

Chapter 3

The challenge of financing care for individuals with multimorbidities

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All OECD countries will face a growing population of older people with complex needs but despite this common challenge they have taken different approaches to financing services. The main thesis of this chapter is that we are at a crossroads in thinking about financing care for older people with multimorbidity and multiple needs. One path leads to detailed care plans, bundling payments, transferring risk and traditional market competition. The other path leads to whole system targets with minimum specification, pooled budgets and innovative market models. Demographic and epidemiological realities will force governments to choose and they need to think carefully about which direction to go.

Introduction

The purpose of this chapter is to describe how governments can think about policies for financing health and social care for populations with multimorbidity. It assumes that financing and financing systems are tools for delivering care that will produce desired outcomes. The chapter first provides a broad overview of what we know and do not know about the demographic and epidemiological forces that drive this challenge. From there the chapter goes on to suggest a way that we can look at this challenge and to point out that the way we view the nature of the problem in many ways dictates what we see as the solution.

The chapter focuses on health and social care for older people with multimorbidity and multiple needs as a way to define the problem and to think about solutions. A review of demographic and epidemiological evidence suggests that all OECD countries will face a growing population of older people with complex needs. An overview of health expenditure data suggests that despite this common challenge countries have taken different approaches to financing services.

A more detailed overview of the problem suggests that providing health and social care to older people with multiple needs requires integrating a number of providers to meet broadly defined outcomes that include both disease treatment and provision of support services. It is argued that it is important to determine if the delivery of care for this population is a complicated or a complex problem. A complicated problem can be solved by planning and co-ordinating a set of well defined processes. Putting a satellite in orbit is a useful analogy. On the other hand a complex problem, although it has a definable outcome, can be solved through focusing more on relationships than process and often involves extensive variation that reflects local initiative and context. Raising a child is a useful analogy

The main thesis of this chapter is that we are at a crossroads in thinking about financing of care for older people with multimorbidity and multiple needs. One path is based on seeing the challenge as a complicated problem. This path points to bundling payments, transferring risk and traditional market competition. Along that path, we create a system with standardised and widely disseminated care planning for a wide range of medical conditions. We assess performance against a wide range of clearly defined outcomes. The other path is based on seeing the problem as complex. This path points to whole system targets and minimum specification, pooled budgets and innovative market models. Along this path, we create a system that values relationships over processes, that is locally based and that lets

change develop from within. On this path it is understood that risk cannot be eliminated and variation is valued.

There is no assurance which path is best. However, the demographic and epidemiological realities will force governments to move and they need to think carefully about which direction to go.

Overview

Purpose and scope

The purpose of this chapter is to describe how governments can think about policies for financing health and social care for populations with multimorbidity. More specifically, the chapter attempts to address the challenge identified by Gerard Anderson in Chapter 1 of this publication.

“The major challenge in most OECD countries in the coming decade is how to integrate the medical and social services that are critical to people with chronic conditions. People with multiple chronic conditions are more likely to also have disabilities and the combination of disabilities and multiple chronic conditions complicates the care of their chronic illness and their disability. They also may need help with transportation or activities of daily living. Traditionally, these services were not part of the medical care system. This is beginning to change in most OECD countries.”

The chapter first provides a broad overview of what we know and do not know about the demographic and epidemiological forces that drive this challenge. From there the chapter goes on to suggest a way that we can look at this challenge and to point out that the way we view the nature of the problem in many ways dictates what we see as the solution. Finally, the chapter identifies some key next steps in thinking about financing systems that can integrate health and social care for individuals with multimorbidity.

Assumptions

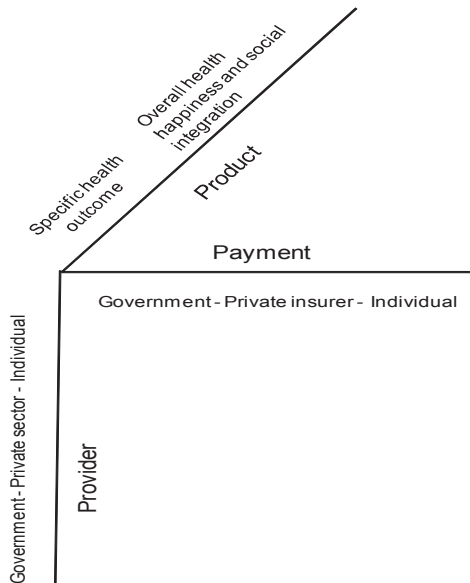
1. Financing is the way in which payments for care are made, and financing systems are the set of rules or activities that are in place to provide payment. Financing includes who pays, how much is being paid, what is being paid for and who is being paid.
2. There is a distinction between morbidity, which is the state of having a disease or condition, and need, which is the extent to which a service can reduce the impact of the disease or condition. As will be discussed in more detail in the chapter, multimorbidity translates into multiple needs for services that span both health and social care.

3. Financing and financing systems are policy tools that are used to ensure safe, effective, efficient and equitable outcomes of health and social care services for individuals with defined needs.

Conceptual framework

The links between financing, services and outcomes can be conceptualised in a health and social care system that has three dimensions – payment (*i.e.*, who pays), provider (*i.e.*, who delivers the services) and product (*i.e.*, what is produced) (Figure 3.1)

Figure 3.1. Three dimensions of health and social care



Historically we have thought of health and social care systems as clusters of services and providers, but more recently we are moving toward the idea of systems as producers of desired outcomes. This view builds on the classic structure-process-outcome model of Donnabedian and more recently on Michael Porter’s work on value in health care. Inherent is the notion that there are a set of services and tasks that can be directed or controlled to produce the desired outcome or the thing we value.

One axis of the cube deals with outcomes, or what is produced, and can be seen as going from very specific health outcomes, for example better eye sight, to broader health outcomes, such as functional status, and ultimately to more encompassing notions of the human condition such as healthy,

secure productive and integrated members of society. There is also a sense that as we move across this spectrum, more services of different sorts are required. For example, once specific strategy for improving vision is cataract surgery. A broader view around preserving function might involve a set of acute and rehabilitation services for stroke victims. In the broadest context, the integration of individuals with mental illness and addictions as productive members of society may involve a range of medical and other services including social care, employment and housing as well as activities within the criminal justice system.

Another axis of the cube deals with who is responsible for delivering the services or achieving the outcomes. This can be thought of at one level as specific types of providers, for example doctors or nurses. However, for the purposes of this conceptual model, this axis deals with broad organisational attributes of the providers and is divided in the categories government, private sector and individuals. There are countries where governments organise and directly deliver services, whereas other countries embody a predominant model of provision of services by private sector or non-government organisations. There are still other aspects of care that are provided by individuals. Of course, for complex interventions where skill and training is essential we do not expect individuals to be providers – patients do not perform cataract surgery on themselves. However, there is increasing interest in models of self-care for health conditions. The provision of services by individuals, their families and friends is becoming more common, in particular as these services relate to activities of daily living. However, not all of these “social” services need to be delivered by individuals. For example, adult day programmes for frail older people may be provided by private sector retirement homes or by governments.

The final axis is who pays for what is delivered, whether it is a service or the outcome for that service. In health and social care there is a spectrum of sources of payment. Governments can pay, they can create public insurance or security systems that pay, there can be private insurance companies that pay, or employers can pay directly. Finally, individuals can pay for services directly out of their own pockets.

There are two important interactions between the payment axis and the other two axes of the cube that help us to think about financing policies or strategies. One of these interactions is between payment and product. As mentioned earlier, you can pay for service or you can pay for outcome. This can apply to very specific health outcomes – you can pay for cataract surgery or you can pay for improved vision after cataract surgery. As care gets more complicated you can pay for an aggregation of services rather than paying for individual services. A classic example of this is the introduction of Diagnostic Related Groups (DRG) and prospective payment systems (PPS) in the United

States. This policy change both defined an aggregation of goods and services (*e.g.*, all the acute care hospital services both labour and goods for a specific DRG) and a payment mechanism – a fixed price with some adjustments for region and teaching status (*i.e.*, PPS). In health and social care the term bundled payment is used to describe this process of aggregating a set of services for the purpose of defining something that can be purchased or paid for. Porter describes this as the total package price for a care cycle and it can also be thought of as “medical condition capitation”. Paying for outcomes can be thought of as an extension of paying for a bundle of services. For example, it would be possible to bundle both acute and rehabilitation services for a stroke into a single package, something like a DRG. However, it is possible to think of a system where payment might be related to the extent to which the stroke patient returned to their pre-stroke level of function. The notion is that you are paying for a bundled set of services that will produce the outcome. Payment or financing systems are defined in terms of the product being purchased – individual services (*fee-for-service*), bundled services (DRG or primary care capitation) or outcomes (*pay for performance*).

Another important interaction is between payment and provision or delivery. A key issue here for health and social care systems is the extent to which risk is transferred in the financing system. Risk transfer is a key element in many of the efforts to create a payer-provider split. There are two parts to the process of transferring risk. The first is separating the payer from the provider, in essence identifying from whom and to whom the risk is being transferred. The second is creating a contract so that it is the provider who is at risk for financial loss. Inherent in this is the ability to establish a financial risk. It is important to remember that splitting who pays for the care from who delivers it is necessary but not sufficient for risk transfer. For example, in Canada physician services are paid for by provincial governments. Physicians are not government employees and there is a clear split between who pays and who provides. Historically physicians were paid on a *fee-for-service* basis. Governments were able to set price for individual services but had no control over volume. As a consequence the system was open-ended in terms of expenditures and financial risk. Government simply paid the bills and physicians were never at risk of not getting paid. Government had no way to control or even estimate total costs.

However, if government or other payers can enter into agreements with providers around overall costs for care or for specific bundles or services or outcomes they can transfer risk. Risk can be transferred to organisations – either public or private for-profit or not-for-profit. It is possible to imagine transferring risk to individuals through creation of medical savings accounts or providing fixed amounts of funds to individuals to buy or provide services themselves.

In summary, the conceptual framework posits that financing is an integral component of health and social care systems and that it provides a tool linking what providers of care do with what the funders of care want or value. Inherent in this model in the current context is the notion that governments are interested in financing systems that meet specific goals in terms of outcomes. An accepted strategic model is to define what you value or want to produce, and to use that to drive financing. In other words, you start with what you want to achieve for a specific population, and then you design a financing system that allows you to achieve it. Bundled payments and risk transfer are policies or characteristics of financing systems. The feasibility and potential impact of these and other policies depends on the nature of what you want to achieve.

Gerard Anderson makes it clear in his quote that begins this chapter that the challenge governments face is providing health and social care to populations with multimorbidity and functional impairment. High income countries can have many different populations who have multiple chronic conditions and functional disabilities. These populations can span the life course. At one end of the age spectrum, there are growing populations of young children with congenital or acquired brain injury that require complex health and social care. Decades ago many of these children would have died at birth or shortly after, but now they survive through childhood and into their teens and twenties. In terms of middle-aged populations, many countries face a growing challenge from adults with chronic and severe mental health problems who have also developed addictions. These “dual diagnosed” individuals need health and social care. They have impacts on public safety and on the criminal justice systems. Perhaps the most common concern around multimorbidity and functional impairment deals with older people: the “silver tsunami” that will overwhelm our health and social care systems. This chapter focuses on this group, although the many of the principles and implications discussed are relevant to these other groups.

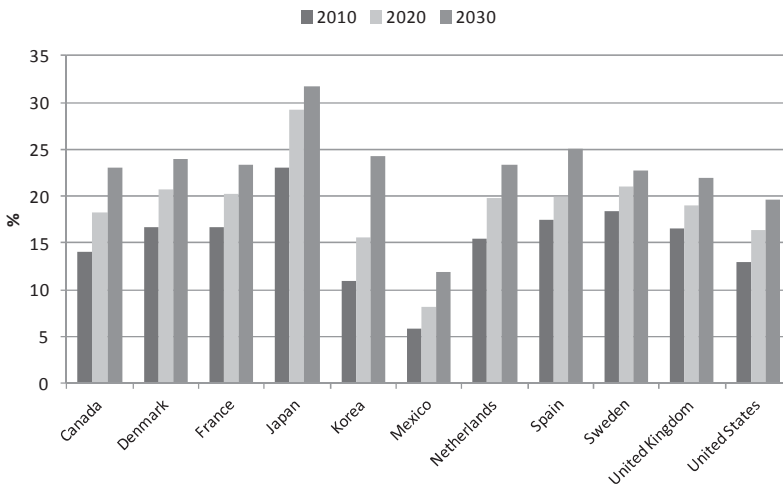
Older people with multiple needs

The demographic challenge

The first and most obvious fact is that the number of older people is increasing. Perhaps more important in the context of financing and sustainability of health and social care systems is that the proportion of older people as a total of the population is growing. Not only are there more older people but, because the size of the younger population is not growing as fast, the proportion of older people is increasing in all countries. The social transfer dynamic is a simple one – productive younger people provide the resources to care for older people. Figure 3.2 provides OECD data from

several countries on the proportion of the population that is 65 or older currently and what that proportion is projected to be over the next two decades. There are some countries with lower proportions of older people such as Mexico and some with larger proportions such as Japan. However, all see an increasing proportion of citizens that are over 65. In the not too distant future, many countries will have one quarter of their citizens aged 65 and over.

Figure 3.2. Ratio of the population aged 65 and over to the total population



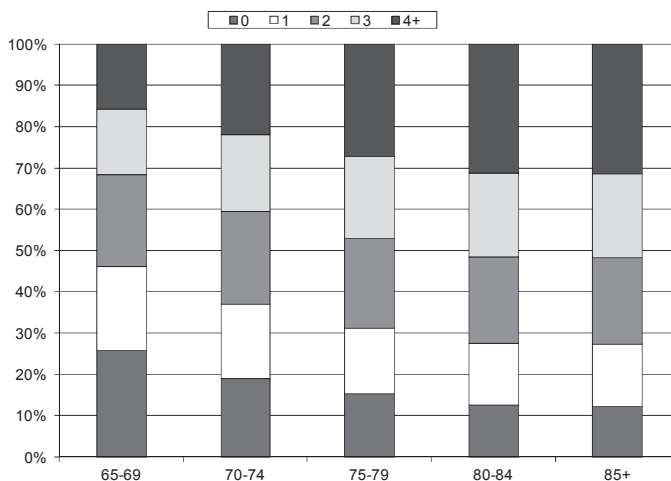
Source: OECD Factbook 2009 (<http://dx.doi.org/10.1787/540452278720>).

Turning 65 is often taken as the point at which individuals become old but of course this is an over-simplification. Aging is a spectrum and there are “younger” and “older” old people. The average life expectancy for 65-year-old people has increased over the last decade, and the average life expectancy for a male citizen of many OECD countries who was 65 in 2007 is around 18 years – on average they will live until they are 83. For women the average life expectancy for those who are 65 is close to close to 86. All countries well see an increase in the oldest old.

We know that some older people are healthy. A US study showed that about a quarter of people aged 65 to 69 had no chronic conditions and that even among those 85 and older just over 10% had no chronic conditions. However, the same survey showed that almost half of individuals 65-69 had

two or more chronic conditions and this increased to almost three quarters in those older than 85 (Figure 3.3).

Figure 3.3. Proportion of US older adults with chronic conditions



Source: Wolff *et al.* (2002).

What do we know about disability or loss of function as older people get older? The international standard for assessing loss of function is to look at activities of daily living (ADL) and instrumental activities of daily living (IADL). The assessment of ADL looks at abilities such as bathing, dressing, eating and toileting. People are assessed in terms of the number of ADL activities on which they are limited. The assessment of IADL examines ability to do everyday household chores, shopping and banking. People are assessed in terms of their loss of these functions. In a US study of older people who were not in institutions showed that both ADL and IADL disabilities increase rapidly as individual over 65 get older. Individuals are six times more likely to have two or more, or three or more ADL limitations when they are older than 85 than when they are 65 to 69. Individuals are six times more likely to have at least one IADL disability when they are over 85 than when they are 65 to 69 (Table 3.1)

Table 3.1. ADL and IADL limitations in US older people

Age group	With two ADL (%)	With three or more ADL (%)	With IADL (%)
65-74	0.6	1.6	6.2

75-84	1.2	3.5	13.8
85+	3.4	9.7	35.3

ADL: activities of daily living; IADE: Instrumental activities of daily living.

Source: National Health Interview Survey 2003-2007.

Some OECD countries are in different stages of this population aging process, but many face a very similar future – a rapid increase in older people with multiple chronic conditions and disabilities. Although we understand the basic demographics, we have little information on the overlap between multimorbidity and functional loss. Furthermore, we are starting to understand that frailty – a lack of resilience, reserve or increased vulnerability to adverse health outcomes – is both quantifiable, and a strong risk factor for future health and social care needs. Along with frailty we now see that social isolation is not only as an undesired state, but also as a risk factor for poor health.

In summary, we know that there are strong links between multimorbidity and loss of function, and that as older people get older more of them become frail and have both multiple chronic conditions and loss of function. However, we need to know more about how these interact and overlap with each other to drive health and social care needs.

The impact of multimorbidity and functional loss on services and costs

A key aspect of understanding the challenges around financing care deals with the relationship between multimorbidity and disability, and service use and costs. Understanding this requires understanding the distinctions and similarities between curative care and supportive or social care. Curative care focuses on treating symptoms and conditions and returning individuals to health and function. In a broad sense, this can include both traditional acute health care services – doctor visits, emergency room visits, acute care hospital stays – and visits to occupational and physio-therapists, and stays in rehabilitation hospitals. These latter services are specifically designed to improve function and reduce disability. This is distinct from supportive or social care services whose goal is not to return function to the individual but to provide on a long-term basis services that replace or substitute these functions. These are provided often provided by personal service workers.

In most countries there are accepted tools for translating assessments of functional disability into some form of service need or level-of-care requirement. For example in Ontario, provincially-funded agencies use various functional assessment tools that look at both ADL and IADL functions to determine eligibility for home care or long-term care

services. In this context the relationship to functional disability and service use tends to be step-wise. At the lowest level, in those individuals with little or no disability there tends to be no service provision. The next step up is provision of services in the home. After that is the step to care that is provided in supportive institutional settings. These institutional settings can range from sheltered housing to nursing homes, and ultimately to complex continuing care hospitals.

There is growing interest in and research on the relationship between the number of chronic conditions and health care use and expenditures. Anderson and Horvath (2004) used survey data to look at this relationship in the United States and found that average per capita expenditures measured from medical claims and other records almost tripled as you moved from one chronic condition to three and then doubled again as you moved from three to five or more conditions. A more recent study in Canada looked specifically at older people and showed a rapid rise in service use as the number of chronic conditions increased (Table 3.2). The authors of that report concluded that in older people the amount of health care services used is largely driven by the number of chronic conditions not by age.

Table 3.2. Yearly visit rates per 1 000 older people in Canada

Type of visit	Number of chronic conditions			
	0	1	2	3 or more
Family doctor	1 496	2 346	3 357	5 234
Non-physician provider	1 598	2 977	3 260	5 363
Emergency department	193	240	382	696

Source: CIHI (2011), “Seniors and the Health Care System: What is the Impact of Multiple Chronic Conditions?”.

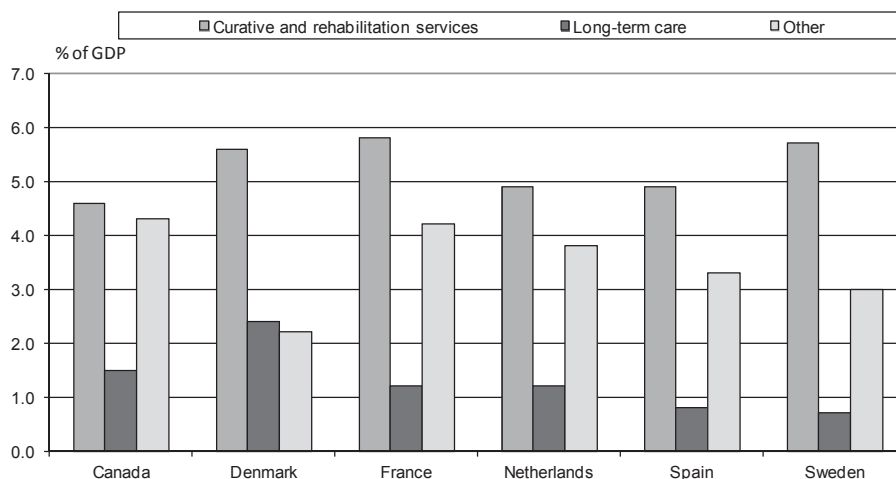
International comparison of curative and long-term care costs

We know that health and social care systems in all OECD countries are already dealing with the challenge of providing services to these older people with multimorbidity and multiple needs. A comprehensive examination of the international patterns of expenditures and financing of these services for older people with chronic conditions and functional disability population is beyond the scope of this chapter, and frankly may be beyond the scope of current data in most countries. However, it is possible to use the existing health expenditure data to provide a broad overview that can help to identify some key facts.

The International Classification for Health Accounts (ICHA) defines curative services as those used to primarily to relieve symptoms of illness and injury and rehabilitative services as those used primarily to improve function. This is distinct from long-term care (LTC) nursing services that are given to patients who need assistance on a long-term basis due to chronic impairment and a reduced degree of independence in activities of daily living. It is important to note that these long-term care costs specifically exclude social care services. The ICHA explicitly recognise that there may be different borderlines between health care and social care across countries. Even with this caveat, the data reveal some interesting patterns.

Figure 3.4 provides data on the percentage of GDP spent on curative and rehabilitative services and expenditures on long-term nursing services in six OECD countries. These six countries are all predicted to have between 22% and 25% of their citizens aged 65 or over by 2030. For our purposes, we can say that they face very similar demographic and epidemiological challenges in terms of caring for older people with complex needs. All six of these countries have a commitment to universal health and social care and governments that play a leading role in defining financing systems either through direct financing or legislation that creates non-for-profit financing.

In 2008, all six countries have overall health care expenditures that are between 9% and 11% of GDP. On a relative basis there is much more variation in LTC expenditure than in the expenditures for curative and rehabilitative care. Two countries that are neighbours – Denmark and Sweden – have virtually the same percentage GDP expenditures on curative and rehabilitative services but a threefold difference in LTC nursing spending.

Figure 3.4. Percentage of GDP spent on health care

Source: OECD.StatExtracts.

The health accounts let us examine the sources of financing across these areas of care. Table 3.3 provides data on sources of financing for curative and rehabilitative care as compared to LTC. For curative and rehabilitative services all six countries have a substantial but limited amount of private payment for services. For LTC nursing services there seems to be a clear split: some countries have virtually no private expenditures, while others have substantial but limited private expenditures either through out-of-pocket or through private insurance.

Table 3.3. Source of payment as a percentage from various sources, 2008

Panel A. Curative and rehabilitative care

	Government	Social security	Private insurance	Out-of-pocket	Other
Canada	74.3	1.1	11.0	11.2	2.4
Denmark	86.6	0.0	2.1	11.3	0.0
France	1.5	81.0	10.9	6.6	0.0
Netherlands	1.7	85.5	9.3	3.2	0.4
Spain	69.0	4.4	6.7	19.0	0.9
Sweden	87.0	0.0	0.0	13.0	0.0

Source: OECD.StatExtracts.

Table 3.3. Source of payment as a percentage from various sources, 2008 (*cont'd*)

Panel B. Long-term care

	Government	Social security	Private insurance	Out-of-pocket
Canada	81.1	0.7	0.7	17.6
Denmark	90.7	0.0	0.0	9.3
France	25.4	72.8	0.9	0.9
Netherlands	0.0	100.0	0.0	0.0
Spain	61.5	9.9	0.0	28.6
Sweden	24.8	73.5	0.9	0.9

Source: OECD.StatExtracts.

Though once again it is important to note these expenditure data are limited in terms of understanding social care, in the context of LTC nursing care, it seems that countries have taken very different paths in both the total expenditure and source of payment for these services. In the face of a common challenge in terms of the demography and epidemiology of populations of older people with needs for health and social care, countries have developed very different financing models.

The next sections of this chapter provide a more detail on challenge of caring for older people with multiple needs.

What really is the common challenge?

As outlined earlier in this chapter, it is possible to use demographic data and some information we have on the epidemiology of multimorbidity and functional disability and its implications for services to broadly outline the challenge. But it is also clear that we lack a great deal of crucial information. One response to this is to ask for better data and better evidence. That will take time and in the interim we need to find a way to think about this problem in a way that can provide some guidance.

This section of the chapter builds on the notion that if we can provide an archetype or example of the challenge then we can identify some important themes. With these themes in hand we can start to understand the nature of the problem we face.

The demographic and epidemiological evidence we have tells us that the typical person that symbolises this problem we face is an older person, most likely a woman, who has two or more chronic diseases. She starts off well and independent but as she grows older she becomes less able and eventually her health deteriorates and her needs increase dramatically. The vignette in Box 3.1 outlines the story of Joan Carter as she ages.

Box 3.1. Joan Carter grows old

Multimorbidity but able to function

Mrs. Joan Carter is a 74-years old retired nurse. She lives in a single storey four bedroom house that has a 14-step staircase to the front door. Her husband died five years previously. She is independent and does her own shopping and cleaning. Currently her medical conditions are hypertension and diabetes. She takes x2 oral hypoglycaemic agents, x2 antihypertensives, x1 diuretic and a statin.

Signs of trouble

Mrs. Joan Carter is now 77-years old. In the past three years she has had a number of non-injurious falls both inside and outside her home. She has had two minor car accidents which have not involved other cars or pedestrians. Her Mini-Mental State Examination (MMSE) is 27/30. Her hypertension and diabetes are well controlled. However, she finds climbing stairs an effort and is often out of breath. She continues to be independent in cooking and cleaning her home. Her only daughter who visits from a distance is concerned about her mother's ability to care for herself and her increasing social isolation. She is concerned that her mother is at risk of falling down the stairs.

Loss of independence

Mrs. Joan Carter is now 82-years old. She has become frailer and is having some difficulty with all the basic activities of daily living. She has a MMSE of 20/30 and can no longer independently take care of her finances. Her diabetes and hypertension are still well controlled. She is willing to leave her house but both she and her daughter want her to move into supported but independent sheltered care accommodation.

Catastrophic event

Mrs. Joan Carter is now 86-years old. She develops rapid atrial fibrillation and over a few hours loses her power of speech, has an evolving right hemi paresis and heart failure. She is admitted to an acute care hospital and treated for heart failure and stroke. After acute treatment she is transferred to a rehabilitation bed. After six weeks of rehabilitation she can feed herself but needs assistance with dressing, toileting, bathing, walking and transfers. Although alert and pleasant her MMSE has dropped to 12/30.

This vignette highlights many of the challenges around caring for older people with multimorbidity and functional decline. One is the overlapping and independent roles of chronic disease and functional decline. Mrs. Carter's hypertension and diabetes are well controlled for long periods but she still continues to decline. Are her growing cognitive impairment and lack of independence in activities of daily living related to these conditions? Certainly the stroke she has when she is 86 can be linked to diabetes and hypertension and in that sense they have a devastating impact on function.

Another issue to consider is the distinction between clearly defined health care interventions such as drugs for diabetes and hypertension or acute and rehabilitative care for her stroke and less clear social care needs. When does she need home care? Who decides if she should stay in her home

or go to some form of sheltered housing should? What can be done about her social isolation? Clearly after her stroke she needs some sort of long-term care, but up until then what social care services could she use and what evidence do we have about their benefit?

Another challenge deals with the role of prevention. In terms of her “medical history” she seemed to have the best drug therapy available for her diabetes and hypertension, and it is possible there is nothing more that could be done to prevent her stroke. However, perhaps there are some preventive strategies that could be used. Even though she did not fracture her hip, given her history, would a fall prevention programme be useful? There is a history of frailty and social isolation. Are those two risk factors for her stroke? Is there something that could be done to keep her fit and engaged?

A further challenge relates to how we think about the basis for her needs. Can we think of her needs in terms of a set of related medical conditions and how applicable are simple disease models relevant to defining her needs? How much of the decrease in her health and loss in function is due to her local environment rather than to the pathophysiology of her multimorbidity? Are the number of steps to her house and how many floors she lives on important in allowing her to function? Does she really need to drive a car? Should we have a process for taking her driving license away and if we do what about paying for her transportation?

There are a host of questions of this sort. The goal of this section of the chapter is not to be exhaustive in defining the challenges. Rather the goal is to make a point that challenges and difficulties we see in the case of Mrs. Carter provide insights into the nature of the challenges seen by families and providers every day in every OECD country. This is a vignette about an individual, and while the specifics of the story vary from individual to individual, the nature of the problem is the same everywhere. This is our common challenge.

How would we describe the problem of caring for populations of individuals like Mrs. Carter? Is it a complex problem or a complicated one? Current thinking suggests that distinction is more than semantics. It turns out that it may be very important to know if the problem is complex or complicated. The next section of the chapter explores that idea in more detail.

Complex or complicated – Why does it matter?

Complexity science or the study of complex adaptive systems provides an approach to thinking about the nature of problems. This science has its roots in prediction of things such as weather or the performance of stock

markets. In recent years it has been described in the context of health care systems.

A key facet of complexity science is making the distinction between different types of problems. Glouberman and Zimmerman (2002) provide a nice set of analogies that can help us to understand the distinctions. They describe three types of problems – simple, complicated and complex. A simple problem is one with a solution that has a limited number of steps that can be well described. The analogy they use is a recipe. There is a list of ingredients, a set of steps and a consistent outcome. A complicated problem involves a large number of steps that can be mapped out, but that involves co-ordination and experience. It involves a process that is understood and that can be tinkered with to yield improvement. The analogy is putting a satellite in orbit.

A complex problem cannot be described in linear terms and tinkering can have massive and unintended effects. It cannot be reduced easily to its constituent parts. In more technical terms these are problems or systems that are dynamic, massively entangled, emergent or self-organising and robust, in the sense that they can alter themselves in response to feedback. The analogy is raising a child. Just because child rearing is complex does not mean that it is not done and enjoyed. The same should be said for complex problems – they should not be avoided. But importantly complex problems should not be treated like complicated problems.

We can think of examples of simple, complicated and complex problems in health care. A simple problem might be provision of cataract surgery. There are clear steps, patients are very similar, and the process can be standardised. A complicated problem might be the provision of acute and rehabilitation care for a stroke patient. You can think of this a very large care map with several sections that look like simple problems that have been linked together. However, the care takes co-ordination and expertise and the system is always under some form of quality improvement. You could write a national care plan but you would not be surprised if it took a little while for it to get implemented in different regions. A health care example of a complex problem might be trying to roll out a national strategy for investing in imaging technology in order to improve outcomes. There are a lot of stakeholders and complex interactions. Local factors are very important. There is limited certainty about success and concerns over unintended consequences.

There is a link between how the problems are seen – complicated or complex – and how they are solved. Inherent in the approach to solving complicated problems is the notion that it is possible to plan in minute detail a solution that can tinkered with and standardised. You may not get it right

the first time but if you plan and practice and build the process up bit by bit you can get the answer. The ideal system has little variation and if a part fails to perform you can simply change that part. If you did it once, you are pretty sure you can do it again, and if it works in one setting it will work in another. It is all about rules and standard operating practices. In the context of the of the satellite analogy, you can think of the evolution from a high risk cutting edge problem that historically could only be solved by a few countries that were willing to provide the huge investment and oversight to the current situation where it can be done by many countries and is now a product of the private sector economy.

On the other hand a complex system is so massively entangled with internal and external factors that it defies detailed planning. Getting it right once is no clear sign of continued success. Given the complexity, variation is expected. There is no clear expectation that what works in one setting will work in another. Small changes can have huge impacts – the famous analogy from chaos theory where the beat of a butterfly’s wing in Brazil causes a hurricane in Texas. Despite this complexity, we know what we want. In terms of the childrearing analogy all of this rings true. We cannot imagine imposing a plan on every family but we understand that we have expectations about what defines success. We do not think about individuals or institutions as being completely responsible for success or failure. Communities are important. The saying “it takes a village to raise a child” resonates with families and governments alike.

Although the two views of the problem are distinct, some important elements are common to both complicated and complex perspectives. From both perspectives there is an identifiable outcome – a satellite in orbit in the complicated example and a healthy, happy young adult who is well integrated into society in the complex example. Both perspectives recognise that many tasks have to be completed and many things have to happen for that outcome to be achieved. Both perspectives see that success depends on interaction across many providers and decision makers. They differ fundamental on how to think about producing the outcome and therefore about organising and financing the system.

This chapter will use these two different perspectives to help to clarify the options for financing health and social care systems for older people with multiple needs. Before doing that, it is worthwhile to look at what we know about the relationship between organisation and outcomes in health care systems.

Evidence on organising care for older people with multiple needs

There is extensive research on the link between delivery system organisation and health outcomes. Recently Natasha Curry and Chris Ham from the King's Fund published a useful overview of this issue that has specific relevance to care for individuals with multimorbidity (Curry and Ham, 2010). They argue that integration is the key to producing better outcomes, and that integration can be looked at as occurring at three levels. Each level of organisation has its own value and role. At one end is macro-level integration. The goal at this level is to provide care to large and diverse populations by bringing together health plans or commissioners with physicians and institutions. A classic example would be Kaiser Permanente in the United States. At the other end of the spectrum is micro-level integration which includes diverse approaches such as case management or virtual wards to deal with individual patients. In between is meso-level integration where the focus is on the needs of particular groups of patients.

Interestingly, in their chapter Curry and Ham look specifically at older people with multiple long-term conditions as targets for meso-level organisation. They provide a nice review of the evidence and conclude that integrated health and social care systems for older people with multiple needs demonstrate positive impacts on many important outcomes. In this review they provide descriptions and analysis of the impacts of programmes like the Programme for All-Inclusive Care for the Elderly (PACE) in the United States, the System of Integrated Services for Aged Persons (SIPA) in Canada and similar efforts in Italy and England. It is argued that each of these efforts has had positive effects on health outcomes and that they probably reduce health care costs.

They identify some key common features of these programmes. First is that these programmes target individuals in the community that are at high risk. For example, PACE targets individuals who live in the community but who are eligible for admission to long-term care. The typical PACE enrollee is 80-years old has eight medical conditions and several limits in ADL. In each programme, care is provided by a multidisciplinary care team and includes delivery of social care services. Individuals consistently go to one place to get access to a full range of services. A key to the cost savings that can be generated by these programmes is incentives and opportunities for providing lower costs services (*e.g.*, adult day care) rather than higher costs substitutes (*e.g.*, long-term care admission). This notion of providing the least costly service appropriate for need is an idea that is applicable to both health and social care. In the context of social care services where there discrete jumps in the level of care and costs – from community living with no support, to community living with home care, to supported housing, to long-term care, to chronic hospital – this process is often referred to as

downward substitution of services. A classic application of this is keeping older people in the community rather than moving them to a nursing home. Once they are in a nursing home it can be hard to get them back into the community, and the consequence is a long-term stream of social care costs. Increased investment in home care that prevents admission to long-term care can result in cost savings. If community home care can be integrated with other health and social care services then health outcomes can be optimised. Thus the programmes end up with both cost savings and better outcomes.

This work and other studies come to similar conclusions – care for individuals with multimorbidity and multiple needs across health and social care is best delivered by integrated systems that involve a single entry point, multiple providers and incentives to match care to needs. The problem is one of providing integrated care to a defined population; the question is how to finance this care.

This is the specific financing challenge that Gerard Anderson identified Chapter 1 of this publication.

“For a person with multiple chronic conditions, the challenge is to find a way to encourage providers to manage all chronic conditions collectively instead of each one individually. The payment system needs to foster interaction across multiple providers.”

The next section of this chapter describes how thinking about this challenge as complicated or complex can help identify financing options.

Options for financing integrated health and social care

There is a large literature around the options for management and financing of health and social care. A detailed review of this literature is beyond the scope of this chapter. This chapter focuses on two broad alternatives. One alternative is based on the premise that the problem faced in providing health and social care to older people with multiple needs can be viewed as a complicated problem. This alternative draws on the principles espoused by Michael Porter, a current thought leader in health care management and financing. The other alternative starts with the premise that the problem is complex and draws on the principles from complexity science.

Porter’s work builds around the notion that health care system delivery should be value based. Value, he states, should always be defined by the customer, and value depends on results not processes or inputs. Patients do not put value on the number of doctors in the system or the rate at which guidelines are followed, they want and value outcomes. He argues that outcomes are condition specific. A summary of what he outlines as being required to achieve a value-based delivery system is provided in Box 3.2.

Box 3.2. Principles for achieving a value-based health care delivery system

- Mandatory measurement and dissemination of health outcomes for every provider and condition
- Radical re-organisation of prevention and routine health maintenance
- Organise care delivery around medical conditions
- Payment system that aligns everyone's interests around improving value
- Require providers to compete for patients
- Electronic medical records that support integrated care
- Consumers become more involved in their health and health care

Source: Porter, M.E. (2009), "A Strategy for Health Care Reform – Toward a Value-based System", *New England Journal of Medicine*, Vol. 361, pp. 109-112.

Porter focuses on breaking down health care for individuals or populations into health care for specific conditions. It is assumed that for individuals with multiple conditions it is straightforward to adjust outcomes for these multiple conditions. These core ideas are very consistent with the notion that we are looking at a set of simple problems that together make a complicated problem. There is some recognition that there needs to be integration. But integration can be easily brought about by focusing on common goals, creating new delivery systems and bundling payment. Porter understands that care for conditions is distinct from prevention and includes in his model the idea of creating bundles of preventive services for distinct populations such as frail older people and patients with multimorbidity.

In Porter's view markets and competition are central to the success of the value-based system and inherent in this is the idea of transferring risk to those who compete for patients. Excellent providers will grow bigger and those that perform poorly will be driven from the market. If you work out the way to provide highly-valued care at a good price to one population you can scale that process up and take more and more patients into the same delivery model.

The Porter financing model rests on bundled payment and market mechanisms for transferring risk. Governments set some broad conditions for creating a market, focus on disease specific outcomes, and transfer risk.

Providers learn the best way to provide care for specific conditions; they develop detailed care maps and plans. Those that do this well survive and gain market share. Those that do poorly learn from those that do well or they do not survive.

As an alternative, Plsek and Wilson look at financing and management of health care by starting with the acceptance of health care as a complex problem (Plsek and Wilson, 2001). They argue that complexity science suggests treating health delivery systems as complex adaptive mechanisms allows an innovative way to manage and finance health care. In their view complexity thinking identifies that the relationships between actors in the system is key and that creativity and variation in care should be valued. They outline a set of principles for applying complexity science to health care (Box 3.3).

Their model talks about whole system targets and pooled budgets. Inherent in their vision is the notion that variation is expected and valued both as sign of innovation but also as a consequence of the effect of local factors and relationships. The way care is provided may vary from region to region and setting to setting. Change is not mandated by evolves, often incrementally, by building on existing relationships and recognising local factors. In this view you cannot get rid of risk. It is inherent in the problem. For example, it is possible to get better at predicting stock markets or the weather but no one believes that you eventually you will be able to predict either perfectly. In this model governments do not transfer risk but rather they transfer responsibility and ownership of the problem and accept risk of failure and embrace local variation.

This model does preclude market mechanisms for financing. In fact, this view is consistent with newer ideas about organisation and financing that fall under the broad term of social enterprise. In this model an entity is created in the market that has social aims and social ownership. In health and social care this builds in the long tradition of community involvement in these sectors. In the United States this idea of creating businesses or financial entities that are interested in broad social benefit has led to the creation of low-profit limited liability companies (L3C).

Box 3.3. Complexity science principles for health care

- Interaction within the health care system are often more important than the discrete actions of individual providers;
- Minimum specifications should replace complicated plans;
- Understand what attracts people to change rather than forcing change and battling resistance;
- Value variation.

Source: Adapted from Plsek, P.E. and T. Wilson T. (2001), “Complexity, Leadership and Management in Health Care Organizations”, *British Medical Journal*, Vol. 323, pp. 746-749.

The role of private payment in financing health and social care

The conceptual model that provides the framework for this chapter (Figure 3.1) includes individuals and private insurers as potential payers for care. The extent to which individual out-of-pocket or private insurance is used to pay for care has implications for equity but is also related to societal goals and norms. Most, if not all governments in the OECD see that there is a central role for government in providing comprehensive medical care services. They may have co-payments or may allow private insurance for some medical services that governments finance but universal access to comprehensive medical is seen as an accepted standard. There is growing acceptance of the notion of access to health care as a right not a privilege. However, as pointed out earlier in this chapter (Table 3.3) even in the restricted context of long-term care nursing services there is international variation in government versus private financing for supportive or social care. If there is variation in this specific service aimed at dealing with long-term disability, then surely variation in financing of other support services required to deal with functional disability is even wider.

Some of this variation is embedded in ideology and social norms or values. If Mrs. Carter is having trouble making her own meals and is getting socially isolated is that something that should be dealt with by her neighbours or her daughter or is that something that government should address? What does Mrs. Carter herself expect?

Part of the solution to this problem is based on how we see the value of these social care services. If services such meals on wheels to older people

or adult day care programmes, which are focused on increasing fitness and reducing social isolation are not directly related to reducing the need for medical care services or, more broadly, outcomes that are produced by medical care services, then they have their own rationale for financing that is distinct from issues related to financing medical care services. However, if the opposite is true, if indeed these services are replacements for or alternatives to medical care services, then they are part of what we want to integrate into care. In fact including them provides a key option for downward substitution of services.

In essence, the answer to the question about private versus public funding of social care services depends on the extent to which we see these social care services as part of solution to the challenge of producing desired health outcomes for older people with multimorbidity and multiple needs. If they are seen as part of the solution, then we need to integrate health and social care. If the desired outcome is not only Mrs. Carter's health but also her happiness, her feeling of security and the extent to which she, her daughter and her community feel that she is well cared for, then the problem is far more complex than managing her diabetes or even treating her stroke.

Conclusions: What are the next steps?

The main thesis of this chapter is that we are at a crossroads in thinking about financing of care for older people with multimorbidity and multiple needs. One path is based on seeing the challenge as a complicated problem. This path points to bundled payments, transferring risk and traditional market competition. We create a system with standardised and widely disseminated care planning for a wide range of medical conditions. We assess performance against a wide range of clearly defined outcomes. The other path is based on seeing the problem as complex. This path points to whole system targets and minimum specifications, pooled budgets and innovative market models. We create a system that values relationships over processes, that is locally based and that lets change develop from within. Governments understand that risk cannot be eliminated and value ongoing variation and creativity.

There are three broad ways to think of the next step. One is to make as much of the problem complicated as possible and go down that financing path. Another is to accept that it is a complex problem and go down that financing path. A final option is to treat medical care as complicated and social care as complex and split financing paths along those lines. Each of those options is discussed briefly below.

Inherent in making a problem complicated rather than complex is breaking the problem down into a set of clearly defined pieces where there

are direct lines between the care that is provided and the outcomes that are achieved. This is a model that has been successfully used to develop care plans for a range of medical conditions and situations. At a broad level this approach is based on research that provides evidence about what works and what does not, and at the detailed level is based on continuous quality improvement techniques that are used to ensure the evidence is implemented. The key element is evidence, and the challenge is finding and implementing that evidence. An optimistic view of this would say that we have all kinds of strategies for providing integrated health that have been tried in different countries, and if we evaluated those and shared what we learned, then we would have the evidence we need. Once we have agreed on what works we simply implement. A more pessimistic view is that we know very little about multimorbidity and multiple needs and how to deliver care for those populations. Even if we did know what works, say something like the PACE programme, we are not sure how generalisable that solution would be to other countries, much less how to implement it in different regions. Learning more and sharing evidence is a valuable strategy for moving forward but there are limits to what we know and concerns about how to implement what we know.

So if we cannot reduce this to complicated problem, then we accept that it is complex and move on from there. The complexity model has some conceptual appeal but the details are hard to understand. It is unclear where it has been tested and shown to work better than alternatives. Perhaps complexity is more useful for describing a problem than for solving it. The complexity science approach accepts that failures will occur and that there will be wide variation in how things are done. Neither the acceptance of failure nor a willingness to allow local variation are appealing to central governments or elected officials. If this path were chosen, then it might best be limited to a population that was small enough and that had a problem that was so poorly dealt with now that failure would not be catastrophic and experimentation would be tolerated. The key here is defining the target population and then having the patience to deal with some ups and downs in performance until hopefully the complex system begins to stabilise.

The last option is to look at the problem of providing health and social care for older people with multimorbidity and multiple needs as having some parts that are complicated and some that are complex. The best solution is to decide which is which and split up the financing along those lines. One broad approach to this would be to say that main stream medical care delivery is complicated and the social care part is complex. This leads to a Porter value-based system for medical care. A system where governments can transfer risk and use markets to achieve desired outcomes. On the social care side they can decide to play a role in finance or not. If

they do want to invest public funds, they can use new mechanisms such as social enterprise to support community-based initiatives or they can pool budgets across government and non-government agencies. The problem is that there is nothing here to promote integration between health and social care, and in fact it may make it impossible to integrate these two. This is fine if they produce different and unrelated outcomes. However, if they do overlap then we have lost important opportunities for positive synergy and downward substitution of services between the two sectors.

There is no assurance which path is best. However, the demographic and epidemiological realities will force governments to move and they need to think carefully about which direction to go.

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