

## PART I

### Chapter 2

# Strategies to reduce wasteful spending: Turning the lens to hospitals and pharmaceuticals

*Evidence suggests that as much as one-fifth of health spending is wasteful, and could be reduced or eliminated without undermining health system performance. With as much as 9.6% of European GDP directed to health care, reducing such spending is thus important not only for improving access to needed care, but also for ensuring health system resilience.*

*This chapter points the lens at two particular areas of waste: hospitals and pharmaceuticals. Hospitals represent an integral and essential component of any functioning health system, but are often the most expensive part. In many instances, the resources consumed in hospitals can be put to more efficient use. Improved community care for chronic diseases could reduce millions of avoidable admissions and bed days across EU countries. Reducing unnecessary investigations and procedures would not compromise quality. Greater use of day surgery and reducing delays in discharging patients no longer requiring inpatient care could also free-up resources for patients with greater needs.*

*Minimising waste and optimising the value derived from expenditure on pharmaceuticals are also critical to efficient and sustainable health systems. This chapter discusses a mix of supply and demand side policy levers that include ensuring value for money in selection and coverage, procurement and pricing of medicines; exploiting the potential of savings from generics and biosimilars; encouraging rational prescribing and use; and improving adherence to treatment.*

*Ultimately, progress in reducing wasteful spending may be seen not only as a barometer of quality improvement, but also an ethical and financial imperative in the pursuit of more resilient and equitable health care systems.*

## Introduction

Reducing wasteful spending in health is an important objective in both good and bad economic times. In an economic downturn, properly targeting wasteful spending in health care can help ensure that cost-containment efforts do not compromise quality and outcomes, thus contributing to the health system's resilience. In better times, reducing wasteful spending in health is increasingly seen as a sound quality improvement strategy. It can also release resources that can be better targeted to improving the system's accessibility. In other words, reducing waste can contribute to improving health system performance along several dimensions.

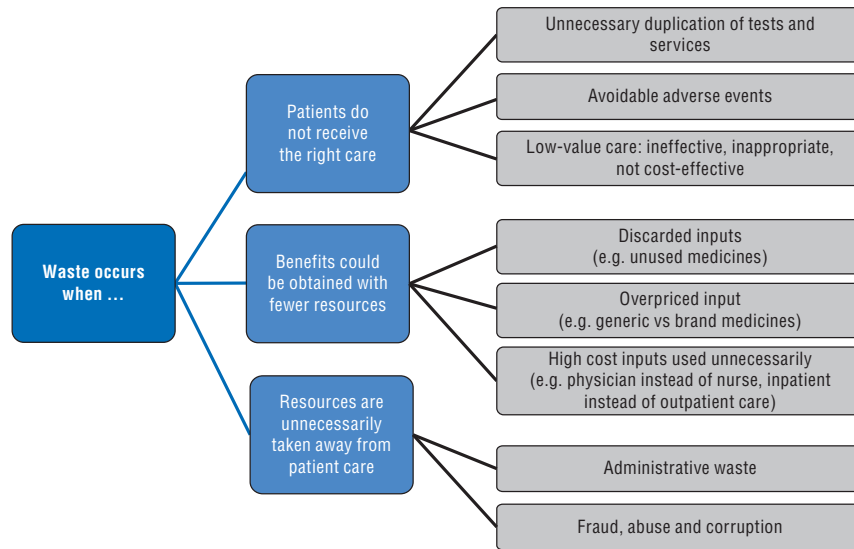
Evidence suggests that as much as one-fifth of health spending is wasteful and could be eliminated without undermining health system performance (OECD, 2017). This alarming estimate – seldom challenged by experts – is well supported by available research. For example, in 2012, a sample of physicians polled in France reported that on average they viewed 28% of interventions as not fully justified (Vanlerenberghe, 2017). A study in the Netherlands estimated that 20% of expenditure on acute care could be saved by reducing overuse, increasing the integration of care, and involving patients in care decisions (Visser et al., 2012). In Italy, a country that spends less on health than many other Western European countries, the proportion of inefficient or wasteful public spending was estimated to be around 19% in 2017 (Fondazione GIMBE, 2018).

Wasteful spending can take many forms (as illustrated in Figure 2.1) and has a range of effects:

- Patients are unnecessarily harmed, or receive unnecessary or low-value care that makes little or no difference to their health outcomes.
- The same outcomes can be achieved with fewer resources. For example, some health systems have low utilisation of generic medicines; others provide care in resource-intensive places such as hospitals, when it could be provided in the community.
- A number of administrative processes add no value, and funds are lost to fraud and corruption.

With up to 9.6% of Europe's GDP devoted to health care in 2017, waste serves only to undermine the financial sustainability of health systems. Pursuing efficiency in health spending and maintaining access to services are persistent, but at times conflicting policy challenges in most European countries. Tackling wasteful spending can only work to improve value for money and support both. In this chapter, the lens is pointed squarely at two particular areas of waste: hospitals and medicines.

Figure 2.1. **A pragmatic approach to identifying and categorising wasteful spending on health**

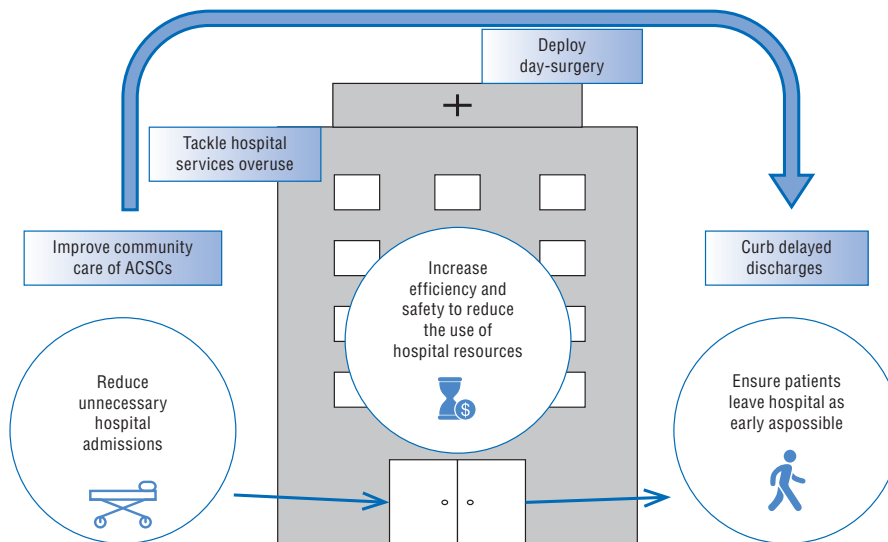


Source: Adapted from OECD (2017), *Tackling Wasteful Spending on Health*, <http://dx.doi.org/10.1787/9789264266414-en>.

### Addressing wasteful spending in hospitals

Hospitals represent an integral and essential part of any functioning health system. Yet, as illustrated in Figure 2.2, resources consumed in hospitals could be put to more efficient use. For example, improved community care for ambulatory care-sensitive conditions could reduce avoidable admissions. Tackling the overuse of hospital services could reduce the resources used during a necessary admission without compromising quality. Other opportunities to deploy available hospital resources more efficiently include more extensive use of day surgery in place of inpatient care. This, together with other strategies directed to reducing discharge delays, can help ensure that patients leave the hospital as early as possible. These examples are discussed in turn below.

Figure 2.2. **Pressure points on wasteful hospital spending**



### Reducing potentially avoidable admissions

#### Potentially avoidable hospital admissions for some chronic conditions consume over 37 million bed days each year

A large number of hospital admissions could be averted through better prevention and management of both acute and chronic conditions outside the hospital. Among more than 30 conditions for which hospitalisation could be reduced with better primary care (also referred as ambulatory care-sensitive conditions) (Purdy et al., 2009), five stand out as particularly relevant in European countries: 1) diabetes, 2) hypertension, 3) heart failure, 4) chronic obstructive pulmonary disease (COPD) and bronchiectasis and 5) asthma.

Across the EU, over 4.6 million admissions were made for these five conditions in 2015 – amounting to 5.6% of all admissions which might have been avoided<sup>1</sup> (Table 2.1). The average length of stay (ALOS) for these five conditions was 8.1 days, which exceeded

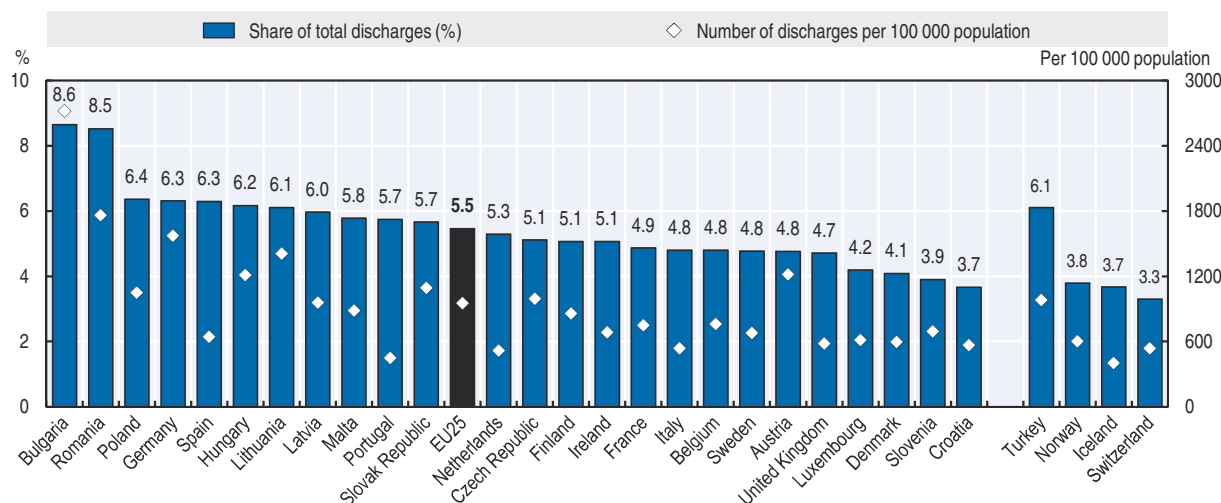
Table 2.1. Hospital admissions for five chronic conditions, EU countries, 2015

|                            | Diabetes  | Hypertension | Heart failure | COPD and Bronchiectasis | Asthma    | Total (five conditions) |
|----------------------------|-----------|--------------|---------------|-------------------------|-----------|-------------------------|
| Admissions/discharges      | 800 303   | 665 396      | 1 749 384     | 1 109 865               | 328 976   | <b>4 653 924</b>        |
| % of all admissions        | 1.0%      | 0.8%         | 2.1%          | 1.3%                    | 0.4%      | <b>5.6%</b>             |
| Average LOS (days)         | 8.5       | 6.9          | 9.5           | 8.9                     | 6.6       | <b>8.1 (avg.)</b>       |
| Total bed days             | 6 794 572 | 4 597 886    | 16 619 148    | 9 855 601               | 2 177 821 | <b>37 603 706</b>       |
| Proportion of all bed days | 1.1%      | 0.7%         | 2.7%          | 1.6%                    | 0.4%      | <b>6.5%</b>             |

Note: The data on hospital admissions refer to discharges (including deaths in hospital). They include patients in all age groups, but exclude outpatient and day cases (patients who do not stay overnight in hospital). The number of bed days was calculated by multiplying the number of admissions (discharges) by ALOS. The total number of admissions (discharges) excludes healthy neonates.

Source: OECD Health Statistics, <https://doi.org/10.1787/health-data-en> and Eurostat database.

Figure 2.3. Share of potentially avoidable hospital admissions due to five chronic conditions, EU countries, 2015



Note: The data on hospital admissions refer to discharges related to five chronic conditions: diabetes, hypertension, heart failure, COPD and bronchiectasis and asthma. They include patients in all age groups, but exclude outpatient and day cases (patients not staying overnight in hospital). These potentially avoidable hospital admissions do not control for any variation in the prevalence of these five chronic conditions. Estonia and Greece are not shown due to missing data for several of these causes of hospitalisation. Data for Cyprus are not shown as they only include discharges from public hospitals, resulting in substantial under-estimation as most hospitals are private.

Source: OECD Health Statistics, <https://doi.org/10.1787/health-data-en> and Eurostat Database.

StatLink <http://dx.doi.org/10.1787/888933834129>

the ALOS for all causes of hospitalisation (7.4 days). In total, admissions for these 5 conditions represented over 37 million bed days in 2015. Cross-country comparisons of potentially avoidable hospital admissions should be interpreted with caution, as many other factors, beyond better access to primary care, can influence the statistics, including data comparability and the prevalence of these chronic conditions. Nevertheless, admission rates for these five chronic conditions were particularly high in Bulgaria, Romania, Germany, Lithuania, Austria and Hungary, while as a proportion of all hospital admissions, rates were highest in Bulgaria and Romania, followed by Poland, Germany, Spain and Hungary (Figure 2.3).

### ***Reducing admissions requires meeting people's needs outside of the hospital***

Recognising the need to improve access to care outside hospitals, many EU countries have taken steps to increase the availability of primary and community care, and to introduce new models of intermediate care that can serve as alternatives to hospitals.

Many people present to hospitals simply because their primary care providers are unavailable. To address this, a number of countries have increased access to after-hours primary care. For example:

- In the Netherlands, after-hours care is organised at the municipal level in GP “posts”. These posts are generally situated near or within hospitals in order to provide urgent primary care overnight, and work closely with emergency departments. Nearly all GPs work for a GP post. Specially trained assistants respond to phone calls and perform triage, with GPs then determining referrals to hospital. GPs are paid at hourly rates for after-hours work and must provide at least 50 hours of after-hours care per year to maintain their GP registration. As GP care in the Netherlands is free at the point of service, and a mandatory deductible applies for (emergency) hospital care, patients have a financial incentive to choose GP posts over the Emergency Department (Wammes et al., 2017).
- In Denmark, after-hours care is organised by the regions. The first line of contact is a regional telephone service, most often answered by a physician or sometimes a nurse in Zealand and the Copenhagen region who decides whether to refer the patient for a home visit or to an after-hours clinic, usually co-located with a hospital emergency department. GPs can choose to take on more or less work within this programme and receive a higher rate of payment for after-hours work (Vrangbaek, 2017).
- In 2017, Portugal established a call centre that operates around the clock and, among other services, provides guidance to patients based on their needs. Among 800 000 callers in 2017, 26% were advised on self-care, 42% referred to physicians and 24% directed to emergency services.

Some countries have also started to develop intermediate in-home care services as an alternative to hospital-based ones. For example:

- In the United Kingdom, since 2005 “virtual wards” have been set up in some parts of the country to provide care at home for people recently discharged or at high risk of hospital (re-)admission. Care is provided through multi-disciplinary care teams. Evidence suggests that these “virtual wards” have reduced unplanned hospital (re-)admissions and the length of stay in hospitals for the most at risk groups (Sonola et al., 2013).

- In France, the “hospital at home” model, organised and funded through hospitals, is designed to offer patients the option of receiving hospital care at home for certain conditions. In 2016, more than 100 000 patients in France were treated in a “hospital at home” programme, equivalent to 175 000 admissions, an increase of 8% over 2015 (FNEHAD, 2017).

Most countries recognise that in order to respond effectively to the needs of ageing populations and the growing burden of chronic disease, further efforts are needed both to strengthen access to primary care and to provide more continuous and coordinated care outside hospitals.

### **Measuring and addressing overuse in hospitals**

Unfortunately, not all care received by hospitalised patients is necessary, and in some cases, may not only be futile but even cause harm. Many services that are delivered offer only very modest benefit to patients, or are of benefit only to some, and in some cases the evidence of benefit is weak or lacking altogether (Brownlee et al., 2017).

In a recent effort to identify services overused in hospitals, researchers reviewed more than 800 recommendations targeting low-value services issued in the United States, Canada, Australia and the United Kingdom, and found that two-thirds of them pertained to services delivered in hospitals (Chalmers et al., 2018), including investigations and surgical procedures. Another recent study in the United Kingdom identified 71 low-value interventions performed in general surgery alone (Malik et al., 2018).

### **One in four European countries has now systematically documented unwarranted variation in the use of hospital services using Atlases**

Detecting and measuring wasteful spending on low-value care has mobilised considerable effort over the years, with two main approaches currently in use. The first consists broadly of comparing utilisation rates for specific low-value services across geographic areas, adjusting for population need (for lack of better indicators, generally using age and gender as proxies). These analyses invariably display very large and unwarranted variations in utilisation that cannot be explained by differences in disease burden, standards of care, or patient preference, especially within countries. For example, in 2011 caesarean-section (C-section) rates in Italy varied by a ratio of 1 to 6 across local health units (OECD, 2014). In 2015 they varied to a similar degree across areas in Spain (on-line Spanish Atlas, see below) and by a ratio of 1 to 2 across French *Départements* in 2014 (Le Bail and Or, 2016).

This approach, a hallmark of the US Dartmouth Atlas of Health Care, has been used in at least five European countries to generate “Atlases of variation in health care” (Table 2.2). Additionally, in 2014, in the context of the EU-funded ECHO project, Slovenia, Denmark and Portugal produced atlases of low value care. These atlases cover a similar set of services, in particular elective surgery. They help raise public awareness about the problem of overuse and may catalyse behaviour change, but their operability is limited as they do not typically identify when, for whom, and which specific providers’ services may have been over or under-provided. Nevertheless, this comparative approach can help identify areas where overuse is systemic, as overuse of various services is often correlated in a given area (Miller et al., 2018).

Table 2.2. **Atlases of variations in health care in Europe**

| Country<br>Time period Document   | Authors  | Stated objective  | Approach and scope  | Examples of hospital interventions   |
|---|--|---|---|--|
| <b>Belgium</b>  |  |   |   |  |
| <i>2006</i><br>Analysis of variations in elective surgery in Belgium  | KCE (public research centre in health)   | Highlight unexplained variations in elective surgery.   | Analysis of geographic variations in elective surgical procedures. Selection criteria included high and increasing volume, evidence of relevance from international literature.   | 8 surgeries: Hip replacement, knee replacement, knee arthroscopy, carpal tunnel surgery, cataract surgery, carotid artery surgery, hysterectomy, C-section.  |
| <i>Under preparation</i><br>Thematic Atlases for over 100 procedures  | INAMI (National Institute for Health and Disability Insurance)   | Promote appropriate care by documenting unwarranted variation in practice.  | Interventions are prioritised based on importance (spending), convenience (data available) and relevance (literature, policy debate). A standard methodology is used across procedures selected to represent all specialities.  | Bariatric surgery, myringotomy, phlebotomy, medical imaging (MR,CT), appendectomy, tonsillectomy, knee and hip replacement.  |
| <b>Spain</b>  |  |   |   |  |
| <i>Since 2006</i><br>Atlas VPM (Variations in Medical Practice): A platform of regularly updated thematic atlases   | Consortium of around 50 researchers coordinated by research units in Valencia and Aragon                       | Identify systematic and unwarranted variations in population use of specific hospital services within and across 17 decentralised regions to inform policy debate.            | Variations in standardised utilisation rates are analysed for 3 categories of services: i) proven to be effective, e.g. hip fracture repair ii) services whose effectiveness is uncertain beyond appropriately selected groups of patients, e.g. C-section, iii) generally considered lower-value care, e.g. spinal fusion. The latest atlases are presented in an interactive online platform where different indicators can be explored across zones.                       | 11 atlases relate to hospital procedures including orthopaedic surgery (hip fracture, knee and hip replacement), general surgery, paediatric hospitalisations, cardiovascular procedures (including stroke management), diabetes care, cancer care, hospitalisations for mental health problems, avoidable hospitalisations for frail patients or chronic conditions and procedures considered lower-value care. |
| <b>England</b>  |  |   |   |  |
| <i>2016</i><br>The NHS Atlas of Variation in Healthcare (Compendium)<br>Previous editions: 2010 and 2011.<br><i>Since 2012</i><br>Thematic Atlases: Liver disease (2017) Diagnostic tests (2017)                            | NHS and Public Health England (Department of Health agency), in consultation with relevant specialists         | Identify unwarranted variations in outcomes and activity. The goal is to ensure provision of same quality evidence-based NHS services to all patients.                        | The “compendium” atlases highlight unwarranted geographic variations for the main categories of diseases covered by NHS budget programmes (cancer, mental health disorders). For each programme, geographic variations for an ad-hoc set of indicators are presented which may include morbidity, risk factor, volumes of specific services provided, or quality indicators assessing process (% of people who receive recommended service) or outcome (mortality, survival). | Around 100 indicators are mapped in the 2016 compendium Atlas (up from 34 in the first edition). The last edition emphasises quality indicators and differences in the coverage of appropriate interventions but relatively few interventions known to be of variable value. Exceptions for hospital care include tonsillectomy and hip replacement.   |
| <b>France</b>   |  |   |   |  |
| <i>2016</i><br>Atlas of medical practice variation  | IRDES (research centre), in collaboration with Ministry of Health and with contribution from medical societies | Reduce unwarranted variations in inappropriate care, thereby improving quality and reducing cost.   | Analysis of geographic variations in “priority” surgical procedures. Selection criteria for procedures included: high (>20 000) and increasing volume, large variations, initiatives in place addressing these services or interest by various authorities, evidence of relevance from international literature suggesting a proportion of procedure is low-value.  | 11 surgeries<br>Tonsillectomy, appendectomy, C-section, bariatric surgery, prostate surgery, carpal tunnel surgery, cholecystectomy, hysterectomy, knee replacement, thyroidectomy. Hip fracture surgery, considered generally effective and thus less subject to unwarranted variation was used as a benchmark.   |
| <b>Germany</b>  |  |   |   |  |
| <i>2015</i><br>Healthcare Fact Check: The development of regional variations<br>Previous edition: 2011<br><i>Since 2012</i><br>Thematic fact-checks also prepared on specific interventions (e.g. C-sections, back surgery) | Bertelsmann Foundation (independent think tank), in collaboration with a research centre and experts.          | Measure variations to highlight “efficiency shortcomings and quality deficits”, spark public debate and encourage the development of measures to improve value in the system. | The 2015 atlas analyses geographic variations for a set of elective surgical procedures. Selection criteria included relevance to the general public (prevalence) and per international literature. Stakeholders in the health care system as well as citizens can propose topics for review.   | The 2015 atlas examines 9 surgical procedures: C-section, tonsillectomy and appendectomy in children and adolescents, cholecystectomy, hysterectomy, prostatectomy, knee replacement, coronary bypass, implantation of a defibrillator.  |

Source: Author’s analysis based on Atlases.

The other strategy to measure the extent of overuse is more direct, and consists of identifying, by using patient-level data, those services likely to have been delivered inappropriately. Analyses of service delivery records are undertaken to identify the characteristics of those patients who should not have received a particular service. This analysis can produce estimates of the amount of resources “wasted”, but is limited to those services for which the criteria for appropriateness are sufficiently specific and can be mapped to available data. By aggregating analyses across services it is possible to build bottom-up estimates of wasteful spending. In the United Kingdom, a recent study of services in general surgery using a similar approach identified a potential EUR 153 million which could be saved annually by NHS England (Malik et al., 2018).

### ***Rates of C-sections are still growing in a third of EU countries***

C-sections are a prime example of a surgical procedure which can save lives when clinically indicated, but for which the benefits are disputed. At population level, C-section rates above 15% of deliveries are not associated with reductions in maternal, neonatal or infant mortality (Stordeur et al., 2016). Yet, in 2016, on average 28% of babies were born by C-section in Europe, a rate that varies more than threefold between the Netherlands (16%) and Cyprus (55%). C-section rates began increasing rapidly in the 1980s and continued to rise on average by more than 6% per annum between 2000 and 2005. The growth rate slowed to 2.6% per annum between 2005 and 2010 and further decreased to 1.2% over the following 5 years (Figure 2.4).<sup>2</sup>

In many countries, elective C-section among low-risk women is among the first procedures for which interventions aimed at reducing overuse have been introduced.

Figure 2.4 compares European country levels and trends in C-section rates over the last 10 years, with the centre of the graph representing the European average for both metrics. In many countries in Central and Eastern Europe, C-section rates have risen very rapidly over the past decade, and are very high (most notably in Poland, Romania and Bulgaria), suggesting overuse may have yet to receive much attention. In contrast, many countries of Northern Europe have considerably lower C-section rates, and these have remained fairly stable over the last 10 years. Nordic countries have traditionally had low C-section rates, while a number of other countries in which rates have increased slowly or even declined have put in place specific policies to target this.

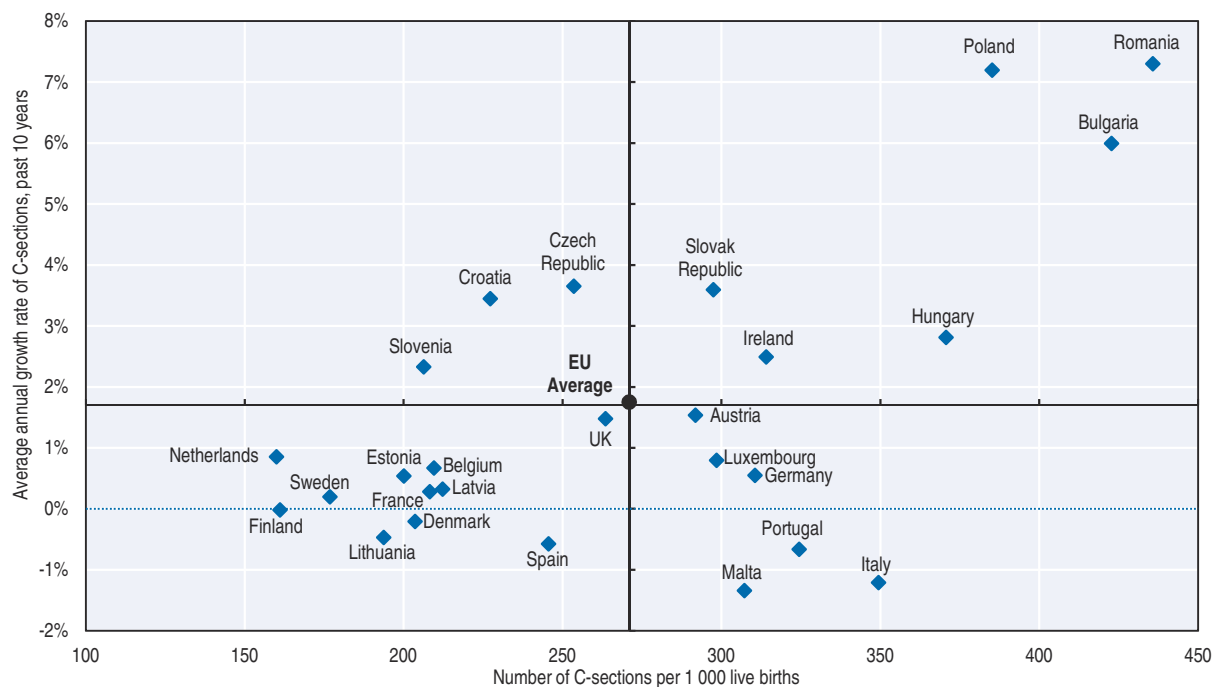
### ***Tackling overuse is likely to require multi-pronged strategies that engage patients and clinicians in particular***

Policies targeting patients and providers to address overuse revolve around three types of levers:

- Producing and publishing information on overuse. This can i) raise awareness; ii) enable better informed conversations between providers and patients (as illustrated by the Choosing Wisely® campaign<sup>3</sup>); or iii) serve to benchmark providers against their peers. For example, all maternity units in Belgium receive confidential annual reports detailing their obstetric indicators and comparing them with other maternity units, encouraging poor performers to question their practices.
- Supporting behaviour change through, for example, clinical decision-making support tools or feedback and audits. In 2013, France offered methodological support to maternity units that volunteered to undertake practice analyses and develop change strategies.




Figure 2.4. C-section rates in 2016 and their annual growth rate between 2006 and 2016



Note: Cyprus is not represented due to a break in the data series, but the 2016 C-section rate is by far the highest in the EU (554 per 1 000 live births). The annual growth rate for Luxembourg only covers the period 2011 to 2016 due to a break in the series in 2011. Data are not available for Greece.

Source: Eurostat, except Netherlands: Perinatal registry ([www.perined.nl/](http://www.perined.nl/)).

StatLink  <http://dx.doi.org/10.1787/888933834148>

- Financial levers, such as payment systems limiting incentives for providers to deliver low-value services, or limiting service coverage to circumstances where comparative effectiveness is documented. Financial incentives are used in France, Portugal, and Italy, targeting procedure prices, hospital budgets and regional budget allocations respectively.

Table 2.3 summarises the strategies used by a handful of countries to reduce C-section rates and provides additional concrete examples.

Although impact evaluations are lacking, the interventions presented above are believed to have contributed to slowing the growth or reducing C-section rates in countries that have implemented them.

However, to date achieving significant and sustained impact in reducing the overuse of various investigations and surgical procedures has proven elusive. Addressing overuse is complex and requires systemic effort and multi-pronged strategies; evidence of impact is often incomplete and system-dependent (OECD, 2017; Mafi and Parchman, 2018; Ellen et al., 2018; Elshaug et al., 2017). Nevertheless, reducing unwarranted use is a quality-enhancing strategy which offers the potential to free-up significant resources in the health system.

Table 2.3. **Examples of strategies to reduce C-section rates in Europe**

| Levers  | Leverage information and raise awareness  | Provide direct behaviour change support  | Financial incentives  | Observed change   |
|---|---|--|---|---|
| <b>France</b><br>Started in 2010 (Haute Autorité de Santé, 2016)  | New best practice guidelines (2012).<br>User-friendly flyers for expectant mothers detailing the indications for C-sections.<br>C-section justification must be documented in patient's medical file. | Campaign providing methodological support to volunteer maternities in their efforts to analyse and improve practice (2013).  | Between 2009-12, France reduced the gap between DRG prices for vaginal delivery and C-section from 40% to 16% (13% in 2018) in public hospitals (17% for private hospitals in 2018).  | Reduction in programmed C-section and increase in the proportion programmed after 39 weeks, with a more marked improvement in maternities which joined the programme supporting behaviour change. |
| <b>Portugal</b><br>Started in 2010 (Ayres-De-Campos et al., 2015) | Creation of a national commission to control C-section rates.<br>Debates in policy and scientific circles.  | Information sessions in maternities with a C-section rate above 35% and discussions of options to reduce C-sections (in the region with highest rates).<br>Training of health professionals (in the region with highest rates).<br>New practice guidelines (2015). | Funding of public hospitals indexed to C-section rates.   | C-section rates are 10% lower in 2016 than in 2010.   |
| <b>Belgium</b><br>(Stordeur et al., 2016)                         | All maternity units receive a yearly confidential report detailing obstetric indicators and comparing them with other maternity units.  |  |   |   |
| <b>Italy</b>  | Patients can look-up the C-section rate in any given hospital in a website run by the National Outcomes Programme of the Ministry of Health (MoH).  |  | Since 2012, C-section rates are one of 35 indicators for which regional targets are set and monitored by the MoH. Good performance across these indicators and progress is rewarded by a 3% increase in the health budget to regions. |   |

### **Exploiting the potential of day surgery**

Greater use of day surgery can also reduce the utilisation of hospital resources, with the added benefit that most patients prefer day surgery as it allows them to return home the same day. The use of day surgery has increased in all EU countries over the past few decades, thanks to progress in surgical techniques and anaesthesia, but the pace of diffusion has varied, with some countries leading the way in adopting day surgery earlier and faster, and others still lagging behind.<sup>4</sup>

### **The diffusion of day surgery varies widely across EU countries**

The trends in the adoption of day surgery presented here focus on four high-volume surgical procedures: cataract surgery, tonsillectomy, inguinal hernia repair, and laparoscopic cholecystectomy.<sup>5</sup> The diffusion of day surgery varies greatly both across these four surgical procedures and across countries. While almost all cataract surgery is now performed as day surgery in most EU countries, the average rate of day surgery in 2015 was 40% for inguinal hernia repairs, 32% for tonsillectomies and 13% for laparoscopic cholecystectomies.

The 22 EU countries included in the analysis can be classified into three groups in terms of adoption of day surgery: advanced adopters, moderate adopters, and low adopters (Figure 2.5).

The Nordic countries and the United Kingdom have led the way in adopting day surgery for a growing number of interventions, and the Netherlands has also expanded day surgery more rapidly than most other EU countries. Nearly all cataract operations in Denmark,

Figure 2.5. **Nordic countries have led the way in adopting day surgery, whereas countries in Central and Eastern Europe have generally lagged behind**



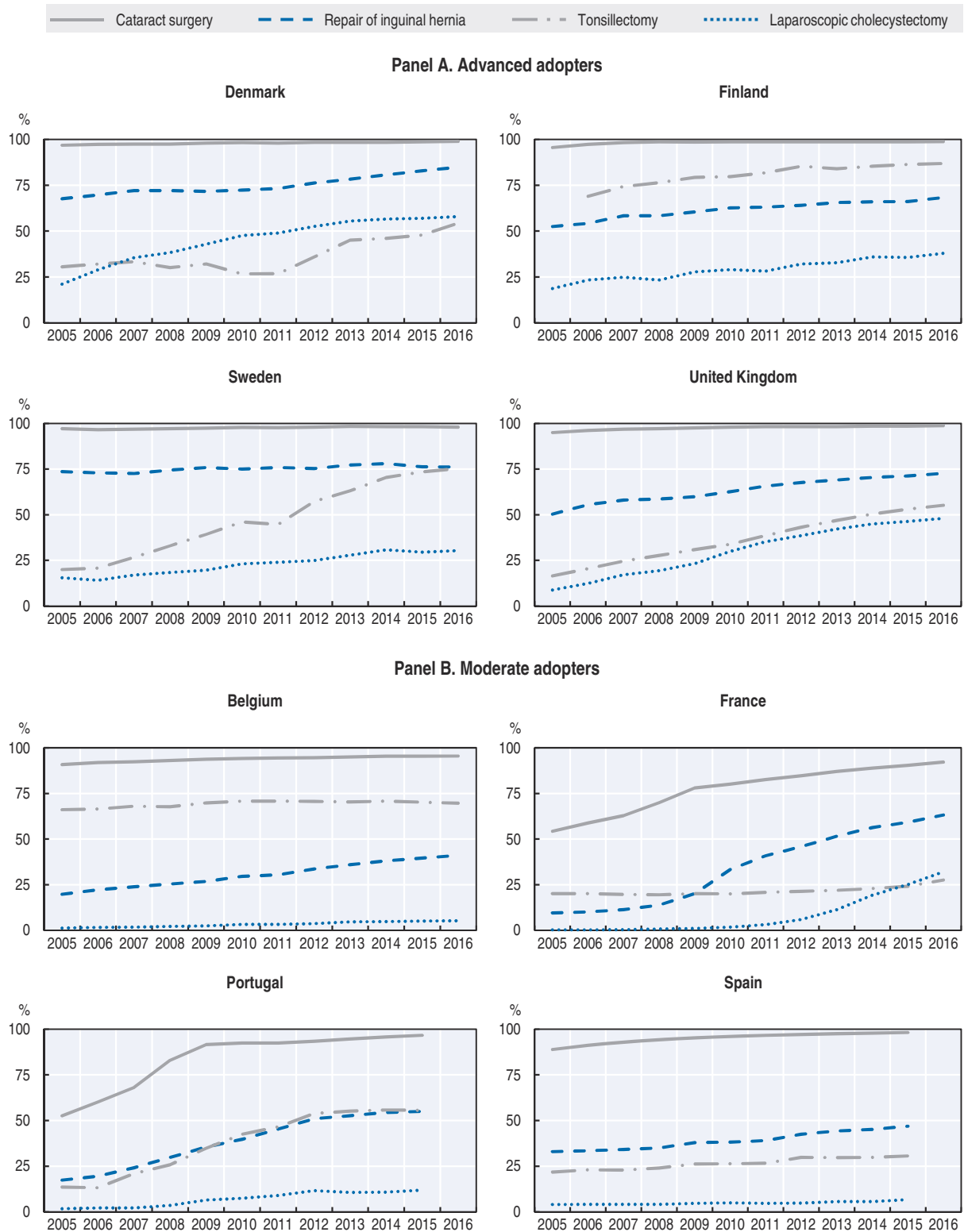
Note: The grouping of countries is based on an analysis of the distance of the country to the EU average for each of the four selected surgical procedures in 2015. Data are not available for Bulgaria, Czech Republic, Greece, Latvia, Slovak Republic and Switzerland. Data for Cyprus are not shown as they only include discharges from public hospitals, resulting in a large bias given that most hospitals are private.

Source: OECD Health Statistics, <https://doi.org/10.1787/health-data-en> and Eurostat Database.

Finland, Sweden and the United Kingdom have been performing day surgery for well over a decade (Figure 2.6, Panel A). Day surgery rates for inguinal hernia repair and tonsillectomy are also much higher in these countries (over 70% and over 50% respectively) than in other EU countries, and laparoscopic cholecystectomy is also increasingly performed as day surgery, and rates now reaching at least 30% in Sweden and over 50% in Denmark.

Several countries in Western Europe (Belgium, France and Ireland) and in Southern Europe (Portugal, Spain, Italy and Malta) have been moderately fast adopters of day surgery. In many of these countries, day surgery has grown fairly rapidly over the past decade for some interventions, for example cataract surgery in France and Portugal (Figure 2.6, Panel B) but remains much more limited for other interventions such as inguinal hernia repair and laparoscopic cholecystectomy. However, national averages often mask large variations within countries. For example, in Belgium day surgery rates for laparoscopic cholecystectomy range from nil in many hospitals yet to adopt this practice, to 50% or 60% in those hospitals that have been leading the way (Leroy et al., 2017). This indicates that a lot of scope remains in this group of countries to expand day surgery further.

Figure 2.6. Diffusion of day surgery between 2005 and 2016 in selected EU countries



Source: OECD Health Statistics 2018, <https://doi.org/10.1787/health-data-en> and Eurostat Database.

StatLink <http://dx.doi.org/10.1787/888933834167>

In Austria, Germany and several countries in Central and Eastern Europe (e.g. Hungary, Poland and Romania), the diffusion of day surgery for most interventions has generally been much slower. While progress has been made on cataract procedures, the use of day surgery for most other interventions remains much more limited. The indicator on “Day surgery” in Chapter 8 shows low day surgery rates in these countries for inguinal hernia repair and tonsillectomy.

Further progress in day surgery could help achieve substantial savings in hospital expenditure. For example, a recent report in France estimated that an increase of 3 percentage points in day surgery could result in savings of EUR 200 million per year (CNAMTS, 2018).

### *Enabling greater diffusion of day surgery*

A number of barriers and enabling factors can influence the uptake of day surgery not only across countries, but also across different hospitals within each country. The same broad types of policy levers that can be used to reduce the overuse of diagnostic tests and treatments can also be used to reduce the unnecessary hospitalisation of patients who could instead be managed with day surgery:

- Publicly reporting the use of day surgery at different levels (national, regional and hospital levels) can play an important role in monitoring progress. One good example of such regular monitoring is the release of the British Association of Day Surgery’s Directory of Procedures, which is accompanied by a national dataset identifying the best performers in the use of day surgery for up to 200 interventions (BADs, 2016). The Belgian Health Care Knowledge Centre also released a comprehensive report in 2017 reporting variations in day surgery rates between Belgium and other neighbouring countries, as well as between the three Belgian regions, and across hospitals (Leroy et al., 2017).
- Providing required support for behavioural and clinical change is also important, so that lagging hospitals or hospital units can learn from and catch up with the most innovative and best performers. Experience in many countries shows that the development of day surgery is often led by “local champions” who drive change in clinical practice.
- Providing proper financial incentives to ensure that health care providers (hospitals and surgical teams) do not lose revenue by moving towards a greater use of day surgery, and may even be financially better-off, is also key. The Best Practice Tariffs in England provide a good example of an explicit policy to incentivise moves toward day surgery (see below).

These interventions are likely to be more effective if they are part of a comprehensive strategy to promote day surgery and are led by clinicians.

In Sweden, one of the main factors that has contributed to the expansion of day surgery over the past few decades has been clinical leadership in the adoption of evidence-based guidelines to streamline pre- and post-operative surgical procedures, and promote safe and effective use of day surgery. Nationwide collaboration and support from national authorities have helped to set up and disseminate new standards, while leaving sufficient autonomy to enable adaptation to local circumstances. The expansion of day surgery has helped achieved substantial savings, but further progress is still possible. A 2016 review by the National Board of Health and Welfare showed that the costs of the 11 most common types of procedures would have been 14% higher if the share of day surgery had not increased between 2005 and 2013. However, the review also pointed out that the full cost saving potential has not yet been reached, as the share of day surgery still varied widely across the 21 regional health administrations. For

example, the rate of day surgery for tonsillectomy varied between 4% and 94% in 2013 (Tiainen and Lindelius, 2016).

In the United Kingdom, the British Association of Day Surgery (BADS) has played an instrumental role in the development of day surgery in England by gradually expanding the list of procedures deemed suitable and safe for day surgery from 20 in 1990 to more than 200 procedures in 2016 (BADS, 2016). A national dataset also accompanies this Directory of Procedures, providing the latest data on the percentage of procedures successfully performed as day cases and for each procedure also indicating the performance of the top 5%, 25% and 50% of hospitals. Since 2009, the BADS has also worked with the Department of Health to develop Best Practice Tariffs to provide financial incentives to support the further development of day surgery. By initially paying a relatively higher price for day surgery, the Best Practice Tariffs incentivise providers to treat patients as day cases, and the incentives are gradually reduced as day surgery becomes the norm, as is the case now for cataract surgery (Table 2.4). These financial incentives have contributed to a steady increase in the share of day surgery for interventions such as inguinal hernia repair, tonsillectomy and laparoscopic cholecystectomy in England since 2009 (see Figure 2.6).

**Table 2.4. Best Practice Tariffs for day surgery in England, selected interventions, 2017**

| Surgical procedure           | Inpatient reimbursement (EUR) | Day surgery reimbursement (EUR) |
|------------------------------|-------------------------------|---------------------------------|
| Cataract surgery             | 902                           | 902                             |
| Repair of inguinal hernia    | 1 424                         | 1 581                           |
| Tonsillectomy (children)     | 1 146                         | 1 269                           |
| Tonsillectomy (adults)       | 1 157                         | 1 257                           |
| Laparoscopic cholecystectomy | 2 002                         | 2 214                           |

Note: A Best Practice Tariff is no longer provided for cataract surgery as nearly all are now day cases. The conversion into euros is based on an exchange rate of GBP 1 = EUR 1.16.

Source: National datasets for Payment by Results.

France has combined financial incentives and administrative measures, over time aligning inpatient and ambulatory surgery tariffs closer to the costs of the latter. Since 2008, hospitals with relatively low ambulatory surgery rates can be required by the health insurance fund to request prior authorisation for each instance of planned inpatient admission for those surgeries (which can be justified, for example if a patient cannot be accompanied by a responsible adult upon discharge). The initial list of surgical procedures included cataract surgery; laparoscopic cholecystectomy and hernia repair were added later, but tonsillectomy has not yet been added, which in part explains the trends observed in Figure 2.6.

### **Reducing delayed discharge from hospital**

#### ***Delayed discharges unnecessarily increase health care costs<sup>6</sup>***

In many cases, savings can be gained through better management of length of stay in hospital, which can be reduced through better co-ordination and planning within hospitals, and between hospitals and post-discharge care settings. Unnecessarily delayed discharges can be costly to health systems for several reasons. Patients who are clinically ready to be discharged can occupy beds that could otherwise be used to care for patients with greater needs. A recent cross-country review estimated that the cost of delayed discharge ranges from EUR 230-650 per patient per day (Rojas-García et al., 2018). In the

United Kingdom (England), the National Audit Office has estimated the cost of delayed transfers of care for people aged 65 and over to be GBP 820 million per year (~EUR 726 million) (National Audit Office, 2016).

Delayed discharges from hospital also contribute to high-cost care through their effects on the health of patients. A longer stay in hospital increases the risk of health care-associated infections, and can accelerate functional decline, particularly among elderly patients (Covinsky et al., 2003; Zisberg et al., 2015).

Table 2.5. **Bed days attributable to delayed transfers of care, 2016**

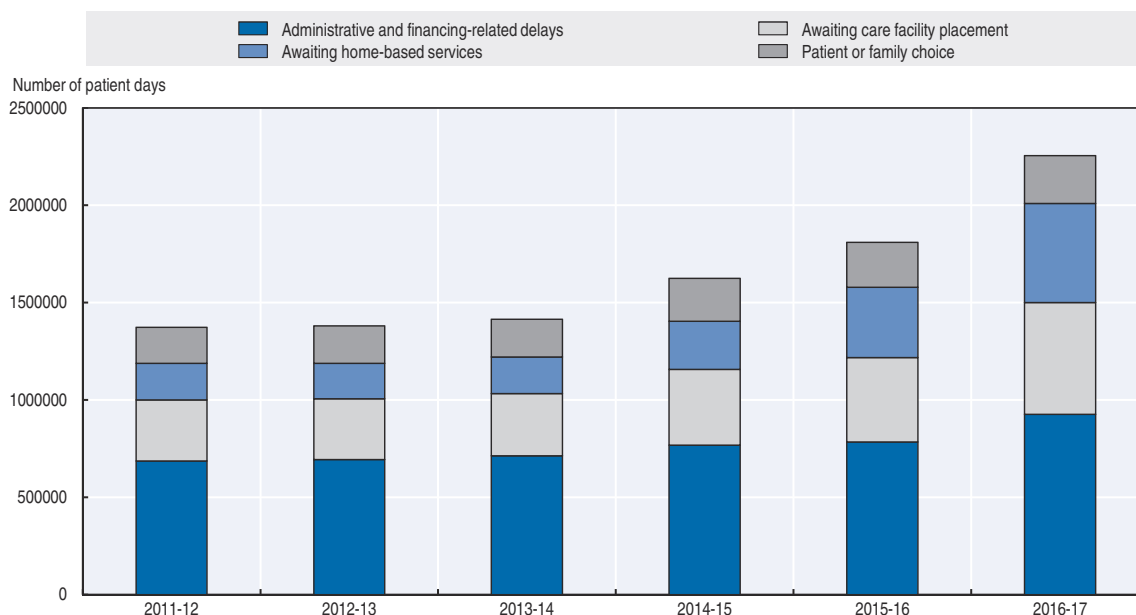
|                          | Number of bed days | Bed days/1 000 population |
|--------------------------|--------------------|---------------------------|
| Denmark                  | 30 844             | 5                         |
| Ireland                  | 201 977            | 43                        |
| Norway                   | 82 411             | 16                        |
| Sweden                   | 393 124            | 40                        |
| United Kingdom (England) | 2 254 821          | 34                        |

Note: Data for the United Kingdom (England) refer to April 2016-March 2017. Bed days per 1 000 population for Denmark was country-reported. Bed days per 1 000 population for all other countries are based on dividing the total number of bed days lost by the 2016 population (UN Population Prospects 2017, medium variant).


Source: Suzuki (forthcoming), “Reducing delays in hospital discharge”, OECD Health Working Papers.

The extent of delayed discharges differs markedly, from 5 bed days per 1 000 population in Denmark to 43 bed days per 1 000 population in Ireland, also the country with the highest bed occupancy rate (94%). The proportion of bed days occupied by patients with delayed discharge is driven by two related components: the number of patients who experience a delayed discharge, and the length of the additional stay. In the United Kingdom (England), for example, the number of patients who experienced a delay in discharge from hospital increased by 60% between 2011 and 2016, with the total number of excess bed days over 2.25 million in 2016 (NHS England, 2018).

Figure 2.7. **Bed days associated with delayed transfers of care, England (United Kingdom)**



Source: NHS England (2018).

StatLink  <http://dx.doi.org/10.1787/888933834186>

Similarly, the number of patients with a recorded delay in discharge doubled in Norway between 2012 and 2016 (Helsedirektoratet, 2018). It is estimated that patients over 65 make up 85% of those with delayed discharge in England (Department of Health, 2016). With population ageing, the challenge of patients experiencing a delay in discharge in European countries is of growing concern.

### ***Approaches to reducing delayed discharge from hospital***

The reasons behind rising rates of delayed discharge in many European countries are multifactorial, with elements from health and social care systems. Many of the key drivers are factors outside the hospital itself, including capacity shortages in intermediate, home and long-term care, as well as poor transition planning and care co-ordination.

Several countries have taken steps to increase the capacity of intermediate care facilities and home care to accommodate people who no longer require acute care. Increasing the availability of intermediate care is used as a strategy to improve hospital transitions in the Netherlands, Norway, Scotland, and Sweden. Strengthening home-based care services, including hospital-at-home and outreach services following discharge, has been found to both reduce length of stay and the risk of hospital readmission (O'Connor et al., 2015).

Poor management of hospital transitions and lack of co-ordination between hospitals and community-based services also contribute substantially to delays in discharge (Barker et al., 1985; Shepperd et al., 2013). Hospital discharge planning processes often begin too late in the patient's hospital stay to ensure effective post-discharge care in time. Policies to improve co-ordination, including better integration of primary care into care co-ordination processes, and incentivising better co-ordination through pay-for-performance and pay-for-co-ordination schemes, can help to ensure patient care is better managed following discharge.

Better monitoring of delayed hospital discharges enables countries to develop more finely tailored approaches to reducing them. At least eight European countries currently monitor delayed discharges in some form, of which five have developed financial incentives for reducing them. In Denmark, Norway, Sweden, and the United Kingdom (England), where municipalities play a strong role in delivering social care in the community, financial penalties have been introduced for every additional day a patient spends in hospital after they are clinically ready for discharge. In Denmark, a sharp increase in the daily penalty in January 2017 – from DKK 1976 (~EUR 265) to DKK 3952 (~EUR 530) per day, rising to DKK 5928 (~EUR 795) for the third and all subsequent days of delay – was associated with a decline in the number of delayed discharges reported by hospitals.

After hospital discharge was identified through patient surveys as the least satisfying aspect of a hospital stay, Norway began re-organising the discharge process, including starting the discharge planning process at admission, communicating important information to municipalities during the admission, facilitating a discharge discussion with patients and families, and creating a discharge checklist. In addition, hospitals are required to contact municipalities within 24 hours of an admission if they believe the patient will require follow-up from health or social care services once discharged.

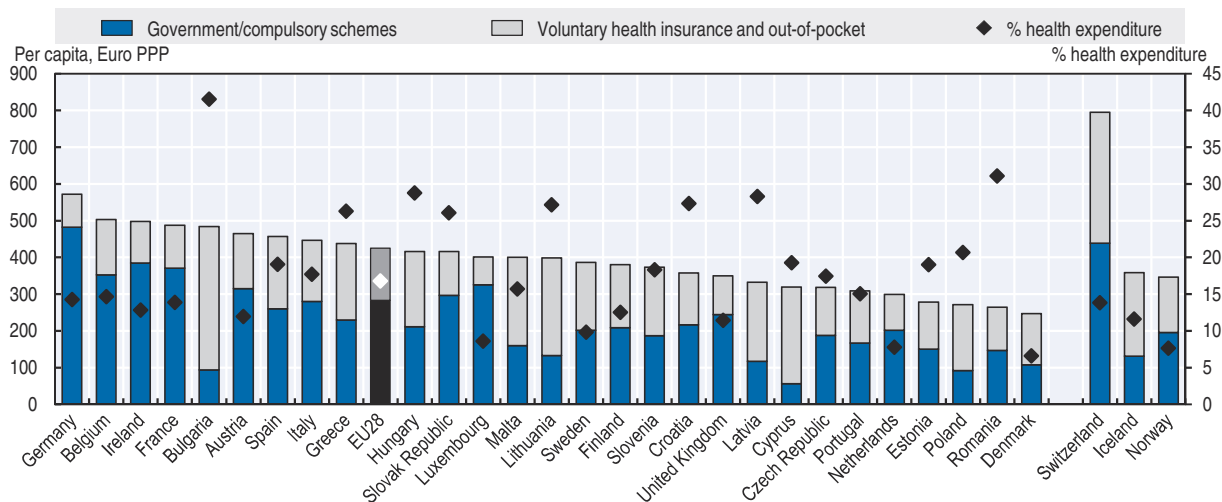
### **Addressing wasteful spending on pharmaceuticals**

After inpatient and outpatient care, pharmaceuticals represent the third largest component of health spending (see Chapter 5). In 2016, on average medicines accounted




for 17% of total health expenditure in EU countries (excluding medicines used in hospitals), but more than 40% in Bulgaria, over 30% in Romania, and in excess of 25% in Latvia, Lithuania, Greece, Hungary, Croatia and the Slovak Republic (Figure 2.8). Trends in pharmaceutical expenditure are thus an important influence on overall health expenditure patterns. While a high level of spending does not in itself indicate waste, optimising the value derived from medicines expenditure and identifying and eliminating waste where it occurs are both critical to achieving efficient and sustainable health care systems.

Figure 2.8. **Pharmaceutical expenditure (retail) per capita and as a share of health expenditure, 2016**



Note: Pharmaceuticals used in hospitals could add another 30% of spending on top of retail spending.

Source: OECD Health Statistics 2018, <https://doi.org/10.1787/health-data-en> and Eurostat Database.

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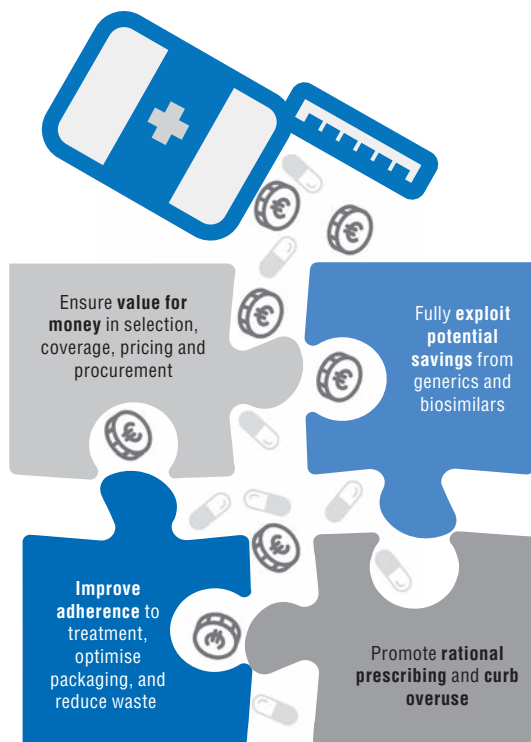
To achieve these objectives – without reducing benefits for patients or undermining the quality of care – a mix of supply and demand side levers can be considered to: i) ensure value for money in selection and coverage, procurement and pricing; ii) promote off-patent competition and exploit the potential of generics and biosimilars; iii) encourage rational use; and iv) improve adherence (Figure 2.9). These are discussed in turn in the remainder of this section.

### **Ensuring value for money in selection and coverage, procurement and pricing**

#### **Using health technology assessment (HTA) to inform the selection of covered medicines**

One approach to avoiding wasteful spending is to ensure that those medicines selected for procurement or reimbursement reflect good value for money. Health technology assessment (HTA) is a comparative, multi-disciplinary process used to evaluate the added benefit or impact of health technologies, and which can be used to inform decision makers' assessment of the opportunity cost of replacing an existing standard of care with a new therapy. In this way, selection and coverage decisions can avoid displacing high value products with ones of lesser value to the health system. HTA can also be used to review the value for money offered by existing therapies, and to adjust prices to reflect a desired level of cost-effectiveness or willingness to pay.

Figure 2.9. **Possible approaches to reducing wasteful spending on pharmaceuticals**



Many European countries have established, and several more are in the process of institutionalising forms of HTA to inform the selection of medicines for their public programmes. Twenty-three EU Member States have HTA mechanisms that assess medicines; 20 have HTA systems that also assess medical devices, and 17 countries include the assessment of other technologies. While cooperation between EU countries on HTA has been increasing over time, as part of its 2017 work programme, the European Commission (EC) announced an initiative to take this a step further. In January 2018, the EC issued a proposed Regulation on HTA covering new medicines and certain new medical devices, providing a basis for increased cooperation at EU level. Under the regulation, Member States would develop common HTA tools, methodologies and procedures for: 1) joint clinical assessment; 2) joint scientific consultations for developers seeking advice from HTA bodies; 3) identification of emerging health technologies. Member States are currently debating the substance of the proposed regulation, particularly whether (and the extent to which) the cooperation on clinical assessment should be mandatory (European Commission, 2018).

### ***Increasing bargaining power***

Intra- and international cooperation among buyers can increase bargaining power, and can improve both the information and resources available to buyers. Belgium, the Netherlands and Luxembourg established a cooperative initiative in 2015, and were joined by Austria in 2016 and Ireland in 2018. The initiative involves cooperation in informing and developing pricing and reimbursement decisions, including joint HTA, horizon scanning and exchange of information from national disease registries, as well as joint price negotiations

with industry (BeNeLuxA, 2017; Department of Health, Ireland, 2018). To date, the focus has been on high-cost and orphan drugs considered priorities in each of the countries, and for which assessment methods are deemed sufficiently similar to allow for such cooperation. Similar cooperation has been announced, but not yet implemented by Bulgaria and Romania in the procurement of high-cost drugs (Novinite.com, 2016); by Poland, Hungary, the Slovak Republic and Lithuania (Visegrad Group, 2017); and by ten Southern European countries that are signatories to the Valletta Declaration (Infarmed, 2018).

### **Promoting off-patent competition and exploiting the potential of generics and biosimilars<sup>7</sup>**

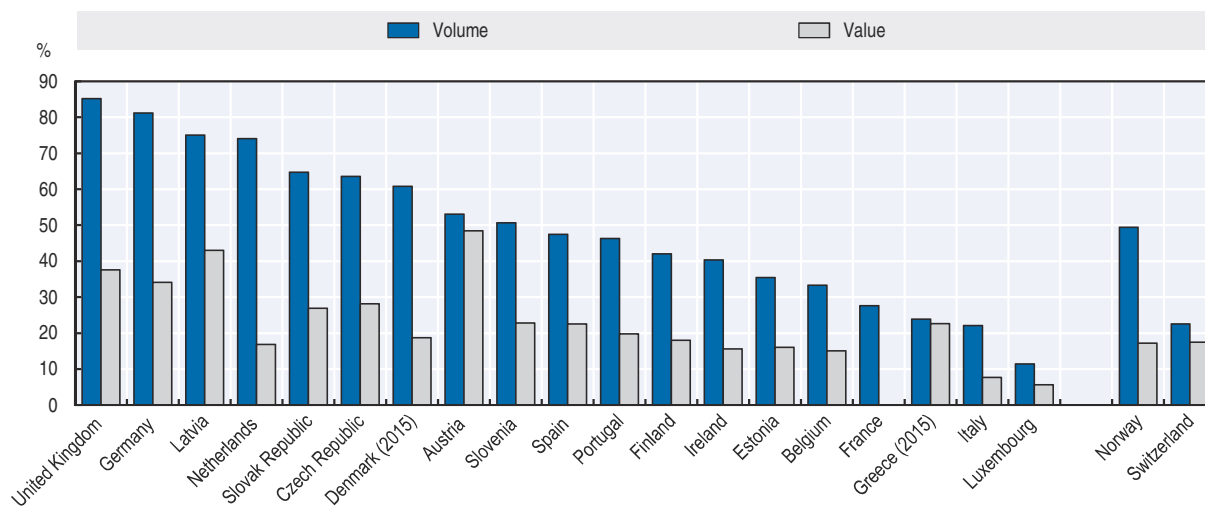
It is widely recognised that the development of competitive generics markets are an important mechanism for reducing expenditure without compromising benefits to patients (Seeley, E, 2008). The use of a cheaper generic equivalent (or in some cases, a cheaper, therapeutically interchangeable drug from the same therapeutic class) in lieu of an originator medicine can generate significant cost savings. Moreover, the market entry of generics can also enhance patient access, particularly in lower-income countries (Elek et al., 2017).

Some countries set single reimbursement amounts for groups of therapeutically equivalent drugs, known as “reference prices”, and these can substantially reduce government or other third-party payer outlays. However, they can also discourage competition and lead to higher prices for off-patent medicines than might be expected through competitive procurement mechanisms such as tendering. Rather than offer discounts to government or other third-party payers, to gain market share manufacturers may set their list prices at the reference price level, but offer discounts or other inducements to wholesalers and/or pharmacies. Where third-party payers then reimburse the full reference price, significant profits accrue to wholesalers and pharmacies without any benefits flowing to consumers or third-party payers (Seiter, 2010). In response, some countries have imposed ceilings on wholesaler and pharmacy margins or introduced profit-sharing arrangements (European Commission, 2012). Evidence also suggests that direct regulation of generics prices, for example, by imposing fixed discounts relative to originator products (or using reference prices) is less effective in reducing prices than where prices are established through competitive mechanisms such as tendering or negotiation (OECD, 2017) However, competition-inducing policy measures should be tailored to respective care settings (outpatient vs inpatient) and take into account issues of long-term supply certainty.

Across Europe, prices, market shares and timing of market entry of generic medicines vary widely (Rémuzat et al., 2017; Kanavos, 2014). In 2016, generics accounted for more than 75% of the volume of medicines covered by basic health coverage in Germany and the United Kingdom, but made up less than 30% in Switzerland and Italy, and less than 15% in Luxembourg. A recent study also reported that prices of generics in Switzerland were more than six times higher than in the United Kingdom (Wouters, Kanavos and McKee, 2017). Yet, generic market entry intensity or price decline cannot be entirely explained by the size of a geographical market (Kanavos, 2014). Although some of the observed differences in uptake across countries may reflect differences in the timing of patent expiries, generic uptake depends very much on policies implemented at national level (Belloni, Morgan and Paris, 2016; EvaluatePharma®, 2018). In addition to promoting competitive procurement and pricing, these include encouraging rapid market entry of follow-on products on loss of


market exclusivity of originator medicines; promoting or mandating prescribing by international non-proprietary name (INN)<sup>8</sup>; encouraging and incentivising pharmacists to substitute at the point of dispensing; and incentivising and educating patients.

Figure 2.10. **Generic market share by volume and value, 2016 (or latest year)**



Note: Data reflect the total market when available (if not, data reflect the reimbursed market or the community pharmacy market).

Source: OECD Health Statistics 2018, <https://doi.org/10.1787/health-data-en> and Eurostat Database.

StatLink  <http://dx.doi.org/10.1787/888933834224>

Several European countries employ a range of approaches to promoting generic uptake, while others are yet to establish policy frameworks that fully exploit their potential. Over the past decade, Belgium and France have introduced financial incentives to encourage patients to choose a generic rather than an originator product. Belgium also has prescription quotas for doctors, mandatory substitution for some categories of drugs, education and information campaigns for patients, and fixed fees for pharmacies to avoid any unintended incentives to dispense either originator or generic products. However, even though the generic market share by volume doubled from 17% to 35% between 2005 and 2015 in Belgium, generic use is still low relative to many other EU countries such as the United Kingdom, Germany and the Netherlands (OECD/European Observatory on Health Systems and Policies, 2017).

France (in 2009) and Hungary (in 2010) have also introduced incentives for GPs to prescribe generics through pay-for-performance (P4P) schemes. Between 2011 and 2016, the generic market share by volume in France increased from 18% to 28%, but similar to Belgium, it remains well below the EU average, in part because France restricts the categories of drugs for which generic substitution and competition are permitted. In 2015, France implemented mandatory INN prescribing, and the 2017 National Action Plan for the promotion of generics aims to increase the generic market share by a further 5 percentage points by 2018 (CNAMTS, 2018). In Italy, prescribers may indicate either the INN or the brand of a medicine, but unless a reason is provided to preclude substitution (or the patient objects) the pharmacist must dispense the cheapest version of the product. Greece has issued prescribing guidelines; set maximum prices for generics; implemented a compulsory, country-wide electronic prescription system to monitor prescribing and

dispensing; and mandated prescribing by INN, generic substitution in pharmacies, and the use of generics in public hospitals (OECD/European Observatory on Health Systems and Policies, 2017).

Countries that have achieved strong or rapid improvement in penetration of generics include the Netherlands, Denmark, and Spain. In the Netherlands, competition between generics is encouraged by “preference policy”, whereby insurers only reimburse the cheapest generic (Zuidberg, 2010). Denmark introduced price controls and promotion of generics, and increased generic market share by volume from less than 40% in 2007 to over 60% in 2015 (OECD/European Observatory on Health Systems and Policies, 2017). Spain adopted a series of measures that include accelerating market entry of generics and mandatory pharmacy substitution with the cheapest generic (since 2006); the generic market share by volume increased from 14% in 2005 to 47.5% of the total reimbursed market in 2016 (OECD/European Observatory on Health Systems and Policies, 2017).

Biologics represent one of the most rapidly growing segments of the pharmaceutical market, predicted to increase from 25% of global sales (by value) in 2017 to 31% in 2024 (EvaluatePharma®, 2018). Just as generic versions of small-molecule medicines generate opportunities to obtain comparable health benefits at lower prices, so do “follow-on biologics” – known as biosimilars. However, expanding biosimilar uptake presents some additional challenges; the inherent complexity of biological products means that biosimilars can be more challenging to develop and manufacture than small molecule generics, and as they are not identical to their reference products, they may not be suitable for substitution at the point of dispensing – a key driver of generic uptake.

Biosimilars have been available in Europe for over a decade, and as of 31 March 2018, more than 40 biosimilar products in 15 different biologic classes were approved for marketing in the EU, with 19 new biosimilars authorised between January 2017 and March 2018 (Aideed, 2018). However, despite Europe accounting for nearly 90% of global biosimilar sales (Brennan, 2018), the overall market penetration of biosimilars remains low. With many major patent expiries anticipated between 2018 and 2024, opportunities for further savings are substantial (IMS Institute for Healthcare Informatics, 2016).

Across Europe, significant differences exist in policy approaches to biosimilar pricing and reimbursement, stakeholder incentives for biosimilar use, and levels of education and awareness, with consequent variations in uptake and the extent of savings (Roediger, Freischem and Reiland, 2017; Rémuzat et al., 2017). A recent study of biosimilar policies in 24 countries (20 EU Member States, plus Iceland, Norway, Russia and Serbia) showed that many biosimilars were not uniformly accessible across Europe, with Germany the only country in which all approved biosimilars were available and funded (Moorkens et al., 2017).

In most countries, biosimilar pricing in ambulatory care involves a mix of mechanisms (see Table 2.6), while in the hospital setting, tendering is used in all countries, either at national level or by individual hospitals. In the majority of countries, the reference product and biosimilar may be subject to internal reference pricing to set a common reimbursement level (Moorkens et al., 2017). Demand side measures include incentives for physicians to prescribe biosimilars. For example, France encourages physicians to prescribe at least 20% insulin glargine biosimilars in ambulatory care, while in Belgium biosimilars form part of physicians’ quotas for prescribing low-cost medicines, and they are encouraged to prescribe at least 20% biosimilars for treatment-naïve patients.

Table 2.6. **Biosimilar policies across Europe**

| Country        | Biosimilar pricing in ambulatory care  | Internal reference pricing | Incentives to prescribe | Substitution |
|----------------|--|----------------------------|-------------------------|--------------|
| Austria        | 1st/2nd/3rd biosimilar prices -38%/-15%/-10% discount from Reference Product (RP). RP must reduce price by 30% three months after 1st biosimilar reimbursement. After 3rd biosimilar, RP must match price of the cheapest available biosimilar.  | Yes                        | Yes                     | No           |
| Belgium        | Prices of biosimilars negotiated on a case by case basis, maximum reimbursed price cannot be > RP. RP must reduce price on market entry of biosimilar.   | No                         | Yes                     | No           |
| Bulgaria       | Ex-factory price of biosimilar cannot exceed lowest price in a set of countries (Bulgaria, Romania, France, Latvia, Greece, Slovak Republic, Lithuania, Portugal, Italy, Slovenia, Spain, Belgium, Czech Republic, Poland, Hungary, Denmark, Finland, or Estonia), referred to as external reference pricing (ERP). Ceiling retail price is determined using 3-levels of regressive margins. | Yes                        | No                      | No           |
| Croatia        | Biosimilar price determined via ERP (Italy, Slovenia, Czech Republic, Spain, France). 1st biosimilar: -15% on RP/subsequent biosimilars: -10%.   | Yes                        | No                      | No           |
| Czech Republic | The price and reimbursement of 1st biosimilar -30% of the RP. List price of RP remains the same, but reimbursement level is lowered to the price of the biosimilar. The maximum price of the biosimilar is determined via ERP of all EU countries except Bulgaria, Czech Republic, Estonia, Luxembourg, Germany, Austria, Romania, Cyprus and Malta.   | Yes                        | No                      | No           |
| England        | Free pricing, with volume based pricing scheme (rebates when expenditure exceeds agreed total). However biosimilars predominantly sold to hospitals, which procure them via a nationally coordinated tendering process.  | No                         | Yes                     | No           |
| Estonia        | The price is negotiated; in ambulatory care the price must be at least 15% < RP.   | Yes                        | Yes                     | Yes          |
| Finland        | The price of the biosimilar must be < the price of the RP. The wholesale price of the 1st reimbursable biosimilar must be at least 30% < wholesale price of RP.  | No                         | Yes                     | No           |
| France         | Prices determined by negotiation, but typically 10-20% below the price of RP, taking into account a range of factors including the price in the rest of Europe.  | Yes                        | Yes                     | Yes          |
| Germany        | Free pricing.  | Yes                        | Yes                     | Yes/No       |
| Iceland        | The price of the biosimilar must not be higher than the lowest wholesale price in Denmark, Norway, Sweden and Finland. Once a biosimilar is on the market, the price of the RP is reduced to 80% of the original ex-factory price.   | No                         | Yes                     | No           |
| Ireland        | The price of the biosimilar is negotiated, typically 10-20% below RP.  | No                         | No                      | No           |
| Italy          | In general, biosimilars are priced approximately 20% < RP.   | No                         | Regional                | No           |
| Latvia         | 1st biosimilar at least -30% on RP; 2nd and 3rd biosimilars at least -10% on 1st/2nd biosimilars; subsequent biosimilars: -5% further decrease. Price may not be > 1/3 lowest price in Czech Republic, Romania, Slovakia, Hungary and Denmark, and no higher than in Estonia and Lithuania.  | Yes                        | No                      | Yes          |
| Malta          | Maximum price is set for national procurement through ERP. Procurement by centralised tendering (by INN, thus promoting competition).  | No                         | No                      | No           |
| Netherlands    | The price of a biosimilar is officially the same as the price of the RP.   | Yes                        | In hospitals            | No           |
| Norway         | The price of the biosimilar cannot be higher than the price of the RP.   | No                         | Yes                     | No           |
| Poland         | 1st biosimilar: -25% on RP; 2nd biosimilar must be < 1st, "limit groups" exist where the cheapest is the limit for the whole group.  | Yes                        | No                      | Yes          |
| Portugal       | ERP, with annual changes in reference countries (2017: Spain, France and Italy), to establish maximum price. For reimbursement biosimilar must be < 80% of RP or < 70% of RP when biosimilar market share is ≥ 5% for the INN.   | No                         | In hospitals            | Yes/No       |
| Serbia         | 1st biosimilar: -30% on RP, sets the reimbursement rate. 2nd biosimilar: -10% on 1st biosimilar. 3rd biosimilar: -10% on 2nd biosimilar, with maximum 90% of average price in Slovenia, Croatia, and Italy. National tendering by brand name can occur.  | Yes                        | No                      | No           |
| Slovenia       | Biosimilar price is either 92% of the lowest price in Austria, Germany and France, or 92% of median price in other EU/EEA countries. If the biosimilar is not in any of the reference countries or EU/EEA countries, price is 68% of RP.   | Yes                        | No                      | No           |
| Spain          | The price of the biosimilar is negotiated, typically 20-30% below the price of the RP. A maximum price is set for national procurement.  | Yes                        | In some regions         | No           |
| Sweden         | The price of the biosimilar must be same or lower than that of RP.   | No                         | Regionally              | No           |

ERP: External Reference Pricing, EU: European Union, EEA: European Economic Area, RP: Reference Product.

\* In Italy, biosimilars are considered interchangeable with their RPs, but substitution is only at the discretion of the prescriber. See [www.agenziafarmaco.gov.it/sites/default/files/2\\_Position-Paper-AIFA-Farmacii-Biosimilari.pdf](http://www.agenziafarmaco.gov.it/sites/default/files/2_Position-Paper-AIFA-Farmacii-Biosimilari.pdf).

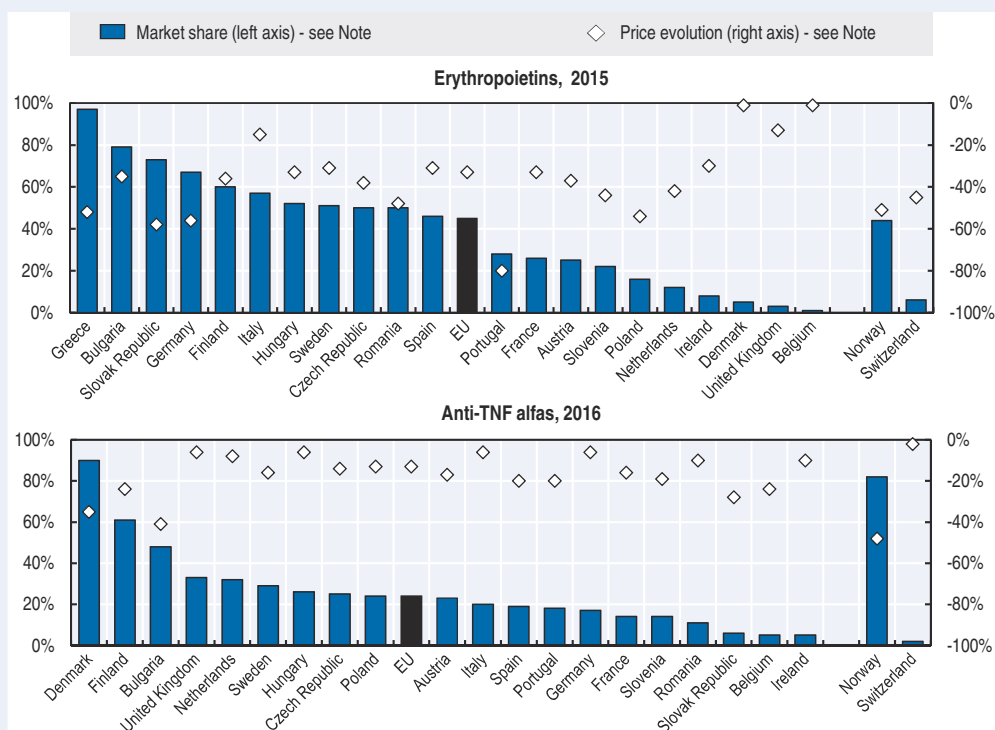
\*\* In Portugal, substitution is encouraged for infliximab, rituximab and etanercept if the biosimilar is cheaper and the patient stable, but is not mandatory.

Source: Adapted from Moorkens et al. (2017).

**Box 2.1. Current and potential future savings from the use of biosimilars**

In 2016, it was estimated that biosimilars could generate savings up to EUR 100 billion by 2020 in the five most populous countries in the European Union (Germany, France, Italy, Spain and the United Kingdom) plus the United States. Although thus far price reductions offered by biosimilars have not been nearly as large as those seen with small molecule generics, discounts of over 60% have been reported for selected products (see graphs). Uptake of biosimilars also varies substantially across Europe. That said, the correlation between biosimilar market shares and price reductions is weak, suggesting the existence of barriers to effective competition. Promoting biosimilar uptake is important for driving savings and ensuring the continued participation of players in the market, but it is the market entry of biosimilars that promotes price competition. The two graphs below show a) the market penetration of biosimilars as a proportion of all products within the same drug class eligible for biosimilar competition (vertical bars, left axis) and b) the price evolution across all products within the class eligible for biosimilar competition (diamonds, right axis). The first graph shows the results for the class of drugs known as erythropoietins, used in the acute care setting to stimulate red blood cell production in a number of conditions, including chronic renal failure. Erythropoietins were among the first biosimilar products to be approved in Europe. The second graph shows similar metrics for anti-TNF alfas, a class of drugs used for a range of chronic conditions such as rheumatoid arthritis and Crohn’s disease, and for which biosimilars have entered the market more recently.

**Figure 2.11. Market share of biosimilars and price evolution**



Note: Graphs show market share of biosimilars for year shown: a) biosimilar treatment days (TD) as a proportion of TD of all products in the drug class eligible for biosimilar competition (vertical bars, left axis) and b) price evolution (change in price per TD for year shown across all products in the drug class eligible for biosimilar competition, relative to price per TD in the year prior to biosimilar market entry [right axis]).

Source: IMS Institute for Healthcare Informatics (2016); Quintiles IMS (2017).

StatLink <http://dx.doi.org/10.1787/888933834243>

Portugal has recently implemented financial incentives for pharmacies to encourage dispensing of lower price medicines, and defined target market shares for biosimilar versions of infliximab, etanercept and rituximab. In the Netherlands, limitations on the prescribing of reference products are often part of agreements reached between insurance companies and hospitals, though budget constraints within hospitals already provide incentives for the use of biosimilars. Substitution rules are also important in influencing biosimilar uptake. With the exception of Estonia, France, Latvia, and Poland, most countries do not permit unrestricted substitution of biologicals at the point of dispensing. In France, draft legislation permitting substitution of biosimilars was introduced in 2017 but is limited to initiating treatment in treatment-naïve patients, or to ensuring continuity for patients previously dispensed a biosimilar (ibid.).

### **Encouraging rational use**

Efforts to minimise waste in expenditure on medicines can be undermined significantly by over-prescribing and inappropriate use. Over-prescribing not only wastes resources, it increases the risks of therapeutic failure, adverse events, and the development of antimicrobial resistance (AMR). This section focuses on two specific groups of medicines that are frequently subject to over-prescription, and have particular implications for public health: antibiotics and hypnotics/anxiolytics (mainly benzodiazepines).

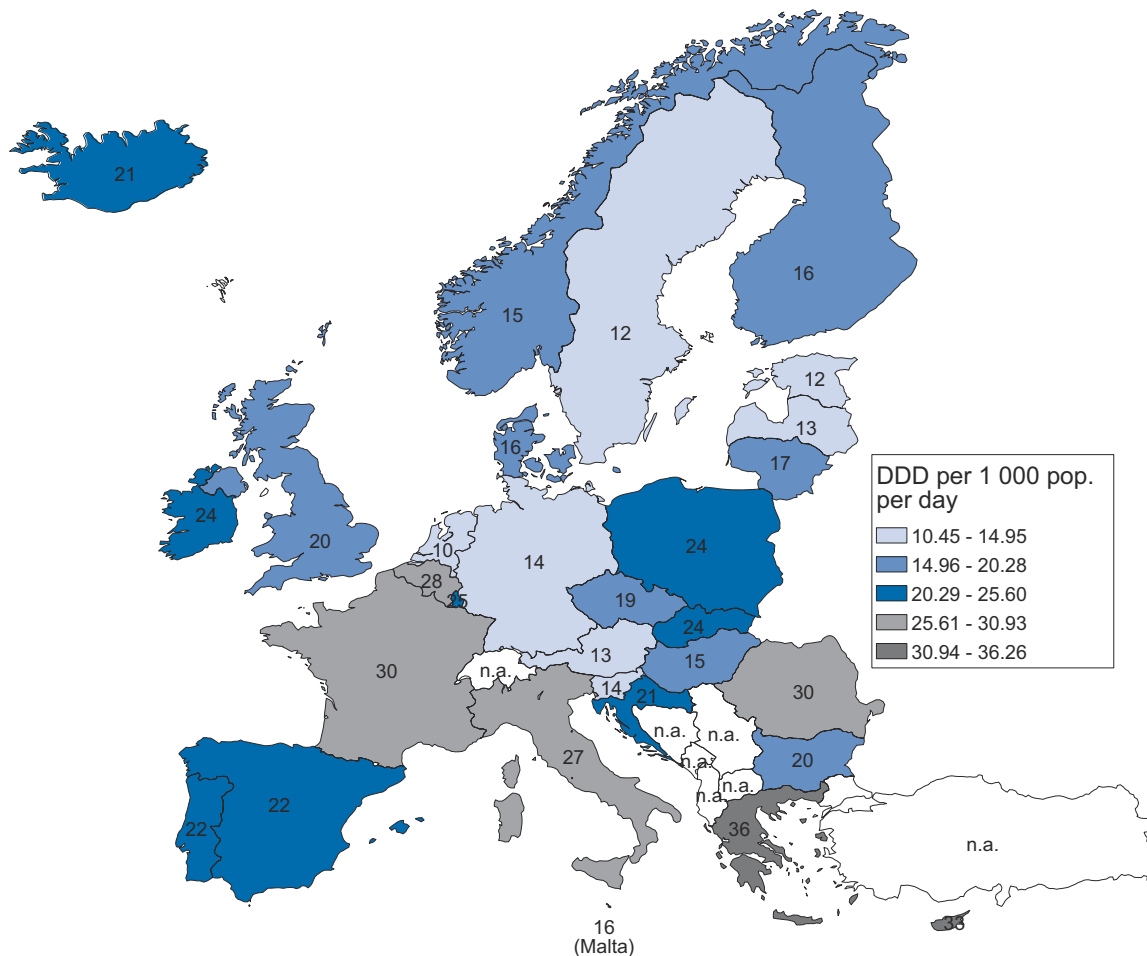
Antimicrobial resistance represents an increasingly serious social and economic burden globally, projected to be responsible for as many as 33 000 deaths per year in the EU alone between 2015 and 2050, if no effective action is put in place (OECD, 2018). In addition, overprescribing of antibiotics incurs a number of other direct and indirect costs, by medicalising conditions for which antibiotics are not useful, and by putting patients at risk of adverse effects (and the costs of treating them).

Primary care accounts for 80-90% of all antibiotic prescriptions in Europe, with most prescribed for respiratory tract infections (van der Velden et al., 2013). However, rates of antibiotic prescribing differ significantly across Europe, despite little evidence of differences in the prevalence of infectious diseases (Llor and Bjerrum, 2014). In 2016 the population-weighted average consumption of antibiotics for systemic use in the community was 22 defined daily doses (DDD)<sup>9</sup> per 1 000 population per day, and ranged from 10 DDD (the Netherlands) to 36 DDD per 1 000 population per day (Greece), a 3.5-fold difference (Figure 2.12).

Prescribing influences have been shown to be multifactorial and include cultural and socioeconomic elements, diagnostic uncertainty, the way health care is funded or reimbursed, the percentage of generic drugs in the market, economic incentives and pharmaceutical industry influences, attitudes and beliefs about the therapeutic value of antibiotics among patients, as well as differences in prescriber and patient expectations of consultations for respiratory tract infections (Llor and Bjerrum, 2014). A 2014 survey of over 1 000 GPs in the United Kingdom reported that 55% felt under pressure, mainly from patients, to prescribe antibiotics, and 44% admitted to prescribing antibiotics to get a patient to leave the surgery (Cole, 2014). There is a clear need to improve health literacy, in particular to raise awareness about antibiotic use and resistance among European populations, while the increasing prevalence of antibiotic-resistant bacteria could be addressed, at least in part, by promoting more limited and appropriate antibiotic use in primary care and in the community (European Centre for Disease Prevention and Control,



Figure 2.12. **Consumption of antibiotics in the community, EU/EEA countries, 2016 (DDDs per 1 000 population per day)**



Note: These data are mainly drawn from sales of antibiotics in the country, or a combination of sales and reimbursement data. Cyprus and Romania provide data on overall consumption (including the hospital sector). Spain provides data only on reimbursed antibiotics (i.e. not including consumption without prescription or not reimbursed).

Source: European Centre for Disease Prevention and Control (ECDC) (2017).

2014). Findings from a recent OECD publication investigating the effectiveness and cost effectiveness of public health policies to promote prudent use of antimicrobials support an upscaling of national actions in this direction (OECD, 2018).

In addition to differences in antimicrobial use, patterns of resistance, and the extent to which effective national policies to deal with AMR have been implemented vary within the EU. In June 2017, the European Commission adopted the *EU One Health Action Plan against AMR* to i) make the EU a best practice region; ii) boost research, development and innovation; and iii) shape the global agenda on AMR (European Commission, 2017). The European Commission has also published guidelines for the prudent use of antimicrobials in human health (European Commission, 2017).

Levels of prescribing of hypnotics and anxiolytics, especially among the elderly, are another important public health issue. Benzodiazepines (BZDs) and related drugs are frequently prescribed for older adults for anxiety and sleep disorders, despite

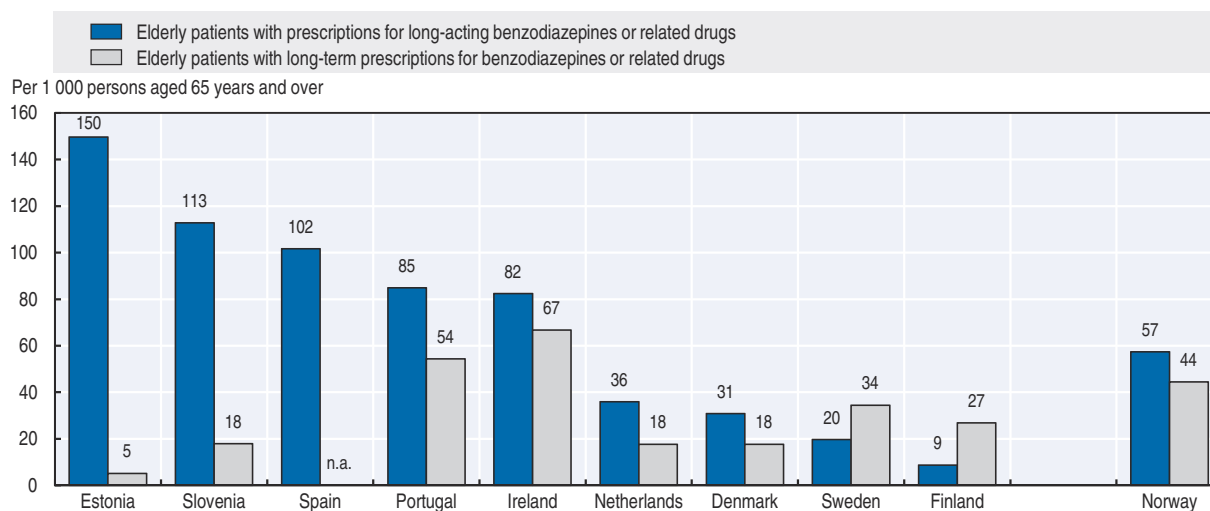
**Box 2.2. Approaches to reducing AMR in Belgium**

AMR has been recognised as an important public health issue in Belgium for several years. The Belgian Antibiotic Policy Coordination Committee, established in 1999, is responsible for fostering more appropriate use of antibiotics in humans and animals and for promoting infection control and hospital hygiene, with the overall aim of reducing AMR. Recent measures to reduce antibiotic consumption have targeted patients (e.g. through public awareness campaigns and increased co-payments for some antibiotics) and prescribers (e.g. through organised feedback), and have contributed to a reduction in hospital-acquired antibiotic-resistant staphylococcus infections. Although Belgium performs relatively well in terms of levels of resistance, it now faces challenges in preventing and controlling infections by carbapenem resistant isolates (CREs).

Source: OECD/European Observatory on Health Systems and Policies (2017), European Centre for Disease Prevention and Control (2018).

well-documented risks of adverse effects including fatigue, dizziness and confusion. Long-term use of BZDs can also lead to falls, accidents and overdose, as well as tolerance, dose escalation and dependence, long-term cognitive impairment and pseudo-dementia (Ford and Law, 2014). Apart from the associated mortality and morbidity, these impose substantial additional and potentially avoidable costs on health systems. In addition to issues arising from prolonged use, there is also concern about the types of BZDs being prescribed in the older age groups, with long-acting products not recommended in older adults (OECD, 2017). While data are available for only a few countries (Figure 2.13), wide variations in prescribing rates are apparent, with the rate of *long-term*<sup>10</sup> BZD prescribing in the over 65s highest in Ireland, and nearly 13 times that of Estonia. Conversely, prescribing of *long-acting* BZDs in the over 65s was highest in Estonia, with a rate more than 17 times that of Finland.

**Figure 2.13. Elderly patients with prescriptions for benzodiazepines or related drugs, number per 1 000 patients aged 65 and over, 2015 or nearest year**



Source: OECD Health Statistics 2018, <https://doi.org/10.1787/health-data-en>.

StatLink <http://dx.doi.org/10.1787/888933834262>

### **Improving adherence and other avenues for reducing waste**

Apart from contributing to an estimated 200 000 premature deaths, poor adherence to prescribed medication is thought to cost as much as EUR 125 billion in Europe each year in avoidable hospitalisations, emergency care, and adult outpatient visits (OECD, 2017). Three prevalent chronic conditions – diabetes, hypertension, and hyperlipidaemia – appear to give rise to the highest avoidable costs. Among patients with these three conditions, it has been estimated that between 4 and 31% do not fill their first prescription; of those who fill their first prescription only 50 to 70% take their medications regularly (i.e. at least 80% of the time); and more than half discontinue taking them within two years (Khan and Socha-Dietrich, 2018).

Modelled over a 10-year period in five European countries (Italy, Germany, France, Spain, and England), the potential savings from increasing adherence to antihypertensive treatment to 70% have been estimated at EUR 332 million (Mennini et al., 2015). Research undertaken in the United Kingdom also identified potential savings of over GBP 100 million (EUR 111 million) annually if 80% of patients with hypertension were adherent to treatment (Trueman et al., 2010). The same report estimated the annual cost of medicine wastage in primary care to be as high as GBP 300 million (EUR 333 million), of which GBP 100-150 million (EUR 111-166 million) was identified as avoidable. However the authors also found that while patient non-adherence contributes to wastage, a range of other factors are also implicated, some of which are unavoidable, such as treatment changes due to lack of efficacy or the emergence of adverse effects. Those that can be addressed included inappropriate repeat prescribing and dispensing processes, which, independently of any patient action, may cause excessive volumes of medicines to be supplied (Trueman et al., 2010). A study examining waste samples in Vienna in 2015-16 found significant quantities of prescription medicines discarded in household garbage. By extrapolation the authors estimated the value of the discarded medicines to correspond to approximately 6% of public pharmaceutical expenditure nationally in the year of survey, or at least EUR 21 per person to Austrian social health insurance (Vogler and de Rooij, 2018).

#### **Box 2.3. Reducing waste in the United Kingdom**

The National Health Service's *MedicineWaste* campaign provides information about common reasons for discarding medicines, describes simple steps for patients to follow to enhance adherence, and proposes a short checklist for clinicians to evaluate repeat prescriptions (NHS Business Services Authority, 2015). In addition, across the UK, pharmacists work alongside GPs to improve outcomes by undertaking patient-facing clinical medication reviews, and improving the management of long-term conditions (Mann et al., 2018). In September 2017, the Department of Health & Social Care established a Short Life Working Group (SLWG) to provide advice on a programme of work to improve medication safety. Recommendations of the SLWG included the rollout of primary care interventions such as PINGER (pharmacist-led information technology intervention) which have been shown to be effective in reducing a range of medication errors in general practices with computerised clinical records. Other efficiency initiatives introduced in the United Kingdom in recent years include the *Hospitals Pharmacy & Medicines Optimisation* (HoPMOp) project, which helps NHS acute hospital trusts to implement the recommendations of the review of NHS productivity and efficiency by Lord Carter of Coles, and the *Getting It Right First Time* (GIRFT) project, which aims to reduce unwarranted variation in clinical practice across the NHS.

In hospitals, medicines may be discarded because of inappropriate pack sizes, often the case with drugs requiring weight-based dosing (common in oncology), or that are supplied in single-dose units that must either be administered or discarded once opened (OECD, 2017). The latter issue requires an audit of the extent to which regulation – or a lack of it – contributes to unnecessary waste. For instance, regulatory agencies could require manufacturers to provide drugs in a variety of pack sizes to ensure that an amount of drug more closely corresponding to a patient’s body weight or size can be drawn up without waste, and could develop or revise existing guidelines on vial sharing. Alternatively, payers could determine reimbursement amounts that correspond to the actual dose administered (i.e. no reimbursement for leftover drug) (ibid.).

Policies aimed at tackling poor adherence and unnecessary waste of medicines by patients are aimed at encouraging improved communication between clinicians and patients and enhancing patient understanding of the importance of completing prescribed courses of treatment. Clinical trials conducted in the United Kingdom and Sweden suggest that wastage could be reduced by up to 30% if patients starting new courses of treatment were offered additional opportunities to discuss medication-related issues over and above the initial instructions given at the time of prescribing (OECD, 2017). Targeted medication reviews can be used to monitor patients’ consumption of medication and establish the need for (or lack of) prescription renewal (Trueman et al., 2010) (Box 2.3).

## Conclusions

Progress in reducing wasteful spending in health is not only a barometer of quality improvement; it is both an ethical and financial imperative in the pursuit of resilient and equitable health care systems. While the estimate that as much as one-fifth of health spending could be eliminated is sobering, the many avenues for saving money and streamlining services, without undermining access or quality of care, are cause for optimism. Pointing the lens at two major areas of expenditure – hospitals and medicines – reveals a range of options for improving efficiency and reducing waste, but significant variation across Europe in the extent to which these options are being deployed.

For hospitals, reducing or eliminating unnecessary investigations and procedures, many of which expose patients to unnecessary risks without the prospect of clinical benefit, is an obvious target for direct intervention. Expanding the use of day surgery can also be instigated at hospital level. However minimising avoidable admissions, particularly for ambulatory care-sensitive conditions, reducing unnecessary length of stay, and improving discharge processes require broader perspectives. Enhanced primary care services, expanded post-acute care facilities, post-discharge care coordination, and in-home care services all require health system reforms that cannot be initiated by hospitals alone.

For pharmaceuticals, creating and supporting competitive markets and promoting the uptake of generics and biosimilars can generate substantial savings. That said, reducing waste does not necessarily mean spending less; it may equally be achieved by gaining better value for money from existing expenditure. Both supply and demand side levers offer scope for better value. Using health technology assessment to inform selection, pricing and procurement of new medicines facilitates an understanding of the true opportunity costs of therapies and helps avoid the displacement of high value interventions with ones of lesser value.

In all approaches to reducing waste, stakeholder engagement and effective communication are critical. Prescribers and patients need to understand the value offered by generics and biosimilars, and be adequately reassured as to their equivalence and safety. Both need to appreciate the risks of overprescribing antibiotics and the circumstances in which they are of low or no benefit. In hospitals, patients and providers need to recognise that not only will certain investigations and procedures provide no benefit, they may even be harmful. Financial incentives for patients and providers must also be calibrated to reinforce appropriate behaviours. Above all, the development and promulgation of guidelines and protocols that provide both a basis for discussion and engagement and support for rational clinical decision-making, are critical to the waste-reducing armamentarium.

### Notes

1. This analysis captures only five of thirty conditions for which hospitalisations may be avoidable through better primary care, and is therefore conservative. That said, not all hospitalisations related to these five conditions would be avoidable. Some analysts argue that only admissions involving a short stay in hospital – as a proxy for severity – should be counted (Swerissen, Duckett and Wright, 2016).
2. Analyses which group women according to obstetric criteria (for instance number of foetuses, presentation of foetus, previous C-section) provide finer analyses of the drivers behind these trends and differences in C-sections rates (Betrán et al., 2014).
3. A campaign, established in 2012 by the American Board of Internal Medicine and since emulated in a growing number of countries, has sought to promote a dialogue around appropriate care. One of its core strategies has been to encourage medical societies to draw up shortlists of services known to be used inappropriately, and issue “do-not-do” recommendations to guide providers and patients in reducing their utilisation.
4. Day surgery is defined as the release of a patient who was admitted to a hospital for a planned surgical procedure and discharged the same day. The analysis covers 22 EU countries only due to data gaps in the other six: Greece and Latvia do not report data on day surgery; Cyprus only reports data for public hospitals (which account for less than half of hospital activities); and Bulgaria, the Czech Republic and the Slovak Republic only report data for one or two of the procedures considered here. The main limitation in data comparability is that many countries do not include outpatient surgery, defined as situations where patients are not formally admitted to or discharged from hospitals (see the indicator “Day Surgery” in Chapter 8 for more information).
5. Tonsillectomy is mainly performed in children. Inguinal hernia repair is a procedure to repair a defect in the abdominal wall that allows abdominal contents to slip into a narrow tube called the inguinal canal and is commonly performed laparoscopically (using minimally invasive keyhole surgery, allowing patients to return home more quickly). Cholecystectomy is the removal of the gallbladder, also commonly performed laparoscopically.
6. Delayed discharges from hospital are defined here as cases in which a hospital patient remains in hospital, despite being clinically ready to be discharged.
7. A generic medicine is defined as a pharmaceutical product with the same qualitative and quantitative composition in active substances, and the same pharmaceutical form as the reference product, and to which bioequivalence has been demonstrated. A biosimilar is a biological medicinal product that contains a “follow-on” version of an already-authorised biological reference product and has no clinically meaningful differences in terms of safety and effectiveness from the reference product. However, although biosimilars are conceptually similar to generic versions of chemically derived small molecule medicines, because of the complexity and inherent heterogeneity of biotechnological products, and of the manufacturing processes used to produce them, a follow-on biologic is referred to as “biosimilar” rather than “biogeneric”.
8. International Non-proprietary Names (INN) are unique and globally recognised names used to identify pharmaceutical substances. All pharmaceutical products are assigned an INN; most will also carry a brand or trade name which, unlike the INN, may differ between countries.
9. The DDD is the assumed average maintenance dose per day for a drug used for its main indication in adults. The DDD is a unit of measurement and does not necessarily reflect the recommended or prescribed daily dose.

10. “Long-term” refers to prolonged duration of use; “long-acting” refers to a drug that has slow absorption and maintains its effects over an extended period.

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