that co-payments can be substantial (20% of permitted charges) and may otherwise impede access for certain populations. In addition, there is evidence of adverse selection into PHI, indicating that those with this type of PHI coverage may have more health needs. In France, PHI covers co-payments that are minimal in nature for inpatient care while public reimbursement is lower (65% and 72%) for medicines and physician services (Buchmueller and Couffinhal, 2004). Co-payments were initially imposed to reduce unnecessary utilisation. This type of coverage – now held by over 85% of the population – has removed this control.

69. In fact, evidence confirms that Medicare complementary coverage enhances beneficiaries' access to medically necessary care (Neuman and Rice, 2003).

70. In Ireland, Australia and the Netherlands, switching across insurers is extremely limited. This has also been the case in social health insurance systems that tried to introduce competition across sickness funds, such as Germany and the Netherlands (Gress *et al.*, 2002). The reforms in these two countries share similar features to the reform mandating basic health insurance coverage in Switzerland (Colombo, 2001). Transaction cost, low consumer sensitivity to insurers' performance and lack of adequate comparative information on insurers seem to have hampered mobility across insurers.

71. In Ireland, only two main insurers operate in the market. Markets are very concentrated in some other OECD countries as well.

72. This is the case, for example, of social insurers offering PHI coverage in Belgium and the Netherlands. In many European countries, insurers operating on the market are predominantly provident or mutual associations, who historically have offered PHI following solidarity principles, without risk assessment on inception , although this is no longer always the case.

73. Despite limited available evidence and complexity in measurement, administrative costs of private insurers have been found to be higher than those of public systems in OECD countries for which data are available (OECD, 2004a).

74. Includes both underwriting and other administrative costs. *Source*: Verband der Privaten Krankenversicherung (2003).

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75. For more detailed discussion on the experience of Australia, Ireland and the Netherlands, see Colombo and Tapay (2003 and 2004b), and Tapay and Colombo (2004). Where insurers negotiate with providers, as in Australia and Ireland, negotiation takes place on the basis of prices of services but do not touch upon other care delivery conditions. In other large PHI markets, such as Germany, Canada, and France, insurers are not involved in managing care, as they simply reimburse patients and have limited involvement with providers. This is more so the case in smaller PHI markets across the OECD area.

76. Managed care encompasses several tools directed at influencing the quantity, quality, and appropriateness of care provided to insurees. These include, for example, health prevention and promotion initiatives, management of chronic conditions, utilisation review, clinical guidelines, restrictions on treatments, and incentives/ information directed to consumers to promote cost-effective providers or services.

77. Australia is updating its current reinsurance arrangements with a new system that seeks to enhance incentives for improved health fund efficiency; under this scheme, reinsurance support will be based on average hospitalisation costs, rather than actual costs, and funds that successfully reduce costs of a particular age or sex cohort below the average will benefit from the difference.

78. See OECD (2004a) for design principles for risk compensation mechanisms.

79. For example, by limiting the extent to which insurers can rate premiums based on risk, or can refuse access to cover and impose exclusions on cover, or by requiring provision of minimum or standard benefits.

80. This package is not limited to high-risk persons in Germany, although there are requirements that insurers offer these packages to certain elderly persons, among others.

81. Disclosure requirements are applied to members of the Association of British Insurers by ABI "Codes of Practice", as a condition of membership. OECD Regulatory Questionnaire, UK response.

82. However, the imposition of this tax in Australia reflects the precedence accorded to other important policy priorities – namely the integrity of the income tax system and the desire to preclude the offering of employee benefits as a means of "bypassing" this system.

83. Merlis (1999) highlights some of the complexities in implementing premium subsidies in the individual market, with or without other insurance market reforms. One question that arises is whether policy makers seek to enhance coverage levels, irrespective of risk status, or whether they seek to expand coverage for those of both high and low risk. The authors note, for example, "It is possible that subsidies without rating reforms would provide coverage to more individuals, but that subsidies with rating reform would reach most of the individuals most in need of coverage" (Merlis, 1999, p. 8).

84. See European Parliament (2000), FINAL A5-0266/2000, *Report on Supplementary Health Insurance*. Committee on Employment and Social Affairs, Rapporteur: Michel Rocard.

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Chapter 7

Ageing-related Spending Projections on Health and Long-term Care

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This paper describes projections for acute health care and long-term care costs for the period 2000-2050 in selected OECD countries, drawing on work by the EU and the OECD. There is increasing concern that ageing populations may lead to sharp increases in public health-care spending because the elderly have higher health-care needs than the working age population. The paper describes a com mon methodology used to project possible age-related increases in health-care spending. The results suggest that the impact of ageing might increase acute health-care spending by on average just under two percentage points of GDP and long-term care just over one percentage point. Simulations using alternative assumptions and projection methods suggest that there is a wide degree of uncertainty around these estimates.

* Thanks go to numerous colleagues for comments and above all to the representatives from member states who have provided the underlying projections.

1. Introduction

This paper provides projections of public spending on health and long-term care over the period 2000 to 2050 using a similar projection method across countries.[1] It collates work by EU member states with similar information for four additional countries provided to the OECD (the Czech Republic, Japan, New Zealand and Norway). Interest in projections of this kind has been growing as OECD members have become more aware of the implications of the baby boom, the subsequent decline in fertility rates and lengthening lifetimes for the age structure of the population. All OECD countries will experience an increase in ageing, particularly important in continental Europe and Japan. Seen across the OECD as a whole (unweighted country average), the ratio of the population aged 65 and above to the population aged 15 to 64 will rise from 20.6% in 2000, 37.9% in 2030 and 48.9% in 2050, although the speed and timing of the increase varies considerably from one country to another. Since older populations tend also to be in poorer health and make greater use of health care, there is a general perception that there will be an increased need for health care. And, to the degree that these services are largely financed or provided by the public sector, this will place pressure on public finances.

Thus this paper attempts to provide some broad and indicative measures of how great such an increase in need might be. However, the approach used and the great uncertainty surrounding any projections over such a long period make it important to treat these estimates with a great deal of caution. The following sections describe the methodology, present the central projections and discuss the sensitivity of the results with respect to various assumptions. The paper concludes with a discussion of some important factors that have not been taken into account in these projections and which could importantly affect outcomes. The results suggest that the increase in the need for care and the associated public expenditure might represent slightly less than two percentage points of GDP for acute care and slightly more than one percentage point for long-term care over the next half century. However, there is considerable variation across countries.

2. The method

Following the OECD System of Health Accounts (OECD, 2000), (acute) health care is defined to cover main ambulatory care, acute hospital care, pharmaceuticals, and other health-care related-supplies (*e.g.*, protheses).[2] Long-term care is essentially help for the disabled or those unable to care for themselves – for example beyond a period of acute care. This includes long-term care in an institutional environment other than nursing care – and services aimed at maintaining individuals in their homes as long as possible (see annex to this chapter for further details).

The projections were constructed on the basis of the average cost of health- and long-term care by age group. Most recent estimates of per capita health costs by age group were multiplied by the number of individuals in each age group in 2000 (base year). These results (by age group) were then summed up to obtain an estimate for total spending. However, as the

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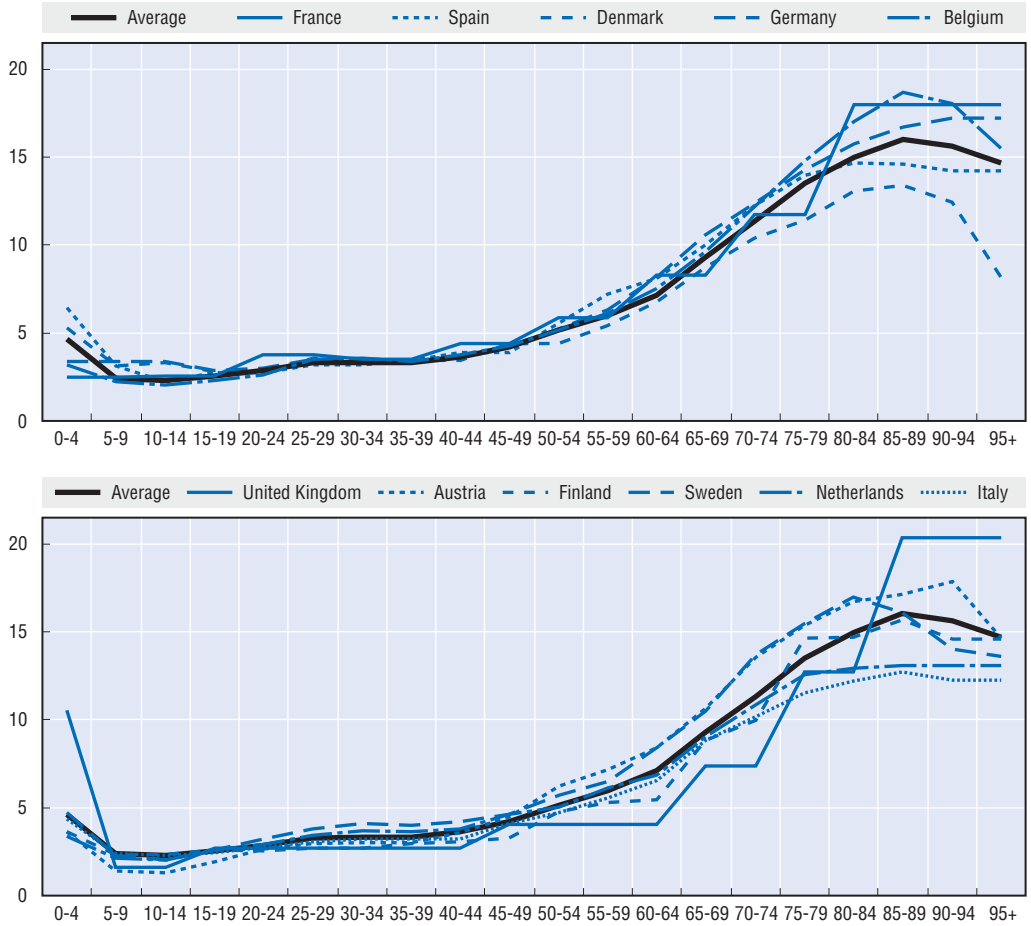
data for per capita health care were generally not derived from (or consistent with) national accounts information, the per capita estimates of health-care spending by age group were then proportionally adjusted, so that the total spending for all age groups was equal to actual spending in 2000. Estimates for future years were calculated using the same base year costs per capita by age group but the number of individuals in each age group was allowed to vary according to the change in the population structure over the projection period. These results were then adjusted by an index of GDP per worker (*i.e.* productivity) and the result then taken as a share of projected GDP[3] (see annex to this chapter for further details).

3. The projections[4]

Information on the age structure of the costs of acute health care and long-term care (Figures 7.1 and 7.2) indicate that health-care costs increase sharply with age but tend to

Figure 7.1. **Per capita acute health-care costs by age group in selected countries**

Average expenditure per head as a share of GDP per capita (%)



Notes: The age-related profiles, expressed as a share of GDP per capita, were those used for running the projections of health care expenditure. The base year used for the projections varies slightly across member States and so the profiles in the graph above refer to different years for different member states: 1997 for France, 1998 for Belgium, Denmark, Spain and the United Kingdom; 1999 for Italy; and 2000 for Germany, Finland, Netherlands, Austria, and Sweden.

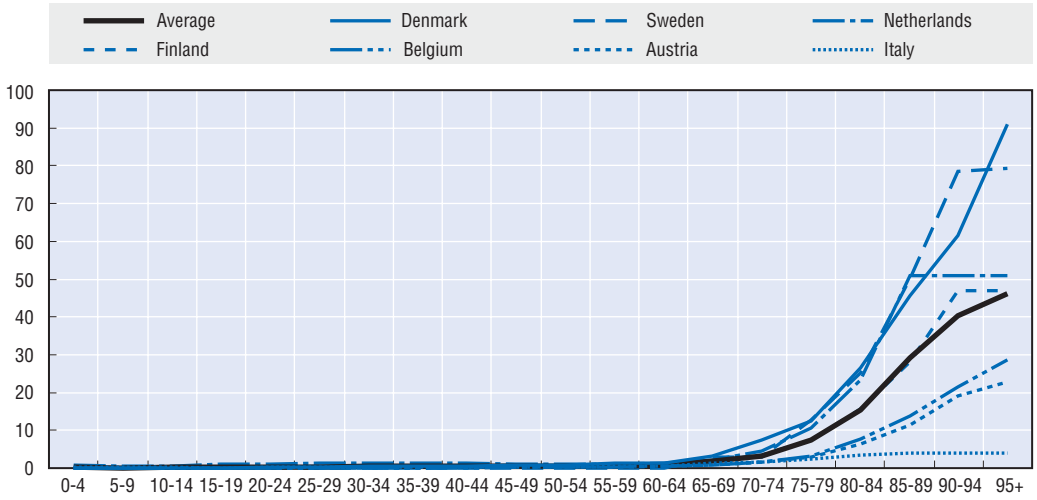
The expenditure profiles here relate to public expenditure on health care only. Notably, they exclude private expenditures and public expenditure on long-term care.

Where the age-profile is flat at the tail-end of the age-distribution, this is generally because a breakdown across age-groups was not available at the highest ages in those member states.

Source: Budgetary challenges posed by ageing populations, EPC (2001).

Figure 7.2. **Per capita long-term care costs by age group in selected countries**

Average expenditure per head as a share of GDP per capita (%)



Notes: The age-related profiles expressed as a share of GDP per capita, were those used for running the projections of long-term care expenditure. The base year used varies across member states, and hence the profiles in the graph above refer to different years for different member states: 1998 for Belgium, Denmark; 1999 for Italy; and 2000 for Austria, Finland, Netherlands, and Sweden.

The expenditure profiles here relate to public expenditure on long-term care only. Notably, they exclude private expenditures.

Where the age-profile is flat at the high-end of the age-distribution, this is generally because a breakdown across age-groups was not available at the highest ages in those member states.

Source: Budgetary challenges posed by ageing populations, EPC (2001).

fall back where individuals survive beyond the age of 80 to 85.[5] However, this decline is more than compensated by the very sharp increases in costs per capita for long-term care among the very old.

Assuming these cost patterns hold over time and that spending is unaffected by other factors, the projections indicate an increase in total health-care spending over the period 2000-2050 of roughly three percentage points of GDP on average, with just under two percentage points attributable to acute care and just over one point to long-term care (Table 7.1).

The projections for acute-care spending increase until 2050 and vary somewhat across countries, being lower in Denmark, Portugal and Sweden and higher in the Czech Republic and Japan. The range of estimates is wider for long-term care, partly reflecting the diverse levels of public spending in the starting year. For example, in countries with low levels of spending in 2000 (Spain, France, Italy and Japan), the increases are relatively modest, while they tend to be larger for countries with high initial spending (the Netherlands, Norway and Sweden). This partly reflects the fact that an equal proportionate increase from a small base will lead to a smaller change in the level of spending than when taken from a higher base. This could suggest that, for low spending countries, these projections might underestimate likely longer-term trends if there is a trend to catch up to current spending levels in other countries.[6]

4. Sensitivity tests

Sensitivity tests (described in Box 7.1) are shown in Tables 7.2 and 7.3. Comparing these alternative projections is difficult as, with the possible exception of increased mortality, there is no *a priori* information on the probability of their occurrence. The sometimes large variability of outcomes under the different tests highlights the need for

Table 7.1. **Projections of health- and long-term care costs: 2000-2050**[a]

Percentage points of GDP

	Total public health and long-term care		Health care		Long-term care	
	Expenditure 2000	Change in expenditure 2000-2050 (indexed on output per worker)	Expenditure 2000	Change in expenditure 2000-2050 (indexed on output per worker)	Expenditure 2000	Change in expenditure 2000-2050 (indexed on output per worker)
Austria	5.8	3.1	5.1	2.0	0.7	1.1
Belgium	6.1	2.4	5.3	1.5	0.8	0.8
Denmark	8.0	3.5	5.1	1.1	3.0	2.5
Finland	6.2	3.9	4.6	1.8	1.6	2.1
France	6.9	2.5	6.2	1.9	0.4	0.3
Germany			5.7	2.1		
Greece			4.8	1.6		
Ireland[b]	6.6	2.5	5.9	2.3	0.7	0.2
Italy	5.5	2.1	4.9	1.7	0.6	0.4
Netherlands	7.2	3.8	4.7	1.3	2.5	2.5
Portugal			5.4	1.3		
Spain			5.0	1.5		
Sweden	8.8	3.3	6.0	1.2	2.8	2.1
United Kingdom	6.3	2.5	4.6	1.4	1.7	1.0
Czech Republic	6.6	3.2	5.6	2.5	0.9	0.7
Japan[c]	5.4	5.0	5.3	4.5	0.1	0.5
New Zealand	5.7	3.8	4.3	1.8	1.4	2.0
Norway[d]	8.6	3.5	4.7	1.1	3.9	2.4
Point average[e]	6.7	3.2	5.2	1.8	1.5	1.3
Comparable average[f]	7.4	3.4	5.6	1.8	1.5	1.6

a) Figures for 2000 differ somewhat from those found in the chapter on "Health care systems: Lessons from the reform experience", because country experts used different definitions in establishing the base year spending than those normally used in the OECD System of Health Accounts and because the data are expressed as a share of GDP rather than as a share of Trend GDP. Projections are based on indexing by output per worker.
b) Results for Ireland are expressed as a share of GNP.
c) It is unclear whether results for Japan are indexed on GDP per capita or GDP per worker, the data provided is also preliminary.
d) Results for Norway are indexed on productivity in the non-oil sector and are expressed as a percentage of mainland GDP.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Unweighted average. Includes Austria, Belgium, Denmark, Finland, France, Italy, the Netherlands, Sweden, the United Kingdom, the Czech Republic and New Zealand.

Source: EPC (2001); French (LTC data) and Italian responses to the EPC questionnaire; responses to the OECD projection project questionnaire.

caution in interpreting the baseline values. The changes from baseline are generally proportional to the size of the projected baseline increase – *i.e.* countries with larger projected increases in the baseline also tend to have larger absolute deviations from baseline in the sensitivity tests.

4.1. *Differences in indexing assumptions and population developments*

Key results are:

- In the scenario using lower age-specific mortality rates, spending is around 0.5 percentage points and 0.5 to 0.7 percentage points higher for health care and long-term care respectively by the end of the period.
- Higher birth rates and immigration in the high-population-growth scenario lead to higher output and more individuals in the working-age population (age groups with lower per capita health and long-term care costs). These effects partly offset the impact

Table 7.2. **Health-care costs: sensitivity tests of alternative assumptions**

Percentage points of GDP

	Expenditure	Baseline demographic		Change in expenditure 2000-2050: difference from baseline change				
				High life expectancy demographic	High population demographic	Upside risk[a]	Downside risk[a]	Death related scenario[a]
	2000 (level)	2050 (level)	Change 2000-50	Indexed on output per worker				
Austria	5.1	7.1	2.0					
Belgium	5.3	6.8	1.5	0.6	0.0	0.7	–1.0	
Denmark	5.1	6.2	1.1	0.1	0.0			
Finland	4.6	6.4	1.8	0.6	–0.1	0.1	–1.3	
France	6.2	8.1	1.9	0.2	–0.3			
Germany	5.7	7.8	2.1	0.6	–0.4			
Greece	4.8	6.4	1.6					
Ireland[b]	5.9					3.3	1.4	
Italy	4.9	6.6	1.7	0.5	–0.2	0.6	–0.9	–0.4
Netherlands	4.7	6.0	1.3	0.5	0.0	0.4	–1.0	–0.8
Portugal	5.4	6.7	1.3	0.2	–0.1	0.3	–1.2	
Spain	5.0	6.5	1.5	0.5	–0.1	1.2	–0.6	
Sweden	6.0	7.2	1.2	0.4	–0.1	0.7	–1.1	–0.5
United Kingdom	4.6	6.0	1.4	0.6	0.1	0.3	–1.1	
Czech Republic	5.6	8.1	2.5	0.5	0.0	0.0	–1.8	
Japan[c]	5.3	9.8	4.5			1.3	–1.2	
New Zealand	4.3	6.1	1.8	0.4	–0.1	0.7	–0.9	
Norway[d]	4.7	5.7	1.1	0.3	0.0			
Point average[e]	5.2	6.9	1.8	0.4	–0.1	0.8	–0.9	–0.6
Comparable average[f]	5.0	6.6	1.6	0.5	–0.1	0.5	–1.1	

a) Values are calculated on the basis of projections indexed on GDP per capita but results would be similar to estimates using GDP per worker.
b) Results for Ireland are expressed as a share of GNP.
c) It is unclear whether results for Japan are indexed on GDP per capita or GDP per worker, the data provided is also preliminary.
d) Results for Norway are indexed on productivity in the non-oil sector and are expressed as a percentage of mainland GDP.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Unweighted average. Includes Belgium, Finland, Italy, the Netherlands, Portugal, Spain, Sweden, the United Kingdom, the Czech Republic and New Zealand.

Source: EPC (2001); responses to the OECD projection project questionnaire.

of greater longevity and lower mortality shown in the preceding scenario. On balance, the increase in spending in this scenario is little different from that of the baseline.

- Higher or lower growth of spending – upside/downside risks – of one-quarter of a percent point *per annum* (relative to baseline) could lead to an increase in spending that is around 0.8 of a percentage point higher or lower than in the baseline values by the end of the period for health care and 0.3 percentage points for long-term care.

4.2. Alternative assumptions about health-care costs in old age

A number of researchers have suggested that the approach used (see annex at the end of the chapter) may overstate the effect of ageing on health care spending as a consequence of lengthening lifetimes (see Batljan and Lagergren, 2002; Madsen *et al.*, 2000; and Stearns and Norton, 2002). They argue that costs are related to the number of years until death, with

Table 7.3. **Long-term care costs: sensitivity tests of alternative assumptions**

Percentage points of GDP

	Expenditure	Baseline demographic		Change in expenditure 2000-2050: difference from baseline change				
				High life expectancy demographic	High population demographic	Upside risk[a]	Downside risk[a]	Improved health scenario[a]
	2000	2050 (level)	Change 2000-50	Indexed on output per worker				
Austria	0.7	1.8	1.1					
Belgium	0.8	1.6	0.8	0.4	0.1	0.2	–0.2	–0.5
Denmark	3.0	5.5	2.5	0.1	0.1			
Finland	1.6	3.7	2.1	1.0	0.0	0.0	–0.8	–1.2
France	0.4	0.7	0.3	0.0	–0.1			
Ireland[b]	0.7					0.3	0.1	
Italy	0.6	1.0	0.4	0.2	0.0	0.1	–0.1	–0.2
Netherlands	2.5	5.0	2.5	1.1	0.2	0.4	–0.8	
Sweden	2.8	4.9	2.1	1.4	0.2	0.5	–0.7	
United Kingdom	1.7	2.7	1.0	0.5	0.1	0.2	–0.5	–0.9
Czech Republic	0.9	1.6	0.7	0.2	0.0	0.0	–0.4	–0.5
Japan[c]	0.1	0.6	0.5			0.1	–0.1	
New Zealand	1.4	3.4	2.0	0.6	–0.1	0.3	–0.5	
Norway[d]	3.9	6.3	2.4	1.2	0.4			
Point average[e]	1.5	3.0	1.4	0.6	0.1	0.2	–0.4	–0.7
Comparable average[f]	1.5	3.0	1.4	0.7	0.1	0.2	–0.5	

a) Values are calculated on the basis of projections indexed on GDP per capita but results would be similar to estimates using GDP per worker.
b) Results for Ireland are expressed as a share of GNP.
c) It is unclear whether results for Japan are indexed on GDP per capita or GDP per worker, the data provided is also preliminary.
d) Results for Norway are indexed on productivity in the non-oil sector and are expressed as a percentage of mainland GDP.
e) Unweighted average. Includes all available countries at the relevant point in time.
f) Unweighted average. Includes Belgium, Finland, Italy, the Netherlands, Sweden, the United Kingdom, the Czech Republic and New Zealand.

Source: EPC (2001); French and Italian response to the EPC questionnaire; responses to the OECD projection project questionnaire.

costs rising steeply in the period just before an individual passes away. Thus, the increase of health-care costs with age (as used in the baseline projection) may simply reflect the higher probability of dying among older age groups. When lifetimes lengthen, these death-related costs will be delayed and spending will grow more slowly. Nonetheless, the change in the population structure implies that there will be an increasing share of the population in their last years of life and, therefore, there will be some increase in spending.[7]

Three countries (Italy, the Netherlands and Sweden) provided estimates of this effect, although they used quite different methods to proxy it.[8] These approaches lead to a smaller increase in spending: the percentage point increase over the period 2000 to 2050 under these scenarios is roughly half to three-quarters as large as in the baseline. Results from other studies allowing for these effects are broadly consistent with these outcomes.[9]

For long-term care, a decrease in dependency was approximated in the projections for long-term care costs by assuming that by 2050 per capita care needs in each age group were equivalent to those of a person five years younger than in the base case – *i.e.* that individuals were as healthy as individuals five years younger in 2000.[10] This change was

Box 7.1. **Sensitivity tests**

The following sensitivity tests were carried out both for acute health and long-term care.

Population

The *high life-expectancy scenario*: In this population scenario mortality rates were assumed to fall by 30 and 20 per cent for males and females respectively for all age groups. This roughly corresponds to an increase in expected lifetimes at birth over the projection period of three and three-quarter years for men and two for women relative to the baseline.*

The *high population growth scenario* used national high population projections based on higher birth rates and immigration, as well as lower mortality.

Spending growth

The *Upside/Downside growth risk scenarios* aremechanical tests which assume that average health-care expenditure across all age and sex groups would rise by: *a)* 0.25 per cent *per annum* above; and *b)* 0.25 per cent *per annum* below the growth of GDP per capita over the projection period for the central demographic scenario.

* This population scenario was based on assumptions that were estimated to have a roughly two-thirds probability of occurring on the basis of past errors in population projections. See Dang *et al.* (2001) footnote 18, for further details.

interpolated linearly over the period, which broadly corresponds to an increase in the average expected need-free lifetimes over the period of approximately four to five years. Results for five countries (Belgium, the Czech Republic, Finland, Italy and the United Kingdom) suggest that a reduction in per capita costs of this magnitude might reduce the increase in the cost of long-term care by about half, relative to the baseline increase, with substantially larger effects estimated for the United Kingdom.

5. Conclusions and limitations

Population ageing can be expected to increase public expenditure on health and long-term care and, for the 18 OECD countries considered here, it might be of the order of three percentage points of GDP between now and 2050. The uncertainties are particularly large, where the projection method is extended to include the possible effects of progressively later mortality on the health-care spending and allowance is made for improved health of the elderly on long-term care. Although the sensitivity to these assumptions has only been tested for a small number of countries, these results could suggest that measures to promote improved health among the elderly could have substantial effects on long-term costs.

It is important to recall, however, that important variables affecting the longer-term demand and supply of care have been ignored in these calculations and these create additional reservations concerning future spending patterns. First, changes in technology can be expected to continue to be an important driver of health-care expenditure. Progress in medical technology has increased welfare, but it has often pushed up costs at the same time. Recent developments in imaging, biotechnology and pharmacology suggest that these developments are likely to continue (Aaron, 2003). These effects may be reinforced if such increases in costs are concentrated in older age groups, as has been the case over the last few decades in a few countries (*e.g.* France and the United States).

Second, population projections and projected trends in labour force participation developments suggest that the capacity of younger generations to provide long-term care for their parents may be much less than at present:

- Family size has dropped sharply over recent years. Although population projections are based on some recovery in fertility, the number of children who can care for elderly parents will be sharply reduced over coming decades. And with growing mobility there is no assurance that children will be living with an easy distance to provide help.
- Participation rates of women – who have traditionally taken on the primary role in informal care for the elderly – are likely to increase further. Each successive cohort of women has increased their participation rate even after family formation (and further increases were built into the projections).
- Reforms to pension systems are likely to lead to later retirement, further restricting the time available for informal care.

Although some portion of the increased demand for care outside the family may be financed privately as, in practice, the elderly are now much richer than two or three decades ago (Burniaux *et al.*, 1998), most governments have, at a minimum, taken on the responsibility for caring for those with insufficient resources to pay for care. On this basis, ageing appears likely to lead to at least some expansion in the demand for government services and/or finance. These problems are likely to be particularly important in countries such as Greece, Italy, Spain and Portugal where the elderly have often resided with their children or one family member would devote themselves to the task of caring. Particularly low levels of fertility in these countries will accentuate these trends.

In addition, there may be upward pressure on relative wages in the health and long-term care sectors. Many countries are currently finding it difficult to recruit health-care professionals, particularly nurses. Looking into the future, two factors may lead to further tightening in supply:

- Labour force growth is expected to fall with the entry of the baby boom generations in retirement, a time when the demand for care is likely to be increasing and the health-care sector expanding (Dang *et al.*, 2001);
- A significant share of health-care workers belong to the baby boom generations themselves, making the impact on the supply of health-care professionals even more marked.[11]

Notes

1. This work was carried out by the Ad Hoc Working Group of Experts on the Fiscal Implication of Ageing at the OECD and the Working Group on Ageing Populations at the European Union. These groups examined the likely impact of demographic changes on most age-related public spending (old-age pensions, programmes permitting early withdrawal from the labour force, health and long-term care and child and family allowances). These projections were constructed on national models using agreed background assumptions concerning the economic environment. See Dang *et al.* (2001) for more detailed results and EPC (2003) for more recent results for the EU member countries.
2. However, not all countries are in a position to follow these definitions.
3. A set of common assumptions was imposed on countries for the calculation of GDP over the projection period. These assumptions concerned participation rates, unemployment, productivity, prices and interest rates. Indexing by GDP per worker (or productivity) is taken as the most likely outcome as wages tend to follow productivity. See, for example, Towse (1997). Additional estimates based on indexing by per capita GDP can be found in EPC (2003).

4. Results for the European Union countries have been provided by the EU Commission. They are the same as those presented in EPC (2001) except for Italy, where more recent projections have been provided.
5. Data on costs by age group are not available for the four additional countries.
6. By the same token, the increase may be more modest in, for example, the Nordic countries, if some part of the financing of long-term care is shifted to the private sector.
7. However, projections on this basis make no allowance for an increase in the demand for health care in the period prior to the run-up to death, for example through greater possibilities to treat chronic conditions.
8. The Netherlands' experts used information on the costs associated with those dying (which it found to be fairly stable across age groups) to estimate the health-care costs of survivors in each age group in the base year. They then calculated the total health spending on the basis of this cost information and of the expected deaths and survivors by age group for future years, given the probabilities of death by age group in subsequent periods. For Sweden, average expenditure profiles by age, sex and remaining years of life were estimated from observed individual data from 1997. The expenditure profiles are then forecast by multiplying with population projections from 2000-2030, sorted according to age, sex and remaining years of life. For in-patient care, data are split over years of life remaining. For out-patient care, data are divided between survivors and non-survivors. Expenditure for survivors is adjusted in an approximate manner for remaining years of life. For Italy, the split between the costs for acute care of survivors and non-survivors has been determined on the basis of a parameter (K), distributed by age and sex, which expresses how many times the health care consumption of a person who is expected to die within a year exceeds, on average, that of a survivor. The values of the K-profiles were derived from a 1999 study on hospital discharge records by the Regional Health Agency of Tuscany, covering some 6% of the national resident population.
9. Batljan and Lagergren (2002) find that the effects of lengthening lifetimes reduce spending for Sweden, as projected by a baseline approach, by 37% up to 2030. Masden *et al.* (2000) suggest that a similar effect for Denmark could be in the range of 25%. Paarkinien (2001) finds a very dramatic fall of 75% for Finland in projections to 2050 if health-care costs for those over 60 are those of individuals five years younger at the beginning of the period. Schultz (2003) suggests that this approach reduces the size of the impact of ageing by about one-third for Germany. Stearns and Norton (2002) estimate that the impact of including delayed death-related costs might reduce cost projections by 10 to 15% to 2020 for the United States.
10. For example, the cost patterns for long-term care of, say, the age group 70 to 74 in 2050 would be those for the age group 65 to 69 in 2000.
11. For further discussion on these issues, please see Chapter 4 in this publication on the supply and demand for human resources in health care.

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ANNEX 7.A1

The definitions of health-care and long-term care

The boundaries between expenditure are often difficult to draw. However, because the factors affecting these two components of care are very different, it is important to provide individual projections for both. In defining expenditure in acute health-care and long-term care services, countries were requested to conform to the definitions in the OECD System of Health Accounts (SHA).

Acute health care should include:

Services of curative care (HC1); Services of rehabilitative care (HC2); Services of long-term nursing care (HC3); Ancillary services to health care (HC4); Medical goods dispensed to outpatients (HC5); Prevention and public health services (HC6); Health administration and health insurance (HC7) plus investment in medical facilities.

Long-term care should include:

Care for dependent older persons; Home care; Institutional care other than hospitalization; Homes and services for the disabled.

Projection method

The projection method has three steps:

Step 1. Estimation of current age-related expenditure profiles for both males and females for the base year

Total health expenditure (*HH*) in the base year *b* should be allocated among males (*M*) and females (*F*) across different age groups according to the following identity:

$$HH^b = \left[\sum\left(hh_i^b \times K^b \times P_i^b\right)\right]^M + \left[\sum\left(hh_i^b \times K^b \times P_i^b\right)\right]^F \qquad [1]$$

Where HH^b = total health expenditure in the base year *b*;

hh_i^b = health expenditure for an average member of age-group i in national currency in the base year b;

P_i^b = population in each age-group *i* in the base year *b*;

i = age-groups;

b = base year;

F, M = females and males respectively; and

$$K^b = HH^{na} / \left\{ \left[\sum_i \left(hh_i^b \times P_i^b \right) \right]^M + \left[\sum_i \left(hh_i^b \times P_i^b \right) \right]^F \right\} = \text{scaling factor}^*$$

Where HH^{na} is national accounts health spending in the base year.

Step 2. Projecting future health-care spending on the basis of the changing population structure

$$HH^j = \left\{ \left[\sum_i \left(hh_i^b \times K^b \times P_i^j \right) \right]^M + \left[\sum_i \left(hh_i^b \times K^b \times P_i^j \right) \right]^F \right\} \times \left(\left(GDP^j / P^j \right) / \left(GDP^b / P^b \right) \right) \quad [2]$$

Where HH^j = projection for total health expenditure in year *j*;

hh_i^b = health expenditure for an average member of age-group *i* in national currency in the base year *b*;

P_i^j = population in age group i in year *j*

Projections are indexed on either GDP per capita or GDP per worker (productivity). In the latter case P^j refers to the number of employees in year *j*. Only the projections based on GDP per worker have been shown as this appears to be the most likely outcome.

In the sensitivity analysis scenario with higher and lower spending growth, equation [2] becomes

$$HH^j = \left\{ \left[\sum_i \left(hh_i^b \times K^b \times P_i^j \right) \right]^M + \left[\sum_i \left(hh_i^b \times K^b \times P_i^j \right) \right]^F \right\} \times \left(\left(GDP^j / P^j \right) / \left(GDP^b / P^b \right) \right) \times \left(1 \pm .0025 \right)^{(j-b)} \quad [2a]$$

Results with respect to the baseline are unchanged whether the indexing method uses GDP per worker or GDP per capita.

Step 3. Expressing the results as a share of projected national GDP for each projection year

The results can then be expressed in terms of projected GDP for each projection year by dividing by projected GDP levels:

$$HHS^j = \frac{HH^j}{GDP^j}$$

Where GDP^j = projected GDP in year *j*

and HHS^j = projection of total health expenditure as a share of national GDP in year *j*.

The results can be interpreted as health-care costs as a share of GDP in period *j* if the structure of costs of health care by age group remain unchanged over the period but the costs in each age group rise in line with GDP per worker.

Note that Norway only presented information on the basis of expected trends in the non-oil economy, although spending is taken as a share of total GDP so that the impact of the expected rundown of oil stocks is taken into account.

* In practical terms, once the micro expenditure profiles have been generated for the base year, these should be matched to demographic profiles for the base year. Average costs of health care by age group are likely to come from different sources and may not be consistent with total public spending on health care. Per capita costs in each age/sex group should be multiplied by the population in each age/sex group and the product summed over age/sex groups. This sum should then be compared with macro data on overall expenditure levels and a scalar (K^b) calculated such that micro-profiles should be scaled up or down to give the appropriate share of GDP in the base year.

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