INTEGRATED CARE Guus Schrijvers

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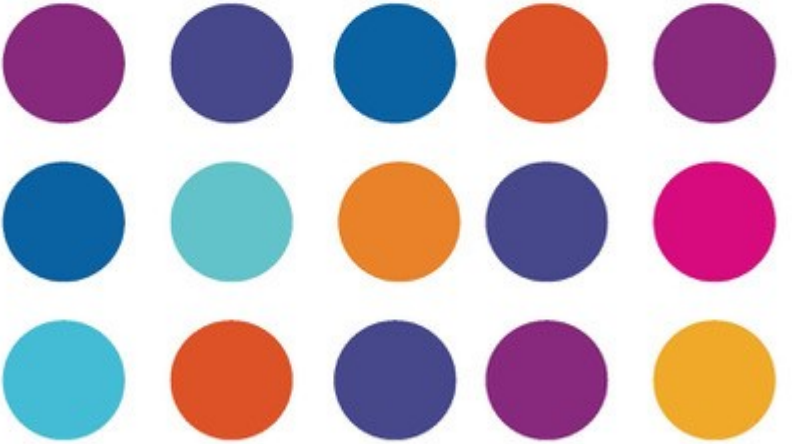
BETTER AND CHEAPER



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Integrated Care

For Els

Between dream and deed lie laws and practical obstacles
Willem Elschot, (1882-1960), famous Dutch poet, Rotterdam, 1910

By the same author

- *Health regions and payment systems in England, Sweden and the Netherlands, 1980 (in Dutch)*
- *A Cathedral of Care, 2001 (in Dutch)*
- *Health Care Innovation according the Cappuccinomodel, 2014 (in Dutch)*

Integrated Care

Better and Cheaper

By Guus Schrijvers

With a selection of more than 100 good and bad practices of intregated care

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Foreword

The future sustainability of health systems is increasingly shaped by ageing populations, urbanisation, and the globalisation of unhealthy lifestyles. Driven by these broad shifts in demographics and disease status, care has become ever more complex and costly. However, the fragmented nature of today's health systems means that they are unable to respond effectively to meet these new demands. The continued and disproportionate focus on specialised and disease-based curative care models undermines the propensity of health systems to provide equitable, high-quality and economically sustainable care.

Across the world, these challenges represent a compelling case for transformational change. New and innovative approaches to care are required in the way health and care services are funded, managed and delivered such that they can simultaneously improve quality in care, support financial sustainability, and retain responsiveness to the needs and demands of people and communities. The move towards a more person-centred approach that engages and empowers people in their own care, combined with a more integrated care delivery model that co-ordinates services more effectively around their needs, has gathered momentum as a policy response to these challenges.

In this book, *Integrated Care: Better and Cheaper*, Professor Guus Schrijvers takes us on a journey to examine the hypothesis that person-centred integrated care can help care systems realise Triple Aim goals of: improving population health; increasing quality of care for the individual; and lowering per capita costs. By reviewing both the theory and practical development of these strategies – including many examples of both good and bad practices – the book provides a fresh perspective. By combining the importance of integrated care as a central design feature with the underpinning logic of a person-centred approach, the book sets out some new fundamentals in how better care and outcomes to people with complex needs will likely only be effectively realised by engaging people as partners in care.

There are few resources that provide an overview and understanding of integrated care processes and their potential to deliver Triple Aim objectives, so this book – together with its digital attachment of over one hundred case studies – will provide new thinking to support leading clinicians, policy-makers and scholars interested in understanding the implementation science behind care integration.

Moreover, the book demonstrates that (with the right set of ingredients) it is indeed possible to improve quality of care and outcomes and reduce costs. An important message, both now and for the future, in the challenges that lie ahead.

Dr Nick Goodwin, PhD
Chief Executive, International Foundation for Integrated Care
Editor-in-Chief, *International Journal for Integrated Care*

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PART 1 INTRODUCTION

1 Introduction of the research question

1.1 REASONS TO BE PROUD

My intended readership consists of professionals, managers and policy-makers of health services in Europe and elsewhere. They have reasons to be proud of their performances in recent decades. Between 1990 and 2012, life expectancy at birth in OECD[1] countries increased from 74.1 to 79.2. In most countries, progress in the treatment of life-threatening conditions such as heart attacks, strokes and cancer has led to a significant decrease in mortality. Survival rates have also increased in most countries for cervical cancer, breast cancer and colorectal cancer. Improvements also occurred in the field of prevention.[2]

Most OECD countries have maintained universal (or near-universal) coverage for a core set of health services, with the exception of the USA, Bulgaria, Greece and Cyprus, where a significant proportion of the population is uninsured. Still, even in these countries, measures have been taken to provide coverage for the uninsured. On average, across OECD countries, the total number of doctors increased from 2.9 to 3.4 doctors per 1,000 inhabitants between 2000 and 2012. Primary healthcare, and consequently also the accessibility of healthcare, has been improved in many countries. Consumer and patient rights in OECD and EU countries, and elsewhere, are improving.[3] In a growing number of countries, healthcare legislation has been explicitly based on patient rights. More and more patients are now able to access their own medical record.

1.2 HOWEVER, THERE ARE CONCERNS

Although these performances are worthy of praise, some public health aims have not been achieved; equal health opportunities, for example. Highly educated men and women are likely to live several years longer and to be in better health than their less educated peers. Between 2009 and 2012, health expenditure in real terms (adjusted for inflation) fell sharply in 50 percent of OECD countries and significantly decelerated in the rest.[4] On average, health spending decreased by 0.6 percent each year,

compared with an annual growth of 4.7 percent between 2000 and 2009. Ham, an English policy watcher, showed what this meant for his country's National Health Service. The financial crisis first resulted in a health services crisis with increased waiting times and too much workload for professionals.[5] Ultimately, these problems resulted in a political crisis. Despite the government's effort to minimise the damage, the crisis resulted in a loss of popular support.

The USA has fewer reasons to be proud, but there is hope

Health professionals, managers and policy-makers in the USA have fewer reasons to be proud, as shown by a 2015 report from the National Research Council.[6]

The report compares health outcomes in the United States with those of 16 comparable, high-income countries such as Australia and many European countries. For many years, Americans have had a shorter life expectancy than people in almost all of the USA's peer countries. This health disadvantage affects all Americans. Even Americans with healthy lifestyles or those who are white, insured, college-educated, and/or in upper-income groups appear to be in worse health than similar groups in other comparable countries. The USA scores low in terms of health and high in terms of finances. The percentage of Gross Domestic Product, an indicator for the national income, in the United States was 16.4 percent in 2013 compared with an OECD average of 8.9 percent. Other American authors arrive at similar findings.[7]

In short, there are reasons to be proud of what has been achieved so far and to have concerns about the future. In the United Kingdom, the financial crisis resulted in a healthcare delivery crisis, which ultimately led to a political crisis. The question of how to prevent these three crises also motivated me to write this book. The following section discusses future trends that frame the context within which health services will function in the years to come.

1.3 WHAT THE FUTURE WILL BRING TO HEALTH SERVICES

Healthcare in Europe, and elsewhere, is subject to four developments. Firstly, both the demand for healthcare and the costs of healthcare increase due to an ageing population.[8] However, an ageing population is not the only reason for this increase in demand. This can be illustrated with data from the Netherlands.[9]

If an aging and growing population were the only causes, we would be looking at a demographic scenario (see image 1.1). Between 2012 and 2030 costs at constant prices would then increase from 75 to 100 billion euros. This is an annual growth of 1.2 percent.

However, other factors also lead to a cost increase during that same period. Between 2012 and 2030, the life expectancy of Dutch men will increase with three years, whereas that of Dutch women will increase with two years.[10] These extra years will be characterised by a high demand for care. In addition, the number of people with one

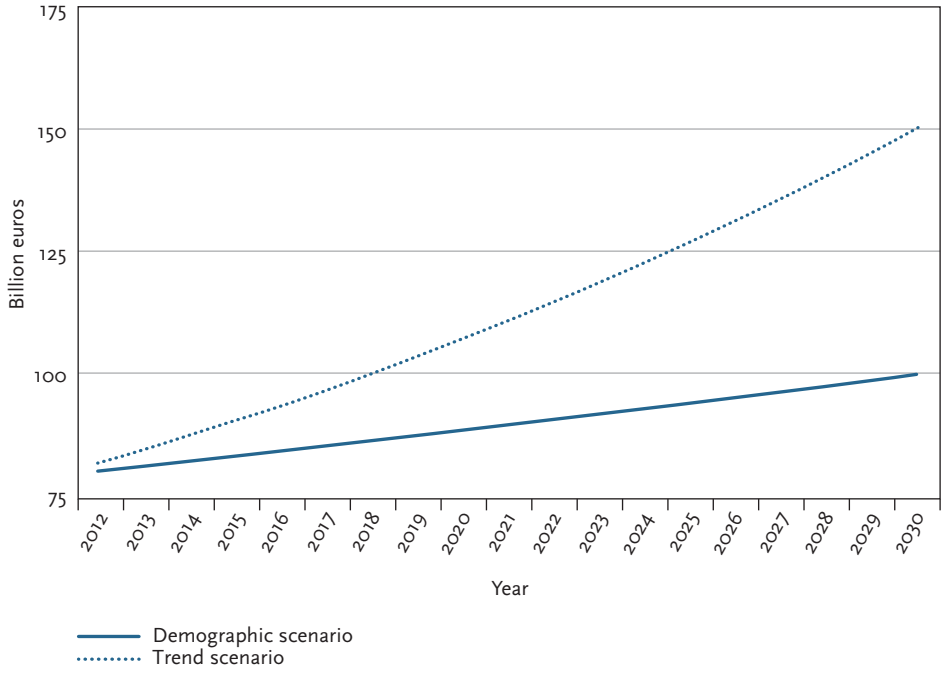

Image 1.1 Trend scenarios for healthcare costs in the Netherlands 2012-2030
Source: RIVM. Een gezonder Nederland. Volksgezondheid Toekomst Verkenning 2014, on August 22, 2016 retrieved from http://www.eengezondernederland.nl.

or more chronic conditions will increase from 5.3 million in 2011 (32 percent of the population) to seven million in 2030 (40 percent). The third factor, which causes a greater increase of healthcare expenditure than demographic changes, is the arrival of expensive medicines. In total, costs do not merely increase to 100 billion euros in 2030, but to 150 billion (see image 1.1). As a percentage of the national income, this boils down to an increase of 14 percent between 2012 and 2019 to 21 percent in 2030. Especially the costs of long-term care will continue to increase.[11]

1.4 THE LIMITED GROWTH OF THE NATIONAL INCOME AND THE COSTS OF HEALTH SERVICES

The second development concerns the limited growth of the national income in the years to come.

The OECD expects GDP-growth for the OECD countries will, on average, be around $1^{3}/_{4}$ to $2^{1}/_{4}$ percent per year until 2050.[12] When this percentage is enforced top-down, without innovations in healthcare, the available financial resources for healthcare can increase less rapidly than the demand. This will give rise to longer waiting lists, greater reliance on emergency care, increased workload for health professionals, loss

of quality, corruption and even social unrest, as Ham already observed in his reflection on the United Kingdom.

Another economic aspect of healthcare concerns the share that healthcare expenditure has in the national income.

In theory, it would not be problematic if citizens chose more healthcare in favour of consumer goods – such as holidays – and public services, such as road construction, education and police. All these consumer goods and public services also contribute to health, quality of life and happiness. Economic problems start to arise when citizens start to demand more healthcare *in addition to* all those other goods and services.

This situation will become particularly acute when citizens also start to compensate higher social security contributions with higher wage claims. This will cause exports to become too expensive and could give rise to inflation, which, in turn, erodes pensions and fixed incomes. In addition, other government tasks will be pushed aside due to increasing healthcare expenditure. This is illustrated by the following example from the Netherlands: the money the Netherlands spends on primary education could finance national healthcare for two months.[13] The money spent on police and culture could keep it afloat for one month and one week respectively. The other public sectors will therefore come under pressure as they have to make way for healthcare.

A final argument against a further increase in healthcare costs is that it will jeopardise income solidarity.

In 2013, the Dutch government calculated that, if healthcare consumption continues to increase as much as it has done in the past decade, the average annual healthcare consumption of people who have only received primary education will increase from 40 percent of their income in 2011 to 70 percent in 2040.[14] It remains to be seen whether there is any support in the Netherlands for further redistribution of wealth.

1.5 DIGITISATION DRASTICALLY CHANGES HEALTHCARE

The third development concerns the digitisation of healthcare. Most Europeans use the internet (see image 1.3). They are able to send emails, surf the web, file away important data, look up medical information and make online appointments. As healthcare patients/clients they often cannot. Among themselves, health professionals are also often not yet able to so. Digitisation also enables working with sensors, both for our bodies and our houses (*smart houses* and domotics).

In addition, it becomes easier to create large data files and to subsequently carry out 'N=everything research' based on these files. Chapters 16 and 17 on digitisation and integrated care discuss this development in more detail.

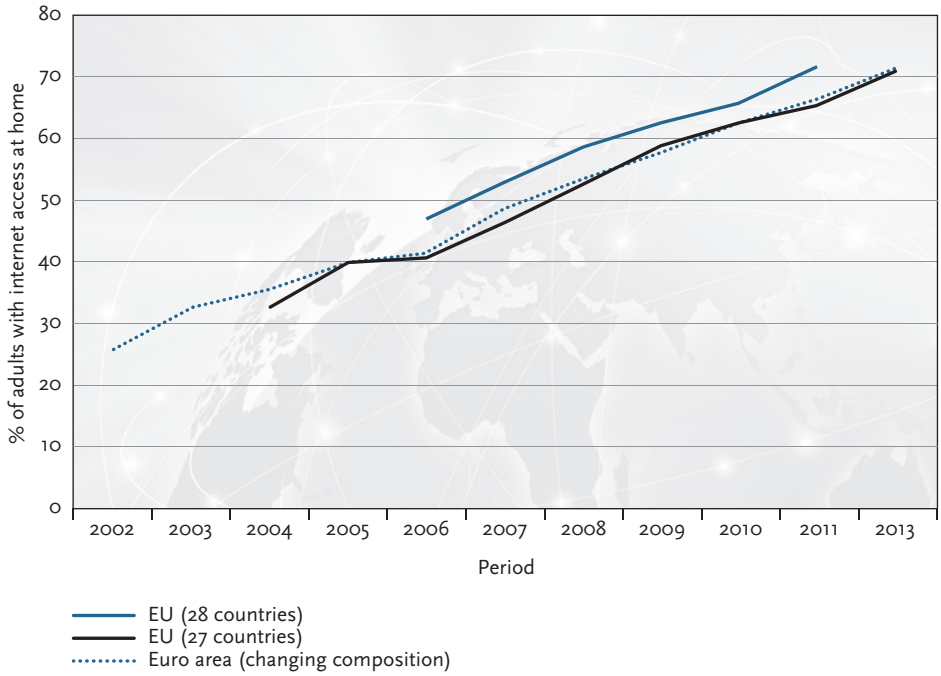

Image 1.2 Percentage of the Dutch population that has never used the internet
Source: CBS

1.6 GENOMIC SEQUENCING

Digitisation of healthcare also enables a fourth development: genomic sequencing. This method will enable scientists to discover the relation between individual genomes and, for example, cancer or chronic conditions. This will give rise to precision medicine, also known as personalised medicine.[15,16] Digitisation also leads to more precise radiotherapy and more accurate topical administration of medication. Collins, researcher at the National Institute of Health in the USA, has high expectations for the future of precision medicine.[17] Research shows that, even for the same type of cancer, each patient's tumour harbours a unique set of genes that drive malignant growth. Looking at that set of genes often enables researchers to predict how that particular form of cancer will respond to therapy. This enables doctors to match the genomic changes in an individual's tumour with the drugs that counteract those changes. Genomic information can also predict illness in healthy individuals. This approach could lead to more precise prevention and management of chronic diseases.

In summary, this section showed four future trends:
1 a growing demand for healthcare services;
2 the limited growth of the national income;

3 digitisation of healthcare; and
4 genomic sequencing for people with cancer or chronic conditions.

However, how does the second trend, that of limited financial growth, relate to the other trends?

1.7 THE QUESTION ANSWERED BY THIS BOOK

The increasing demand for care, limited financial resources, digitisation and genomic sequencing have all led to the research question of this book, which reads as follows:

Is it possible to improve population health, increase quality of care for the individual and lower per capita costs of care using person-centred integrated care?

The answer lies in the domains discussed in the following chapters. Chapter 2 introduces the concepts used in this question and frequently used in later chapters. Part 2 with chapters 3 up until 7 describes forms of integrated care that occur in OECD countries. Each chapter ends with a brief sub-answer to the main question of this book. Chapters 8 up until 20 discuss aspects that affect all manifestations of integrated care, such as patients as partners (part 3), quality (part 4), payment systems (part 5), digitisation (part 6) and leadership, implementation and research (part 7). These chapters also conclude with the partial answering of the research question. Chapter 21, the final chapter, answers the research question in a few hundred words using arguments that have been substantiated in previous chapters.

1.8 HOW TO READ THIS BOOK

This books answers the aforementioned research question. Readers who are in a hurry will suffice with reading final chapter 21. However, I would advise those who do have time to read all chapters. There are many correlations between different manifestations of integrated care. Even payment systems cannot be seen separately from other aspects such as quality of care and digitisation. These correlations motivated me to write one cohesive book rather than 21 separate scientific articles. A chapter in this book is no more than 5000 words. This enables teachers to use one chapter as the basis for a lecture or workshop and add their own examples. This word limit also means managers can use one specific chapter to familiarise themselves with a new form or new aspect of integrated care within the space of a few hours.

The book can also serve as a reference work. Thanks to an extensive table of contents, subject index and digital attachment with good examples, a group of professionals who write a policy memorandum about integrated can easily look up what is known about a specific subject, a good example or an author.The digital attachment will be updated for at least two years after the publication of this book.

This book contains a large number of illustrative examples. Many of these hail from the Netherlands. They offer an introduction to the world of Dutch health services. These Dutch examples have not been chosen because they are the best in the world, but rather because, as a Dutchman, I am more familiar with them. Examples cannot be adopted thoughtlessly. They require adjustment to existing situations. Chapter 19 about implementation of integrated care discusses this in detail.

Some additional remarks on Dutch health services: internationally, Dutch health services score high (see image 1.1). The Netherlands has a lot to offer in terms of successful and unsuccessful examples of integrated care. This was one of my reasons for writing this book. However, this country does lag behind when it comes to preventive interventions. Tobacco consumption in the Netherlands is higher than in other European countries [18] and smoking cessation has not been included in the Dutch Health Insurance Act (Zorgverzekeringswet). When it comes to cost control, the Netherlands ranks in an average position compared to other OECD countries.[19]

Limitations of this book

Now that the structure of this book has been fully introduced, it is easy to say what this book does not discuss. Firstly, there are no descriptions of specific target groups (such as people with diabetes) and specific forms of integrated care that focus on these groups. In addition, this book deals with integrated patient care. This means that payment systems (fee-for-service, pay for performance, capitation fee) are only dicussed when they are relevant to integrated care. The same goes for financing systems (government interests, social insurance policies, private insurance policies and out-of-pocket payments). Practice teaches us that integrated care can emerge within each payment and financing system. The focus on direct patient care also meant that integration on a national and international healthcare level has not been taken into account. Valentijn and colleagues offer a literature overview of integration at these levels.[20]

Another limitation of this book is that it does not pay explicit attention to the relation between integrated care and the minimisation of health differences. Relevant literature did not provide overview studies that showed integrated care minimises health differences.

I do alert the reader to the fact that the digital attachment contains many good examples of integrated care programmes focused on people with low incomes, a low level of education or belonging to ethnical minorities.

My publisher told me a thin book attracts more readers than a hefty volume. In a way, this book is therefore rather cursory. I have tried to compensate for this by referring to overview publications about specific forms of integrated care, patient self-management and highlighted aspects.

Anyone who, like myself, proposes ideas for future healthcare policy, encounters two problems. Firstly, the long-term effects of the proposed policy are not known, whereas for existing policies, they often are. Secondly, there is no evidence that the proposed policy will be successful. Even though I base my proposals on good, often small-scale examples, there is no guarantee that something that is successful in a small setting will also be successfull on a large scale.

It only remains for me to say that I hope the reader will enjoy reading this book and find some inspiration along the way.

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2 Introducing integrated care, the Triple Aim and other frequently used terms in this book

In sections 2.1 up until 2.7, this chapter introduces the concepts of integrated care, Triple Aim, integrator, population health, patients as partners and quality of integrated care. This introduction of concepts enables me to indicate what will not be discussed in this book. This happens in section 2.7. Readers who have studied recent publications about these concepts can skip this chapter. I alert all readers to the fact that many other concepts are defined when they are first mentioned. The subject index and the list of abbreviations at the back of the book are meant for anyone who quickly wants to know what a certain concept means.

2.1 THE CONCEPT OF INTEGRATED CARE

In 2014, the World Health Organization (WHO) gave a new definition of person centred integrated care which has been adapted for this book:

Integrated health services are health services that are managed and delivered in a way that ensures persons receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care services, at the different levels and sites of care within the health system, and according to their needs, throughout their whole life and in continuous discussion with the patients.

In its report, the WHO illustrates this definition with the diagram shown in image 2.1.

The American Geriatrics Society[2] defines person-centred care as 'care in which individuals' values and preferences are elicited and, once expressed, guide all

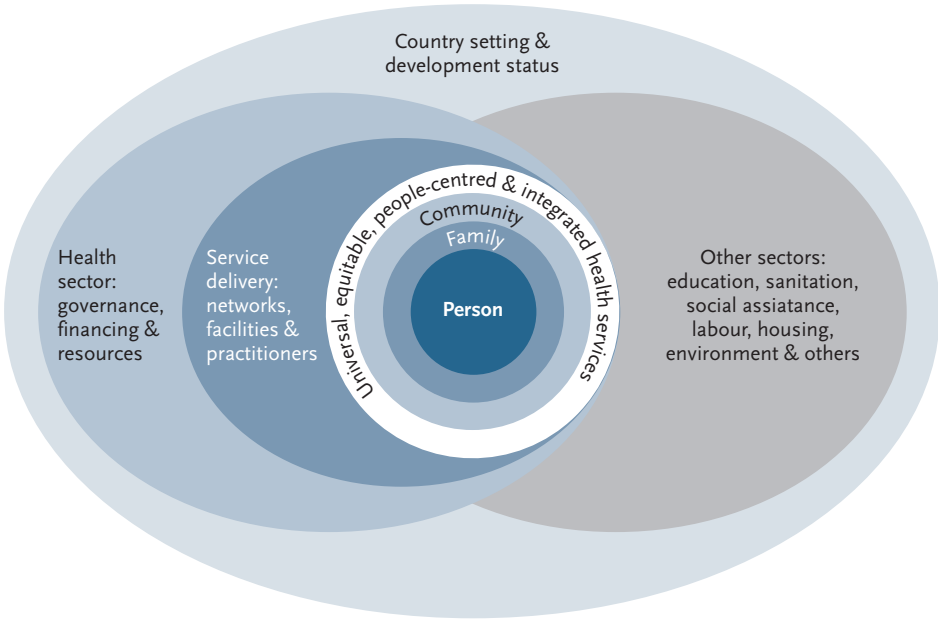


Image 2.1 Person centered integrated care according to the WHO
Source: WHO global strategy on integrated people-centred health services 2016-2026,[1] Draft for consultation, to be found at: http://www.who.int/servicedeliverysafety/areas/people-centred-care/en

aspects of their healthcare, supporting their realistic health and life goals. In person-centred care models, a broad range of health and functional needs are identified, programming is structured and targeted to address those needs, and care is delivered through a team of providers – all developed around the person's daily living goals at the heart of the care process.' In this book the word **person**-centred care is used instead of **people** centred care, which is used by the WHO, or **patient**- centred care, used in other publications. This is done to reach one simple glossary of terms.

The WHO global strategy on person-centred integrated health services represents a call for a fundamental paradigm shift in the way health services are funded, managed and delivered. This book responds to this call. The WHO-definition is an updated version of the definition given in 2002 by Kodner and Spreeuwenberg.[3] Integrated care is also known as integrated health, coordinated care, comprehensive care, seamless care and shared care. The opposite of this term is fragmented care. Previously, integrated care had been focused on primary healthcare and chronic care. It focused on the supply side of professional care.

Nowadays its scope is broader. It also discusses mental health services inside and outside of the psychiatric hospital, the integration of informal care (by patients and carers) and formal care (by professionals), the integrated supply of palliative care, the integration of primary healthcare and public health, and, last but not least, the integration of health services and social services. This book looks at integrated care from this broad perspective.

According to an American state committee,[4] integration comprises six phases.

1 No integration at all: the fragmentation phase.
2 Mutual awareness of the existence of other health professionals.
3 Incidental cooperation.
4 Alignment between professional groups, but no personal connections.
5 Teamwork and partnership.
6 Full integration, e.g., in the case of a merger of organisations that serve different populations.

Health services in countries such as South Africa and France are not integrated in any way. Professionals work independently and use their own professional guidelines. In these countries, healthcare is still in the isolation phase. Alignment refers to a situation in which people from different professions use the same language and definitions, multidisciplinary guidelines and software to communicate and share information. It does not necessarily entail structural cooperation. Alignment can exist between pharmacists and GPs when they use the same names for medication, the same prescription conditions and correspond with each other via the internet. It is not necessary for them to actually know each other. Full integration exists when professionals work in the same organisation and within the same financial context. This is discussed in chapter 18, which deals with leadership in integrated care organisations. Chapter 19 discusses the best way to develop integrated care from the fragmentation phase. Is it better to start top-down with a merger? Or bottom-up with incidental cooperation as a learning project?

There are five manifestations of integrated care. I identified these when I was preparing and writing this book. Chapters 3 up until 7 discuss these forms. In column 1 of image 2.2 these forms are mentioned. The five manifestations differ according to patient population. In horizontal integration, for example, this population is the same for all involved health professionals. However, for vertical integration, this is not the case.

The Dutch Parkinson Network, for example, employs physiotherapists, who serve a local population, alongside neurologists who serve Parkinson patients throughout the Netherlands (see section 4.1).

The five manifestations of integrated care also differ in the leading paradigms they use. In healthcare, this is the leading medical paradigm of anamnesis (what is the healthcare problem?), diagnosis (cause of the problem), therapy (solution for the problem) and evaluation (has the problem been reduced or solved completely?).

For vertical integration, this is not the case. Chapters 3 and 4 discuss this in greater detail. The same goes for the integraton of health and social services. For the latter, the main focus does not lie on a health problem, but rather on a participation problem. This form of integration does not only pay attention to the cause of inadequate participation, but also looks at impediments presented by a person's environment or accommodation. Chapter 7 discusses this in greater detail.

The first product of integration is continuity of care. When the classification created by Haggerty and others is adjusted, four different types of continuity can be distinguished. I will illustrate them with examples.

- Relational continuity: e.g., the patient has contact with the same health professional for as long as possible.
- Continuity of treatment: e.g., if a health professional agrees with the patient about treatment goals, another professional should not change these goals without discussing this with the aforementioned professional.

Image 2.2 Classification of integrated care according to target group and used paradigm

Type of integration	Health professionals serve same population?	Is the same guiding paradigm used?	Example with reference to relevant chapter
Horizontal integration	Yes	Yes	Primary healthcare team (chapter 3)
Vertical Integration	No	No	Integrated care for people with a chronic condition (chapter 4)
Case management	No	No	Case management for a person with dementia (chapter 5)
Integrated pharmaceutical care	Yes	Yes	Medication safety for polypharmacy patients (chapter 6)
Integration of health and social services	No	No	Integrated addiction services: cooperation between housing officers, policemen and psychiatrists (chapter 7)

- Continuity of information: e.g., other PHC team members who communicate with the patient have full access to previously collected information.
- Organisational continuity: e.g., if a team member refers a patient to a colleague, this should not increase waiting times.

This book approaches integrated care as a system as defined in the general system theory.[5] A system is a collection of elements with mutual relations that function in an environment. A molecule is a system consisting of nuclear elements. The universe is also a system. Its elements include the stars and the planets and space is its environment. Integrated care is a system with, among other things, (groups of) patients and (groups of) professionals as its elements. The four types of integrated care shown in image 2.2 are the four elements of a country's complete health system. In the system theory, different elements sustain different relationships with each other. For integrated care, these relations are substantive, informative and financial.

In the system theory, these different types of relations are called aspect systems. Chapters 10 up until 17 discuss important mutual relations that apply to all forms of integrated care systems. In their literature overview, Valentijn and colleagues[6] structure integrated care into seven classes (see image 2.3). I have not followed their classification in this book as it makes no clear distinction between subsystems and aspect systems.

Each system has one or more guiding objectives. For molecules this aim is survival and for the universe it is preservation. Integrated care has a Triple Aim: to improve population health, to increase quality of care for the individual and to lower per capita costs of care.[7]

Image 2.3 Classification of Integrated care according to Valentijn, et al.
Source: Valentijn P, et al. Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care: Int J Integr Care 2013; Jan-Mar, URN:NBN:NL:UI:10-1-114415.

Horizontal integration	Relates to strategies that link similar levels of care
Vertical integration	Relates to strategies that link different levels of care
System integration	Refers to the alignment of rules and policies within a system
Organisational integration	Refers to the extent to which organisations coordinate services across different organisations
Professional integration	Refers to the extent to which professionals coordinate services across various disciplines
Clinical integration	Refers to the extent to which care services are coordinated
Functional integration	Refers to the extent to which back-office and support functions are coordinated
Normative integration	Refers to the extent to which mission, work values etc. are shared within a system

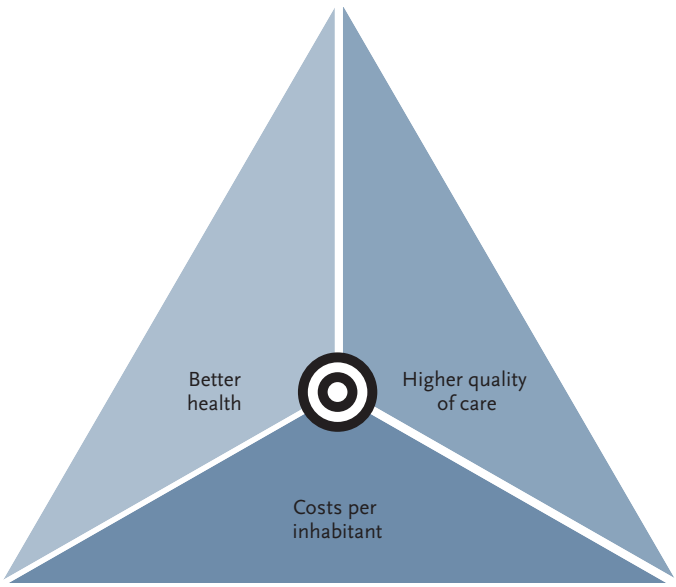
2.2 TRIPLE AIM APPLIES TO ALL PARTIES IN HEALTHCARE

The centre of the triangle in image 2.4 shows the different parties – healthcare provider, financer and patient – that collectively pursue the improvement of the three fields of the triangle: better health, higher quality of care and lower per capita costs. Similar to the three actors in the market forces triangle, these three parties assume three different positions. However, there is a certain unity of policy and co-creation between them.

This is where this triangle distinguishes itself from the triangle of market forces, in which the three parties – healthcare providers, patients, and financers – are placed on the points of the triangle (see image 2.5) and are consequently explicitly set off against each other. The Triple Aim philosophy includes a unity of policy or, in other words, a collective ambition for both the short and the long term. All three parties aspire to the same goals. This policy does not only concern curative care, but also includes preventive interventions. Co-creation has two advantages over a situation where one party one-sidedly designs new forms of healthcare.

The first of these advantages is the greater variation in possible designs due to the greater pluriformity of the preparation group. The second advantage concerns the increased chance of acceptance and execution by the supporters of the members of the design group. In 2010, Danish researcher Bason wrote a handbook about these advantages and how to maximise them.[8] He introduced the term *design management*.

Image 2.4 The Triple Aim Triangle



In 2008, Berwick and his fellow authors listed different conditions that apply to a healthcare organisation that wants to simultaneously pursue these three aims:

1 the organisation works for a well-defined group of patients or citizens;
2 the organisation works for individual patients but also for the group as a whole;
3 the management, the integrator in other words, simultaneously pursues all three goals.

Image 2.5 The triangle of market competition in healthcare

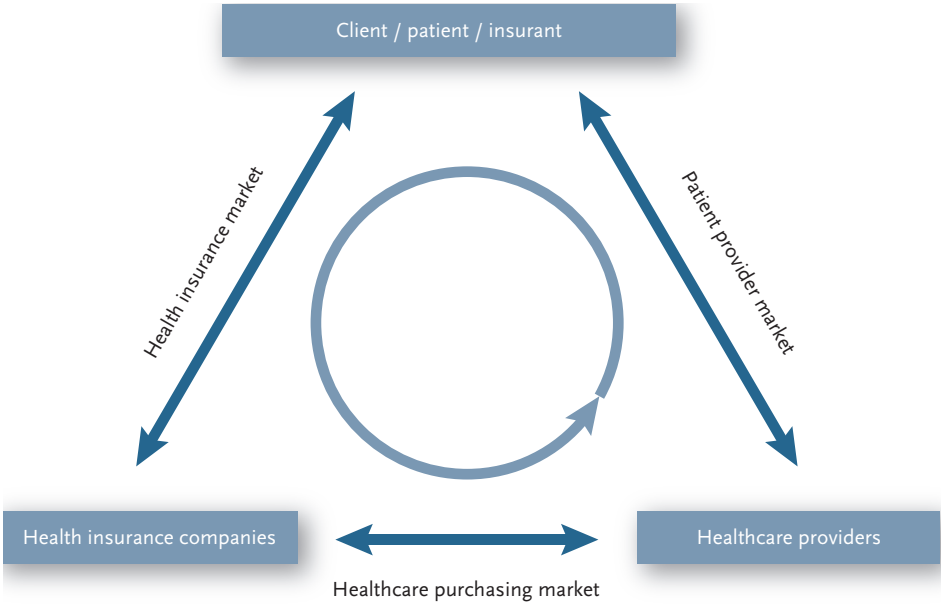


Image 2.6 Competences of an integrator
Source: Based on AA, A van der, et al. Naar een methodisch kader voor ketenregie in het openbaar bestuur. Utrecht, 2002

1.	Is able to develop a vision for the future of integrated care for a specific target group
2.	Is able to stimulate professionals to cooperate and to adhere to the norms and standards of the team or network
3.	Is competent when it comes to change management and project-based thought
4.	Has experience with patient logistics, health IT and (financial) regulations for integrated care
5.	Is able to raise additional funding for innovative projects
6.	Speaks the language of the target group of patients and the professionals involved
7.	Is accepted and followed by professionals as well as financers

An integrator may be one person or a management team. Dutch consultancy firms have formulated six crucial competences for an integrator (see image 2.6).

The use of this list of competences makes an integrator's professional background less relevant. In a care network for people with chronic conditions the integrator can be a GP, a medical specialist, a medical adviser for a health insurance company, the director of a care group or an (ex-) alderman. For networks focused on other target groups this can be another type of professional. It is important that the chain director is well-liked by all network partners and acts from a certain view on the target group and the care this target group needs. In order for a chain director to be accepted and trusted by all connected professionals, it is also important that the integrator is not appointed in one of the affiliated organisations.

Berwick's successor at the IHI is Maureen Bisognano. Together with Charles Kenney she wrote *Pursuing the Triple Aim*, which was published in 2012.[9] In seven chapters, the two authors describe innovations that both improve healthcare and health, and lower costs. Remarkably, these healthcare innovations were all inspired by high healthcare costs. In the end, the initiators of the aforementioned seven innovations succeeded in offering healthcare that was cheaper, of a higher quality and more effective. In these examples, healthcare insurers play an important role; sometimes as initiators, in the case of population-based financing, sometimes as loyal partners of innovative healthcare organisations.

In their final chapter, titled *No Excuses*, the authors discuss the importance of good management and an organisational culture that supports innovation.

The aforementioned Institute for Health Care Improvement, the international Commonwealth Fund[10] and leading magazine *Health Affairs* support the Triple Aim philosophy. Nevertheless, there is criticism from, among others, Burns & Pauly.[11] According to these two researchers, the Triple Aim is suspiciously similar to the Health Maintenance Organisations (HMOs) that were introduced in the 1990s and turned out to be unsuccessful. In the 1990s, integrating healthcare within hospitals, and between hospitals and primary care, appeared to be a lot more difficult than expected. Burns' and Pauly's criticism is not unfounded: Triple Aim represents a long-term philosophy.

Most projects in the book *Pursuing the Triple Aim* were developed during a period of five to eight years. The Triple Aim approach enjoyed success in Canada[12], Germany[13] and the United Kingdom.[14,15] In 2011, the OECD published an overview titled *Getting*

more value for money.[16] This OECD-report also speaks out in favour of goals similar to the Triple Aim. In 2015, seven years after the introduction of Triple Aim the Institute of Health Care Improvement (IHI)[17] evaluated its implementation. In 2010, the Triple Aim became part of the US national strategy for tackling healthcare issues, especially in the implementation of the Patient Protection and Affordable Care Act (ACA) of 2010. The IHI learned three lessons: it is important for a succesful implementation to have

1 good population management that shows measurable outcomes;
2 an integrator who works on the same scale as the delivered integrated care; and
3 a learning system to drive and sustain the work over time.

2.3 BETTER HEALTH AND PREVENTION: THE FIRST SUB-AIM OF INTEGRATED CARE

In 2011, Huber and coleagues[18] defined health as: 'the human ability to adapt and to be autonomous in the light of life's physical, emotional and social challenges.' The emphasis in this definition lies on the human ability to adapt to developments in the body, the mind and social functioning. This definition is wider than the old WHO definition: 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.' The following example explains why. According to Huber, people with diabetes are healthy thanks to the administration of insulin (an adjustment), as long as they manage to keep their blood sugar levels within certain values. However, according to the definition of the WHO they are patients. This book nevertheless speaks of people with a chronic condition who are healthy and sometimes ill due to that condition.

Prevention is better than cure, or so the saying goes. The first sub-aim of the Triple Aim, better health, could therefore also be 'more prevention'. However, prevention is merely an instrument and can therefore never be a goal in itself.

Social medicine distinguishes three types of prevention: primary prevention (the prevention of disease, e.g., through vaccination), secondary prevention (the early discovery of diseases, e.g. through screening) and tertiary prevention (the prevention of reoccurrence of a disease or incident, e.g., a stroke).

Public Health is the overarching term for the first two forms of prevention. Usually, their implementation is the responsibility of a government agency and not of a private organisation. Public health therefore also carries a connotation of government interference.

A classification that has recently become more popular is the classification according to target group: universal, selective, indicated and healthcare-related prevention. This classification originated in the field of mental healthcare, but is also used in other areas of Dutch integrated care. Universal prevention focuses on (groups within) the population in general. It concerns people who are not characterised by a heightened risk of (infectious) diseases, incidents or injury. Selective prevention is focused on population groups with a heightened risk, such as hypertension or overweight, and aims to improve the health of specific risk groups. Indicated prevention focuses on individuals who do not yet have a diagnosed disease, but who do show early symptoms. A possible example is fall prevention for frail, elderly individuals. It aims to prevent the emergence of disease or further health damage. Healthcare-related prevention focuses on individuals with a disease and aims to reduce the risk of relapse, reduce the burdens of disease and prevent complications or comorbidity. Integrated care is mainly concerned with the last three types of prevention. Universal prevention is more often considered the responsibility of public health authorities. Chapters 4 and 9 discuss these last three types in more detail.

To avoid confusion with the concept public health, I will define the health of the population of integrated care as 'population health'. If this population also forms a local community, as is the case with primary healthcare, the term community health can also be used.

Population management

Offering a population the right mix of prevention and care in order to realise the Triple aim is called population management.[19-21]

2.4 IMPROVING QUALITY OF CARE AND LOWERING COSTS OF CARE, THE SECOND AND THIRD SUB-AIMS OF THE TRIPLE AIM

Following Donabedian, who coined the concept in 1966, I define quality of care as 'the degree of similarity between criteria for desirable care and the actual care'.[22] I also copy his division of quality of care into three components: outcome quality, process quality and structural quality.

Part 4 discusses professional quality of integrated care (see chapter 10) and patient-perceived quality (see chapter 11) in greater detail.

Lowering costs of integrated care per capita

The third sub-aim of the Triple Aim is lowering the per capita costs. In this book *per capita* means per person enrolled in an integrated care programme. Costs refer

Outcome quality
The effect of healthcare provision on patients and population groups. These effects concern changes in health, behaviour, knowledge, experiences and quality of life. It is difficult to link outcomes to healthcare provision, as other factors, such as accommodation, income and education level, often also influence health. Instead of the term outcome quality the term production quality is also used.
Process quality
A care process consists of a number of activities that happen consecutively or simultaneously. Examples include screening, diagnosis, treatment, aftercare and health education. Continuity of care is an important quality aspect. This includes continuity in person (as few different professionals as possible), in information (re-use of previously collected information) and logistical continuity (no unnecessary waiting times between successive activities). Process quality refers to activities carried out by both professionals and patients. For healthcare professionals, adherence refers to adherence to standards and guidelines. For patients it refers to taking medication, as agreed by doctor and patient.
Structure quality
The quality of the buildings and the equipment; the education level and experience of professionals; the characteristics of the healthcare organisation; the method of financing the healthcare provision; the information provision. The presence of structure characteristics is often easy to measure.

Image 2.7 Division of quality of care according to Donabedian
Source: Donabedian A. Evaluating the Quality of Medical Care. The Milbank Quarterly, Vol. 83, No. 4, 2005 (pp. 691-729) c 2005 Milbank Memorial Fund

to the direct costs of care. Indirect costs, caused by absenteeism, lost years of life and undesirable social effects (e.g., due to a sudden epidemic of an infectious disease) are not taken into account. If they are discussed, they will be mentioned separately.

2.5 PATIENTS AND PROFESSIONALS AS PARTNERS

'According to their needs, throughout their whole life and in continuous discussion with the patients' are the final words of the definition of integrated care given at the start of this chapter. It is an important phrase. Integrated care deals with coordination of care between professionals based on guidelines. This coordination threatens the delivery of personalised integrated care. In the Netherlands, guideline assessment organisations therefore use the ethics of 'comply or explain'.

In principle, professionals comply with the guidelines. If they do not, they explain why. The words *according to their needs* turns patients into consumer whose needs professionals should fulfil as optimally as possible, much like restaurant owners aim for the maximum satisfaction of their clients' culinary needs. This metaphor detracts from the ethics of professionals who should not harm health and not provide everything patients ask for. The comparison also detracts from the position of patients: they are partners who produce health together with

professionals. They do this through self-management of their condition and illness and by maintaining a healthy lifestyle. Through anamnesis, physical examination and complementary diagnostics, professionals analyse the patient's health complaints and subsequently offer treatment advice. They are partners. Patient and professional are co-producers of health. That is why the definition ends with *in continuous discussion with patients*. This is my own addition to the defitinion. Chapters 9 and 10 elaborate on this addition.

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PART 2 TYPES OF INTEGRATED CARE

3 Horizontally integrated care with an emphasis on primary healthcare

Section 3.1 is a biography of integrated care from the reinvention of primary healthcare in 1959 until the present day. It is followed by the description of certain specific future trends (section 3.2) and of the performances of primary healthcare (section 3.3). Section 3.4 discusses other forms of care. Teamwork is the cornerstone of horizontal integration. It is is discussed in section 3.5. The final section (section 3.6) answers the question of how horizontal integration contributes to the Triple Aim, as discussed in sections 2.2 to 2.4.

3.1 THE HISTORY OF PRIMARY HEALTHCARE

In 1956, Frans Huygen single-handedly reinvented the role of the general practitioner in the Netherlands and Germany. He did this in an article that is still well-known today.[1] He based himself on the paradigm that a patient is healthy unless proven otherwise. The GP's job is to screen and triage patients, and this is not only of vital importance from the point of view of patient interests, but also from that of cost interests. Huygen's view stood and still stands in stark contrast to the specialist medical approach that assumes a patient is ill unless proven otherwise. The great significance of Huygen's reinvention lies in this reversal. Other keywords or core values used by Huygen included family medicine, comprehensiveness of care, continuity of care and immediate access. John Fry, a contemporary of Huygen (they even knew each other personally), did something similar in the United Kingdom, where he founded the Royal Society of General Practitioners. Fry used a similar set of core values to lay the foundation for present-day primary healthcare in the United Kingdom. Soon after their publications saw the light of day, Huygen and Fry realised that family doctors could not be the only suppliers of comprehensive care. This led to the invention of home teams, which worked for a registered group of patients and combined the disciplines of family doctors, district or practice nurses and social workers. Because of the home team concept, their focus on comprehensiveness and

their focus on the patient as part of a family or neighbourhood, Fry and Huygen can also be considered the founders of integrated care.

In 1974, the Dutch government introduced the concept of primary healthcare in its Structure Memorandum Healthcare (Structuurnota Gezondheidszorg).[2] This white paper proposed to structure national healthcare into regional healthcare systems with GPs and neighbourhood health centres as primary care providers and specialist care in secondary care i.e. hospitals. In that same year, the British National Health Service (NHS) experienced its biggest reorganisation since World War 2. The NHS introduced health districts that focused on primary healthcare and prevention.

Shortly after, multidisciplinary neighbourhood healthcare centres emerged in the United Kingdom and the Netherlands; first in new towns and new neighbourhoods, later also in old ones. Throughout the years, the scientific organisation of Dutch general practitioners (Nederlands Huisartsen Genootschap, NHG) developed numerous guidelines for diagnostics, treatment and referral in primary care. Instead of working with missions and visions, the organisation rather uses core values that have to be maintained despite changes in healthcare, as indicated in sections 1.2 up until 1.5. Central core values are: generalist, person-centred and continuity of care. This final core value concerns horizontal integration and has been structured into thirteen detailed points of interest.[3]

In 2006, a new universal insurance scheme in the Netherlands gave rise to a new wave of health centres. Much of this innovative work was supported by research carried out by the Netherlands Institute for Health Services Research (NIVEL). One of this institute's recent publications concerns a comparison of primary care in various EU countries.[4] This comparison shows once again that countries with good primary care have a healthier population, fewer unnecessary hospital admissions and fewer socio-economic health differences. In addition, these countries saw a less rapid increase in costs compared to other countries. In 2015, working in multidisciplinary teams is business as usual for most Dutch GPs. These teams serve a target population of between 7500 and 17500 people. In 2014, 28.4 percent of Dutch GPs worked in a one-man practice, 38.9 percent in a duo practice and 32.7 percent in a group practice. The latter two practice types are usually located in health centres alongside other disciplines.[5]

> *'Primary healthcare is the provision of integrated, accessible healthcare services by health professionals who are accountable for addressing a large majority of personal healthcare needs. It is person-focused rather than disease-focused, provides a first point of contact for whatever people might consider a health or healthcare problem, is comprehensive and coordinates care.'*

I adopt this definition from the American Institute of Medicine.[6] However, I do think it is too limited. Firstly, it omits health professionals who occupy themselves with prevention and health education. In 2008, the WHO uses a wider definition.[7] It also considers youth healthcare, the promotion of hygiene, the stimulation of healthy lifestyles and the reduction of unhealthy, environmental influences tasks for primary care. Some countries, such as Finland, also include company medicine, as many of the working population's health complaints are either work-related or affect the ability to work.[8]

Primary care is familiar with three types of care questions from patients. Together with a group of professionals, client representatives and financers, I was once asked to design primary care for the new The Hague district Wateringse Veld.

Based on three different healthcare issues, we arrived at a threefold division, which I now also propose for primary healthcare. The first of these three clusters is concerned with prevention as subdivided in section 2.3. Its universal and selective prevention includes vaccination, screening, health education, managing preventive programmes and monitoring health and wellbeing with community management. In addition, this first cluster comprises the delivery of prevention on indication and disease-related prevention for people with chronic conditions and the frail elderly. The second cluster concerns short-term healthcare and service delivery. This includes traditional GP care and emergency GP care, but also short-term interventions from other disciplines. The third cluster comprises chronic care. GPs and health professionals from other disciplines can work in one or more of these three clusters.

Rather than focusing on healthcare providers, this division aims to focus on different healthcare questions asked by the patient population. A noteworthy difference between primary care in the Netherlands and primary care in Belgium, Germany and France is the Dutch system of patient registration, the accompanying capitation fee and the GP's gatekeeper function. In neighbouring countries, citizens only pay their GP according to the fee-for-service (FFS) system. In the Netherlands, the GP capitation fee stimulates a permanent doctor-patient relationship. The number of consultations stays high due to a low FFS of 9 euros, and a separate fee per patient, the so-called integrated care (GES -) fee, stimulates innovation.

In many other countries, patients do not need a GP referral letter for specialist treatment. However, the GP's gatekeeper role lowers the costs of healthcare. Using the nickname 'Brave Doctors' Dutch GPs are attempting to revitalise and extend this function, sometimes against patients' wishes. The United Kingdom and Denmark are the only other European countries in which GPs have this gatekeeper function.

The paediatrician Barbara Starfield was an advocate for primary healthcare in the United States and worldwide. She belongs in the same league as John Fry and Frans Huygen. Her Handbook[9] and other publications[10] inspired the Obama administration to introduce the medical home with eight measurable indicators for structural quality.[11] In the United States, policy is currently aimed at realising as many of these eight domains as possible. In addition, government authorities are trying to show that a medical home that answers to more components has better patient-related outcomes. This is only partly true. The introduction of medical homes in the United States has moreover not been an easy process. According to several studies, American primary care suffers from a lack of leadership.[12,13,14]

3.2 SPECIFIC DEVELOPMENTS IN PRIMARY HEALTHCARE IN THE COMING YEARS

In addition to general developments in healthcare, as discussed in sections 1.2 up until 1.5, the following developments can be added for primary healthcare.

Imaging and other complementary diagnostics directly available to primary care

Health professionals in primary healthcare carry out diagnostics based on anamnesis of the patient, physical examination and complementary diagnostics such as laboratory testing of blood and body tissue. For this latter type of diagnostics, GPs can turn to their own GP laboratories. If they require imaging diagnostics or analysis of tissue or a biopsy or genomic sequencing, they usually refer patients to a specialist who takes over the treatment. Dutch GPs only have limited options when it comes to asking a specialist for a consultation. Only rarely are they allowed to directly ask a question to hospital departments that provide complementary imaging diagnostics. However, when GPs suspect bone fractures, they could directly notify a radiologist without interference from a surgeon. Thanks to digitisation, complementary diagnostics for GPs could substantially increase in future years. This is illustrated by the following example from the Netherlands. In tele-dermatology, GPs or their colleagues make a digital photo of the irritated skin. Through a safe internet connection they send this photo to a dermatologist and ask for an evaluation. This method significantly improves the range of diagnostic options GPs can work with and saves hospital costs.[15] Chapters 16 and 17 about digitisation of healthcare discuss this matter in more detail.

Monitoring people with a chronic condition

Due to the expected increase of primary healthcare patients with chronic conditions, acute exacerbations of symptoms will become a more important factor for primary healthcare delivery. Olde Rikkert and colleagues[16] show that it is possible for several

conditions to identify patients with a heightened risk of acute exacerbation of symptoms. *Frailty* in elderly people, for instance, heightens the risk of acute geriatric syndromes, such as falling, delirium and acute loss of function. Slow recovery of a temporary exacerbation can be a warning sign for a more permanent deterioriation with continuous symptoms. Especially for patients with a chronic condition that is difficult to monitor, great improvements can be made when early warning signs could be monitored individually. The best way to do this is through telemonitoring provided by primary healthcare organisations. Chapter 17 about e-health will discuss this in greater detail.

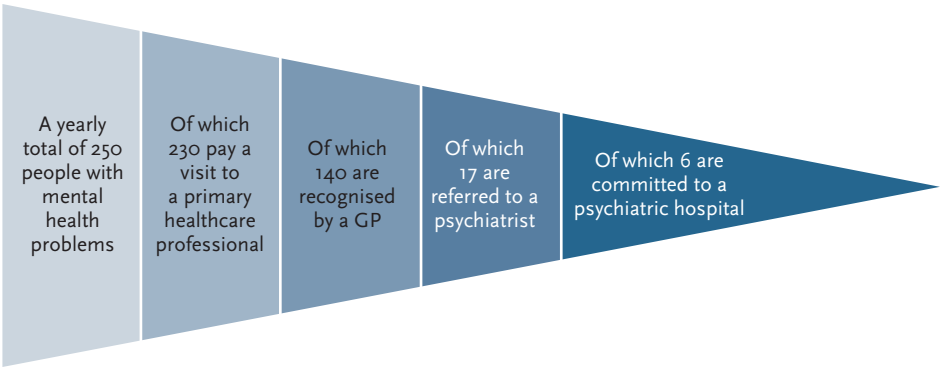
Integration of mental health services within primary healthcare

Since 1980, access regulation is on the agenda of mental healthcare services in many countries. In that year, Goldberg and Huxley published their filter model (see image 3.1), which is well-known among professionals.

Since then, the de-instutionalisation of mental health services has received a strong impulse in North-America and Europe, including the Netherlands.[17,18,19] What we need is the creation of primary mental healthcare which has its own place within primary healthcare as developed by GPs. Recently, the cohesion between mental health services and somatic chronic care also moved into the spotlight. Patel and Chatteerji[20] plead for the extension of primary care, as they expect that this will improve the health of people with a chronic condition.

Firstly, they present a model that shows how mental health and chronic condtions influence one another (see image 3.2).

Image 3.1 The filter model for mental health services
Source: Goldberg D, Huxley P. Mental illness in the community: the pathway to psychiatric care. Tavistock Publications in association with Routledge, 1 jan. 1980.



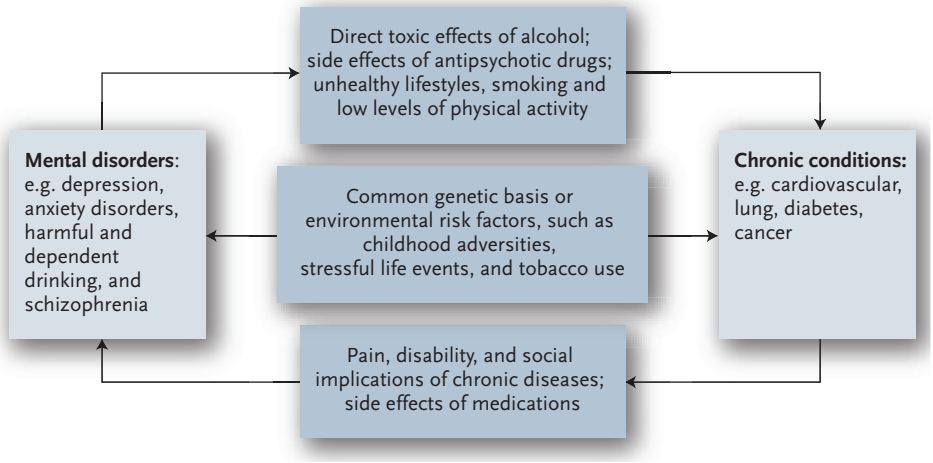


Image 3.2 The mechanisms of comorbidity of mental disorders with other noncommunicable diseases
Source: Patel V, Chatterji S. Integrating mental health in care for noncommunicable diseases: An Imperative for person-centered care. Health Affairs 34, No. 9 (2015): 1498-1505

Subsequently, they outline the best-established delivery model. This is a team approach that features a nonspecialist case manager who coordinates care with primary care physicians and specialists. This approach maximises efficiencies and quality of care for people with both somatic and mental disorders.

In the context of this approach, primary care teams in the Netherlands have employed psychologists, psychiatrically trained nurses and social workers since 2015. They go by the collective name of practice worker mental health and fall under the responsibility of GPs. Their clients are people with depression, anxiety or stress, who have not been given a psychiatric diagnosis according to the DSM-5 classification.[21] These practice workers can also be consulted by patients who have both a somatic chronic condition and a mental health problem, usually depression.

The arrival of these practice workers has led to a significant reduction of referrals to specialised, ambulant mental healthcare. In professional journals, GPs report positive experiences. Nonetheless, evaluations in scientific publications are not yet available. Dutch policy institutes hope for a 30 percent reduction of beds in psychiatric hospitals within several years thanks to this extension of primary healthcare services.

More end-of-life care provided by primary healthcare teams

In the USA[22], UK[23] and the Netherlands, end-of-life care is increasingly provided by special palliative teams and hospice programmes. The question is whether this

development will continue unabated in the future. Authors such as Blinderman and Billings emphasise the increasing importance of the medical specialism of palliative medicine for dying hospital patients.[24] I have my doubts about this.[25] After all, most citizens would rather die at home than in a hospital or hospice. Secondly, integrated primary care is already able to provide many aspects of end-of-life care: this will eliminate the need for a transfer from this team to a separate palliative team or palliative specialist.

In addition to these challenging, positive developments for primary healthcare, there are also negative developments for the future in England[26] and the Netherlands.

In both countries, primary healthcare is under pressure, as the available resources increase less quickly than the demand. This is caused by general trends that have already been mentioned in sections 1.1 up until 1.5. In England, this leads to difficulties in securing an appointment with a GP. In the Netherlands, health insurers, councils and government are cutting budgets for home care, long-term care and social services.

3.3 PRIMARY HEALTHCARE PERFORMANCE

From the very start, the reduction of hospital admissions has been an important indicator for the way primary healthcare reinforces quality of care and reduces costs. Numerous overview studies appeared, several recent ones of which are mentioned below. An interested publication about the influence of medical homes in the USA on the quality and costs of care has been written by Maeng and colleagues.[27] They studied Medicare patients (over-65s) attending medical homes over a ninety-month period (2006 through to the first half of 2013). During this period, total costs associated with patient-centred medical home exposure declined by approximately 7.9 percent; the largest source of these savings was acute inpatient care. This finding is further supported by the fact that a longer period of being a medical home patient was associated with lower inpatient admission rates. The results of this study suggest that patient-centred medical homes can lead to sustainable, long-term improvements in patient health outcomes and costs of care.

Frequently used indicators for the quality of primary care are hospital admissions rates for conditions that are potentially avoidable with the help of well-functioning primary care. Such hospital admissions are frequently termed ambulatory care sensitive conditions (ACSCs).

In 2014, Loenen and colleagues published a literature study on the relation between primary healthcare and ACSCs,[28] which included 49 publications. One of their conclusions was that an adequate supply of GPs and better, longitudinal continuity of care reduced avoidable hospital admissions. Mercier and colleagues support these findings for France.[29]

In later years, the effect of primary healthcare on the health of people with a chronic condition came to the fore as a performance indicator. Hansen and colleagues[30] investigated whether strong primary care was associated with improved health outcomes for people with a chronic condition. They combined country- and individual-level data for the twenty-seven countries of the European Union, focusing on people's self-rated health status and whether or not they had severe limitations or untreated conditions.

They found that people with chronic conditions were more likely to be in good or very good health in countries that had a stronger primary care structure and better coordination of care.

People with more than two chronic conditions benefited most: their self-rated health was higher if they lived in countries with a stronger primary care structure, better continuity of care, and a more comprehensive package of primary care services.

Weir and colleagues[31] support this conclusion. They analysed statistical data of 285.231 Americans with diabetes over the period 2004 -2010. 74 percent had multimorbidity; their average age was 53 years (SD=10.5) and 49 percent were female. Greater continuity of care was associated with reduced risk (7.2 percent per 100 patients versus 13.5 percent) of subsequent death or hospital admission. This outcome was irrespective of whether or not the patients had multimorbidity.

Osborn and colleagues[32] took an international sample of primary care doctors in the United States and nine other countries and asked them about their service delivery to patients with complex health needs. Image 3.3 summarises the results of the sample.

For several groups and for several countries, primary healthcare is insufficiently prepared to manage the care of these patients. In their paper, the researchers also show varying experiences regarding the coordination of care and communication with specialists, hospitals, home care, and social service providers.

Visitor numbers for emergency departments (EDs) in hospitals form another outcome indicator for primary healthcare performance. Van den Berg and colleagues[33] investigated how the likelihood and reasons of attending an ED are related to accessibility and continuity of primary care. Between 2011 and 2013, they collected data of GP patients in 31 European countries, Canada, Australia and New Zealand. On average, 29.4 percent of the included patients had visited an ED in the past year. Between countries, the percentages varied between 18 percent and 40 percent. ED visits show a significant and negative relation with better accessibility of primary care. Patients with a longstanding personal relationship with their doctor were less likely to attend EDs. Only one-third

Country	Patients with multiple chronic conditions (%)	Patients needing palliative care (%)	Patients with dementia (%)	Patients needing longterm home care services (%)	Patients needing social services in the community (%)	Patients with severe mental health problems (%)	Patients with substance use-related issues (%)
AUS (n=747)	85	48	46	47	41	34	19
CAN (n=2,284)	70	42	42	40	28	24	15
GER (n=559)	88	58	67	68	71	32	14
NET (n=618)	88	92	65	80	25	44	16
NZ (n=503)	81	62	41	54	48	24	20
NOR (n=864)	86	54	69	78	41	56	36
SWE (n=2,905)	66	25	57	51	45	14	6
SWIZ (n=1,065)	80	48	49	64	55	26	25
UK (n=1,001)	79	81	64	60	44	43	41
US (n=1,001)	76	41	47	46	32	16	16

Image 3.3 Primary care doctors from ten countries report on whether their practice is sufficiently prepared to manage care of patients with complex needs, 2015
Source: Osborn R, et al. Primary care physicians in ten countries report challenges caring for patients with complex health needs. Health Affairs 34, No. 12 (2015): 2104-2112 doi: 10.1377/hlthaff.2015.1018

of all patients who visited an ED indicated that the main reason for this was that their complaint could not be treated by a GP.

The last outcome indicator for primary healthcare is safety. In 2015, Panesar and colleagues[34] published a literature review about this indicator.They included nine systematic reviews and 100 primary studies.The median from population-based record review studies was 2-3 incidents for every 100 consultations/records reviewed. It was estimated that around 4 percent of these incidents may be associated with severe harm. Incidents related to diagnosis and prescription were most likely to result in severe harm.

3.4 OTHER TYPES OF HORIZONTAL INTEGRATION

The GP's gatekeeper's function also increasingly comes to the fore in other forms of horizontal integration. For access to nursing homes, specialised mental health services and social services, case managers play a role in some countries. The

Netherlands uses one entry point for most types of care. This reduced the number of clients in nursing homes and other types of institutionalised care from 132,940 on the 1st of January 2010 to 108,270 on the 1st of January 2014. That is a decrease of 18.6 percent. This is remarkable because the number of over-80s in this period increased with 12.2 percent (from 647,994 to 717,089).[35] That aside, case managers will be discussed in greater detail in chapter 6.

In emergency care, the gatekeeper's function is shown in the form of triage according to urgency and competences of the health professional to whom the triage refers. The Netherlands has developed a joint, multidisciplinary triage system for GP out-of-hours services, emergency departments (EDs) in hospitals and ambulances and their dispatch centres. Thanks to this integration and cooperation, the number of referrrals to EDs has been reduced.

Horizontal integration and teamwork also come to the fore in oncological care. These teams function in Scottish hospitals, but also elsewhere. In Scotland, these teams consist of surgeons, pathologists, internists, radiologists and specialised nurses. They work with multidisciplinary guidelines, conduct weekly formal meetings, regularly carry out audits and confer with screening authorities in their region. The introduction of this horizontal integration was associated with improved survival and reduced variation in survival rates among hospitals.[36]

An Acute Medical Assessment Unit is a clinical nursing ward where unplanned patients can be admitted. It is focused on quick diagnosis, creating a treatment plan and starting treatment and limits the patient's stay to 48 hours. In the United States, England and Australia such departments have existed for a lot longer. Acute Medical Assessment Units (AMAUs) are being proposed as an alternative to congested Emergency Departments (EDs) for the assessment of patients with a range of acute medical problems.

Watts and colleagues[37] reviewed the discharge destination of patients referred to a newly established AMAU during a six-month period. They observed a reduction in admission rates of regular wards to 12.5 percent of all AMAU-patients. During the same period, a care-as-usual ED had an admission rate of 43.3 percent. This was achieved by directly communicating with GPs, a multidisciplinary team of surgeons, internists and other specialties, accessing senior clinical decision-makers, and providing immediate access to diagnostically driven outpatient pathways.

3.5 TEAMWORK, THE CORNERSTONE OF HORIZONTAL INTEGRATION

Integrated primary healthcare, as described above and defined in section 2.1, is an example of horizontal integration. Other examples of horizontal integration include a network of oncologists working for cancer patients in the same region and a team

of experts in a national burn centre. Teamwork is the cornerstone of horizontal integraton.

Teamwork and coordination exist when professionals work in a team that meets up regularly and whose members know each other personally. Following Mintzberg (1983) coordinating mechanisms are distinghuished:

1 informal coordination;
2 direct supervision;
3 standardisation of work processes;
4 standardisation of output;
5 standardisation of skills and knowledge; and
6 standardisation of norms.

In 2005, D'Amour and colleagues published an extensive literature study about inspirational, interprofessional cooperation. Their five requirements for this kind of cooperation are listed in image 3.4.

Butt[illegible]r and her colleagues recognise three aspects of cooperation that influence patient care:

1 basic conditions;
2 organisational factors; and
3 social factors such as status and income differences between cooperating professionals.

The authors distinguish three outcomes of cooperation. The first outcome is improvement of the motivation to cooperate. Essentially, this can be achieved by improving the aforementioned basic conditions. The second outcome concerns organisational improvements in the field of the aforementioned aspects 2 and 3.

The third outcome concerns improvements in the quality of patient care and the health of the target population. This is arguably the most important outcome of cooperation.

Image 3.4 Five conditions for cooperation between professionals

•	Sharing responsibilities, decision-making, philosophy, data, planning and interventions
•	Being a partner: collegial, authentic, constructive, open, honest, mutual trust and respect
•	Mutual dependence: not autonomous, more than the sum of its parts, joint action
•	Sharing power: knowledge and experience more important than functions and titles; symmetrical power relations
•	Development process: always transforming, structuring, crossing the boundaries between disciplines and domains

In 2012, Barr[illegible] emeritus professor of interprofessional education, issued a warning: an integration of organisational structures is not sufficient to establish cooperation. Xyrichis and Lowton agree based on yet another literature study. Merely creating a formal structure is insufficient, especially when the result is a deterioration of the basic conditions created by Butt and others. Reeves and colleagues plead for the introduction of triage systems, guidelines, decision trees and care pathways as a way to improve professional cooperation.

In such multidisciplinary interventions, interprofessional cooperation is realised in a practical setting. In addition to the aforementioned recent insights, Holmesland & co[illegible]and Kilgore, et al[illegible]and mutual trust and mutual understanding as important factors for successful cooperation.

Belbin emphasises nine distinguishable roles that team members can assume and that all have to be fulfilled; team members should complete each other. Finally, Parker-Olivier[illegible]dicates that flexibility is paramount in a cooperative relationship. After all, professionals have to allow other professionals to cross over to their territory and agree to work outside of their own area when the situation calls for it.

For teamwork, the allocation of healthcare responsibilities is of great significance. If this is handled incorrectly, the result is that both team and patient will become confused about task distribution and the continuity of care becomes endangered. In 2010, the alliance of professional organisations and patient organisations in the Netherlands therefore named thirteen important points for the allocation of responsibilities within a team. The following text has been based on the first two points. It is clear to the patient, at all times, who among the involved healthcare providers is the point of contact for questions asked by patients or their representatives; has the (ultimate) responsibility for the client's healthcare delivery; is tasked with the coordination of the patient's healthcare delivery (healthcare coordinator). It is important that these three tasks are distributed among as few healthcare providers as possible.

If possible, these tasks are concentrated in one provider. If necessary, all healthcare providers involved in the cooperation have access to a joint and up-to-date care or treatment plan concerning the patient.

Valentine and colleagues found 39 surveys that measured teamwork. Surveys assessed different dimensions of teamwork. The most commonly assessed dimensions were communication, coordination, and respect. Of the 39 surveys, eleven met all of the criteria for psychometric validity.

3.6 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answering of the research question in chapter 21, what follows here is a summary answer to the question: how does horizontally integrated care contribute to the realisation of the Triple Aim in future years?

The findings with an asterisk are based on a study in one country. The studies on which answers are based have been discussed in sections 3.3 and 3.4.

Triple Aim 1 Improving population health

1 Primary healthcare contributes to a reduction of the number of hospital admissions.
2 It especially reduces avoidable hospital admissions.
3 Strong primary care improves the health of people with a chronic condition.

Triple Aim 2 Increasing quality of care for the individual

4 The wider the access to primary healthcare in a country is, the more visits to emergency departments are reduced.

1 In many countries, primary healthcare is ill-prepared to offer care to complex patients (see image 3.3).
2 2 to 3 out 100 consults in primary healthcare are safe. Of all unsafe consults, 4 percent has serious consequences. These mainly concern errors in diagnostics and medication prescriptions.
3 Case managers who function as gatekeepers for all forms of long-term care reduce the demand for this latter form of care.*
4 Integrated triage for all forms of emergency services (GP out-of-hours services, ambulance care and EDs) further reduce ED visits.*
5 Horizontal integration in oncological care on a hospital level heightens the chance of survival for cancer patients.*
6 Multidisciplinary Acute Medical Assessment Units lower the number of hospital admissions.

Triple Aim 3 Lowering costs of care per capita

7 The more developed primary care is, the lower the total costs for healthcare will be.*

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4 Vertically integrated care for patients in general and for special target groups, such as people with chronic conditions

Vertically integrated care (defined in section 2.1) can be organised for specific transitions (section 4.1), in programmes for specific target groups (sections 4.2 and 4.3) and in health systems (section 4.4). Each section contains descriptions of the relevant manifestations and their contributions to the Triple Aim. Section 4.5 summarises these final contributions. A new term is introduced: plausibility. An intervention is plausible when there is a supporting theory that has not yet been tested empirically. One important manifestation is not discussed in this chapter: the vertical integration of care for individual patients. This will be discussed in chapter 5 about case management.

4.1 TRANSITIONAL CARE

Transitional care aims to guarantee continuity of care during transfers of patients from primary healthcare to specialised care provided by medical specialists in hospitals, professionals in elderly care and professionals in specialised mental health services. Literature study and personal experiences yielded the methods mentioned in image 4.1. They are discussed below.

Image 4.1 Manifestations of transitional care

1.	Specialised professionals who work in primary healthcare
2.	Polyclinics for general support provided by specialists for diagnostics and treatment
3.	Diagnostic pathways that support primary healthcare
4.	Standardised discharge pathways for hospital patients
5.	Hospital transfer points

In the United States and Germany, gynaecologists, paediatricians and psychiatrists who only work in primary care call themselves primary care physicians. In Germany, for instance, a high number of orthopaedists work in primary care and use conservative treatment options without surgery. This is to prevent that orthopaedics who are affiliated with a certain hospital arrange their own access to hip and knee operations. A colleague who only works in primary care should first look after patients' needs and offer conservative treatment.

In the Netherlands, many medical specialists have expressed their willingness to work in a primary healthcare centre for several half-days a week. They are motivated by two reasons. Firstly, strengthening diagnostics will help to keep patients in primary care. Secondly, specialists safeguard their own position by stimulating GPs to refer patients to them and the hospital where they work.

A modern form of this vertical integration comes in the shape of the observation consultation, which is explained in image 4.2 with an example. Another case study indicates that such consultations yield positive results and are consequently received with great enthusiasm.[1]

The polyclinic

In the United Kingdom, a polyclinic is a joint clinic for GPs and medical specialists. The King's Fund has evaluated several polyclinic experiments in a qualitative study.

Image 4.2 An example of vertical integration: the observation consultation

GPs in health centre Broekpolder in the Dutch municipality of Heemskerk and paediatricians from the nearby Red Cross hospital meet up once every eight weeks. They receive six patients during a joint surgery hour in which they spend an average of twenty minutes per patient. Often, these patients are children with growth disorders, accompanied by their patients: children are too heavy, too light or too short. Zilveren Kruis, the health insurance company affiliated with Broekpolder, pays GPs a fixed amount per consultation. They then use this money to pay: their own hours, the hours put in by the paediatricians, preparation time, reporting time and the hours spent on organising and safeguarding the observation consultation. The concept is hailed with enthusiasm by parents and children who, close to their own home and in a familiar environment without white coats, see two doctors instead of one. They benefit greatly from the behaviour tips and medication they receive. GPs are enthusiastic because it allows them to broaden their service portfolio. They also learn a great deal from these shared surgery hours. The paediatricians are also pleased. They receive plenty of feedback from the GPs, who see the children more often and sometimes also bring information from school doctors in Broekpolder. The paediatricians welcome the change and see it as an escape from their hectic hospital life. They also experience a certain degree of customer retention: one in six patients is referred to the outpatient department for further diagnostics by paediatricians. The Zilveren Kruis insurance company is also pleased. The observation consultation saves 10 percent on hospital costs. Now that there is a rate for observation consultations, requests are flying in from other specialist partnerships, such as gynaecologists, internists and orthopaedists. Policy makers use the Dutch saying: as soon as one sheep crosses the dam, more will follow. The observation consultation does cause hospitals to miss out on revenue for their infrastructure.

The authors distinguish three forms of polyclinic. The first is the freestanding outpatient department, which works best in thinly populated areas. In the second type, specialists work in health centres alongside GPs; an arrangement that has proved to be ineffective, as hospitals often sent their specialists in training or their least experienced doctors to work in these centres. For the GPs, these secondary care professionals had little added value. Many specialists also only appeared to be available on a few half-days a week. However, the King's Fund researchers also distinguished a third form that functioned superbly. In this third type of polyclinic, hospitals were digitally present in health centres. Patients could make online appointments with specialists and acquire information about waiting lists and waiting times for appointments. GPs were able to communicate with specialists through screen-to-screen contact, possibly in the presence of the patient. In addition, GPs could request complementary hospital diagnostics online.

Accelerated diagnostic pathways

In 2015, the English National Institute for Health and Care Excellence (NICE) recommended that general practitioners and practice nurses have rapid, direct access to endoscopy and imaging for patients with suspected cancer.[2] This is a form of vertical integration, as direct access means without interference from a surgeon or internist. After receiving endoscopy and imaging results from laboratories and radiologists, GPs decide whether or not they will hand over the treatment to a specialist. This procedure means a diagnosis can be made more quickly. By reducing the time until examination and by providing a written, culturally sensitive explanation of why the referral has been made and of its importance, NICE hopes to reduce the time between complaint and diagnosis, give patients a better experience, make care safer and treatment more effective. This advice corresponds to the favourable results achieved with a standardised referral pathway for accelerated diagnostics in case of suspected cancer. In England, this is called the urgent referral pathway. Evidence shows that this pathway increases cancer patients' chance of survival.[3] In the Netherlands, the question is whether GPs should more quickly be granted access by hospital departments to support their own diagnostics (see also section 3.2).

Standardised discharge pathways

Transitional care interventions at the end of an admission period aim to improve care transitions from hospital to home and to reduce hospital readmissions. At the end of the hospital stay, nurses prepare patients for their stay at home. If necessary, they can also notify home care. They also instruct patients and practice self-management at home for patients and informal carers. This transitional care is effective, according to a review of 26 randomised controlled trials conducted in a variety of countries, whose results were published between January the 1st, 1980 and May the

29th, 2013 by Verhaegh and colleagues.[4] They show that transitional care is effective in reducing all-cause, intermediate-term and long-term readmissions. The transitional care bridge programme (CBG) intervention for admitted frail elderly also shows positive results. This programme starts after a Comprehensive Geriatric Assessment. During the admission, a community care registered nurse (CCRN) visits the patient.This continues after discharge with home visits after two days and after 2, 6, 12, and 24 weeks. The CCRNs implement care and treatment plans based on the aforementioned assessment. A randomised clinical trial shows a significant difference in mortality risk within six months after discharge: 25.2 percent for people with a CBG and 30.9 percent for people without this transitional programme. No differences were found in ADL functioning after discharge.[5]

Transfer points in hospitals

For the transition of patients to primary care or other healthcare organisations, most Dutch hospitals have had transfer points since the 1990s. These points employ transfer nurses and social workers. Often, they are required to prepare home care, social services and admissions to nursing homes and issue an urgent advice about this to councils and healthcare insurance companies that pay for home care. A hospital with 400 beds quickly has a transfer point with 10 established posts and 10 to 15 transfers a day. Presently, there is a knowledge network within which transfer nurses inform each other about financial, legal, logistic and other barriers for the transition of hospital patients.[6] Within Dutch health services, they are nicknamed the coal mine canaries, who die first when there is a lack of oxygen in the mine. They are the first to alert professional and mass media, when hospital discharges are stagnating, for example through new legislation or budget cuts in home care.

Partly because of the way these transfer points are structured, hospital capacity in the Netherlands is very low compared to other European countries.

The Netherlands has the lowest number of active specialists and a lower than average number of hospital beds per 100,000 inhabitants. The Dutch also pay relatively few visits to specialists. In addition, average bed occupancy is the lowest in Europe and the duration of hospital admission also ranks below the European average.[7]

4.2 CARE PROGRAMMES FOR PEOPLE WITH A CHRONIC CONDITION

Although the binary distinction between primary healthcare and specialised secondary care is still considered standard today, a counter movement emerged approximately 25 years after its conception by Fry and Huygen (see section 3.1). This counter movement advocated the merits of so-called shared care for people with somatic conditions, which had to bridge the gap between primary and secondary care. Van der Linden[8] gives a detailed description of the birth (late eighties) and

development (nineties) of this type of care. It was later given different names, such as transmural care, disease management programmes and polyclinic care. Nowadays, the most popular term in the Netherlands is 'one-and-a-half-care programme', which refers to its intermediate position between primary and secondary care.

Integrated, chronic care emerged by necessity, urged on by the high number of chronically ill patients. In the Netherlands almost a third of the population in 2011 had one or more chronic conditions.[9] This boils down to 5.3 million people. This estimation has been based on a selection of 28 conditions, measured in a sample of GP medical practices. Chronic conditions occur in people of all ages, but are especially prevalent among the elderly. Of all over-65s, 70 percent have a chronic illness. Almost 2 million people have more than one chronic condition. Of all elderly people with a chronic condition, 63 percent also deal with multimorbidity. In 2015, the Global Burden of Disease Study shows an increase in the prevalence of numerous chronic conditions and disabilities between 1990 and 2013.[10]

There are some, albeit not many, available statistic data about the costs of chronic care. In 2008, a Dutch person with one or more chronic conditions spent around 5,200 euros on Health Insurance Act costs (average Dutch person: 2,000 euros; Dutch people without chronic conditions: 1,300 euros).[11] In other words: of all Health Insurance Act costs that year, around 47 percent was spent by 2.9 million people with one or more chronic conditions and 53 percent by 13.1 million Dutch people without these conditions.

The past twenty years saw the emergence of four different theoretical models for integrated chronic care. In no particular order, these models are:

1 the Kaiser Triangle;
2 Wagner's chronic care model;
3 Minkman's development model for integrated care; and
4 the Disease Management Models in the Netherlands and Germany.

Kaiser Permanente, a Californian healthcare organisation, introduced the three level-Kaiser Triangle (see image 4.3).

The bottom level shows the majority of chronic patients, who manage their illness with support from regular primary care. People in the second level are in need of a disease management programme. Highly complex patients (level 3) are also in need of a case manager. This is an important distinction, because some countries, the Netherlands being one of them, tend to classify all people with a chronic condition as level 2. Level 3 will be discussed in chapter 5, which deals with case management.

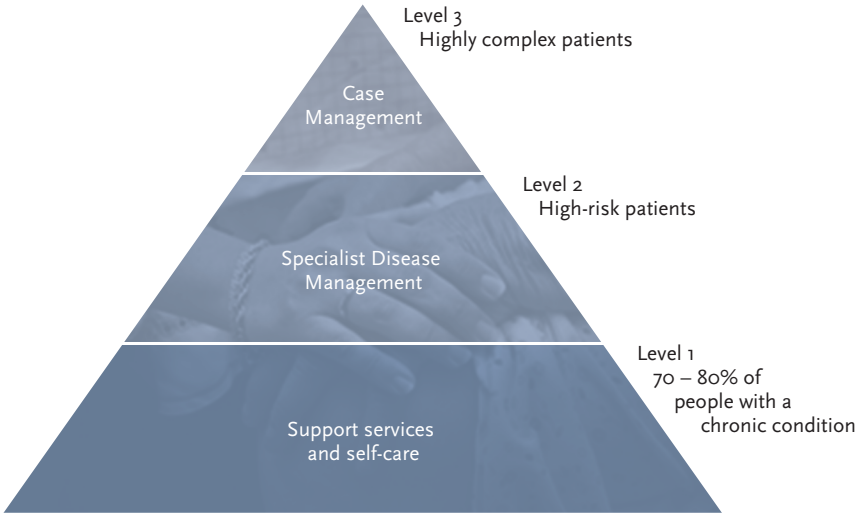

Image 4.3 The Kaiser Triangle for the classification of people with a chronic condition
Source: See text

In 1996, the American physician and researcher Edward Wagner published the now world-famous chronic care model (CCM).[12] At that time, he was still working as the director of the Group Health Research Institute in Seattle. The model distinguishes six components of chronic care improvement: improving self-management; redesigning the care process; the presence of decision support; the presence of a single information system; cohesive organisation and using support and resources from family or neighbourhood. These six components are linked to each other with a programmed proactive approach. The CCM model applies to people with a single chronic condition and people with multimorbidity.

It recommends placing patients' healthcare coordination in the hands of a nurse rather than a physician. An extensive explanation can be found on the Seattle institute's website: www.improvingchroniccare.org.

In 2009, Coleman and colleagues (among which Wagner) published a literature study about the effects of applying the chronic care model.[13] They included 82 articles about projects in which at least four of the six CCM components had been introduced. They concluded that patients in the intervention groups were more knowledgeable about their own condition, received more care according to professional guidelines, used fewer emergency services and spent 35 percent fewer days in hospital. They also ascertained that improving only one of the six components had no effect on outcome or process quality. In 2005, Glasgow and colleagues developed an

instrument to measure patients' experiences with integrated care delivery according to the CCM.[14]

In 2015, Davy and colleagues carried out a similar study. Of the 108 reviewed papers that included measures of effectiveness, the majority found an association between the implementation of CCM elements and improvements with healthcare practice or health outcomes for people living with chronic conditions. The researchers did not include cost effectiveness studies.

4.3 DISEASE MANAGEMENT PROGRAMMES IN THE USA AND THE NETHERLANDS

In the 1990s, the Boston Consulting Group (BCG) introduced the term disease management.

BCG developed the concept based on experiences with managed care and health maintenance organisations. The disease management programme concept is set apart from its predecessors by its focus on one single condition. The concept soon enjoyed success in scientific circles in the United States.[15] Several years later, the concept travelled to Europe; Germany and the Netherlands in particular. The *International Journal of Integrated Care* (www.ijic.org) devoted a great deal of attention to the subject. In 2009, as the chief editor of this magazine, I collected all definitions of disease management that had appeared since 1996 and created a new definition based on them:

> *'Disease management consists of a group of coherent interventions designed to prevent or manage one or more chronic conditions using a systematic, multidisciplinary approach and potentially employing multiple treatment modalities. The goal of disease management is to identify persons at risk of one or more chronic conditions, to promote self-management by patients and to address the illnesses or conditions with maximum clinical outcome, effectiveness and efficiency regardless of treatment setting(s) or typical reimbursement patterns.'*

I still adhere to this definition. With the support of the Netherlands Organisation for Health Research and Development and together with colleagues, I published a book about this subject in 2005. In this book, we arrived at ten characteristics of a disease management programme (DMP). C. Spreeuwenberg, one of the authors, formulated these ten characteristics.

They are listed in image 4.4.

Thanks to this book and the work of many others, a large number of DMP initiatives were launched in the Netherlands, more or less simultaneously with the USA. In 2012, the first overview studies – I will limit myself to these studies here – of

1.	A well-defined target group
2.	Patient education
3.	Emphasis on prevention, cooperation and treatment
4.	Based on substantiated guidelines and cooperation agreements
5.	Use of care paths and decision trees
6.	Task redistribution from doctors to nurses
7.	Use of modern information technology
8.	Use of feedback and other management instruments
9.	A robust organisational structure
10.	Subscription fee per patient with a chronic condition

Image 4.4 Ten characteristics of an ideal disease management programme
Source: Spreeuwenberg C. Ten characteristics of an ideal disease management programme. In: Schrijvers G (Ed). Disease management in context of the Netherlands. Igitur Publishing & Archiving Services. University Library Utrecht, 2005.

evaluations of disease management programmes.[16] Authors Weingarten and colleagues compared 102 articles about 118 disease management programmes.

They concluded that DMPs up until then mainly comprised patient education (92 out of 118 articles), followed by further training of (47 of 118) and feedback to (32 of 118) professionals. 70 of the 118 programmes used more than one of these interventions. The latter two interventions led to significant improvements in the compliance of professionals (that is: they complied more to the guidelines of their own professional group) or in other words the process quality as defined by Donabedian (see chapter 1). Patients' self-management also significantly increased thanks to their education and the other two interventions. The authors remarked that there are many different practical realisations of these interventions and that they are relevant for numerous chronic conditions.

In 2004, Gonseth and colleagues[17] carried out an extensive literature study into the hospital admission of patients with heart failure who did and did not participate in a DMP. They concluded that there was a significant reduction in these hospital admissions for people in a heart failure-DMP. In 2005, Goetzel and colleagues published a literature study about 44 articles that showed the returns on investments (RoIs) of disease management programmes.[18] These RoIs are the annual savings on the long term of the DMP. The authors found a positive RoI voor programmes aimed at heart failure and patients with multimorbidity. In 2009, the Netherlands Institute for Public Health and the Environment (RIVM) carried out a literature

study into the effectiveness of DMPs[19] Drewes and RIVM-colleagues collected 19 meta-analyses and 8 reviews. Most DMPs contain interventions such as the promotion of self-management, coordination agreements between professionals, decision support for professionals, and integrated information systems. Preventive interventions are hardly used. The DMPs show significant improvements in clinical outcomes, quality of life and process quality. Healthcare use and patient satisfaction do not improve. Similar or less favourable outcomes are shown by overview studies about programmes for people with stroke and COPD.[20]

The authors of the aforementioned reviews note that the improvements described above vary greatly per study and per disease. Other overview studies also arrive at varying results.[21] Finally, one large DMP focused on prevention should be mentioned here: Kaiser Permanente's large-scale antihypertension programme, which has operated since 2001 with the help of good monitoring, home visits and documented medicinal treatment.[22] This programme succeeds in admitting 80 percent of all people with hypertension.[23]

4.4 GERMAN DISEASE MANAGEMENT PROGRAMMES

In 2002, the German government, which then consisted of the SPD and Die Grünen, introduced disease management programmes aimed at people with diabetes mellitus type 2, breast cancer, asthma and heart and vascular diseases. Later, DMPs for people with COPD and diabetes-1 would be added to the list. These programmes focus on monitoring one condition. Per condition, GPs and specialists transmit relevant indicators for healthcare process and outcome quality to a central website in their region. The institutions that manage these websites operate independently from doctors and healthcare insurers. Participating doctors regularly receive feedback on their performance: the data they provide are compared with those provided by other physicians.

Doctors participate in refresher courses at least twice a year. During these courses, trends and differences in feedback are discussed in a didactic fashion.

Doctors also receive a fixed amount of around 500 euros per year and per subscriber with a chronic condition. This capitation fee is an additional fee: it is added to the fee per consultation and the fee per treatment.

Subscribed patients with a chronic condition subscribe to a disease management programme. In doing so they commit themselves to participating at least once a year in a course about (dealing with) their conditions. Subscribed members are exempted from paying individual contributions for primary healthcare use.

In 2008, Szecsenyi[24] published an evaluation that caused a big stir, both in Germany and abroad. Members of diabetes DMPs had a significantly more favourable opinion of their treatment than similar non-members. In 2010, Stock and colleagues followed up with an evaluation of the diabetes DMP four years after it had started.[25] They observed a decrease in mortality and costs of medication and hospital care for DMP members compared to patients who had not subscribed to a DMP. Mehring and colleagues arrived at similar conclusions based on a study among 100,000 people with asthma in Bavaria.

4.5 OTHER TYPES OF VERTICALLY INTEGRATED CARE

The three models of integrated care discussed here are all developed for people with chronic conditions whose prevalence is high enough to organise care within existing primary healthcare and hospital care. This is not the case for people with a rare chronic condition. There are between 5,000 and 8,000 known rare chronic conditions.[26] A condition is considered rare if it occurs in less than one in 2,000 inhabitants. In Europe, 6 to 8 percent of the population suffers from a rare condition. That is, all together, a larger group than the total number of people with diabetes! Now and again, scientific articles emerge about the organisation of healthcare for people with a rare chronic condition, for example Crohn's disease[27] and chronic dizziness.[28] However, these publications only appear sporadically and Waldenberger dispiritedly points to the lack of articles about chronic care for people with Parkinson's disease.[29] Nevertheless, there is one publication about rare conditions that has garnered a great deal of attention, both in the Netherlands and abroad: the evaluation of the Parkinson network, created by Nijmegen based professor Bloem in 2010.[30]

The innovations in this network consist of:

1 selecting a limited number of motivated physiotherapists who want to commit to the cause of helping people with Parkinson's;
2 increasing the knowledge of these physiotherapists;
3 improving communication between the central neurological clinic in Nijmegen and referring GPs and specialists;
4 increasing the knowledge of patients and professionals.

According to this 2010 publication, this approach leads to a cost decrease of 20 percent per patient. In Italy, there are two programmes that use the same format. They also deal with patients with a rare chronic condition, i.e. young people with sickle cell disease and young women with primary ovarian insufficiency and both programmes are successful.[31,32] In view of these successful examples, these integrated care models might also be applied to care for people with other rare conditions.

Multimorbidity programmes in Europe

Most forms of vertical integration, as mentioned in section 4.4, are focused on a single chronic condition. However, programmes for people with multimorbidity are in development, as the European review in 2015 by Van der Heide and colleagues[33] shows.

Currently, an estimated fifty million people in Europe live with chronic multimorbidity. Based on information provided by a survey among country experts in 31 European countries, hardly any strategies or policies at a national or regional level directed at (integrated) care for people with multimorbidity have been identified. Most of the current national and regional policies or strategies concerning chronic illness care are disease-specific. Innovative approaches to improve care for people with multimorbidity have nevertheless been introduced in clinical practice in many European countries: country experts identified 101 practices or programmes, mostly operational at a local or regional level, in 25 European countries. Most of these were from Spain (n=15). The number of identified programmes from other European countries varies between one and nine. In some countries, no programmes were identified. According to the responding liasons of these programmes, increased multidisciplinary collaboration is the objective most often strived for. In addition, these programmes also frequently name improving patient involvement and care coordination as their objectives. Most of these 101 programmes could be considered 'confined'; they focus, for instance, on patients who have been diagnosed with a combination of two or three predefined chronic diseases, or address a specific aspect of the needs of patients with multimorbidity (e.g.medical care), or have established a limited level of integration of care by specific organisations or disciplines. The performances of all these 101 programmes have not been collected in the aforementioned study.

4.6 HEALTH SYSTEMS: UNIFOCAL OR BIFOCAL?

In Western Europe and North America, horizontal integration has existed since the days of Huygen, Fry and Starfield. Vertical integration emerged in the eighties and nineties. Throughout the past ten years, combinations of both have emerged.

The Netherlands is home to integrated primary healthcare centres with a set of vertically integrated care programmes for people with chronic conditions. The UK also boasts a few of these healthcare centres.

In the UK and the Netherlands vertical integration occurs within a bifocal health system (see image 4.5). Primary healthcare is located in the left focal point and the hospital in the right. Gatekeepers function between both points.

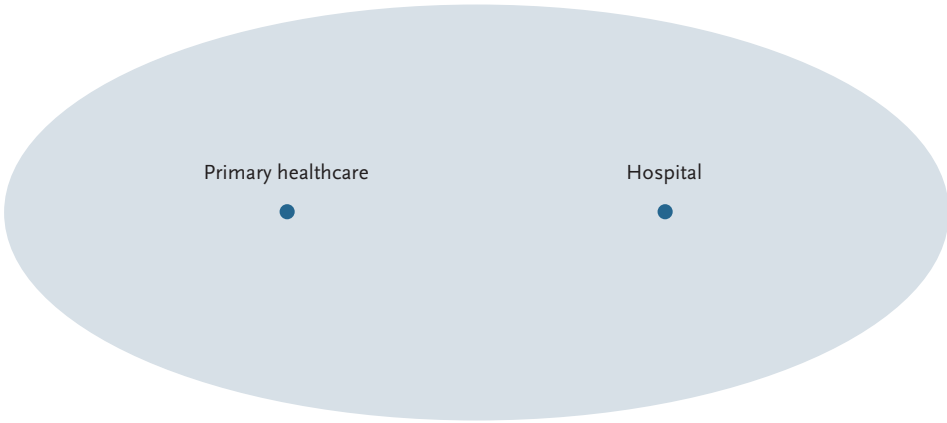

Image 4.5 Bifocal health system in the UK and the Netherlands

GPs (see section 3.1), GP out-of-hours services (see section 3.4) and care needs assessors (see section 3.4) work within primary healthcare. Acute medical assessment units (see section 4.1) and transfer points (see section 4.1) work for hospitals. Within the total oval there is a line.

There are two domains: the primary healthcare domain with the patient at home and the hospital domain with the institutionalised patient. Because of these two domains, the organisation of vertically integrated care in the United Kingdom and the Netherlands is often hampered by incompatible regulations, IT-systems, uncooperative leaders and hostility and distrust between providers who work in a primary care setting and professionals who work in a hospital setting. If this occurs, the gatekeeper role comes under attack.

The American Affordable Care Organization is a hybrid form that combines the aforementioned medical homes and hospitals. In Germany, the combination of horizontal and vertical integration is most advanced in the South-German valley of the river Kinzig: the Kinzigstal. Both work as a unifocal system (see image 4.6).

In Kinzigstal, healthcare insurer AOK and the small Bauernkrankenkasse (BK) reign supreme. The AOK is the largest healthcare insurance company in Germany and boasts 25 million insurants. In the Kinzigstal, primary care receives a population-based budget based on criteria that also apply to health insurer AOK and BK.

These latter two receive an amount per insurant from the social insurance fund, which consists of the premiums paid by German employers and employees.

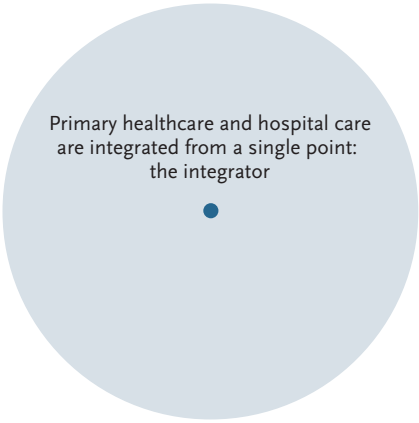

Image 4.6 Unifocal health system: the USA Affordable Care Organization and Gesundenes Kinzigstal in Germany

These amounts vary. For an elderly insurant from a lower SES background who also suffers from a chronic condition AOK receives a higher amount. AOK passes the amount it receives for its insurants through to the organisation that runs both primary healthcare and hospital care for the Kinzigstal. Hildebrandt and colleagues describe how this works in an extensive case study.[34]

That organisation is called Healthy Kinzig Valley (Gesundes Kinzigstal GmbH) and is allowed to keep 50 percent of the surplus if it does not exceed the budget that AOK and BK receive for their Kinzigstal insurants. Gesundes Kinzigstal is allowed to use these shared savings to pay for preventive interventions. During a work visit, I attended a course that was financed in this manner: a fall prevention course, led by a physiotherapist, for elderly Kinzigstalers with osteoporosis. The training course was funded with money that had been saved from surgical operations related to hip fractures.

Results are impressive, as shown by a 2015 study by Busse and Stahl.[35] Mortality rates of the served population decreased 2.5 years after the start of the integration. The number of hospital admissions increased, but the length of stay decreased. The cooperation between primary healthcare and medical specialists improved. Annual costs per insurant decreased with 203 euros compared to the same costs before the start of the integration. The business model used by Gesundes Kinzigstal, AOK and BK appears to be successful. In 2011, the costs of primary and hospital care stayed 17 percent below the normal allowance to AOK and BK, while expenditure for 2008 still equalled this normal allowance.[36] Kinzigstal's example is now followed in more than ten other locations in Germany.[37]

The US Affordable Care Organizations

The Patient Protection and Affordable Care Act (PPACA), commonly called the Affordable Care Act (ACA) or, colloquially, Obamacare, was signed into law by President Barack Obama on March 23, 2010. The president adopted a dual mandate for the ACA: it should not only expand coverage, but also contain costs (despite the additional utilisation associated with this increased coverage) and improve quality. Robust, high-quality data that clearly demonstrate substantial improvements in health outcomes directly related to the ACA have not been reported. However, the following can be reported.

Since the introduction of the Affordable Care Act, the uninsured rate has declined by 43 percent, from 16.0 percent in 2010 to 9.1 percent in 2015[38] Medicare expenditure per beneficiary decreased on an inflation-adjusted basis through 2014.[39] Hospital-acquired infection rates decreased by 17 percent between 2010 and 2013.[40] The general hospital readmission rate 30 days after admisson declined from 19.2 percent in 2010 to 17.8 percent in 2015.

A central feature of the ACA is the accountable care organisation (ACO), the aim of which is to reach the already introduced Triple Aim. Mostly, these ACOs are paid with bundled payments (see chapters 13 and 14). An estimated 30 percent of traditional Medicare payments now flow through ACOs. ACOs are mostly unifocal health systems that integrate medical homes and hospitals. Sometimes the latter work independently, as in the Netherlands and the UK. Kaiser Permanente is a good example of a unifocal ACO. In 2003, Ham and colleagues showed that the unifocal KP functioned better than the bifocal English NHS.[41] Many ACOs of both types have proven to be successful in achieving improvements in health process measures, timely access to physicians, specific savings and overall patient satisfaction.[42,43,44] Per beneficiary, ACOs spent 1.4 percent less than fragmentated organisations.[45] Bifocal ACOs that worked with independent medical homes saved more than unifocal ACOs. Among the challenges that face current ACOs is the fact that some of these organisations are unaware of their own cost structure and have little control over loosely affiliated physicians.[43]

In 2014, 20 percent of US hospitals were part of an ACO. Most of these were situated in urban areas and operated on a nonprofit basis. Qualitative data identified the following advantages of including a hospital in an ACO: the availability of start-up capital, advanced data sharing, and engagement of providers across the care continuum. The 63 percent of ACOs that included hospitals offered more comprehensive services than ACOs without hospitals.

Above, a comparison was made made between the bifocal health systems in the Netherlands and the UK and the unifocal health systems in Germany and the USA. Both

showed advantages and disadvantages. In my own opinion, wisdom lies midway between the two. Primary healthcare should not be too closely linked to hospitals, but neither should the two be so far removed as to give rise to mistrust and hostility.

4.7 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how does vertically integrated care contribute to the realisation of the Triple Aim? The findings below that are marked with an asterisk are based on a study conducted in a single country or on a single study. A finding is called plausible, when it has been substantiated with a theory, but not with empirical research.

Triple Aim 1 Improving population health

1 It is plausible that specialised professionals who work in a primary healthcare setting contribute to the Triple Aim as a whole.
2 It is plausible that polyclinics, where hospitals and specialists are digitally present in health centres contribute to the Triple Aim as a whole.
3 Standardised referral pathways from GPs to specialists in case of suspected cancer heighten the survival chances of cancer patients.
4 It is plausible that direct access for GPs to laboratories and imaging departments in hospitals heightens these chances even more.
5 A Comprehensive Geriatric Assessment of hospitalised frail elderly and a treatment and care plan that is based on it, diminishes the risk of death within six months after discharge.*
6 Most studied Disease Management Programmes show significant improvements in patients' quality of life, clinical outcomes and professional compliance.
7 It is plausible that patients with a rare chronic condition will benefit from a chronic care model that mimics the format of the Dutch Parkinson Network: their health and quality of care will then increase, while costs decline.
8 In Europe, many programmes are currently being developed for people with multimorbidity. Research results about their contributions to the Triple Aim are not yet available.
9 The German integrated care model used by Gesundenes Kinzigstal lowers mortality, improves quality and lowers the costs of care per insurant.

Triple Aim 2 Increasing quality of care for the individual

Standardised discharge pathways at the end of an admission period improve the quality of care of transitions from hospital to home and reduce hospital readmissions.
10 Transfer points in hospital shorten the duration of hospital admissions and lower a country's required hospital capacity.*

11 Patients who receive care based on Wagner's chronic care model know more about their own condition, receive more care according to professional guidelines, use fewer emergency services and spend 35 percent fewer days in hospital.
12 People with a chronic condition in a disease management programme more often receive care based on professional guidelines. Professional compliance then increases.
13 Education significantly increases self-management of patients in a disease management programme.
14 German disease management programmes lowered costs and improved outcome quality significantly compared to care as usual.* Outcomes for other countries and specific conditions are varying.
15 Patient-satisfaction among patients in a disease management programme is not better than among patients who receive regular care.
16 In bifocal health systems, primary healthcare and hospitals function independently. In unifocal systems they do not.
17 Bifocal systems employ GPs and case managers as gatekeepers. In the USA, they save more on healthcare costs than their unifocal counterparts. The latter offer a better quality of care than bifocal systems and have easier access to the capital market and IT programmes.

Triple Aim 3 Lowering costs of care per capita

See conclusions 1, 2, 9, 11, 12, 15 and 17.

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5 Case-Management and Integrated Care*

This chapter starts with a case story about Julia, a woman with dementia, and her case manager, John (section 5.1). It shows six innovations that are necessary for the introduction of case managers. Section 5.2 introduces a definition of the concept of case management and discusses important terms. Subsequently, sections 5.3 and 5.4 discuss the communication and evaluation skills of case managers. The chapter continues (section 5.5) with a comparison of the 'ideal world' in the case story, set in 2025, with the real world in 2016 by focusing on case management practices in the Netherlands and France. The chapter ends (section 5.6) with a description of how case managers may contribute to the Triple Aim.

5.1 THE STORY OF JULIA AND JOHN IN 2025

In the story below, an added asterisk means: these kinds of services generally do not exist in 2016, neither in the Netherlands nor in France. However, they do exist in small innovative, experimental projects. They are necessary for an implementation of case managers in the year 2025. They are summarised (see image 5.2) and discussed in section 5.4.

It is 2025. Julia is 84 years old. She lives with her husband Peter, also 84, in a small old apartment in a lower middle class neighbourhood in a city. They own this apartment, which is mortgage-free. In previous years she was a school teacher. Peter was a machine operator. Several years earlier, one of his feet was amputated after an accident; an incident that has left him in constant pain. The couple has a modest pension. They have one son, who lives with his own family 20 kilometers away. >>

* This chapter will also be published in Amelung V, et al. (ed). Handbook of Integrated Care. Springer Verlag, Berlin, in press. Co-author is Dominique Somme, geriatrician and Professor of Geriatrics in the Faculty of Medicine of Rennes (France).

>> *Julia suffers from dementia, periodical heart rhythm disorder and chronic itch. If an itch attack occurs, she cannot stop herself from scratching. She is not able to manage her skincare tasks by herself. She takes five different medications, three times each day. Julia cannot be alone and has to be supervised around the clock. Peter is relatively healthy, except for the pain, but frail. He is unable to supervise his wife 24 hours a day. Much of their healthcare is provided by nonprofit care providers and financed by their social insurance companies and the municipality where they live. However, the money provided by the insurance and municipal payments for these services is not enough. Julia and Peter pay hundreds of euros per month out of pocket.*

John, a case manager, came into the picture a year ago after Julia fell in her home; she tripped over a small table in the living room and hurt herself. Julia's general practitioner Carla was called and made a home visit. She introduced Julia and Peter to John.*

John is a nurse specialist with an academic background in care for people with dementia. He works for the group practice in which Carla is one of five GPs*. After being introduced by Carla, John did a couple of things. He introduced himself as Julia's first point of contact and care coordinator; left his business card under a magnetic button on the fridge door and subsequently carried out a care assessment of both Julia and Peter. Peter, Julia and John made a life care plan for the next six months*.*

Later, John organised a 'non-professional potential caregivers conference', to which he and Peter invited members of the family, neighbours, friends and former colleagues. They were asked to be a buddy for Julia and Peter and to offer respite care (to relieve Peter), transportation services, technical help and social support. Because this conference did not yield enough buddies, John mobilised voluntary organisations to send volunteers a couple of mornings and afternoons during the week. He also asked the local pharmacist to review Julia's medication* and to introduce some technical devices to improve Julia's medication therapy adherence. John also involved the fall prevention service from the department of geriatrics at the local hospital*. They sent a nurse, advised the couple to take some vitamins and inspected the apartment. The nurse further advised them to remove small tables and to install a stair lift and extra railings in the bathroom, toilet and hallway. Peter and Julia complied, although they had to pay the cost out of their own pocket. This meant that they had to take out a small mortgage on* >>

>> *their apartment. John also found that Julia was undernourished because of dental complaints. She was reluctant to go for a consultation, but he convinced Julia to visit a local dentist, although that meant additional expenses.*

John also showed Peter and Julia how to use a tablet PC with internet connection to keep in touch with him, Carla, their son and other buddies. A simple screen with big buttons, a two-hour course and a helpdesk were enough to introduce the telecare. Peter and Julia bought a new tablet PC and a better and faster modem. This had by then become an option, as the internet bandwidth in their city had grown considerably over the past ten years. Peter experienced his caregiver duties as less stressful than before and John helped him to ask Carla for an introduction to a pain specialist consultation.*

John was consulted during Julia's next heavy itch attack. He organised a short stay in an assisted living facility in their neighbourhood. There he visited Julia daily, sometimes accompanied by Carla, the GP. Low-skilled nurses helped Julia with bathing, skincare and clothing. John encouraged Peter to visit his wife daily. The short stay was partly paid from a personal budget allocated by the insurance company*; as Julia's mentor, Peter could decide how to spend these funds.*

As Julia's dementia progressed, John arranged for Julia to sleep at the assisted living facility to give Peter a good night's rest. During the day, she lived at her own apartment. After a year and a half, Julia died sitting in her chair with Peter by her side. After her death, John visited Peter several times to provide comfort and to help him start a new life as a single person.*

5.2 THE DEFINITION OF A CASE MANAGER AND RELATED TERMS

This section introduces a definition of a case manager as used in the Netherlands and France. The concepts used in the definition are explained in the order of their place in the definition. This section concludes by paying attention to wider definitions and discusses why these are rejected. Image 5.1 shows the definition of a case manager.

This definition is based on definitions used in France[1] and the Netherlands.[2] It is also in accordance with the definition used by the Case Management Society of America (CMSA).[3] The definition is broad, as illustrated by the story of Julia and John. Case managers are involved in the health and social domain, in formal and informal care and in financial and non-financial affairs. Present-day case managers rarely have such a broad array of responsibilities.

Patient satisfaction: A judgment about whether the patient's expectations were met[1]
Example of an interview question: How satisfied are you with the appointment system in your health centre?
Patient experience: Reflects perceptions and feelings of patients after interactions, occurrences and events that happen independently and collectively throughout the care process[2]
Example of an interview question: In the last 6 months, how often did you see your provider within 15 minutes of the agreed appointment time?
Patient-reported outcome (PRO): The concept of any report of the status of a patient's health condition that comes directly from the patient (or in some cases a caregiver), without interpretation of the patient's response by a clinician or anyone else[3]
Examples of health conditions reported by patients: pain; depression
PRO measure (PROM): An instrument, scale or single item measure used to assess the PRO concept as perceived by the patient, obtained by directly asking the patient (or in some cases a caregiver to self-report)[3]
Example of a PROM: The visual analogue scale for measurement of acute pain[4]
Quality of Life: The general well-being of a person or society, defined in terms of health and happiness, rather than wealth[5]
Example of QoL - questionnaires: Rand 36[6]; Euroqol[7]

Image 5.1

Complex situations

The first words marked with an asterisk in the definition in image 5.1 are 'complex situations'. As a concept, complexity can be related to instability, unpredictably and intensity.[4]

Persons in complex situations will probably experience disruptions in the evolution of their situation (instability), some of which are not anticipated even by professionals (unpredictability) and these disruptions are frequently severe (intensity). Clinicians and case managers, even when they cannot pinpoint why a situation is complex, are often skilled in detecting complexity. Usually, a complex situation requires collaboration between clients, clinicians, case managers and informal carers to be handled properly.

There is a clear distinction between persons in complex situations and frail persons, for example, frail elderly, frail families and frail persons with severe mental illness. These people run a high risk of becoming a person in a complex situation. However, they do not belong to that group yet. Case managers could also work for frail persons without complex situations.

Their relationship with the client enables them to help with preventive measures, such as mobilising other relatives to extend the time during which the patient's partner can provide care; the so-called perseverance time. They could inform clients about opportunities and the possible (dis)advantages of options and coach clients in their choices. Nevertheless, extending the target population to 'frail'

people obviously and dramatically increases the societal need for case managers. This increases their caseloads with a risk of decreasing the quality of interventions for persons in complex situations. Kaiser Permanente, a healthcare organisation in California, introduced the three-level Kaiser Triangle as a way to distinguish between patients with different needs related to chronic conditions (see image 4.3). Most patients with a chronic condition deal with their diseases with support from primary care as usual. This is the first level. At the second level, they are in need of a disease management programme. Only in the case of complexity (level 3) are they in need of a case manager.

All needs

The second set of words with an asterisk in image 5.1 is 'evaluates all of their care and social needs'. Case managers have to be alert to all possible expressions of needs, preference and priorities.

In fact, even when people say they cannot express an opinion, this is rarely the case for all dimensions of the situation. Understanding one aspect frequently helps in understanding another. Case management is closely related to person-centred care. The case manager's coaching abilities are therefore crucial,[5,6] regardless of whether clients are classified as multi-problem family, or as a person with dementia, psychiatric disorder(s) or cancer.

Interprofessional cooperation

In the definition of image 5.1, the third set of words with an asterisk is: 'the case manager cooperates with physicians and other professionals.' In our case story, the case manager cooperates with a general practitioner and is part of the primary healthcare team of which the GP is also a member. This is only one of several options. Case managers can also work in a setting with geriatricians who treat Alzheimer patients at home and in nursing homes. If case managers work for cancer patients, they could cooperate with hospital-based oncologists. In all these settings, the physician is responsible for diagnosis, therapy, prognosis and the prescription of medication. However, case managers are responsible for continuity of care and other services and for making a life care plan. They can also coach clients or patients to ask questions to physicians and other professionals, to express their preferences and to ask to improve the quality of their care.[7,8,9]

The life care plan

This life care plan, the fourth concept in the definition in image 5.1 that is marked with an asterisk, describes five elements:

1 the health and social needs of the person in the complex situation;
2 the amount of support required from informal carers to satisfy these needs;
3 the supply of care and services by professionals;

4 the allocation of tasks and responsibilities to informal carers and professionals;
5 the timetables of informal and formal carers.

In addition, the plan has certain formal aspects. It shows who the case manager is, who among the informal carers forms the patient's first point of contact and who is the first responsible physician. It also has a previously ascertained validity period, which can vary from anything between six weeks and a year or more.

Finally, a life care plan contains a so-called crisis paragraph. This describes what clients and their informal carer should do in case of a calamity, e.g., sudden absence of the informal carer, failure of nursing or medical equipment or sudden deterioration of the complex situation. In the story of Julia and Peter, the crisis paragraph describes what to do when Peter himself becomes ill, when the stair lift does not function and whom to consult in case of a heavy itch attack.

Sometimes, a client refuses something a case manager, or even an entire team of professionals, believes is necessary to prevent a crisis. It is important that the relationship is not severed by this refusal. On the contrary, a situation like this shows the added value of case managers, who should find a balance between risk assessments of crises and the patient's rights.

Does a case manager make a life care plan for an individual or for an entire household? Sometimes all members of a family are clients or patients at the same time. In the Netherlands, this type of family is called a multiproblem family. An example could be a family in which the father is unemployed, the mother has breast cancer and the kids experience problems at school and in their neighbourhood. For these families, the professional mantra reads: 'one family, one plan and one case manager'. In the Netherlands, the concept of a life care plan is under scientific discussion. It has not yet crystallised into a new paradigm.[10] There is an ongoing debate in scientific, professional and financial circles about the form and content of such plans, as they were made mandatory in 2015 under the new Long-Term Care Act.[11,12]

Finally, the plan gives immediate access to public or insurance-paid resources. Having to protect the position of their clients while simultaneously deciding about the use of, sometimes scarce, resources puts case managers in ethical dilemmas for which they have to be trained.[13] A professional or policy-maker other than the case manager could do this job. However, it seems less bureaucratic that one and the same case manager decides about payments that have been based on a life care plan and function within financial guidelines.

If case managers have the power to allocate resources, this will facilitate faster decision-making than when this power is reserved for a back office.

Informal care and the case manager

'Informal care' (the fifth set of words with an asterisk mentioned in the definition of image 5.1) is divided into care by relatives (or family care) and care by volunteers. Volunteers often work as part of an organisation, such as a church or a charity, and often provide support in the form of social visits, transport, garden maintenance or technical odd jobs, such as repairing a power socket.

Physical care and assistance, such as washing patients or helping them to go to the toilet, is usually provided by relatives or professionals, as these tasks are too intimate to be carried out by volunteers. Within the group of family carers, a central person (the partner, a son, a daughter) often offers most of the informal care. Often, this person is healthy but under great emotional strain. It is not easy for a case manager to define who the primary informal carer is, because appearances can sometimes be misleading: e.g., a partner who lives with the patient could be less involved in informal care, than a daughter who lives elsewhere. For a case manager, the ability to assess a patient's informal care network is one of the most important skills.

Within a programme

'The case manager works within a programme' is the sixth phrase marked with an asterisk in the definition of image 5.1. This programme could be Wagner's chronic care model or a disease management programme as discussed in section 4.2. The programme also links case management and integrated care. The relation between case management and integrated care is not a simple one. The addition of a new service (the case manager) within the existing scope of health and social services might increase fragmentation of the system. New interfaces will arise between these new professionals and the organisations that hire them. In fact, case managers can only participate in the integrated care movement if their actions are 'translated' by a dedicated professional in an organisational transformation that leads to a more integrated health and social services system.[14]

Target population

The last phrase marked with an asterisk in the definition is 'about persons who are unable to organise their life care plan and lack a sufficient network of relatives.' A representative survey in the Netherlands among people between 57 and 77 years of age discovered that potential clients and patients can be divided into four different profiles.[15] The people in the first group (46%) live pro-active lives and want to decide about their own life and care provision. Patients in the second group (28%) are able to plan their own life, but would rather be cared for. They are the type of people who do not like self-service restaurants and prefer to be served instead. Patients from the third group (10%) ask professionals to take decisions and accept advice as if it were an order. Those in the fourth and last group (16%) are unable to express their needs

and to formulate thoughts for the long term. People in this group often live alone, have a lack of money, are unskilled and have a low quality of life. In social services and in the public health domain, people from the last two groups are eligible for a case manager. People in the second group seem to be a market for commercial case managers who organise care and services for them when complex situations occur.

Rejected broader definitions

Although the task description in image 5.1 is broad, it does not include emotional support. This is nonetheless part of the task of case managers: it strengthens the relationship with their clients. However, while they may provide their clients with tissues for their tears and listen to their complaints, they do not get involved on a personal level. Case managers do not give their clients hugs. In the Netherlands, this professional attitude is called detached commitment. The definition could also be extended to include continuous supervision, if a patient or client is unable to be alone. However, this is not a task for case managers. Generally, they have a caseload of 30 to 40 clients from the same target group: people with dementia, cancer patients at home with metastases or multiproblem families.

They help during a longer period of time and not only during transfers from one facility to another. Sometimes case managers work for a group of patients living in an assisted living facility for people from the same target group.

But even if they do, they have to safeguard the confidential relationship they have with each individual. All clients have to be assessed individually (and not as part of a group) regarding their needs.

The third extension of the definition could mean that a case manager is also involved with a client's treatment. In the Netherlands, case managers for cancer patients administer medication to their clients in the form of injections. However, in youth healthcare and in care for people with dementia this type of involvement is far less common. It is therefore not necessary to include therapeutic interventions in the definition of a case manager.

5.3 COMPETENCES AND SKILLS OF CASE MANAGERS

The definition also refers to the necessary skills for a case manager. These include competences (knowledge and skills) regarding health and social needs, the functioning of informal networks, the local supply of professionals and the mechanisms of cooperating with them. Case managers have extensive knowledge of regulations and financial limitations. In addition, they need communicative skills and integrative skills, which will be discussed in greater detail here.

Case managers must be able to apply different communication styles. Evidence seems to be in favour of an empowering style that offers different options for life and care in a neutral way. However, sometimes case managers have to persuade clients/patients that their demands for help are unrealistic or too expensive for the municipality or social insurance agency. Case managers have professional autonomy: they are not waiters who serve whatever the client demands.

They have empathy for their clients or patients but also have to keep a professional distance. The second competence, integrity, comes under pressure when case managers are employed by suppliers of care and services. In that situation, they could be pushed or temped to create work for the supplying organisation. If, on the other hand, they are on the payroll of a municipality or a social insurance company, their integrity is threatened by the cost control ambitions of these organisations. Case managers should be able to assume an independent position. Realising this is far from easy and is currently a subject of discussion in the Netherlands. In addition, a professional case manager organisation with its own disciplinary rules is necessary to resolve ethical questions.

Case managers have responsibilities regarding their clients' continuity of care. These responsibilities might cause certain frictions with clinicians. If patients are hospitalised and their case managers judge that it is possible for them to stay at home, they usually do not have the authority to contradict hospital clinicians, despite having more information about a client's domestic situation.

Frictions also arise when different clinicians disagree about the best therapy for a patient. Such conflicts cause delay in the start of the treatment and leave clients with a feeling of uncertainty. When this happens, a case manager usually does not have the authority to insist that the disagreeing parties come to a consensus.

In Dutch oncological circles, this is described using the following, canine-inspired, metaphor: a case manager should be a kind Labrador for the patients and a Pitbull for arguing doctors. It is not easy for case managers to combine both characteristics.

5.4 EVALUATING HEALTH AND SOCIAL NEEDS

This section discusses scientific contributions that aim to further professionalise the work of case managers by giving them their own scientific tools to evaluate health and social needs. Other necessary skills regarding negotiation, coordination, management, interprofessional and interdisciplinary cooperation and patient and family support are left out of consideration.

Neither does this section discuss the role of case managers as caregivers and consequently their need for advanced nursing skills. These skills are essential for all professionals in a multidisciplinary team and are discussed in section 3.5.

Case managers have to assess all social needs and healthcare needs of their clients, but also look at living arrangement needs and psychological needs. They have to assess these needs with a formal assessment procedure. Without it, decisions would be too heavily influenced by arbitrary factors and the case manager's personal preferences.

There is no international assessment tool, approved by the authorities, to carry out this assessment task. In Canada, some parts of France and parts of Australia, case managers use the FAMS or derivatives of it[16,17] FAMS means Functional Autonomy Measurement System.

It has been developed by the Prisma Program in Quebec[18] and enables the classification of personal situations into 14 groups with very similar care or social needs. Germany uses a three-level assessment model to evaluate health and social needs. It mainly focuses on nursing needs.

There are calls for the extension of this assessment and the inclusion of communicative and cognitive limitations.[19] In 2003, the Netherlands introduced an assessment system based on the International Classification of Functioning, Disabilities and Health. [20] This system facilitates the assessment of health, limitations and disorders without specifying what kind of professional care has to be offered. Based on this system, the Netherlands now recognises six different types of care needs:

1 personal body care such as washing;
2 technical nursing care (e.g., wound cleaning);
3 support and supervision (if the client cannot be alone);
4 psychological treatment;
5 special domestic needs (e.g., handgrips in the bathroom); and
6 short stay in a nursing home (e.g., after a hospital admission).

Scandinavian countries currently do not use assessment instruments: it is up to the professional decision space or discretionary space to make an assessment. Professionals in the UK and the USA use local instruments that lack a scientific foundation.

The Resident Assessment Instrument (RAI)[21] and the Barthel Index[22] are popular among professionals who work in the rehabilitation sector in France, Canada and the Netherlands: case managers in these countries measure their clients' mobility and subsequently assess their support needs.

Until now, a universal assessment instrument that covers all health and social needs had not been available. In the Netherlands, there seems to be a general reluctance to make better (and longer) questionnaires to assess patient needs. The new idea is that a case manager immediately focuses on the client's experienced problems without analysing the interaction between different needs. This approach is popular in youth health and is known as solution focused therapy.[23,24] However, every dimension of a client's situation should be assessed instead of only the 'obviously problematic' ones. After all, this enables preventive action for dimensions that are unstable but not completely dramatic yet and enables case managers to explain all the causes of a situation and consequently find the best solution[25] Another new development concerns the structured dialogue between case managers and clients or patients. Here, case managers assess a health need, e.g., limited mobility within the house. If there is a problem, they immediately assess which solutions the client or their partners have at their disposal. They only offer a professional solution when offering an informal one is impossible.

In 2012, father and son Skidelsky, economist and philosopher respectively, wrote a bestseller titled *How much is enough?*[26] Their book is interesting for case managers who have to support their clients' quality of life while working within financial limitations. They studied the theories of Keynes, Aristotle, Rawls, Sen and Nussbaum. Based on these thinkers, they formulated seven basic human needs:

1 health;
2 a safe and trusted environment;
3 respect from others;
4 personal autonomy;
5 harmony with nature;
6 friendships and other affectionate relationships; and
7 leisure time for enjoyable activities.

They place all these seven needs on one and the same level, something which sets their approach apart from Maslow's pyramid, in whose hierarchy physical needs are more fundamental than leisure time for enjoyable activities.[27]

In most countries, case managers work with assessment systems in which health needs and physical needs are more important than social needs (see point 3 to 7 of the Skidelskys).

To our knowledge, professional personal assistants only exists in Sweden. They are appointed to a client by a case manager. Together with the client they decide whether they spend their time fulfilling the client's physical care needs or simply join them in drinking a cup of coffee, in order to satisfy their need for affectionate relationships.[29]

This contrast between physical and social needs is also discussed in the Bible. In the parable of the two sisters, Maria and Martha provide accommodation and care to the Lord, who appears as a traveller. Martha immediately starts to wash the Lord's feet and cooks him a meal. To her, physical needs are the most important. Maria strikes up a conversation by asking the Lord about his trip. For her, social needs, such as the need for attention and love, come first. In the parable, the Lord appreciates Maria more than Martha. We, the authors of this chapter, neither follow the Bible nor the Beatles with their song *All you need is love*. Instead, we opt for the Swedish model in which clients and professionals engage in shared decision-making about the client's priorities and their preferences for either physical or social needs.

5.5 THE REAL WORLD AND THE IDEAL WORLD OF THE CASE STORY

Section 5.1 tells the story of John, Julia and Peter. Six types of services are mentioned with an asterisk. They do not exist nationwide, either in France or the Netherlands. However, they do exist in small experiments and innovations, which are usually not officially published in scientific journals. These six types of services are summarised in image 5.2.

These six show the differences between the ideal world created by the authors and the reality that exists in their respective countries. In the Netherlands, reality is far removed from the ideal due to a lack of consensus about the aims of Dutch healthcare policy. Chapters 19 and 20 on leadership, change management and the dissemination of innovations discuss this problem.

France has seen a shift towards more case management, especially in care for people with dementia. However, case management is not recognised as a separate profession. Instead, it is mandatory for aspiring case managers to have a professional

Image 5.2 Case manager services which do not exist in 2016
Source: See text

1.	Advanced nursing specialists who work as case managers in primary healthcare for target groups, such as people with dementia, multimorbidity, cancer or multi-problem families
2.	Making a care-life plan for a certain period
3.	A pharmacist who reviews the medication of patients
4.	An outreaching, fall prevention service within primary healthcare
5.	An IT expert who helps patients and their relatives to use their tablet PC to communicate with their formal and informal care providers
6.	Providing comfort and giving informal carers with a deceased partner advice on how to cope and begin again

qualification prior to being hired. There is no professional case management organisation (order or syndicate), and there is no specialised, professional journal. Nevertheless, the professional field is defined through a set of regulations. Case managers have to fulfil four conditions:

- they have to be hired by a local leader in charge of a local integrated care project;
- they have to be a professional from a limited list of professions that are authorised to make in-home assessments of a person's whole situation. This list includes: (licensed) social workers; the medical auxiliary (a group of professionals that includes nurses, occupational therapists, physiotherapists, and so on); and clinical psychologists (with a Master's degree);
- they need to have professional experience with making in-home arrangements for people who experience a loss of autonomy and who find themselves in complex situations;
- during the first 3 years of their contract, they have to participate in a 100 hour university training programme, which includes a minimum of 20 days of practical training supervised by a licensed case manager.

Case management for clients with dementia has been implemented in France as part of a comprehensive programme aimed at improving the integration of social and healthcare systems.

5.6 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can case managers contribute to the realisation of the Triple Aim in future years? A finding is called plausible, when it has been substantiated witha theory, but not with empirical research. The studies on which these answers have been based are not only discussed in sections 5.2 up until 5.4, but also in sections 3.2 and 3.4.

Triple Aim 1 and 2 Improving population health and increasing quality of care for the individual

1 Section 3.2 discusses a theoretical model in which case managers play a role in care for people with both physical and somatic disorders. It is plausible that they contribute to better health and better quality of care.
2 It is plausible that case managers, as defined in section 5.2, who have highly developed communication skills (see section 5.3) and are able to evaluate health and social needs (see section 5.4) contribute to better patient health and better quality of care.

Triple Aim 3 Lowering per capita costs of care

3 Section 3.4 showed that independent Dutch case managers who also function as gatekeepers for all forms of long-term care within an institute curb the demand for this type of care.

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6 Towards better pharmaceutical care

Erik Gerritsen and Guus Schrijvers

Pharmaceutical care is the person-centred provision of medicines provided by the pharmacist in cooperation with other healthcare providers. This chapter answers the question of how pharmaceutical care in the coming years can contribute to better health, higher quality of care and lower costs. The focus lies on countries with a high national income, as medicines in these countries are generally accessible to all inhabitants and pharmaceutical care is more developed in these countries. As the emphasis lies on integrated care, this chapter will not discuss the problem of financing new, expensive medicines. In order to answer the research question, section 6.1 first paints a general picture of the provision of medicines. Section 6.2 discusses the development of the pharmaceutical professional practice in the past decades. Sections 6.3 and 6.4 discuss the most important activities for the improvement of pharmaceutical care, namely the promotion of the careful selection and correct use of medication. Section 6.5 contains a discussion of the most suitable approach for the further development of pharmaceutical care. Finally, section 6.6 answers the question of how pharmaceutical care contributes to the Triple Aim.

6.1 A GENERAL IMPRESSION OF THE PROVISION OF MEDICINES

Within healthcare, the use of medicines is the most commonly applied form of therapy. The costs of this consumption are high. In the OECD countries, they amount to an average of 20 percent of the total costs of care.[1]

There are considerable differences between countries regarding the organisation of the supply and use of medicines. By way of illustration, image 6.1 shows a few important indicators for the provision of medicines in Western European countries.

Image 6.1 shows substantial differences in the provision of medicines in the Western European countries. The number of community pharmacies per country differs with

	Lowest value	OECD average	Highest value
Number of community pharmacies per 100,000 inhabitants	3.9 (Denmark)	25.1	47.2 (Spain)
Number of practising pharmacists per 100,000 inhabitants	21 (The Netherlands)	80	127 (Finland)
Expenditure on extramural medicines per inhabitant in $	240 (Denmark)	515	721 (Greece)
Use of drugs: number of defined daily doses/1,000 people/day			
Antihypertensive drugs	184 (Austria)	318	575 (Germany)
Cholesterol-lowering drugs	69 (Austria)	95	135 (England)
Antidiabetic drugs	40 Austria	62	86 (Finland)
Antidepressant drugs	43 (Italy, the Netherlands)	58	118 (Iceland)

Image 6.1 Indicators for the provision of medicines in Western European countries in 2013; the number of community pharmacies concerns 2015
Source: OECD. Health at a Glance 2015: OECD Indicators. Paris: OECD, 2015.

a maximum of factor 12, the number of practising pharmacists with a maximum of factor 6 and the expenditure on extramural medicines with a maximum of factor 3. This points to substantial differences regarding the way the provision of medicines occurs in Western Europe.

Differences in the use of medication belonging to four common drug classes are also considerable and cannot be explained entirely by the morbidity rates of these countries.

These differences are mainly caused by current government policies, the organisation of the supply of medicines, the medical and pharmaceutical professional practice and culturally determined views on medication use. Substantial improvements regarding the quality and/or costs of pharmaceutical care are therefore still possible in almost every country.

6.2 DEVELOPMENTS IN THE PROFESSIONAL PRACTICE

In the past few decades, the traditional role of pharmacists has undergone a transformation, both in community pharmacies and hospitals. Instead of merely 'pushing boxes around,' more and more pharmacists are now providing pharmaceutical care. The focus has shifted from products to patients and the outcomes of pharmacotherapy. Nevertheless, the quality of the supplied products is still assured.[2]

In 1990, the Americans Hepler and Strand are the first to describe pharmaceutical care as a person-centred professional practice provided by the pharmacist in cooperation with other healthcare providers. They use the following definition: 'Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes which improve a patient's quality of life'.[3] We will use this definition of pharmaceutical care as our starting point.

Since 1990, many countries have started to develop pharmaceutical care. In some countries, this development has been faster than in others. From the very beginning, the Netherlands has been a fertile breeding ground for the person-centred approach. This chapter consequently includes a significant number of Dutch examples.

Mossialos and colleagues describe the paradigm shift that has occurred in the professional practice of community pharmacists in several countries.[4] In some countries, such as France, the main focus still lies on the 'retailing of products,' while other countries, such as England, have created functions for the prevention of medication-related problems. In countries such as Canada and the Netherlands, activities are also moving towards a public health role. In a more recent study, Mossalios and colleagues researched the transformation of community pharmacists from retailers to healthcare providers in Australia, Canada, England, the Netherlands, Scotland and the USA.[5] These six countries are at the forefront of this development.

6.3 THE RIGHT MEDICINE

When it comes to correct medication use, it is of primary importance that the right medicine has been prescribed and delivered in the right dosage. This is not only essential for the effectiveness of the medicine, but also to prevent the undesirable effects of medication use.

In 1999, the well-known American report *To Err is Human* showed that there was still much to be improved in this area.[6] This also applies to the Netherlands and other countries. In 2008, Leendertse and colleagues published the results of the so-called HARM study. This was a prospective study into hospital admissions as a result of medication errors during a period of 40 days in 21 Dutch hospitals. 5.6 percent of acute admissions were caused by medication errors. Of all these hospital admissions, 46.5 percent were potentially avoidable. Compared to patients who were younger than 65, over-65s were twice as likely to be hospitalised due to medication errors.[7] Extrapolated to the whole of the Netherlands, this amounted to approximately 16,000 potentially avoidable hospital admissions per year. The estimated costs of this phenomenon were more than 94 million euros per year.[8]

It also appeared that many medication errors occurred during the admission and discharge of hospital patients due to the absence and unavailability of patients' complete medication overview.[9] Based on these types of studies, many countries have focused on decreasing the number of medication errors in the past few years. This section will discuss this matter in greater detail.

Prescription

In other to prescribe effectively, doctors have to be aware of the arsenal of medicines they have at their disposal. However, it is not easy for doctors to keep their knowledge of medicines up to date, partly due to the continuous introduction of new medicines. In addition, the pharmaceutical industry tries to influence doctors in what they prescribe. Rationally prescribing medicines therefore requires doctors to be focused and well-educated. Throughout the course of time, several methods have been developed to promote rational prescribing, such as:

- formularies with first choice medicines for specific diagnoses;
- pharmacotherapeutic consultations between doctors and pharmacists;
- feedback of the doctor's prescription pattern through indicators;
- healthcare standards and guidelines for the treatment of specific diseases;
- independent follow-up training through magazines and courses.

Delivery

An important element of pharmaceutical care in the community pharmacy concerns extensive drug monitoring every time a pharmaceutical drug is delivered to a patient. Control is exerted on dosage, interaction between different substances, double-dosing, contraindications, reduced renal function, pharmacogenetics, age, pregnancy and breastfeeding. This drug monitoring is especially important when a medicine is supplied for the first time. The quality of this monitoring mainly depends on available safety programmes, the presence of the patient's medication history and the cooperative relationship with doctors. Drug monitoring therefore varies considerably between different countries. In the Netherlands and several other countries, the quality of this supervision is high. These countries therefore boast relatively high levels of medication safety and a relatively low number of medication errors.

Medication reviews

Another element of pharmaceutical care concerns the periodical medication review, which looks at side effects, unwanted polypharmacy, medication adherence and effectiveness. This review is particularly valuable for patients who use many different medicines simultaneously. Its application can be divided into three levels: the first level is based on pharmacy data, the second on pharmacy and medical data and the third on pharmacy, medical and patient data.

The phenomenon of the medication review as an official pharmaceutical service first emerged in Australia. Since 2001, the 'Home Medicines Review' has been used, at the request of a physician, for patients who live at home.[10] Since 2005, community pharmacists in England have been able to implement the 'Medicines Use Review' in their pharmacies.[11] Medication reviews in the Netherlands are carried out by the patient, the physician and the pharmacist based on a structured and critical evaluation of medical, pharmaceutical and application information.[12] Patients are eligible when they are aged 65 or over and use five or more medicines. By now, medication reviews have, in varying degrees, been implemented in several countries.

In 2012, Kempen and colleagues carried out an extensive study into the medication reviews that were initiated by pharmacists in 268 community pharmacies in the Netherlands.[13] In total, 4,579 medication reviews had been analysed. Each review yielded an average of 2.9 medication-related problems. Of all 8,072 proposals for the adjustment of the patient's medication, 3,401 or 42 percent had been implemented after GP and patient had been consulted. These cases mainly concerned medication for cardiovascular conditions, diabetes and osteoporosis. The study showed that the large-scale implementation of medication reviews carried out by community pharmacists contributes to a reduction of medication errors.

Repeat dispensing service

In the Netherlands, a large number of community pharmacies offer a so-called repeat service. This service no longer requires patients to ask their GP for a repeat prescription for a chronically used medicine, as this is now handled by the pharmacist. This repeat service allows for better monitoring of use and results in a decrease of medication errors.[14]

Since 2005, England boasts a so-called 'repeat dispensing service.' However, this service is rarely used due to a lack of interest among GPs.[11]

Quality

In quality of care improvement programmes, quality indicators are generally used to measure results. In 2008, Dutch community pharmacists started to annually measure a large number of quality indicators in their pharmacies. From 2012 onwards, the Royal Dutch Pharmacists Association (KNMP) has validated these indicators together with the Dutch Health Inspectorate, patient and consumer organisations, and health insurance companies. Teichert and colleagues have researched and documented this unique project.[15] Since it began, results for several indicators have clearly improved. Their publication offers an extensive overview of the way Dutch community pharmacies function.

As of recently, the OECD also publishes data about the prescription of medicines, which are to be used as indicators for the quality of care.[1] An example is the prescription of antibiotics. Antibiotics should be prescribed as little as possible, due to the risks of developing a resistance that renders them ineffective. Prescription patterns vary greatly between countries. In 2013, expressed in the number of defined daily doses per 1000 people per day, the use of these antibiotics in Western Europe ranged from 11 in the Netherlands to 32 in Greece. This means there is room for improvement in many countries.

6.4 CORRECT MEDICATION USE

A medicine only works optimally when patients use it correctly, or, in other words, when they adhere to the rules of the therapy. However, in practice, they often do not. This has severe, negative consequences for the effectiveness of medication use. This section discusses non-adherence and looks at possibilities for the improvement of medication adherence.

Non-adherence

There is a distinction between intentional non-adherence and unintentional non-adherence. In the case of intentional non-adherence, the patient deliberately chooses to not (always) use the recommended dosage. The patient chooses between believing in the necessity of the drug (beliefs) and being worried about it (concerns). Different factors can lead to one of these forms of non-adherence. Image 6.2 shows a few examples.

Horne and Weinman, two British researchers, were the first to chart intentional non-adherence and design an assessment model.[16] They developed the widely used

Image 6.2 Non-intentional and intentional factors for non-adherence to therapy
Source: Onzenoort HAW van. Therapietrouw. Geneesmiddelenbulletin 2012;46:49-55.

Non-intentional factors	Intentional factors
Forgetfulness (e.g., due to a complex dose regimen, polypharmacy)	Patient considers the treatment unnecessary (e.g., asymptomatic condition)
Limited ability to understand the treatment	Negative attitude towards specific, prescribed medicine
Unrecognisable medicine (change of medicine, change of packaging)	Concerns about medicine (side effects, dependence, addiction)
Costs of treatment (additional payments)	Lack of faith in treatment
Illiteracy	Lack of knowledge
Impaired vision	Condition is seen as stigmatising

Beliefs about Medicines Questionnaire, a list of statements that give insight into patients' attitude towards medicines.

The scope of medication adherence

Different methods have been developed to measure medication adherence. This can be done using a direct method, such as measuring blood levels, or through an indirect method, such as letting patients fill in a questionnaire. Due to the high costs of direct methods, indirect methods are used much more often. A widely employed method uses pharmacy data to compare the amount of delivered medicines with the amount of prescribed medicines. The user is adherent when the relation between these two is at least a certain percentage (often 80 percent).

Determining how many people are actually adherent is far from easy, as adherence differs considerably per disease. In addition, there are many different definitions of adherence and the used measurement methods yield varying results. International studies arrive at average percentages of around 50 percent non-adherence.[17,18]

Serious consequences

The consequences of non-adherence are severe. Firstly, the intended effect of the medicine does not occur or is insufficient. This negatively affects the patient's health and also leads to additional medical treatments, such as GP consultations and hospital admissions. In addition, there are negative financial consequences. The money spent on the medicine is partly or completely wasted and more money is spent unnecessarily on additional medical treatments. Considering the sheer size of this phenomenon, it is safe to say that, financially, non-adherence is the single most wasteful factor in the pharmaceutical care sector. Improving medication adherence is therefore high on the agenda.

According to the WHO: 'Increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments'.[19]

How do we improve medication adherence?

Throughout the years, a large number of interventions have been developed to improve medication adherence. Van Dulmen and colleagues published an extensive review of related research literature.[20] They used a division into four types of interventions.

1 *Technical interventions* are usually aimed at simplifying the dose regimen. One method is to decrease the number of intake moments per day using longer-acting preparations. Another possibility would be to decrease the amount of medicines using combination preparations. The use of a dosage box or medication roll also offers a suitable solution. A medication roll contains one sachet of medicines for each intake moment.

2 The most widely used *behaviour interventions* provide patients with reminders. This can happen online or in an email, through telephone calls, text messages or during a home visit. Other behavioural interventions include monitoring medication use through calendars or diaries and giving feedback, support and rewards.
3 *Education* is aimed at increasing knowledge and skills. Information can be transferred orally or in writing, during a face-to-face contact or a telephone conversation, in an email or during a home visit. Van Dulmen and colleagues point out that the effects of education are reduced over time.
4 The final intervention is the *complex multiple intervention*, which is a combination of several of the aforementioned single interventions.

The following conclusions can be drawn based on research literature about medication adherence:

- a large number of interventions are effective, but their effect is often limited or disappears after some time;
- most interventions are carried out on a small scale and discontinued after the study has come to a close. Later implementation on a larger scale rarely occurs;
- effective interventions with lasting results are often rather complex and labour intensive and therefore unsuited to implementation in the daily practice;
- an important part of non-adherence is related to the patient's views. Most healthcare providers do not pay sufficient attention to these personal opinions and lack the knowledge and skills to deal with them adequately.

A good example of an effective intervention is the New Medicine Service (NMS), which was introduced in England in October 2011. The community pharmacist has two conversations with new users of medication for five chronic conditions. The effects of NMS have been researched in a well-conducted randomised controlled trial. The conclusion of this study is that NMS increases medication adherence with 10 percent after 10 weeks and saves costs.[21] Based on these results, NMS has been continued in England. In October 2014, an extensive study commenced in Norway into the effectiveness of a similar intervention named 'Medisinstart'.[22] This healthcare performance also seems a suitable option for other countries.

Conclusion

In the field of medication adherence, considerable improvements are still possible. This will lead to health improvements and cost savings. In recent years, relatively little progress has been made in this area. Now it is time to break this impasse, and there are plenty of opportunities to do so. It is important for healthcare providers to pay more, and more adequate, attention to this matter through motivational interviewing, an individual care plan and regular conversations with patients about

medication-related issues. In addition, there are more, and more technical, ways in which healthcare providers can help patients. Examples include e-health and the application of specifically designed apps on mobile phones (m-health).

6.5 THE NEXT STEP

Image 6.1 shows that there are large international differences in the use of different, frequently applied drug classes. These differences cannot be explained by morbidity rates. This means that improvements in the prescription of medicines are still possible. This also applies to the supervision of medication use and medication adherence. In order to realise this goal, many countries have worked to develop a more person-centred and integrated pharmaceutical professional practice in the past decades. Nevertheless, the development of pharmaceutical care is still very slow in many countries. How can this be improved upon?

Research results

What do we know by now about the results of pharmaceutical care? Over the past years, some excellent systematic reviews have been published about this matter. These reviews mainly stem from the Cochrane Library. Nkansah and colleagues carried out a review to examine how pharmaceutical care executed by pharmacists influenced patient outcomes and prescription patterns. They found positive results for pharmaceutical care activities, such as patient counselling, therapeutic management and providing recommendations to physicians to improve their patients' care process and clinical outcomes.[23]

Ryan and colleagues carried out a review into interventions that promoted safe and effective medication use by patients. They studied 75 different reviews and concluded that there are many different approaches to arrive at results, but that there is no single approach that is effective in all situations. They also concluded that simple dose regimens and the activation of pharmacists through, e.g., medication reviews seem promising approaches.[17]

The review carried out by Nieuwlaat and colleagues was aimed at interventions that improve medication adherence. They observed that there is no evidence that low adherence can be 'cured.' Effective methods for the improvement of adherence have the same duration as the treatment. This requires interventions that can be integrated into the care system in a cost-effective manner.[18]

Naturally, the financial effects of pharmaceutical care programmes are also important. However, very little research has been done in this area. Touchette and colleagues carried out a review of economic evaluations of pharmaceutical care programmes between 2006 and 2010. Only 25 studies met their inclusion criteria. They concluded that these economic evaluations had been executed relatively well and that their results were generally positive. Most programmes were cost-effective or provided a good benefit-cost ratio.[24]

Although most studies about pharmaceutical care report positive results, the Cochrane reviews are more reticent in issuing positive statements about the effects of pharmaceutical care. The reason is that most studies only partially fulfil the strict requirements a Cochrane review imposes on the outline, execution and conclusion of a study. More extensive and more detailed research is then necessary to completely meet these demands.

Mossalios and colleagues studied the transformation of community pharmacists from retailers to healthcare providers in six different countries. They concluded that policy that aims to facilitate this development should focus on the actual integration of community pharmacists in primary healthcare, the development of a shared view on different pharmaceutical services and the development of new incentives for the improvement of quality and outcomes.[5]

Very little research has been carried out into contemporary developments in pharmaceutical care in different countries. Martins and colleagues studied the professional practice of community pharmacies in 19 European countries. They reported the presence of pharmaceutical care services in fourteen countries. In nine countries, these services were eligible for reimbursement. However, the study does not provide any information about the content of these services.[25]

Important conditions

Three conditions are particularly important for the improvement of pharmaceutical care.

1 Availability of a patient medication record: A complete and up-to-date patient medication record per patient is an essential tool for community pharmacists to realise the quality and safety of medication use. In some countries, such as the Netherlands, this has already existed for several decades. However, in some countries it is still not, or only limitedly, available. An important aspect of the use of this patient medication record is that it can also be accessed by other healthcare providers. After receiving patients' approval, all community pharmacies and hospitals in France have access to their patient medication record of the past four months.[26]
2 Reimbursement of the service: It is of great importance for the development of a pharmaceutical care activity that this activity is made available as a service and eligible for reimbursement. Countries differ considerably in the extent to which this is possible. The national pharmaceutical policy plays an important role. In England and Scotland, a remarkably high number of services are available. In England, each community pharmacy delivers seven 'essential services'. In addition, community pharmacies in England can, under special conditions, offer five 'advanced services' and 20 'enhanced services'. Two noteworthy services include the administration of flu vaccinations and

prescription of medication.[11] Since 2013, Scotland uses the innovative 'chronic medication service'. Through this service, community pharmacies can carry out a large number of activities to support optimal medication use by people with chronic conditions.[27]

3 Cooperation between community pharmacists and doctors: For many activities in pharmaceutical care, cooperation and agreements between community pharmacists and doctors are essential. In the Netherlands and several other countries this is usually unproblematic. However, there are quite a few countries in which this is less self-evident, partly due to the rather isolated position of community pharmacists in those countries. It is crucial to the further development of pharmaceutical care in those countries that this is improved upon.

Conclusion

All in all, there are still ample opportunities for the improvement of pharmaceutical care. This also applies to other countries, including those at the forefront of this development, such as England, Scotland and the Netherlands. An improvement of pharmaceutical care does not only yield better healthcare, but also results in cost savings. A policy aimed at this goal should therefore be part of every country's national pharmaceutical policy.

More research of a higher methodological quality is needed to fully substantiate the positive effects of pharmaceutical care activities. This research also yields information that can be used in the further development of pharmaceutical care. For this same reason, there is also a need for more substantive and comparative, international research of contemporary pharmaceutical care.

6.6 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how does pharmaceutical care contribute to the realisation of the Triple Aim in the coming years? The studies on which answers have been based have been discussed in sections 6.4 up until 6.6.

Triple Aim 1 Improving population health

1 Pharmaceutical care improves the quality and safety of medication use.
2 Pharmaceutical care may lower the number of hospital admissions through a decrease in the number of avoidable hospital admissions.

Triple Aim 2 Increasing quality of care for the individual

1 Pharmaceutical care may improve the quality of prescribing medicines.
2 Pharmaceutical care improves the quality and safety of medication use.
3 Pharmaceutical care may improve medication adherence.

Triple Aim 3 Lowering per capita costs of care

1 Pharmaceutical care may lower the costs of medication use.
2 Pharmaceutical care may lower hospital costs through a decrease in the number of avoidable hospital admissions.
3 Economic evaluations of pharmaceutical care programmes are often positive.

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7 Integration of health and social services

This chapter starts by dividing the integration of health and social services into four components (section 7.1). Each component is discussed in one section: case management (section 7.2), youth health and development (section 7.3), addiction care and urban safety (section 7.4) and last but not least mental healthcare and social services (section 7.5). The four components are introduced with case studies. Section 7.6 contains the lessons learned from these studies and presents a more general theory on this type of integration. The final section (section 7.7) presents an answer to the research question of this book based on the findings in this chapter.

7.1 INTRODUCTION

In many OECD countries, social services deal with the following social problems: youth health and safety, employment services, social allowances, debt assistance, sheltering refugees, support provided by informal carers, relationship problems between adults, care for the elderly and care for people with chronic conditions and mental or intellectual disabilities. In the past ten years, vertical integration has occurred within social services. This has led to increased legislative alignment between the government, provinces and municipalities. Horizontal integration also occurs. Within a certain district, one social team provides social services in different domains in a cohesive manner. The example given below illustrates this cohesion.

Image 7.1 An example of integration within social services

A family struggles with educational problems caused by domestic violence. The father is unemployed and the mother beats her two children. The parents have a bad relationship. This is partly caused by the debts the family are running up. A case manager of the (horizontally integrated) social team helps the father find gainful employment, corrects the mother's violent behaviour and restructures the family's debts.

Horizontal integration within social services occurs in four ways that are also used in health services: employing case managers as illustrated in image 7.2; working under one roof, which social services calls working with one-stop service delivery; working with multidisciplinary social teams; using collaborative information/consultation exchange platforms for social professionals. In 2016, Montero and colleagues[1] published an overview of the degree of integration of social services in European countries. Remarkably, numerous countries appeared to have introduced new legislation to promote vertical and integral integration. This happened in, among others, the United Kingdom, Finland and the Netherlands. Recently, Brazil merged her acts on health and social services and placed the responsibility for both in the hands of the municipalities. This development came to light at the 2015 World Congress on Integrated Care in Mexico City, and more than one other Latin American country followed Brazil's example. Montero and colleagues show many good practices of integrated social services. They collected evaluation studies that illustrate these positive effects.

It does not fall within the scope of this book to discuss this matter in great detail: this book deals with integrated care and not with integrated social services. Integration occurs both in health services and social services. Both processes function more or less independently. A literature search on cohesive horizontal integration of both processes did not yield any publications.

Perhaps this form of integration is simply too new, or perhaps its effects are too difficult to measure. When many changes take place simultaneously, it becomes difficult to distinguish between the results of the integration of health and social services and the results of other causes. To illustrate: in the United Kingdom and the Netherlands, the decentralisation of social services coincided with budget reductions for these same services.

This chapter therefore first introduces four case studies (see section 7.2 up to and including 7.4). Based on these four, a theoretical model is given for ideal service integration between health and social services. These four examples all come from the Netherlands, which allowed me to personally interview professionals about their cases.

7.2 A WOMAN WITH A FROZEN SHOULDER

A fifty-year old woman visits the physiotherapist at primary healthcare centre Reeshof in the Dutch town of Tilburg. Her neck and shoulder are frozen. The physiotherapist treats these stress-related complaints. He diagnoses her with depression. He continues to treat her, but also refers her to the GP and her >>

>> assistant (a psychologist) for mental health services. After several sessions, the psychologist knows the cause of her depression: her husband's behaviour has changed ever since he had a mild stroke. He has stopped being an affectionate partner and has turned into a demanding dictator. The woman works fulltime and her husband's new behaviour has become too much for her. She sees her unhappy marriage as a source of shame. This information reaches the GP, who refers the woman to the social worker.
Unlike all the other professionals at the Reeshof health centre, this professional is paid by the Municipality of Tilburg and not by the Social Health Insurance Act.
All the other health professionals know her personally. The social worker visits the woman and her husband in their own home. She makes sure the husband understands how his behaviour affects his wife and his marriage. The social worker fixes their relationship by proposing a new household task distribution, and also arranges short-term domestic help. After a couple of weeks, the woman only visits the physiotherapist. The next time she visits the Reeshof health centre, she is looking happier and more confident. When she meets the social services consultant in the corridor, she greets her with a triumphant smile: her life is back on track.

This is a real-life story as told by the aforementioned GP and the social worker at a 2015 congress during which the city of Tilburg and the most important health insurance company signed a cooperation contract for health and social services. In this case, the health centre functions as described in chapter 2.

The social worker is a member of the social services team for Reeshof. This team has fifteen members and is called a social district team (social wijkteam). In this case, the social team's ultimate aim is not the client's health and neither is health its core business. Instead, it aims for patient participation and mobilises clients to solve their own social problems. It owes its existence to a widely supported development: the Netherlands is moving away from its former status as a welfare state and towards becoming a civil society. The social team deals with the following social problems: unemployment, living without income, debt assistance, social isolation, respite care and support provided by informal carers, racism, sexism and relationship problems. However, the team does not provide youth healthcare, as this is already provided by so-called family centres, which will be described in the second case story of this chapter. The social team has good contacts with other municipal services, such as the municipal housing agency and the police district team. If necessary, it refers clients to other services, such as churches, voluntary organisations, and drug addiction and psychiatric care.

There are three reasons why the case story described above is exceptional for the Netherlands. The first of these is that health teams and social teams usually only know very little about each other and only cooperate incidentally. Secondly, the highest authorities of both teams, the CEO of the insurance company and the alderman for social services, support this cooperation on a strategic level. They try to disseminate this model to other districts and villages. Thirdly, the social worker in this case story has the authority to prescribe domestic help, unlike most social workers in the Netherlands. This means they are only allowed to develop an inventory of the client's social needs and have to ask a back office at a central municipal agency for permission to mobilise domestic help.

I identify a couple of success factors for this service integration.

1 It started with an integrated primary healthcare team, the GP in a leading role and professionals who were able to identify health problems outside of their own discipline. The physiotherapist, for example, was able to recognise symptoms of depression.
2 It also started with an integrated social team that was able to tackle many different social problems. In previous years, the Netherlands had been home to many separate providers for, e.g., social integration of immigrants and refugees, debt assistance, unemployment and financial support and rehabilitation of addicts, psychiatric patients and people with intellectual disabilities who live in day centres that do not organise any activities. Nowadays, nearly all these activities are covered by the social team.
3 The social team is not on the municipal payroll. Although they are financially connected to the municipal council by the purchaser-provider split (explained in chapter 15), the team nonetheless works independently. The council is not able to intervene in individual cases. This independence enlarges the health team's trust in the social team.
4 The different teams for healthcare and social services have not been merged. The teams only cooperate for people with both health and social problems, as the case story illustrates. However, both teams work for the same district, which has a population of about 50,000.
5 The social worker and the health professionals work under the same roof. This familiarity means that health team members trust her on a personal level and this trust is fuelled by regular personal encounters. Their professional trust in her stems from their awareness of her expertise. Her successful intervention in the case of the two spouses further advanced her reputation. In this case, she found a solution for the couple's marital problems. However, she has also been trained to solve problems related to finances, housing and addiction.

These five lessons learned form a building block for the theory of the integration of health and social services (see section 7.5).

7.3 FAMILY CENTRES WITH DIFFERENT CULTURES

Family centres in the Netherlands deal with four types of developmental and pedagogical problems affecting under-18s: externalising behaviour (e.g., children with ADHD), internalising behaviour (e.g., quiet children who suffer from depression), child abuse, and being witness to domestic violence.
A developmental problem indicates an internal problem, such as autistism. A pedagogical problem can be caused by parents or the child's direct environment. Parents may lack certain competences needed to raise a child; or the child grows up in unfavourable circumstances, such as a (violent) divorce, poverty or homelessness. In 2005, a Dutch committee called Inventgroup[2] proposed to introduce family centres: a development that was supported by governments in several countries. Nowadays, the Netherlands is home to hundreds of these centres. They all have their own youth teams, which consist of youth health physicians, youth health nurses, educationalists and social workers. The family centres in Rotterdam and its surrounding municipalities are a case in point. The foundation Family Centres Greater Rotterdam (CJG Rijnmond) has been active since January the 1st 2010 and currently runs 22 centres and 70 buildings in Rotterdam and nearby municipalities. In 2014, the organisation delivered care to nearly 280,000 children below the age of 18.
It boasted 750 employees and a turnover of 43 million euros. Within the municipality of Rotterdam, this foundation also employs all youth health physicians, youth health nurses, educationalists and other parent supporters. Over time, a management structure has been established within these centres and between them and the board of directors. Joint software and a joint child record (Kidos) have also been created. Employees and managers have designed a pedagogical vision based on three principles: supporting, stimulating and guiding.
Thanks to Kidos and this new vision, fewer (parents with) children failed to show up to appointments with youth healthcare and the Netherlands managed to reach better vaccination coverage. Work groups, consisting of professionals and managers from these centres, designed decision trees and care pathways for children with presumed developmental and pedagogical problems. These children are detected at a younger age. A similar package of basic tasks was established for all family centres in Greater Rotterdam.

The case of Greater Rotterdam is exceptional. In other parts of the country, professionals are employed by the original provider and are contracted to the family centre. In this context, a youth team does not perform a leading role, as professionals simply apply the guidelines set out by their mother organisation. Although Greater Rotterdam solved these problems, it still struggles with the professional, cultural clash between different youth healthcare professionals as image 7.2 shows.

Cultural differences between physicians, nurses and educationalists are obstacles for the integration of health and social services. This finding forms another building block for the theory of the integration of health and social services, which will be proposed in section 7.6.

7.4 PUBLIC MENTAL HEALTH RESULTS IN A SAFE CITY CENTRE

The Dutch city of Utrecht is home to a large, covered shopping centre: Hoog Catharijne. Twenty years ago, hundreds of people were living there permanently, as it provided shelter from the elements and was preferable to living on the streets. Professional literature and mass media used different terms to describe these shopping centre dwellers: psychiatric patients, drug addicts, illegal immigrants, ex-convicts

Image 7.2 Examples of cultural clashes during integration of health services and social services for youth

•	Children with externalising, aggressive behaviours may be detected by GPs or by a professional at the family centre. While the former usually diagnose children with ADHD and prescribe medication e.g. Methylphenidate (also known as Ritalin), the latter prefer a psychosocial approach without medication. Until now, there has been no integrated multidisciplinary pathway for GPs, psychologists and educationalists to diagnose and treat these children, because each profession has its own culture, history and scientific domain
•	Children between 0 and 4 years of age visit a youth health clinic 11 times. Half of these appointments are with youth health doctors (social paediatricians) and the other half with youth health nurses. The former prescribe medication and try to detect developmental disorders. The nurses provide young parents with educational advice. More than one experiment has been carried out to explore the possibilities of transferring responsibility for the physician's activities to the nurse and consequently stimulating personal continuity: one and the same youth health nurse per family. In reality, this proved rather difficult to implement. Both groups clung to their own professional guidelines and scientific domains. After many years, the Municipality of Utrecht finally starts with this task reallocation from physicians to nurses
•	Dutch family centres are often housed in beautiful buildings and situated in the centre of a district. This creates an easily accessible and user-friendly accommodation where parents can have a cup of coffee after they bring their children to school. However, introducing a common reception, one general phone number and one uniform for all professionals often appeared to be a step too far
•	Apparently, professionals want their own professional status to remain clearly visible. Changing existing professional statuses will again take many years

and homeless people. Their presence compromised the safety of shopping citizens. In the late 1990s, the municipality of Utrecht sold its shares in the municipal energy company. This brought in a great deal of money.

A part of these newly acquired financial resources was used to combat public nuisance in Hoog Catharijne through cooperation of health services, social services, other public agencies, the shopping centre and the Netherlands Railways. Users' areas, hostels and a targeted approach were all employed.

The operation proved a great success in 2006. Based on these experiences, the Minister of Finance (!), Gerrit Zalm launched an interdepartmental plan to combat homelessness in Utrecht, Amsterdam, Rotterdam and The Hague. This plan started in 2006 and ended in 2014.

This cooperation resulted in a safe and rejuvenated shopping centre. The aforementioned group of homeless people now have:

- day and night centres in and around the shopping centre, run by the municipal health services, including a centre for addiction care and psychiatric care where addicts can take their drugs out of sight of the public;
- street doctors with consultation hours in these centres and screening facilities for TBC and other infectious diseases, run by the municipal health authority;
- six hospices outside the city centre, where severe drug addicts can live 24 hours a day and are not required to quit, run by the Salvation Army and other private institutes;
- an institute where untreatable, severe drug addicts can stay and receive their heroine under medical supervision as part of a scientific experiment. Similar institutes and practices already exist in other big cities in the Netherlands;
- a methadone delivery service, which no longer requires clients to go to the centre of town to get their fix;
- a special FACT team (see section 10.6) for people with severe mental illness;
- many guidelines for cooperation between police and health services;
- limited access to the shopping centre during evenings and nights.

This integration did not require the creation of new legislation[2] or the merging of organisations. The following factors contributed to its success:

- a sense of urgency was felt in society about this social issue and public health problem;
- all actors of the shopping centre shared the same ambition: solving the problem;
- the idea of not only solving a safety problem that affected shopping citizens, but also reducing the problems that affected the homeless;
- the application of different paradigms: homeless people were not only seen as patients, but sometimes also regarded as criminals.

These points will return in section 7.6, which presents a model for the integration of social services and health services.

7.5 MENTAL HEALTH SERVICES AND SOCIAL SERVICES

In 2012, Dutch general practitioners expanded their domain into mental health services. They received resources to appoint an assistant for mental health problems. These 'mental health assistants' can be psychologists, social workers or psychiatric nurses.

They cater to patients with minor mental problems, such as stress, mild depression, mild anxiety, relationship problems and insomnia. The patient with the frozen shoulder and temporary depression in section 7.2 is an example of the kind of patients these mental health assistants are qualified to treat.

In 2013, this expansion of the primary healthcare domain (already described in section 3.2) resulted in a huge reduction, from 800,000 to 700,000, of psychiatric patients treated in mental health institutions.[3] In 2014 and 2015, this reduction continued, not only due to the aforementioned expansion, but also because of the creation of social teams, as described in section 7.2.

Now that this integration between physical and mental health services has been instigated, professionals and policy-makers are also free to develop the integration of mental health services and social services. In practice, these domains are closely connected. When clients/patients with mental health problems complete their treatment, they enter a period of recovery. Quite often, they have to start all over again. They have to find a new job or new educational opportunities, a new partner, new friends and new accommodation. At this stage, they are still very vulnerable. Recidivism and relapse lie in wait. Recovery support forms an integral part of mental healthcare, comparable to rehabilitation after a stroke, a heart attack or an oncological treatment. There are twelve leading principles that apply to recovery support. These principles were created in 2012 by the Substance Abuse and Mental Health Services Administration (SAMSHA), a branch of the U.S. Department of Health and Human Services.[4]

The sixth principle is that recovery is supported by a continuum of care and well-being. For health services, this means that recovery support is a task for mental healthcare on all levels: in primary care, in specialised mental healthcare and in psychiatric hospitals. The American researchers Cook, et al. have shown that recovery support is effective.[5] The Utrecht researchers Den Ouden and colleagues (myself included) carried out a qualitative study into recovery support by ex-clients/patients of large psychiatric institutions.[6] They concluded that the added value of recovery support lies in the fact that it facilitates a more gradual transition from admission to recovery.

The following things can be learned from this case:

1 integration of mental health services and primary healthcare preceded integration of mental health services and social services;

2 recovery after treatment is often related to finding a new job or school, a new partner, new friends and a new home. These are all elements of the social domain. During a patient's recovery phase, there is a high risk of relapse and recidivism;
3 continuity between treatment and recovery should be gradual. The recovery phase should start before the treatment ends;
4 recovery support by trained fellow patients/clients is effective.

A comparison of the four case studies

These four cases clearly show that social services have other aims than health services. After all, creating a safer shopping centre and offering high-quality healthcare to drug users are two very different aims. In social services, health is sometimes seen as a means to an end, e.g., children who are both physically and mentally healthy, will do better in school. Here, health is not an ultimate aim but a resource. Conversely, social services are also a means to reach health, e.g., if people have a house, friends and other basic goods, as introduced by Skidelsky and Skidelsky (see section 5.4); there is a fair chance they are also in good health.

Integration of social and health services is an attractive prospect, as shown by the case studies. However, social services are also linked to housing agencies, schools and police stations. Too much integration with health services also causes disintegration with these other sectors.

Another phenomenon these four case studies have in common is that the role of physicians in the integration of health and social services is only a minor one. The doctor is needed for a good diagnosis (somatic, psychiatric, addiction or intellectually disabled), but most activities related to the actual cooperation are carried out by nurses and social workers.

My final remark about the case studies concerns the lack of digital data communication between health and social services. This created large implementation problems in the four cases discussed in this chapter. Chapter 17 about information technology and integrated care shows theoretical and practical solutions for this lack of data communication.

7.6 A THEORY FOR THE INTEGRATION OF HEALTH AND SOCIAL SERVICES BASED ON THE FOUR CASE STUDIES

Image 7.3 shows the conditions for cooperation between health services and social services that can be gleaned from the four case studies. These conditions are structured according to Butt's model, described in section 3.2:

1 basic conditions;
2 organisational conditions; and
3 social conditions.

Basic conditions	
1.	A sense of urgency felt in society and by commercial companies about a social and health problem accelerates integration between health and social services (section 7.4)
2.	The collective ambition of all health and social actors encourages integration (section 7.4)
Organisational conditions	
3.	The health and social teams in a district or small city of about 50,000 inhabitants do not merge. These teams only cooperate for people with both health and social problems (section 7.2)
4.	The social service team works independently of the municipal council. The latter cannot intervene in individual cases. This independence enlarges the health team's trust in the social team (section 7.2)
5.	Social workers and health professionals work under the same roof. This familiarity means that health team members trust their social service colleagues on a personal level and this trust is fuelled by regular personal encounters. Their professional trust stems from their awareness of each other's expertise
6.	The social worker has an overview of social services provided by professional organisations and volunteer groups (section 7.2)
Social conditions	
7.	Different paradigms in health and social services are applied in a respectful fashion. This enhances insight into the origin of the problem and the cohesion of solutions within different domains. Problem owners may be seen as patients, but sometimes also as criminals (section 7.4)
8.	Recovery is seamlessly connected with treatment and starts before the (somatic or psychiatric) treatment ends. It often has to do with finding a new job or school/university, a new partner, new friends and a new home. These are all elements within the domain of the social worker (section 7.4)
9.	Recovery support by trained fellow patients/clients is effective. It is therefore an essential element of the integration of health services and social services (section 7.5)

Image 7.3 Conditions for integration of health services and social services based on the described case studies

Source: See sections 7.2-7.5

7.7 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can the integration of health and social services contribute to achieving the Triple Aim in the years to come? A finding is called plausible, when it has been substantiated witha theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 Improving population health

It is plausible that the integration of health and social services that answers to the basic and organisational conditions in image 7.2 will improve the health and wellbeing of patients who have both health and social problems.

Triple Aim 2 Increasing quality of care for the individual

It is plausible that the application of different paradigms in health and social services leads to better explanations for the cause of health and social problems and to a wider range of interventions to tackle these problems.

Triple Aim 3 Lowering per capita costs of care

Recovery interventions in social services after treatment interventions in health services and recovery support by fellow patients lower cost per inhabitant.*

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PART 3 PATIENTS AND PROFESSIONALS AS PARTNERS

8 Self-management support and integrated care

Integrated care might weaken the position of patients. When professionals make agreements about guidelines for care delivery and task distribution, personalised care and and patients' freedom of choice will become jeopardised. It is important that cooperating professionals see patients as partners, as co-producers of health. In order to be a co-producer, patients need knowledge and skills. This chapter deals with how these can be acquired. As soon as patients have been thus educated, they will be able to share decisions about their own health and healthcare. This will be discussed in chapter 9 about shared decision-making.

The topic of patients' acquisition of knowledge and skills is not a modern one. On the contrary, the history of public health since 1850 (section 8.1) shows it has existed for a long time. Both past and present show that only an integrated approach carried out by professionals, social organisations and the government truly promotes healthy behaviour in citizens (section 8.2). An important part of this approach is promoting self-management in people who deal with chronic conditions. To this end, numerous interventions have been designed (section 8.3), which deserve a place within integrated care (section 8.4). The final section (section 8.5) answers the question of how self-management within integrated care contributes to the realisation of the Triple Aim.

8.1 SINCE 1850 CITIZENS HAVE CHANGED THEIR HEALTH BEHAVIOUR

Throughout history, the following preventive interventions have enjoyed great success:

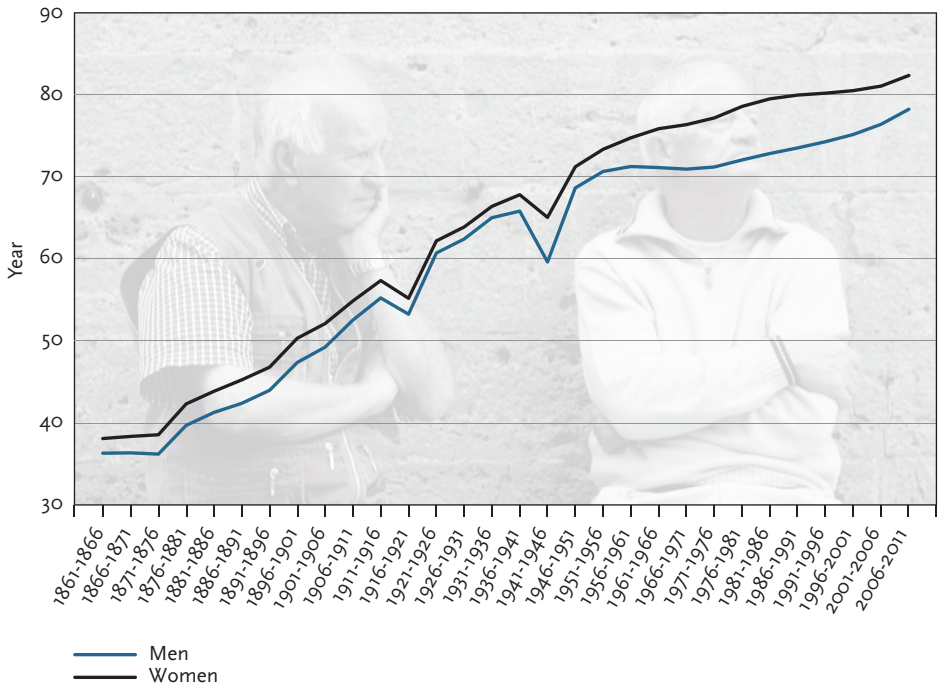
1 the introduction of hygiene improvement since approx. 1850;
2 the reduction of alcohol consumption in the period between 1880 and 1960;
3 the reduction of child mortality through vaccination and screening;
4 the reduction of the number of road fatalities since 1950; and
5 the fight against tobacco consumption since approx. 1960.

Images 8.1-8.4 show the success of prevention regarding prolonged life expectancy, reduced alcohol consumption, reduced road fatalities and diminished tobacco consumption in the Netherlands. In 1976, McKeown, a British professor in social medicine, caused a stir when his calculations suggested the reduction in mortality in the 19th and 20th century was caused by improved hygiene and living conditions rather than advances in medical science. The five mentioned preventive interventions were aimed both at people's direct living environment (e.g. the construction of sewers and water pipelines) and at their behaviour (e.g., boiling water before using it). Influencing people's behaviour and adapting their living environment appeared to be an excellent way of improving public health.

The same goes for the other three preventive interventions: a combination of both environmental adjustment and the promotion of healthy lifestyles proved effective (see images 8.2-8.4).

A new instrument to promote healthier behaviour was added to this combination: the fiscal health policy. Excises on unhealthy products, such as alcohol and tobacco, worked as a financial nudge (see section 12.1) and reinforced healthy behaviour even further.

Image 8.1 Life expectancy at birth in the Netherlands between 1866-2011



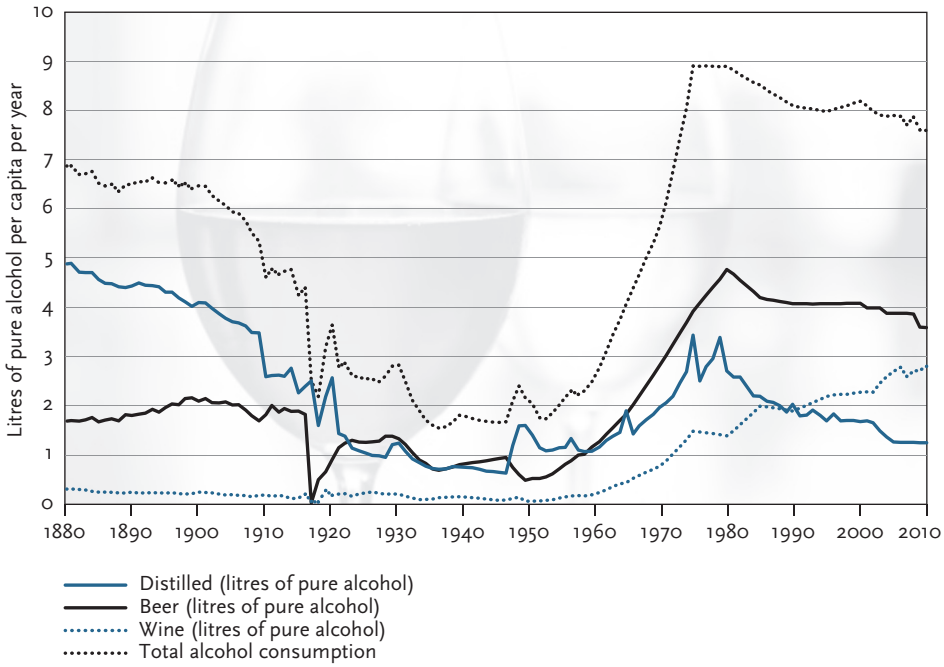


Image 8.2 Alcohol consumption in the Netherlands: beer, wine and spirits 1880-2011

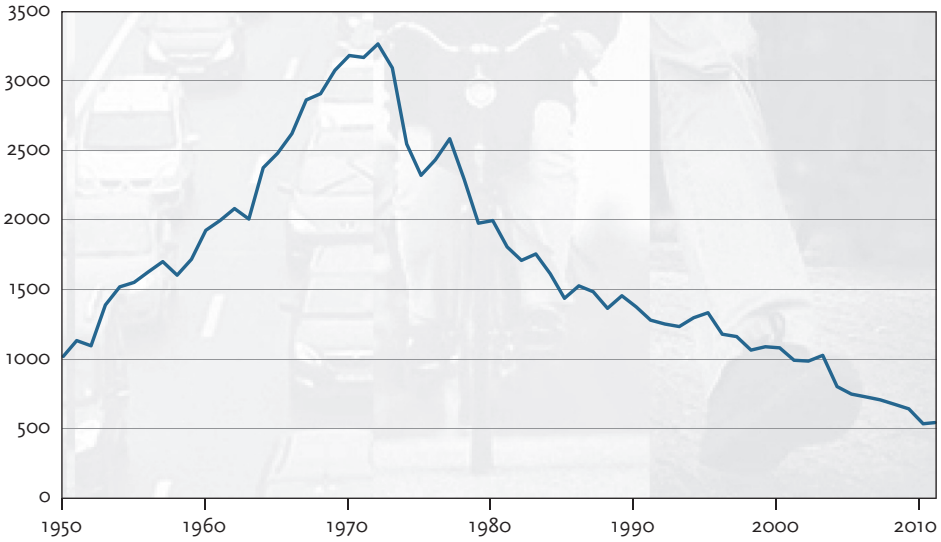


Image 8.3 Road fatalities in the Netherlands 1950-2011

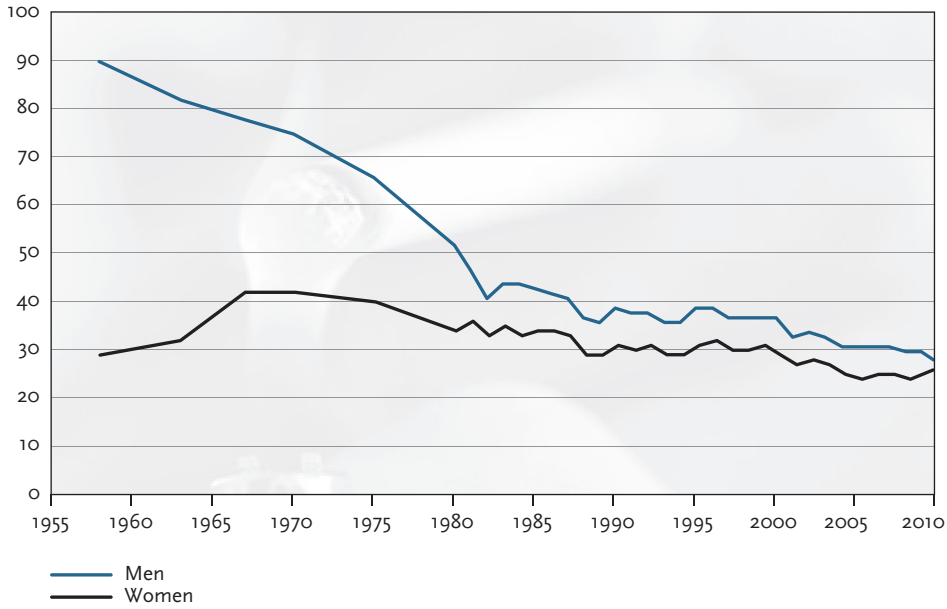


Image 8.4 Percentage of smokers, men and women 1958-2010

In the past, the three elements (environmental adjustment, healt promotion and fiscal health policy) were integrated in the Netherlands and other countries.[1]

History provides us with valuable lessons when it comes to designing modern preventive interventions that combat overweight, a lack of exercise, excessive salt consumption and stress. It also inspires us to continue existing interventions aimed at the reduction of alcohol, tobacco and drug consumption. In this book, I will focus on the promotion of healthy lifestyles and refrain from discussing environmental adjustments, such as the reduction of air pollution and fiscal health policies, such as the fat tax and the sugar tax.

8.2 ONLY MULTI-ACTOR MODELS WORK IN PREVENTION

The truth in these historical examples has been confirmed in recent studies about stand-alone health promotion without environmental changes and financial incentives. A stand-alone programme for health improvement in primary healthcare or at the workplace is ineffective. That is what Robroek and colleagues conclude in a literature overview of 23 different studies.[2]

Based on corresponding research, recent dissertations about similar projects written by Dutch researchers Broekhuizen,[3] Strijk[4] and Verweij[5] arrive at the same

conclusion: lifestyle interventions at the workplace do not have a significant impact on the lifestyles of employees.

Outside of the work floor, health improvement also fails to take effect. In an extensive overview study, Koopmans and colleagues[6] confirm the findings of the aforementioned recent studies.

They conclude that there is little willingness to participate and a lack of adherence when it comes to interventions that tackle unhealthy lifestyles: a third to 50 percent of the target group does not participate at all or quits prematurely. In 2012, Orrow[7] published a literature study about the effects of exercise programmes in primary care. With a heavy heart, he concludes that they have hardly any effect at all and subsequently discourages GPs to refer their patients to such programmes. Metcalff[8] presents similar findings about exercise programmes for children.

Based on their overview study, the aforementioned Koopman and colleagues point out that successful lifestyle interventions:

1 are tailored to a specific group;
2 make use of a cohesive set of activities and environmental measures;
3 are participated in by many actors and sectors, including the target group;
4 have a sufficient duration and a degree of continuity.

Their conclusion tallies with the aforementioned historical lessons learned. Here, we see a new type of integrated care.

The difference is that this type of integration does not occur between primary healthcare providers and medical specialists, but between primary healthcare and institutions that also carry out preventive interventions, such as healthy schools, sports clubs, supermarkets, gyms and local public health authorities.

This integrated, multi-actor approach is supported by more than one project in the Netherlands. The list of examples includes the community-based Heart Beat project in the province of Limburg;[9,10] the *B. Slim Move More Eat Healthy* project in Amersfoort;[11] and *Healthy Overvecht* in the city of Utrecht.[12] This latter project is based on the Big Move (www.bigmove.nu) concept. Other countries also boast interesting multidisciplinary, multi-actor preventive programmes. Of all these, the Vitality Health Promotion Programme in South Africa is one of the most successful and well-known. It uses financial incentives and cooperates with supermarkets, gyms and health insurance companies. The Vitality programme is successful in achieving its goals: increasing participants' health and lowering their costs of care.[13,14,15]

At the end of this section, I would like to shed some light on a different type of integration in the preventive domain.

Although empirical evidence is not available, it is not unlikely that simultaneously tackling several different unhealthy habits is more effective than tackling them one by one. There are three arguments to support this. Firstly, different unhealthy habits can have a common source, such as a lack of willpower. Peer-pressure, for example, might cause adolescents to drink too much alcohol, smoke and use cannabis.[16] Secondly, there is an epidemiological argument: the clustering of unhealthy habits in specific target groups. People who do not exercise enough often also have unhealthy eating habits. Alcohol use and smoking also often coincide. For such groups, it may be effective to simultaneously tackle a cluster of unhealthy habits. Horn and colleagues provide us with an example: they show how stimulating people to exercise and to quit smoking can go hand in hand.[17] Thirdly, different professional interventions that tackle unhealthy lifestyles are partially comparable: they all require basic competences and a didactic approach. My hypothesis is that the collective, deeper causes of different unhealthy habits can be tackled more effectively using an integrated approach.

8.3 ENFORCING SELF-MANAGEMENT THROUGH PATIENT EDUCATION

The discussion above dealt with the promotion of healthy lifestyles among citizens who were not patients at that time. Only an integrated approach, with cooperating health professionals, schools, supermarkets and sports clubs, seemed to work. Is such an approach equally effective for patients to whom care is already being provided? Or in other words: does an integrated approach promote patients' self-management? Image 8.5 contains a definition of self-management and similar concepts. The discussion below only deals with this first concept and patient activation. Patient engagement on a policy level is discussed in chapters 19 and 20 about leadership and change management in integrated care.

Image 8.5 Definition of self-management and related terms

Self-management	Patients' deliberate attempts to manage their own condition and participate in decision-making processes and treatment provided by health professionals
Patient activation (synonyms: patient empowerment; self-management support)	Educational and other activities that are carried out by professionals and support self-management
Patient engagement	Patients, families, their representatives, and health professionals are working in active partnership at various levels across the healthcare system—direct care, organisational design and governance and policymaking—to improve health and healthcare[34]

Self-management is preceded by the acquisition of information. This will be discussed in the following paragraph.

Patients acquire information from professionals, the internet, mass media, family, friends and decision aids. They are mostly interested in their diagnosis, prognosis, the content of their therapy, how to cope with the disease and the co-payments related to their medication and other therapies. See for instance http://patient.info/health and www.thuisarts.nl, two websites developed by English and Dutch GPs. Many patients want more information about their disease and treatment. In 2015, 51 percent of people in the Netherlands wanted more websites with reliable health information.[18]

A study among Dutch cancer patients even arrives at 73 percent.[19] However, other studies suggest a lack of popular interest in information about how to select a hospital.

In a Dutch qualitative study, only one group of patients could be called active electors. The other group selected a hospital in their own neighbourhood, motivated by a feeling of loyalty or practical reasons, or did not choose one at all.[20] There is a similar lack of interest in information about long-term care.

Most Americans know very little about options for long-term services and support and underestimate their future needs for such assistance.[21] In 2013, 80 percent of the Dutch population did not want to be informed about the possibility of receiving long-term care later in life and did not talk about it either.[22]

Decision aids increase patients' knowledge and do not change their behaviour

Multidisciplinary groups and patient groups often work together to prepare and publish these decision aids. Their aim is to help people who are facing health treatment or screening decisions. Decision aids are designed for patients to use independently and outside of the consultation room; either in the waiting room or at home. Although these decision aids promote understanding, they cannot guarantee that decisions are shared during consultations. Decision aids can come in many shapes and sizes, such as pamphlets, videos, or web-based tools. A recently published Cochrane overview studied their effectiveness.[23] This review of papers, the latest of which was published in June 2012, included 115 studies involving 34,444 participants. Findings showed that when patients use decision aids they:

1 improve their knowledge of the options;
2 feel more informed and certain about what matters most to them;
3 have more accurate expectations of the possible pros and cons of their options.

More detailed decision aids are better at improving knowledge than simple decision aids. Moreover, decision aids do not cause health outcomes to deteriorate and people

1.	Include an 'expiry date'[25]
2.	Add graphic displays of the pros and cons of different options
3.	Organise the decision aid around concerns that are important to patients
4.	Add one-page summaries (option grids) that provide answers to patients' frequently asked questions[26]
5.	Bring the content quality of decision aids on a par with prescription medicine brochures that specify the probability of effectiveness and the risks of side effects and calamities[27]
6.	Let professional groups, patient organisations, scientific institutes and other high-status organisations authorise the decision aid
7.	In addition to text, use illustrations, pictograms and video animations[28,29]

Image 8.6 Suggestions for the improvement of decision aids
Source: See references

who use them are not less satisfied with the decision than people who do not. It is unclear whether or not decision aids lead to a change in healthcare use.

A couple of authors have made suggestions for the improvement of decision aids.

These tips are listed in image 8.6. Further explanations can be found in the references.

The aforementioned Cochrane review is clear about the direct effectiveness of information in a decision aid: it improves patients' knowledge. However, does it also influence their behaviour? A literature study by Johansen and Henriksen showed that information in a digital Personal Health Record did not change patient behaviour.[30] The same goes for information sent to mobile phones in a telemonitoring programme[31] and a disease management programme for people with diabetes.[32] This type of information provision is ineffective due to a lack of didactics. In other words, the study material is not accompanied by training and active exercise. It also lacks an inventory of previously acquired right and wrong information and the patient's learning style.

8.4 SELF-MANAGEMENT SUPPORT USING SEVERAL TOOLS

Heijmans and colleagues[33] distinguish four domains of self-management activities for people with a chronic condition. The first domain is medical treatment. In this domain, 95 percent of people with chronic conditons have self-management tasks: e.g., 86 percent of them take medication as prescribed. Activities such as self-monitoring also belong to this domain.

The second domain concerns communication with health professionals (78 percent of persons with a chronic condition): e.g., 69 percent of them have to travel to visit

them. The third domain concerns coping with the consequences of the disease (79 percent of persons with a chronic condition), for instance, coping with pain (62 percent), a lack of energy (57percent) and an uncertain future (39 percent). The fourth domain deals with lifestyle adaption (86 percent of persons with a chronic condition), e.g., sufficient exercise (74 percent) and diet (56 percent).

Although patient activation is focused on clients and patients, its role also includes activating the patient's relatives. Behaviours that need to be activated are:

1 perseverance in supporting loved ones;
2 assertiveness (how to say no to a clingy or demanding patient without feeling guilty);
3 physical support (how to lift one's partner from his or her bed into a chair?).

Perseverance is activated and supported with respite care[35] and personal interviews with relatives.[36]

Hibbard and colleagues distinguish four stages of self-management for people with chronic conditions:[37]

1 believing that the role of the patient is important;
2 having the self-confidence and knowledge to undertake action to improve one's own health;
3 actually taking action;
4 taking action during stressful periods.

Based on these four phases, they developed a screening instrument, the Patient Activation Measure, to identify the extent to which a patient is activated for self-management.

This instrument also shows a relation with costs of care: the lower the measured activation level, the higher the healthcare costs.[38]

Self-management support by health professionals distinguishes between the high-risk approach and the symptom approach. When a high-risk approach is used, the health professional systematically discusses the lifestyle behaviour of a patient whose chronic condition has a heightened risk of sudden or gradual deterioration. A sudden deterioration could be an exacerbation in the condition of a COPD patient. A gradual deterioration could refer to the consequences COPD patients face when they continue to smoke. The symptom approach refers to the practice of discussing lifestyle and behaviour with patients when this is relevant for the presented complaint. Noordman[39] shows that this latter approach is a lot more common than the high-risk approach.

There are two didactic models that heighten the effect of health education: Miller's triangle[40] the 'conscious competence' learning model and Kolb's learning styles[41] The bottom level of Miller's triangle is formed by the knowledge patients need in order to perform their future illness-related tasks. The second level is concerned with whether they know how to use this knowledge when it comes to performing their new tasks. These two phases concern knowledge transfer. On the third level, patients show that they can act in a simulated environment, for example in a role playing game or in serious gaming. A second didactic approach focuses on recognising the learning styles of different patients and the division of these styles according to Kolb. He divides patients into activists, reflectors, theorists and pragmatists.

Self-management support is not only educational support

Patient activation includes several supportive interventions. One of these is education. This programme can consist of group sessions, individual meetings with a nurse or other health professional, or the use of an interactive website. However, there are patients for whom education is ineffective. Patients are eligible for a course if they accept their disease, feel like they are in control of it and have the intellectual competence to learn and develop new skills (see box A in image 8.7).

If they accept the disease but do not feel in control, patients are in need of social support, but not of educational support (see box B in image 8.7). Social support, mostly from partners and family members, is needed when a patient is unable to manage the disease; when he or she is, for instance, unable to remember when to take medication.

Psychological support is necessary when patients do not accept their disease (see box C in image 8.7), or when they feel guilty about it. Often, these patients suffer from depressing thoughts. Section 3.2 on integration of somatic health services and mental health services discussed this type of support in case of severe mental co-morbidity. Here, the discussion is limited to motivational interviewing as the first step in the psychological support process. Motivational interviewing, as invented and introduced by Miller,[42] usually happens in a couple of phases. In the starting phase,

Image 8.7 Supportive interventions for people with a chronic condition

	Patient is in control of the disease	Patient is not in control of the disease
Patient accepts the disease	Box A Eligible for group education	Box B Social support necessary
Patient does not accept the disease	Box C Psychological support necessary	Box D Case manager necessary

the health professional challenges the patient to talk about problems, concerns and ambitions. It is important that a relationship of trust is built during this phase. Subsequently, client/patient and professional focus on the client/patient's ambition to change by talking more about the importance of the transformation and by increasing the client's self-confidence.

Finally, professional and client/patient set up a plan with practical steps to implement this change. Health professionals who apply this method need four basic skills:

1 the ability to ask open questions at strategic moments;
2 the ability to affirm and strengthen a client/patient's ambition to change;
3 the ability to listen reflectively; and
4 the ability to regularly offer their client/patient summaries of what has been discussed.

If patients do not accept their disease and do not feel competent enough to manage it, they show up in box D of image 8.1. This is a difficult patient subgroup. These patients need an integrated approach that combines psychological and social support. Often, case managers (see chapter 5) are equipped with the necessary skills to help these patients.

Does self-management improve health and decrease costs of care?

Section 8.3 showed that health information alone improves knowledge but does not activate patients. Is this also the case for educational programmes? Below follows an overview of studies. Papers on self-management and medication adherence are discussed in chapter 6.

In 2002, Panagioti and colleagues published a systematic review about the effects of self- management on health outcomes and costs of care.[43] They included 184 randomised controlled trials with patients with long-term conditions. These trials included self-management support interventions. Self-management support was associated with small but significant improvements in health outcomes, and its effectiveness was most visible in patients with diabetic, respiratory, cardiovascular and mental health conditions. Only a minority of self-management support interventions reported reductions in healthcare utilisation in association with health deterioration. Evidence for reductions in utilisation associated with self-management support was strongest for respiratory and cardiovascular problems.

In 2002, Weingarten and colleagues compared 102 articles about 118 disease management programmes (DMPs). They concluded that, up until then, DMPs had mainly comprised patient education (92 out of 118), followed by further training (47 out of 118) and feedback (32 out of 118) for professionals. Seventy out of 118 programmes used more

than one of these interventions. Patients' self-management significantly increased thanks to their education and the two other interventions. Here, we see that self-management support works if other interventions take place simultaneously and in an integrated fashion. This finding has been confirmed by a recent study on self-management support for heart failure patients who participated in a multidisciplinary home care programme.[44] and by five case studies in different parts of the world.[45] In 2004, Coleman and colleagues[46] focused on transitional care (see section 4.1 for a definition).

They found that supporting patients and encouraging caregivers to take a more active role during care transitions reduced rates of subsequent hospital admission. According to Reulings and Van der Lans[47], multidisciplinary self-management support in the form of a heart revalidation programme significantly reduces mortality after a heart attack.

A 2013 review shows no evidence that computer-based, self-management interventions for adults with type 2 diabetes mellitus have favourable health outcomes.[48] Similarly ineffective was a large British experiment (The Whole Demonstrator Project) with online self-management support.[49,50] The researchers from the latter two studies state that more is needed than an online educational programme with instructions and knowledge transfer. Perhaps, blended learning (a mix of online and face-to-face sessions) does succeed in activating patients.

In 2015, a case study described the Esther project in Jönköping County.[51] Here, several interlinked, self-management support interventions resulted in better health outcomes for the population and a decrease in healthcare consumption. In the same year, Heijmans and colleagues[52] published a review on recent papers about self-management and its effects. According to this review, supporting self-management in people with a chronic condition leads to better health and a small decrease in healthcare consumption. However, to fully maximise the potential of self-management, personalised support and interventions are required. Another review,[53] which only deals with self-monitoring support and was published late 2015, identified seventeen systematic reviews and meta-analyses across three chronic conditions: heart failure, hypertension and chronic obstructive pulmonary disease. Self-monitoring was associated with significant reductions in hospital admission and re-admissions to hospital.

8.5 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can self-management support in the years to come contribute to the realisation of the Triple Aim? A finding

is called plausible, when it has been substantiated witha theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 Improving population health

1 In the past, three policy instruments (environmental adjustment, self- management support and fiscal health policy) have significantly improved population health. It is plausible that these three instruments will also reduce the incidence of chronic conditions.
2 Stand-alone programmes for health behaviour improvement in primary healthcare or at the workplace do not improve health.
3 An integrated, multi-actor (e.g. primary healthcare, schools, supermarkets, sports clubs, business firms) approach improves public health.
4 It is plausible that simultaneously tackling several different, unhealthy habits is more effective than tackling them one by one.
5 Decision aids increase patients' knowledge, but do no change their behaviour.
6 Self-management support as an educational tool (based on a learning theory, including exercises and training and embedded in disease management programmes) promotes the health of people with chronic conditions.

Triple Aim 2 Increasing quality of care for the individual

7 It is plausible that health information provided by professionals has more effect on patients' knowledge, if professionals first find out what their client's learning style is and make an educational diagnosis of previously acquired right or wrong information.
8 Stand-alone, online patient education programmes that only contain instructions and lack interaction between teacher and patient do not affect patients' behaviour. It is plausible that blended programmes will be more effective.
9 It is plausible that educational support works for patients who 1. Accept their condition 2. Are in control of their condition and 3. Are able to learn new skills.
10 If they do not accept their condition, motivational interviewing is probably a better intervention than education.
11 If patients are not in control of their condition, social support is likely to be the most appropriate option.
12 If both acceptance and control are lacking, personal guidance by a case manager is a likely option.

Triple Aim 3 Lowering per capita costs of care

13 Self-management support leads to a small decrease in healthcare costs.
14 Self-monitoring of chronic conditions reduces hospital admission and re-admissions to hospital.

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9 Integrated care and shared decision-making

This chapter starts with an introduction of the concept of shared decision-making (SDM, section 9.1). Subsequently, section 9.2 elaborates on a three-fase model for SDM that could be effective in an integrated care setting. This effectiveness has not yet been proven. Section 9.3 shows the results of reviews on the effects of shared decision-making inside and outside of integrated care. The chapter ends with an answer to the research question of this book based on the findings of this chapter.

9.1 INTRODUCTION: THE NEGLECTED SECOND HALF OF THE CONSULTATION

Shared decision-making (SDM) is communication between a health professional and a patient about the options of prevention, screening, diagnostic tests and treatment, including the option of not intervening. This SDM description is based on the pioneering work of Glynn and colleagues[1], Charles and colleagues[2], Makoul & Clayman[3] and Elwyn and colleagues.[4] Following Byrn and Long[5] the goals of shared decision-making are: better-informed patients, more confidence in and satisfaction about the treatment and more compliance. Saving costs is not its primary objective, but this can nonetheless be one of its consequences. Here, SDM is a tool to reach the mentioned goals. However, SDM may also be seen as a goal in itself: the human right to decide about one's own body.

In 1991, the British government published its first document about this matter, The Patient Charter,[6] which included the statement: 'you (the patient) have a right to have any proposed treatment, including any risks involved in that treatment and any alternatives, clearly explained to you before you decide whether to agree to it'. Internationally, this became known as the principle of informed consent. SDM goes further. It is more than just the provision of information as discussed in section 8.3 It is interactive communication between the professional and the patient about facts

and the patient's feelings and ambitions; communication which eventually leads to a shared decision. In 1999, Glynn and colleagues positioned SDM in the second half of the consultation, which consists of six phases:

1 establishing a relationship;
2 determining the patient's reason for coming;
3 conducting a verbal/physical examination;
4 considering the condition;
5 providing details about further management; and
6 terminating the consultation.

The first three phases deal with making a diagnosis and the second half with therapy and follow-up. They observed a lack of meaningful dialogue between GPs and patients about the nature of their problem and the available therapeutic actions. They consequently proposed to replace the informed consent model with SDM.

In the former model, decision-making rests entirely with the patient. This may lead to increased anxiety and, in the most extreme situations, may even give patients a sense of abandonment.

From a humanistic point of view, Glynn and colleagues saw SDM as a desirable end in itself. However, they also emphasised its importance as a tool to improve therapy adherence. In the period after their publication, many experiments and evaluation studies appeared. Section 9.3 discusses these in greater detail.

In 2010, the Salzburg Global Seminar published the Salzburg Statement on Shared Decision Making.[7] In this declaration, the participants and organisers of this Global Seminar call on physicians to accept that they have an ethical obligation to share decisions with all patients, regardless of their level of health literacy. Health professionals must be prepared to provide high-quality information that is tailored to the patient's needs and should allow patients enough time to consider their options. The Salzburg Statement stimulated governments, policy-makers and professional organisations to pay more attention to SDM. In 2015, the Royal Dutch Medical Association published a white paper whose title translates to *Not everything that is possible should be done*.[8] This paper pleads for more appropriate care at the end of life. In this context, appropriate means 'according to the wishes of the patient'. The authors observe that too many health professionals work without proper coordination. They also observe that professionals work in teams in which it is unclear who is responsible for sharing decisions with the patient. They also notice that Dutch physicians often see their patients in terms of their disease or condition and consequently forget to look at them as whole human beings.

9.2 A THEORETICAL MODEL FOR SHARED DECISION-MAKING

This section goes into greater detail about a model for shared decision-making. This model consists of three steps: choice talk, option talk and decision talk. During the choice talk it is decided whether or not the patient will actively participate in the decision-making process: not all patients want this or are able to do so. In the option talk, the professional presents all options in a neutral fashion without indicating his or her own preference. During the decision talk, professional and patient decide about the options and arrange follow-up. This model has been introduced by Elwyn and colleagues and is applicable to all types of treatment decisions.

Choice talk

About 70 percent of patients want to be actively involved in decision-making about important medical issues.[9,10] The other 30 percent leave the decision to the health professional. The choice talk phase is intended to prevent the creation of a new paradigm that states every patient should be involved in shared decision-making.

Although intuition tells us that better-educated patients want more involvement than less educated people, there is no empirical evidence to support this claim. There is a great deal of variation in decision-making role preferences. Based on their literature review, Brom and colleagues observe a 60 percent congruence between preferred and perceived participation.[11]

A Dutch monograph with the translated title *The Doctor is ill*[12] shows that even physicians (who have a great deal of medical knowledge) sometimes prefer not to be involved in shared decision-making about treatment options for their own disease. Degner and colleagues have developed the Control Preference Scale, which has been validated and is easy to administer.[13,14] It is presented in image 9.1.

The choice talk consists of two important steps. The health professional firstly evaluates the patient's ability to be involved in decision-making. It is important to

Image 9.1 The Control Preference Scale
Source: Degner, et al. 13 140

A.	I prefer to make the final decision about which treatment I will receive
B.	I prefer to make the final selection of my treatment after seriously considering my doctor's opinion
C.	I prefer that my doctor and I share responsibility for deciding which treatment is best for me
D.	I prefer that my doctor makes the final decision about which treatment will be used, but seriously considers my opinion
E.	I prefer to leave all decisions regarding my treatment to my doctor

check the patient's communication skills and emotional status: is the patient too depressed to communicate properly? This assessment should be carried out with the help of an ACE-instrument.[15,16] Secondly, patient and professional list the people who participate in the decision-making process. This can vary from a patient's partner and children, to a confidant, another professional, such as a nurse, or even an interpreter if a patient does not speak the language. In an overview study, Stiggelbout and colleagues offered suggestions for questions that can be raised by professionals by way of conversation starter during the choice talk.[19]

Option talk

In the second phase, the professional offers an unbiased representation of the treatment options, their effectiveness and the risks of adverse side effects and calamities. This neutral representation is difficult, as physicians generally want to inspire hope just as much as patients want to survive. If the professional multidisciplinary team, e.g., the oncological team, has already selected a preferred treatment option, the professional who conducts the option talk also has to deal with conflicting loyalties: loyalty to the team and loyalty to the patient.

The solution for this problem lies in a change of mindset. Instead of thinking in terms of preferred treatment, team members should take a more neutral stance and think in terms of available options. They should also discuss these matters in the presence of a medical ethicist or (in the case of an older patient) geriatrician.

Another pitfall for physicians is that they tend to be too confident about the beneficial effects of the treatment they provide. Oncologists, for instance, are often too optimistic about patients' odds for survival after treatment.[20] In the option talk the professional hands over and explains the decision aid.

This can be a written document, a document with pictograms or a video that shows (ex) patients who explain the options. Detailed information, comparable to a medicine package leaflet, about the risks of operations, radiotherapy and chemotherapy is difficult to design. After all, the effects of treatments are less straightforward and less well-researched than the effects of pharmaceutical drugs. Section 8.3 already discussed general standards for decision aids. Based on an innovative Australian experiment with pseudo-patients, Shepherd and colleagues propose that patients ask their health professionals three questions when they receive information about their treatment. These questions are:

- What are my options?
- What are the pros and cons?
- And how likely are these?

Asking these three questions improved information given by GPs and increased their facilitation of patient involvement.[21]

Decision talk

In the third phase, the professional checks whether the patient has made a decision. The patient formulates this choice and the professional asks him or her to explain it. The professional checks whether the patient possesses enough insight about the disease and has understood all the information provided during the option talk. The professional also ascertains whether the patient really supports the choice and the decision is not made under pressure from family members or other people. Subesequently, professional and patient either share the decision or postpone it together.

Together, they work out the decision in terms of logistics and set up a care plan for the period after the intervention. Professional and patient evaluate the choice talk, option talk and decision talk. This could be done with the help of the 3-item CollaboRATE score.[22,23]

The three phases of the SDM model above can occur within one conversation or comprise more than one conversation. I repeat, the three phases are not presented as a protocol or checklist. The discussion items listed under the choice talk header could also resurface during the decision talk. It is possible that, patients' desire for information is stronger than their desire to be involved in decision-making and that the decision is left to the professional in the end.

9.3 SHARED DECISION-MAKING EVALUATED

In 2014, Stacey and colleagues published a review about the effects of shared decision-making supported by decision aids.[22] They included 115 studies, the latest of which was published at the end of 2012.Their 115 studies involved 34,444 participants. Their findings showed that when patients use decision aids they:

1 improve their knowledge of the options (high-quality evidence);
2 feel more informed and have more clarity about what matters most to them (high-quality evidence);
3 have more accurate expectations of the pros and cons of their options (moderate-quality evidence); and
4 participate more in decision-making (moderate-quality evidence).

Patients who used decision aids that included an exercise to help them clarify what mattered most to them were more likely to reach decisions that were consistent with their values. However, the quality of the evidence was moderate for this outcome, meaning that further research may change these findings. While decision aids improve communication between patients and their health practitioner, more research is needed to evaluate adherence to the chosen option, the associated costs, the use of decision aids by patients with limited reading skills, and the level of detail needed in a decision aid.

In 2014, Walsh and colleagues also showed, based on a literature study, that SDM causes patients to forgo further treatment more often, but that real cost studies are

lacking.[25] A Canadian research group pleads for the application of behavioural economics (see chapter 12) to SDM, as the use of framing during the presentation of different options influences the patient's decision.[26]

In 2014, Verma and colleagues also published a paper that discusses which interventions improve shared decision-making.[27] They distinguish between interventions that target patients (e.g., using decision aids), those that target professionals (e.g., SDM training) and interventions that target both. This latter group of interventions showed better results than interventions that targeted separate groups. In 2016, Sepucha and colleagues supported the conclusion that a combination of both interventions is desirable. This conclusion has been based on ten years worth of experiences in the Massachusetts General Hospital in Boston.[28] In the same year, Tai-Seale and colleagues[29] proposed a mix of both types of interventions for SDM in primary healthcare. These interventions were associated with better patient-reported outcomes regarding the way primary care providers engaged patients in shared decision-making.

In 2016, Garvelink and colleagues published a mixed-method knowledge synthesis to assess the effectiveness of interventions to improve caregivers' involvement in decision-making with elderly people, and to describe caregivers' experiences of decision-making in the absence of interventions. Caregivers knew the patient intimately and were nearly always recruited from the family. They analysed 49 qualitative, fourteen quantitative, and three mixed methods studies.

The qualitative studies indicated that caregivers had unmet needs for information, discussions of values and needs, and decision support, which led to negative sentiments after decision-making.

Elements of regular care that received positive evaluations were the availability of a decision coach and a supportive decision-making environment.

Difficult implementation of SDM

In 2014, Légaré and colleagues published a review of studies about the implementation of SDM.[30] They arrived at a long list of bottlenecks and unfavourable conditions of which image 9.2 mentions eight. In 2015, Coulter and colleagues[31] compared the implementation of SDM in five European countries and arrived at a list that was comparable to the one shown in image 9.2. In 2016, Frerichs and colleagues[32] carried out a similar study that only focused on Germany and published comparable barriers.

Henselmans and colleagues interviewed 1,314 people with a chronic condition about SDM.[33] 46 percent of them reported participation barriers and 39 percent

1.	It is too time-consuming for the professional
2.	It threatens the power balance between doctor and patient
3.	Continuity of care means that treatment decisions are often coloured by the past experiences of both patient and clinician
4.	A lack of training/experience/modelling
5.	A lack of skill in sharing and involving patients in decision-making
6.	A lack of information about risks and benefits
7.	A lack of skills and tools to convey information about risks and benefits
8.	Patients dislike it when doctors show uncertainty regarding the effectiveness or desirability of treatments

Image 9.2 Bottlenecks and unfavourable conditions for the implementation of shared decision-making
Source: Légaré, et al.

were interested in support. The most frequently recognised barriers were: 'the fear of being difficult', 'the idea that there is not enough time' and 'only remembering topics of discussion after the consultation has ended'. Patients most frequently endorsed relatively simple forms of support and perceived the fewest barriers when they communicated with a nurse.

In multivariate models, consistent risk factors for low efficacy and perceived barriers included low health literacy and a low level of general patient activation. Weeks and colleagues endorse the last barrier in image 9.2.[34] They observe that the interests of professionals and cancer patients become too closely intertwined: the former are eager to please their patients and the latter want to hear about hopeful treatment options.

In 2015, McCartney writes about the problematic dynamic between building a relationship of trust and showing uncertainty about the treatment.[35] Together with Marschall and Bibby[36] she encourages patients to have less blind faith in the abilities of physicians and stimulates professionals to be more open about feelings of uncertainty. A Dutch study supports the findings of Weeks and colleagues. In a Dutch questionnaire study, Van Dijk and colleagues[37] conclude that doctors and nurses have different views regarding the use of healthcare during the final phases of life.

They posed the following question to representative samples of the Dutch population and to doctors: 'Imagine, you are elderly and/or have a limited life expectancy. Which of these treatments would you still want?'

Per treatment option this yielded the following answers: reanimation (55 percent of the public versus 10 percent of doctors), ventilation (31 percent versus 7 percent), extensive surgery (57 percent versus 15 percent), chemotherapy (58 percent versus 26 percent), invasive diagnostics (58 percent versus 20 percent) and intravenous administration of fluids/nourishment (55 percent versus 27 percent). Of all doctors, 41 percent sometimes propose an option they would not choose themselves.

The American researchers Lee and Emanuel add to the list in image 9.2 that the remuneration of physicians is a barrier for SDM.[38] This argument also resonates in the Netherlands, where an hour of actively doing something (e.g., performing an operation) pays more than listening and talking for an hour. The English SDM expert Angela Coulter does not agree with this argument.[39] She observes that English physicians with a fixed salary do not support shared decision-making either, and concludes that their conservative attitude prevents its introduction.

The final argument for the slow dissemination of shared decision-making is the general taboo that seems to stick to discussing decisions regarding the end of life. Patients have often decided well in advance whether they prefer burial or cremation. They have also settled their inheritance. Things they have not anticipated properly include making life last as long as possible, sedation and palliative care. In a brave attempt to break these taboos, the Dutch Agora Foundation has set up a project called 'From meaning to the end'.[40]

This project is reminiscent of the Conversation Project set up by the Institute of Health Care Improvement and the UK project Dying Matters.[41]

9.4 INTEGRATED CARE AND SHARED DECISION-MAKING

Integrated care and shared decision-making are both aimed at realising a holistic view on patients and their health. Seen in this light, integrated care and SDM are two peas in a pod. Hence that the WHO introduced the term people-centred integrated care (see also sections 2.1 and 2.7).[42]

The American Geriatrics Society (AGS) also emphasises this twofoldedness (section 2.1). Person-centred care is defined as care in which the values and preferences of individuals are elicited and, once expressed, guide all aspects of healthcare and support their realistic health and life goals. In person-centred care models, a broad range of health and functional needs are identified, programming is structured and targeted to address those needs, and care is delivered by a team of providers. The individual's daily living goals are at the heart of the care process.[43] This book therefore not only sees integrated care as a supply side, organisational principle of structuring the work of professionals belonging to various disciplines, but also includes the partnership between professionals and patients in self-management support and SDM.

If integrated care is only focused on the supply side, the position of patients is at risk of being undermined. In integrated care, patients face a powerful multidisciplinary team instead of a single professional. Patients could perceive such teams as an impenetrable bastion. It would therefore be better if patients, their representatives and geriatricians or ethicists are also included in these teams. In any case, patients should know with which member of the team they are to share their decisions. Is it the referring GP who asks for a hip operation? Or the orthopaedic nurse who has enough time to check both the information provided and the patient's individual needs? The shared healthcare record should also mention the patient's personal preferences and the decisions that have already been made by patient and professional.

Another risk of supply side-oriented integrated care is posed by its emphasis on care pathways and guidelines based on Evidence Based Medicine (EBM) with standardised decision trees. Nowadays, EBM integrates three basic principles:

1 the best available research evidence for whether and why a treatment works;
2 clinical expertise (clinical judgment and experience) to rapidly identify each patient's unique health status and diagnosis, their individual risks and the benefits of potential interventions; and
3 client preferences and values.

From the very beginning (1985), the first two principles have been given a lot of attention within EBM [44] However, the third principle was only added in 2000.

To illustrate: in 1992 the most important medical advisory body of the Dutch government, the Health Council (gezondheidsraad) rejected the notion of involving patient preferences in medical decision-making.[45] According to this council, this would lead to consumer medicine, in which 'not the medical necessity, but the wish of the patient determines medical interventions.' Even after 2000, this third pillar was largely neglected in handbooks about EBM. This led to a reluctance within Evidence Medicine Practice, the practical use of EBM guidelines, to integrate patient preferences in decision-making. In order to do so, each EBM guideline should have two annotations.

Each multidisciplinary guideline should contain passages about the moment and the way in which patients should be informed. They should also tell professionals how to act when patients reject a preferential treatment. This is pleaded for by a think tank of the Mayo Clinics in Minnesota.[46] In addition, each pathway and guideline should contain two statements:

1 a disclaimer that states professionals are allowed to deviate from the standard option if the patient asks them to after having received information about different options;

2 a comply or explain-rule that forces professionals to explain why they choose to deviate from the pathway or the guideline and to inform the patient of this situation.

In the United Kingdom, this has become the norm after a judicial decision by the UK's Supreme Court in 2015.[47]

In 2016, Solomon and colleagues see it as an ethical imperative to include patient values in EBM.[48]

9.5 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can shared-decision in the coming years contribute to the realisation of the Triple Aim? A finding is called plausible, when it has been substantiated witha theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or a single study.

Triple Aim 1 and 2 Improving population health and increasing quality of care for the individual

1 It is plausible that shared decision-making leads to better-informed patients, more confidence in and satisfaction about the treatment, and more compliance.
2 Patients who use decision aids:
    1 improve their knowledge of the options (high-quality evidence);
    2 feel more informed and have more clarity about what matters most to them (high-quality evidence);
    3 have more accurate expectations of the pros and cons of their options (moderate-quality evidence); and
    4 participate more in decision-making (moderate-quality evidence).
3 Patients who used decision aids that included an exercise to help them clarify what mattered most to them were more likely to reach decisions that were consistent with their values. However, the quality of the evidence was moderate.
4 Three types of interventions exist: type one targets patients (e.g., using decision aids), type two targets professionals (e.g., SDM training) and type three targets both. This latter group of interventions showed better results than interventions that targeted separate groups.
5 Caregivers who were involved with decision-making for their loved ones had unmet needs for information, discussion of values and needs, and decision support. This led to negative experiences regarding decision-making.
6 Elements of regular care that received positive evaluations included the availability of a decision coach and a supportive decision-making environment.

Triple Aim 3 Lowering per capita costs of care

7 SDM causes patients to forgo further treatment more often, but real cost studies are lacking.

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PART 4 THE QUALITY OF INTEGRATED CARE

10 A professional perspective on the quality of integrated care

This chapter starts with an introduction of definitions (section 10.1) and a discussion of outcome quality. This is followed by sections on process quality (section 10.2), accessibility (section 10.3) overuse of care (section 10.4) and (dis)economies of scale and scope (section 10.5). Section 10.6 discusses structural quality and section 10.7 the relations between quality of care and the job satisfaction of health professionals. The chapter ends with an answer to the research question of this book based on the findings of this chapter (section 10.8).

10.1 SOME DEFINITIONS OF QUALITY OF CARE AND RELATED TERMS

The history of quality of care began in 1966 when Donabedian defined the concept as *the degree of similarity between criteria for desirable care and the actual care*. Chapter 1 already mentioned this definition. Donabedian also divided quality of care into three components: outcome quality, process quality and structural quality (see image 1.5). His threefold division became a well-known concept throughout the scientific and professional world. Within outcome quality, a distinction emerged between professional quality and patient-perceived quality.[1] Professionals, such as physicians and nurses, have their own guidelines and protocols for care processes. Their adherence to these rules may be seen as a professional indicator for professional quality. However, this indicator is too unilateral. It inspired the sarcastic expression: professionally, the operation was a success, but the patient died. Chapter 12 discusses patient-perceived quality of care, but this chapter focuses on professional quality.

Another distinction that has become popular in the policy world is that between the lowest possible quality of care and the optimal quality of care. When the quality of care drops below this lower limit, it means that public and professional agencies are actively trying to prevent the delivery of care. Quality assurance and quality

governance are focused on keeping healthcare providers above this lower limit, while optimal quality of care is the ultimate goal of quality improvement.

In 2001, the American Institute of Medicine provided another definition of quality of care: doing the right thing, at the right time, in the right way, for the right person, with the best possible results.[2] One year earlier, this same institute formulated several quality requirements in the report *To Err is Human*.[3] Healthcare should be safe, person-centred, effective, efficient, timely, and equitable. The first term, safe, is related to the (near) absence of the risk that patients will come to physical or psychological harm due to a diagnosis or treatment, as a result of not following the professional standard or because of a failure in the care system, such as malfunctioning medical equipment. Since the publication of the *To Err is Human* report, safety management has emerged in all developed countries.[4]

The final word in this enumeration, 'equitable', is explained by the IoM with the phrase: 'race, ethnicity, gender and income should not prevent anyone in the world from receiving high-quality care'. The other four terms have already been discussed in section 2.1. Chapter 1 already mentioned how, in 2008, Berwick, et al reduced these six requirements to the Triple Aim:

1 improving the population's health;
2 improving the quality of healthcare; and
3 lowering health insurance premiums.

In 2010, Michael Porter further developed Donabedian's outcome quality theory[5] (see image 10.1) and consequently updated his own 2006 book *Redefining Health Care*. Porter distinguishes three tiers:

1 health status achieved or retained;
2 process of recovery; and
3 sustainability of health.

In this image, it is important to note that Porter includes retained health status in tier 1. After all, an integrated care programme for people with chronic conditions is usually focused on retaining the health of patients or on ensuring it deteriorates as slowly as possible. According to Porter's description such programmes are effective, even when they do not improve population health, but merely sustain it as much as possible. Interestingly, Porter considers recovery time in tier 2 as an outcome measure and not as an indicator for healthcare costs. Interesting about tier 3 is its focus on long-term effects, which is lacking in tier 1 and 2. I will explain the importance of this phenomenon based on a previously mentioned example that dealt with accelerated referral pathways for patients with suspected cancer (see section 4.1).

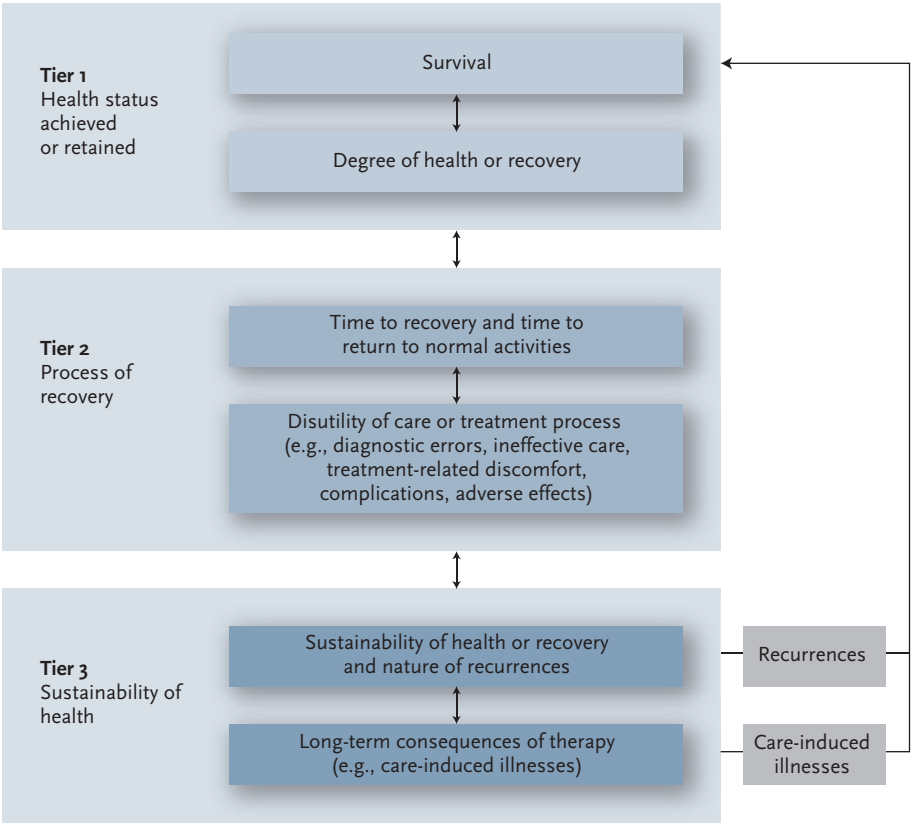

Image 10.1 Classification of output quality domains according to Porter
Source: Porter M, et al. Redefining health care: Creating value-based competition on results. Harvard Business School Press, 2006.

The most important outcome measure concerns the survival rate of cancer patients:[7] i.e. an outcome within tier 3.

10.2 PROCESS QUALITY OF INTEGRATED CARE

To create continuity, routine care should be provided in the form of a care pathway. If this is not possible, in case of multimorbidity or in case of an unpredictable course of illness, the format of case management is available to generate continuity. This alternative is discussed in chapter 5. Here, the focus lies on integrated care for routine patients. Vanhaecht, et al give a definition of care pathways as formulated in image 10.2.

In their publication, which has been based on sixteen case studies, Huiskes and Schrijvers show evidence that care pathways realise their aims when they fulfil the thirteen conditions mentioned in image 10.3.[9]

A care pathway is a complex intervention for the mutual decision-making and organisation of care processes for a well-defined group of patients during a well-defined period. Defining characteristics of care pathways include:	
1.	An explicit statement of the goals and key elements of care based on evidence, best practice, and the expectations and characteristics of patients
2.	The facilitation of communication among team members and with patients and families
3.	The coordination of the care process by coordinating the roles and sequencing the activities of the multidisciplinary care team, patients and their relatives
4.	The documentation, monitoring, and evaluation of variances and outcomes
5.	The identification of the appropriate resources
The aim of a care pathway is the Triple Aim: to enhance quality of care across the care continuum by improving risk-adjusted patient outcomes, promoting patient safety, increasing patient satisfaction, and optimising the use of resources	

Image 10.2 Definition of a care pathway
Source: Based on and adapted from Vanhaecht, et al.

1.	Care pathway management present?
2.	Care pathway described?
3.	Professional content extensive enough?
4.	Multidisciplinary involvement?
5.	Support from senior management?
6.	Variation possibilities for person-centred care?
7.	Evidence-based guidelines used?
8.	Possibility of adapting care pathways after a certain period?
9.	Well-defined (partial) responsibilities?
10.	Patients involved during the design phase?
11.	Preparation focused on creating support?
12.	Enough time for implementation?
13.	Quality of care safeguarded?

Image 10.3 Thirteen conditions for care pathways to reach the Triple Aim
Source: Huiskes and Schrijvers[10]

In 2009, the Dutch Health Inspectorate issued an advice[11] that inspired a great deal of discussion between professionals in integrated cancer care. In this advice, the inspectorate mentioned four minimum quality requirements for care processes in oncology. However, they are important for all types of integrated care.

Firstly, patients should be able to rely on one point of contact in the chain with whom they make agreements about their treatment. This point of contact can be traced in the patient's health record at every given moment during the care process and is known to the patient. Secondly, there should be one person in the chain who has an overview of the patient's treatment programme and is tasked with adjusting it if necessary. This person is called the primary practitioneror primary physician. Thirdly, every patient should have an up-to-date treatment plan. Finally, according to the inspectorate, an integrated record should be kept about the patient's treatment. This record is accessible and available to all involved care providers in the treatment programme. In 2014, a coalition of many different professional organisations and patient organisations for oncological care adopted these four requirements.[12]

This alliance added three new requirements: the healthcare provider should participate in a national healthcare registration (if this is available), a patient experience study and a patient experience survey that uses a questionnaire for patient reported outcome measures (PROMs, see section 3.2).

10.3 ACCESSIBILITY IS AN IMPORTANT ASPECT OF PROCESS QUALITY

Accessibility is one of the cornerstones of a successful care process. Based on my own experiences with integrated care in the Netherlands, I distinguish five components of it:

1 access to information about care providers, e.g., on the internet;
2 geographical accessibility, e.g., measured by travel time for the patient;
3 availability of the care provider, e.g., measured by opening hours;
4 timeliness, e.g., measured by waiting time;
5 financial accessibility, e.g., measured by the height of the patient's co-payment.

Instead of discussing all these components in detail, this section focuses on the accessibility of integrated care providers. These providers usually work with a multidisciplinary intake procedure to assess the patient's care needs and set up a care plan. However, this is not easy to realise in the medical domain. The following two examples will explain why. Emergency services may be offered by paramedics in ambulances, by general practitioners and by emergency physicians in the emergency ward of a hospital.

In the Netherlands, making a multidisciplinary triage decision tree for the accessibility of these three providers proved a difficult task that took several years.

The second example concerns the development of an integrated, pre-operative screening for elective patients. In the Netherlands, patients are accustomed to

having their physical condition screened by an anaesthesiologist, their (mal)nutrition status by a dietician, their risk of a post-operative delirium by a psychiatrist, the risk of decubitus by a nurse and the possibilities of home care after hospital discharge by a transfer nurse. I tried several times to realise an integrated screening procedure, carried out by nurse practitioners with expertise in all these fields. Up until this day, this has proved an impossible task as each professional group sticks to its own guidelines.

In the Netherlands, integrated long-term care also has one single entry point that provides access to home care and nursing homes. Until 1998, each Dutch provider had its own guidelines for admission. In that year, the government founded Regional Assessment Agencies (RIO's, and later the Care Needs Assessment Centre) for integrated needs assessment for long-term care: a single entry point for integrated care. Since January the 1st 2013, the Regional Assessment agency and later the Care Needs Assessment Centre have formulated care needs in terms of the International Classification of Impairments Disabilities and Handicaps (ICIDH).[12] This ICF-language enables health professionals to indicate impairments without having to indicate by which type of professional or institution care should be provided.

The introduction of this language on the 1st of April 2005 can be considered a great innovation.

10.4 INTEGRATION DECREASES OVERUSE OF CARE

Three recent books[13,14,15] show that many patients are overdiagnosed, overtreated and overmedicated. I adopt the definition of overdiagnosis used by Moynihan and colleagues:[16] overdiagnosis occurs when people without symptoms are diagnosed with a disease that ultimately will not cause them to experience symptoms or early death.

Overdiagnosis, overtreatment and treatment overvaluation are international issues. A team of Liverpool researchers calculated that the international decrease in cardiovascular mortality was only partly the result of cardiological interventions. Equally important are:

1 improved blood pressure monitoring;
2 reduction of tobacco consumption;
3 improved heart revalidation; and
4 an increase in physical activity.[17]

Nowadays, two large groups of American MDs strive for better diagnostics. The Society to Improve Diagnosis in Medicine (SIDM, see www.improvediagnosis.org) organises many conferences and studies about this topic.

The SIDM states that one in ten diagnoses made in the United States is incorrect and that one in a 1,000 causes injuries to patients. The organisation Choosing Wisely (see www.choosingwisely.org) bundles a great number of medical professional associations. It dedicates itself to the cause of making health professionals and patients choose wisely for a diagnosis that is:

1 based on evidence;
2 does not duplicate diagnostic tests;
3 does not cause injury to the patient; and
4 is truly necessary.

Choosing Wisely has asked all its affiliated organisations to name five diagnostic tests that are often redundant. Some great examples can be read on the aforementioned website. In 2015, Choosing Wisely spread to several other countries.[18]

Horizontally integrated care reduces the overuse of care, as variations in the prevalence of diagnoses, referrals to specialists and medication prescribed by physicians who belong to the same team may all be discussed in peer review meetings.[19] These meetings are a goldmine of tips about reducing the overuse of care. Secondly, shared guidelines for GPs and specialists reduce referrals to specialist care.

Fleuren gives a good example of how this works in the case of a shared referral protocol for GPs and neurologists concerning patients with lower back pain.[20] In 2015, the Institute of Medicine published the report *Improving Diagnosis in Health Care*.[21] Its first two recommendations promote integrated care by:

1 facilitating more effective teamwork in the diagnostic process among healthcare professionals, patients, and their families;
2 approaching diagnostics as a team process, leveraging the strengths of other team members (e.g., by letting nurses track abnormal values).

10.5 (DIS)ECONOMIES OF SCALE AND (DIS)ECONOMIES OF SCOPE

In 1986, a rural area in the Netherlands had one GP in each of its six villages. Patients all lived within walking distance. In 2014, all GPs worked in one large multidisciplinary primary healthcare centre, located in one of these villages.

Most patients live at a distance of at least five kilometres: too far for elderly people to walk. This example illustrates how integrated care has economies and diseconomies of scale.

The economy or advantage here is the facilitated communication between professionals in the centre. The diseconomy is the longer travel time for patients. Concentrating care processes in a single location encourages teamwork, but reduces accessibility.

Economies of scope arise when professionals only focus on a single target group, e.g., children with eating disorders. The economy of focus is the integration of knowledge and experience needed to treat children with these disorders.

A diseconomy of scale is the risk of overdiagnosis and overtreatment: children with mild eating disorders who could be treated in primary healthcare are referred to a focus clinic too quickly. In the Netherlands, focus clinics for people with eating disorders have long waiting lists partly due to the absence of an access protocol made by both primary healthcare professionals and professionals who work in these focus clinics for people with eating disorders. Ironically, the good reputation of these clinics also means they are working in what is called a *self defeating system*. Their high quality attracts too many patients, which diminishes their accessibility and ultimately results in quality deterioration.

10.6 STRUCTURAL QUALITY REQUIREMENTS ALSO ADDRESS CULTURE, DIGITISATION AND LEADERSHIP

Structural quality relates first and foremost to the quality of the buildings and the equipment, professionals' level of education, the characteristics of the integrated care organisation and its payment methods. Secondly, it concerns culture, digitisation and leadership in the integrated care organisation. The former elements form the architecture of the organisation while the latter form its infrastructure.

A good example of integrated care that works with structural quality requirements is the Dutch Flexible Assertive Community Treatment, or FACT, team of which equivalents exist in other countries.[22,23]

These teams are described in a manual.[24] One important requisite relates to the size and the composition of the team:

> *'A FACT team provides care for 200-220 persons with serious psychiatric disorders in a particular district or region of 40,000 to 50,000 inhabitants. This is why we refer to 'district' or 'neighbourhood' teams.*
> *The team tries to establish close contacts with the family and with other services in the district.*
> *The team is multidisciplinary, with members from a wide variety of disciplines (including a psychiatrist, nurses, a community psychiatric nurse, a psychologist, an employment specialist (IPS), an addiction specialist and a peer support worker); approximately 10-11 FTE.'*

In 2015, the Netherlands had 300 FACT teams, most of which fulfilled these requirements.[25]

Municipalities and health insurance companies that finance and commission these FACT teams respect and support their structural quality norms.

More structural quality in an organisation's architecture does not always lead to more outcome quality. This is illustrated by an example of integrated care for people with chronic obstructive pulmonary disease (COPD).

Dutch general practitioners, practice nurses and specialised physiotherapists work together in multidisciplinary teams. During a two-day course, these professionals are trained to educate patients about the early recognition of exacerbations, self- management, how to quit smoking, physiotherapeutic reactivation and drug adherence. In other words, the intervention improved their structural quality.

However, according to this large-scale study, outcome quality did not improve: i.e., the number of exacerbations did not diminish and patients' quality of life did not improve.[26] An explanation given by the authors is that there is 'little room for improvement in the already well-developed Dutch healthcare system'. A more theoretical explanation is that this example is subject to the economic law of diminishing returns.

So far, all the examples shown here have been related to the quality requirements for an organisation's architecture. Possible quality requirements for its infrastructure could be related to, e.g., cooperation networks for midwives in primary healthcare and hospital-based gynaecologists and obstetricians.

These networks should be able to answer the questions mentioned in image 10.4 in the affirmative in order to be eligible for additional resources.[27]

Image 10.4 Six questions about the infrastructural quality of an integrated care network
Source: I myself used these six questions in a 2012 evaluation of networks

1.	Does a joint problem analysis exist and is it based on statistical information?
2.	Are joint aims set out in a document?
3.	Do professionals regularly evaluate outcome quality and do they have joint training programmes to improve quality?
4.	Are the internal procedures for team meetings, data communication and decision-making set out in a document?
5.	Does the network have care pathways for inflow, referral, referral back and task distribution?
6.	Are external parties, such as health insurance companies, municipalities, ambulance organisations and hospital boards, included in the preparation and implementation of the obstetric care policy?

These six questions offer teams more freedom to choose their own size and organisational characteristics than the stricter quality requisites used by FACT teams. I recommend combining the best of both worlds by using a mix of both types of structural quality norms.

10.7 HAPPY STAFF MEANS HAPPY PATIENTS

The USA boasts several healthcare organisations with a high outcome quality. Among these are the Cleveland Clinics, Virginia Mason Medical Center in Seattle, Kaiser Permanente, the Mayo Clinics and the Veteran's Administration. These non-profit organisations are all managed by leading physicians in a facilitating, stimulating role. In their Triple Aim book,[28] Bisognano and Kenney underline the importance of leadership and culture for interprofessional cooperation.

Based on a large number of studies, Chris Ham, an author with a great deal of knowledge about and experience with leadership in the National Health Service, writes about leaders who assume a coaching and facilitating position within an organisation.[29] He emphasises the relation between motivated health professionals and quality of care with the expression: happy staff means happy patients.

Professionals are happy when coaching leaders also display continuity, and when there is a degree of organisational stability and consistency regarding the different goals the hospital pursues. Chapter 19 about leadership in integrated care organisations discusses this in greater detail.

In articles about quality of care, the emphasis generally lies on the quality of the work of health professionals. The quality of the supporting departments, e.g., the IT-department and financial departments, is usually left out of consideration and this book is no exception to that rule. However, I would like to shed some light on what is known as Total Quality Management.[30,31] In this philosophy, all employees in an integrated care organisation have their own clients, the most important of which are the clients of health professionals. The latter are themselves clients of the back office workers, who work at the IT department, for instance. They, in turn, are clients of the organisation's general manager. All employees provide services for their clients and work with their own outcome, process and structural quality requirements. The quality of each service can be measured and presented in a chart that shows cohesion between all these services. Such charts are called balance score cards: they summarise all these types of quality in one diagram.[32]

10.8 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can quality assurance in the

coming years contribute to the realisation of the Triple Aim? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 and 2 Improving population health and increasing quality of care for the individual

1 It is plausible that quality assurance results in improvement of the quality of integrated care.
2 It is plausible that integrated care professionals' focus on retained health and long-term outcome quality promotes the Triple Aim.
3 Patients should be able to rely on one point of contact in the integrated care team with whom they make agreements about their treatment. This point of contact can be traced in the patient's health record at every given moment during the care process and is known to the patient.
4 There should be one person in the integrated care team who has an overview of the patient's treatment pathway and is tasked with adjusting this pathway if necessary. This person is called the primary practitioner.
5 Every patient should have an up-to-date treatment plan.
6 A single entry point for integrated, long-term care and the formulation of care needs in terms of the International Classification of Impairments Disabilities and Handicaps (ICIDH) enables health professionals to indicate impairments without having to indicate by which type of professional or institution care should be provided. This promotes personalised care.*
7 It is plausible that facilitating more effective teamwork among healthcare professionals, patients, and their families during the diagnostic process promotes better quality of care.
8 It is plausible that concentrating care processes in a single location encourages teamwork, but reduces accessibility.
9 It is plausible that there is little room for improvement of the quality of integrated care when care is already well-developed, as the economic law of diminishing returns applies in this case.
10 Leadership and culture are important for interprofessional cooperation.*
11 It is plausible that leaders who assume a coaching and facilitating position are able to motivate health professionals and indirectly improve the quality of integrated care: happy staff means happy patients.

Triple Aim 3 Lowering per capita costs of care

12 The aim of a care pathway is to enhance quality of care across the care continuum by improving risk-adjusted patient outcomes, promoting patient safety, increasing patient satisfaction, and optimising the use of resources. Evidence shows

that care pathways can realise these aims when they fulfil the thirteen conditions mentioned in image 10.2.*

13 It is plausible that horizontally integrated care reduces the overuse of care, as variations in the prevalence of diagnoses, referrals to specialists and medication prescribed by physicians who belong to the same team may all be discussed in peer review meetings.

14 The economy of focus is the integration of knowledge and experience in one and the same team. A diseconomy of scale is the risk of overdiagnosis and overtreatment: patients are referred to a focus clinic too quickly.

15 Structural quality relates first and foremost to the quality of the buildings and the equipment, the education level of the professionals, the characteristics of the integrated care organisation and its payment methods. However, it does not guarantee that the Triple Aim will be reached.

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11 Patient-perceived quality of integrated care

This chapter starts with an introduction of terms related to the already introduced concept of patient-perceived quality of care (section 11.1). Section 11.2 shows how to assess patiented-reported information and the chapter ends with a discussion of how the findings in this chapter contribute to the Triple Aim.

11.1 CONCEPTS AND DEFINITIONS OF PATIENT-PERCEIVED QUALITY OF CARE

Five concepts play a role in quality assessment through the patient's eyes: patient satisfaction, patient experience, quality of life, patient-reported outcome and patient-reported outcome measures. Image 11.1 shows their definition, accompanied by an example that illustrates the differences between them.

Patient satisfaction is a well-known but obsolete concept used to measure quality of care. One of the reasons it has become obsolete is that only 4.6 percent of its variance is caused by the care process itself.[8] Other more important factors are different expectations, the patient's sex, age and level of education, time since care ended, and the patient's past experiences. Secondly, qualitative research shows that patients will give positive satisfaction ratings even when they are faced with negative experiences. They may be unhappy about hurried communication with their doctor, but still give an adequate rating because they attribute this to time constraints. Thirdly, improvements in patient satisfaction have not been linked to quality improvement. So, it could well be that integration of care does not improve patient satisfaction.[9] When patients are asked a single question about their experience with waiting time for an appointment, more than 20 percent of the variance is explained by differences between care processes. While this is more than the abovementioned 4.6 percent for patient satisfaction, it is still far from impressive.

Patient satisfaction: A judgment about whether the patient's expectations were met[1]
Example of an interview question: How satisfied are you with the appointment system in your health centre?
Patient experience: Reflects perceptions and feelings of patients after interactions, occurrences and events that happen independently and collectively throughout the care process[2]
Example of an interview question: In the last 6 months, how often did you see your provider within 15 minutes of the agreed appointment time?
Patient-reported outcome (PRO): The concept of any report of the status of a patient's health condition that comes directly from the patient (or in some cases a caregiver), without interpretation of the patient's response by a clinician or anyone else[3]
Examples of health conditions reported by patients: pain; depression
PRO measure (PROM): An instrument, scale or single item measure used to assess the PRO concept as perceived by the patient, obtained by directly asking the patient (or in some cases a caregiver to self-report)[3]
Example of a PROM: The visual analogue scale for measurement of acute pain[4]
Quality of Life: The general well-being of a person or society, defined in terms of health and happiness, rather than wealth[5]
Example of QoL - questionnaires: Rand 36[6]; Euroquol[7]

Image 11.1 Definition of five concepts related to patient-perceived quality of integrated care

Devkaran[1] distinguishes thirteen domains of patient experience:

1 care provided by physicians;
2 care provided by nurses;
3 management of operations and procedures, e.g., filling out forms;
4 cleanliness of the premises;
5 being treated with respect and dignity;
6 consistency and coordination of care;
7 patient rights and feedback;
8 pain management;
9 involvement of family and friends;
10 discharge;
11 waiting for admission;
12 medication management; and
13 quality of food.

The first two domains encompass two subthemes: shared decision-making and empathy.

The former subtheme is discussed extensively in chapter 9. Empathy, the second subtheme, refers to the ability to see through the patient's eyes, listen with the

patient's ears and feel with the patient's heart. It can only be measured by asking patients about their experiences. 'There is a clear difference between a nurse acting according to the best professional quality standards and a nurse working with empathy caring for the patient's experience. In the first case, the nurse performs her work in an excellent manner, asks the polite questions when it is defined, smiles in a routine way, is also polite in a routine way and at the end it is difficult to distinguish her friendliness from the automated friendliness of a cash dispenser'.[9] As integrated care emphasises care pathways and multidisciplinary teamwork, the individual empathy of health professionals risks becoming neglected. However, health professionals perform two roles simultaneously.

In their interaction with patients, professionals need to act as empathic individuals, while the interaction with colleagues requires them to be team players.

Devkaran's list of thirteen aspects contains aspects related to continuity of care: 5. Consistency and coordination of care 8. Involvement of family and friends 9. Discharge and 10. Waiting for admission.

Continuity of care with its four dimensions (see section 2.2) is not an autonomous field of research. However, there is a special questionnaire with questions about patients' experiences with continuity of chronic care.[10,11] There are specific handbooks and guidelines to measure patients' experiences.[12] These are not summarised and discussed in this book. The Picker Institute[13] is an important promoter of the development and implementation of this assessment of patient-reported experiences.

11.2 HOW TO ASSESS PATIENT-REPORTED OUTCOMES AND QUALITY OF LIFE

PROs and PROMs (see image 11.1) are two new concepts that are quickly gaining popularity in the field of healthcare evaluation. They give health insurance companies and other policy agencies the opportunity to interview patients before and after their treatment about how they perceive their own health. This is known as BHOM (Behavioural Health Outcomes Management). In the Netherlands, this is known as ROM (Routine Outcome Monitoring), also used in its verb form *ROM*ing,[14] Psychiatric patients are interviewed with several PROMs at the start and end of their treatment. Chronic psychiatric patients are monitored once or twice a year. Independent BHOM, carried out by policy-makers, is unpopular with attending professionals because they are not involved in the process. However, if they are, BHOM offers an excellent way to measure the added value of integrated care from the start of the treatment until discharge. While figures regarding process and structural quality might be of particular interest to policy-makers and financers, the key question concerns the effect of a treatment on the patient's health.

The definition of quality of life (see image 11.1) encompasses more than just the concept of health as defined in section 2.3. It relates to seven basic human needs as defined father and son Skidelsky. These seven have already been discussed in section 5.4. The Skidelskys' approach is reflected in the capability measuring method. This method uses five categories: stability, attachment, achievement, autonomy and enjoyment. Al-Janabi and colleagues developed an instrument to measure these categories, which, together, make up a patient's quality of life.[15] More widely accepted are the quality of life questionnaires Rand-36 and Euroqual.

Assessing quality with statistics or interviews?

There are two ways to assess patient-perceived quality of integrated care. The first of these concerns statistical methods. These work with questionnaires, such as the one created by Walker and colleagues.[16] Their advantage is that they offer insight into frequencies and average experiences of patients regarding the aspects distinguished by Devkaran. Their disadvantage – my own experience as a researcher has taught me – is that they often generate low response. Patients with complex needs often occur as non-responders: they do not have enough energy to fill out a questionnaire. A counter movement is emerging in the form of qualitative descriptions of patient experiences through in-depth interviews, focus groups, mirror conversations, patient rating sites and patient shadowing. These methods do not yield averages or frequencies of patient experiences. They can, however, offer information about structural and incidental factors that influence the quality of integrated care. The example in image 11.2 illustrates this distinction. This book does not include a discussion of different qualitative research methods. However, chapter 20 globally discusses quantitative and qualitative integrated care evaluations.

Three developments in quality measurement can be witnessed within integrated primary healthcare and vertically integrated chronic care. The first is that the data protection and privacy of individual citizens are compromised. This will be discussed extensively in section 17.3. The second development is that the costs of

Image 11.2 Incidental and structural factors that influence quality of care, recognised in an in-depth interview

During an interview, a cancer patient indicates she is unclear about who her primary physician is. The interviewer notes this experience down. She ascertains that this information has not been written down in the care pathway. During the analysis of the interview, she points this out as a *structural factor* that influences the quality of care. When health professionals forget to inform the patient about who their primary physician is, while this is properly taken care of in the care pathway, this is seen as an incidental factor.

quality data collection are increasing. It is plausible that the use of screening indicators improves the quality of integrated care without breaking the bank. If these screening indicators are sufficient, policy-makers and professional alliances will not require additional data.

For integrated care, three screening indicators can be distinghuised:
1 one for the accessibility of the team;
2 one for the outflow of patients to other care organisations or to society; and
3 one for patient experiences.

For the latter, I suggest the Net Promoter Score.[17] This instrument consists of a single question that the integrated care organisation should ask its patients: on a scale of 0 to 10 how likely is it that you would recommend this organisation to a friend or a colleague? If this screening indicator leads to unfavourable outcomes, more specific questions can be asked.

When patients are asked about the quality of care provided by health professionals, they seldom mention key aspects of professional quality such as medical knowledge, technical skill, safety and the availability of care pathways. Perhaps, patients simply take these for granted.[18] However, what they do mention, are professional outcome quality indicators such as survival rates, time to recovery and sustainability of health as described by Donabedian and Porter (see session 10.1).These are of key importance to the transparency of data about providers on the internet and in mass media. In addition, PROs such as empathy, communication and convenient appointments and other aspects mentioned by Devkaran are also important. It is possible that a health professional is very empathic, but nonetheless provides substandard care. The Dutch language has an expression for this: gentle surgeons make smelly wounds. It is therefore the responsibility of professional colleagues, team members and policy-makers to monitor both professional and patient-reported quality.[19,20]

11.3 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can more attention to patient-perceived quality of integrated care contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 and 2 Improving population health and increasing quality of care for the individual

1 Patient satisfaction is a well-known but obsolete concept used to measure quality of care. It is plausible that measuring patients' experiences with integrated care contributes to the Triple Aim.
2 Empathy refers to the ability to see through the patient's eyes, listen with the patient's ears and feel with the patient's heart. It can only be measured by asking patients about their experiences. Empathy is diffcult to measure. As integrated care emphasises care pathways and multidisciplinary teamwork, the individual empathy of health professionals risks becoming neglected.
3 PROs and PROMs (see image 11.2) are two new concepts that are quickly gaining popularity in the field of healthcare evaluation. They give health insurance companies and other policy agencies the opportunity to interview patients before and after their treatment about how they perceive their own health. Using these outcomes promotes the quality of integrated care.
4 Statistical methods offer insight in frequencies, averages and distributions in patients' experiences concerning aspects they consider important. They encourage patients and professionals to give feedback aimed at solutions for experienced problems. These methods consequently promote the quality of care.
5 Qualitative methods yield more information about structural and incidental factors that influence the quality of integrated care and thus promote quality of care.
6 It is plausible that the use of screening indicators improves the quality of integrated care and that they are not expensive. If these screening indicators are sufficient, policy-makers and professional alliances will not require additional data. For integrated care, three screening indicators can be distinguished:
    1 one for the accessibility of the team;
    2 one for the outflow of patients to other care organisations or to society; and
    3 one for patient experiences.
7 Professional outcome quality indicators, such as survival rates, time to recovery and sustainability of health as described by Donabedian and Porter (see section 10.1) are also important for patients. These indicators are an essential part of transparency of data about providers on the internet, in mass media and in social media. In addition, PROs, such as empathy, communication, convenient appointments and other aspects described by Devkaran are important. It is possible that a health professional is very empathetic, but nonetheless provides substandard care and vice versa. It is important for quality governance to measure both professional and patient-reported quality.

Triple Aim 3 Lowering costs of care

8 Patient experiences and costs of care are discussed in chapter 12 on behavioural economics and integrated care.

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PART 5 PAYING INTEGRATED CARE

12 Behavioural economics and integrated care

This chapter first introduces the concepts of behavioural economics, financial nudges and related terms (section 12.1). Subsequently, it discusses how financial nudges have stimulated the development of primary healthcare (section 12.2) and vertical integration (section 12.3). Special attention is paid to the relation between financial nudges and patient behaviour (section 12.4). The final section discusses how behavioural economics in integrated care can contribute to the realisation of the Triple Aim.

12.1 THEORY AND DEFINITIONS OF BEHAVIOURAL ECONOMICS

The founder of the free market theory is Adam Smith. In his world famous book *Wealth of Nations,*[1] which was published in 1776, he pleaded for total competition and free trade between all countries as a way to promote prosperity. This book also introduced the term homo economicus: a rationally acting human being who aims for the maximum satisfaction of his or her own needs. Adam Smith struggled with the fact that people's behaviour is not exclusively determined by the height of the prices of goods and services. In 1759, seventeen years before the publication of the Wealth of Nations, he wrote *The Theory of the Moral Sentiment*.[2] In this book, he concludes that humans are (anxious) animals who react to the distress and mating calls of others and feel a strong desire to show solidarity. In 2012, Kahneman united Smith's two views in one readable book titled *Thinking Slow and Fast*.[3] Kahneman, who won the Nobel Prize in 2002, distinguishes two systems used by the brain to form thoughts. System 1 thinks fast, in stereotypes and emotions. This system works unconsciously. Nowadays, this system is referred to as intuition. System 2, in other words the rational mind, is slow, calculates logically and works consciously. To illustrate, people learn their own mother tongue according to system 1 and a second language through system 2. Smith's homo economicus thinks according to system 2. In their daily lives, people think using both systems. In his publications, summarised in *Thinking*

Slow and Fast, Kahneman supports behavioural economics. The definition of this concept is shown in image 12.1 together with other terms in this field. This diagram only shows concepts regarding the way integrated care functions economically. This chapter does not intend to offer a complete overview of behavioural economics.

Libertarian paternalism

Pushing and nudging the consumer into the direction of rational, long-term thought according to Kahneman's system 2 is called libertarian paternalism. This term is discussed at length by Williamson (mentioned in image 12.1) and Rice, who published an overview article about the use of behavioural economics in healthcare.[4] Libertarian paternalism does not compromise the consumer's freedom of choice.

The paternalistic element lies in the way providers influence consumers' choices in the long-term interest of the consumers themselves, who would otherwise be guided too much by system 1. In libertarian paternalism, providers of market products and government services have considered in advance what would be in the consumer's best interest. Providers use so-called nudges to steer consumers in the right direction (see image 12.1).

They also use defaults in, e.g., medication diagrams and treatment guidelines. If they want to, patients can deviate from this default. In reality, they usually choose not to, as they believe these defaults have been created in their own best interest. Thirdly, libertarian paternalism also stimulates conformist behaviour. To name an example, the news that many people stop smoking stimulates conformism. Such messages are generally much more effective than the message that smoking damages health.

The aforementioned Kahneman and Thaler & Sunstein[5] emphasise that there is no such thing as provider neutrality. These latter authors illustrate their statement by saying that even the place of healthy food on the shelves of the school canteen counter influences students' purchasing behaviour. Each detail influences the demand. Essentially, behavioural economics forms an application of marketing, in which stimulating consumers to engage in slow, long-term thinking is paramount. Behavioural economics does not tempt consumers to take naive, short-term decisions according to system 1.

The use of nudges is not limited to consumers. They can also be used to encourage doctors and nurses to engage in rational behaviour, such as limiting the use of drug prescriptions, avoiding duplicate diagnoses and following guidelines. Khullar and colleagues,[6] Perry and colleagues,[7] and Horn and colleagues[8] provide examples and propose experiments.

Concept	Explanation	Example in integrated care
Behavioural Economics	Science of the effects of knowledge and of social and emotional factors on economic decisions and the use of resources, costs and revenue[1]	The decision to spend time on meetings of a multidisciplinary primary healthcare team is negatively influenced if the payment system only rewards patient contacts (chapter 3)
System I and System II	Two systems with which the brain generates thoughts. System I (or intuition) thinks fast, in stereotypes and emotions. System 2 (or ratio) is slow, calculates and is logical[2]	Health professionals in disease management programmes have opinions about each other based on system I and II (chapter 4)
Planning fallacy	Humans are too optimistic by nature. They overestimate their capacities and underestimate the effort needed to achieve their goals 2)	In Shared Decision Making, patients have an overly optimistic view of their prognosis, while physicians overestimate their own abilities(chapter 9)
Transaction cost theory	This theory emphasises that market competition functions sub-optimally if the costs of collecting information about supply and demand or the costs of realising a transaction between producer and consumer are high[3]	The costs of annual negotiations between primary healthcare centres and health insurance commissioners are high. It is better to work with long-term agreements between both actors (chapter 14)
Nudge	Small financial or other changes in the supply of goods or services that significantly change the behaviour of consumers[5]	Reduction of co-payments for people with a chronic condition if they follow a course in self-management considerably stimulates their participation in courses
Framing	Technique of persuasion which uses words and images to implicitly accentuate certain aspects of a person or object and thereby influence a decision[6]	It is difficult to formulate decision aids for patients without framing towards one decision (chapter 8)

Image 12.1 Concepts of behavioural economics related to integrated care

The American researchers King and colleagues,[9] the Australian round table conference about behavioural economics[10] and the English committee of the Institute for Government,[11] all say that the application of behavioural economics in healthcare is still in its infancy. The theories and ideas created by Kahneman, Williamson and Thaler & Sunstein have only been used in a small number of field experiments.

12.2 HORIZONTAL INTEGRATION AND BEHAVIOURAL ECONOMICS

As explained in chapter 3, the development of integration within primary healthcare in the Netherlands started in the seventies. The first five multidisciplinary teams in health centres received scientific grants. For the other teams, a financial nudge was available: if a group of practitioners, a district nurse organisation and a social service organisation signed a memorandum of understanding about forming a multidisciplinary home team, the insurance companies allocated some resources as an incentive. This money was not enough to facilitate all cooperation and housing, but it boosted the team's reputation. Since the seventies, municipalities have started to support multidisciplinary teams financially. New towns, such as Lelystad and Almere, established in recently drained polders, indirectly subsidised horizontal integration by providing cheap ground to build health centres on.

Sometimes, they also provided cheap long-term loans or grants to cover overhead costs. Until 2006, primary healthcare centres were predominantly situated in new estate areas. A PhD student even stated once that without new Dutch polders, there would be no new cities and no integrated primary healthcare.

In 2006, the new Health Insurance Act (Zorgverzekeringswet[12]) made all Dutch citizens eligible for a GP capitation fee. Until that year, the richest one third of the population paid its GP out-of-pocket on a FFS basis. This one third had no permanent relationship with their GPs. The latter had no certainty regarding the revenue from the care they provided for this one third. The expanded capitation fee system was a nudge to create hundreds of new healthcare centres with multidisciplinary teams in the Netherlands. Old neighbourhoods also got their own teams. This recent development shows the importance of safe resource allocation systems that inspire faith in the future and stimulate investment in buildings and teams. In 2006, the Health Insurance Act introduced a population-based payment system for GP care that has been developed for 2016, as shown in image 12.2.

This concludes the history of payment systems for horizontal integration in the Netherlands. In short, nudges have played an important role and a new safe payment system has triggered investment in multidisciplinary teams, organisations and buildings.

12.3 VERTICAL INTEGRATION AND BEHAVIOURAL ECONOMICS

In the eighties, shared care emerged in the Netherlands between primary healthcare and hospitals (see chapter 4).

The initial resources for this new form of healthcare often came from institutes such as the Netherlands Organisation for Health Research and Development (ZonMw), charity funds such as the Netherlands Diabetes Foundation, and incidental small grants from local health insurance companies, municipalities

Segment 1: basic GP care, primary mental healthcare and certain specifically defined interventions such as giving a therapeutic injection. Basic GP-care is paid out of a nationally defined population-based fee, the so-called capitation fee (59.32 euro per patient per year in 2016) and a low FFS (9.01 euro). Professionals who work in mental healthcare also receive an income that consists of a population-based fee per patient and a low fee per consultation. These fees are freely negotiated by local GPs and health insurance companies. The other interventions have an FFS that has also been negotiated locally.

Segment 2: integrated care for specifically defined target groups. In 2016, this form of care is available for people with diabetes type II, COPD and cardiovascular risks. This type of integrated care is funded by a population-based fee per person with a specific chronic condition, negotiated by local GP care groups and health insurance companies. With this fee, GPs pay their practice nurses, dieticians and annual checks by a medical specialist.

Segment 3: Specifically defined quality improvements and innovations. Examples of improvements include adequate referrals to specialists, adequate prescription of pharmaceutical drugs, and evening opening hours. These improvements are financed on a pay-for-performance basis, which is explained in section 14.4. Specifically defined innovations include joint consultations for patients who visit a GP and a medical specialist simultaneously, and e-health interventions. These innovations are financed with a low FFS.

Image 12.2 Payment (2016) of Dutch GP care in three segments
Source: https://www.nza.nl/1048076/1048144/TB_CU_7123_03__Huisartsenzorg_en_multidisciplinaire_zorg_inclusief_tarievenlijst.pdf

or hospitals. All this incidental money created a broad movement of shared care innovation in which primary healthcare organisations and hospitals were sometimes involved in five to ten different pilot projects per year. During my forty years of experience with such projects, I observed it was easy to get two or three years worth of funding for an integrated care project. However, problems started to occur when a successful project had to be embedded in the regular, standing payment system. When a pilot provided evidence that an innovation improved health and/or saved costs, it was usually not possible to transfer financial resources from hospitals to primary healthcare institutions. Pilotitis –too many pilots without follow-up – is the metaphor used by Dutch innovative professionals to describe this phenomenon.

In 2010, the first diabetes care groups (GP care groups for people with diabetes) commenced their activities.[13] In that same year, it became possible for health insurers to integrally purchase primary care for patients with diabetes, vascular risk management and COPD; that is, they were able to purchase it for a care group that was responsible for all aspects of care for this condition.

The underlying idea was that patients would receive more cohesive care. The rates for these payment bases are based on multidisciplinary health standards. The fee for diabetes care, for example, is based on the standard for diabetes care. The average number of hours different healthcare professionals have to put in to fulfil the standard annually is multiplied by an hourly fee per professional.

For instance, for each person with diabetes Type II general practitioners receive a fixed amount of about 450 euros (in 2016). Several professionals and services have to be paid with this fee: practice nurses who carry out quarterly checks of HbA1c and other vital values; advice given by dieticians and advice and checks carried out by medical specialists who support the GP's work. The quality of care provided within the bundled payment system is ensured in two ways. Firstly, the GP has to comply with the multidisciplinary standard for diabetes care. Secondly, the GP has to participate in peer-to-peer groups about the quality of care. Within a year and a half after the introduction of this new regulation, primary healthcare organisations throughout the Netherlands, the so-called Care Groups, started to provide integrated care for people with the aforementioned three diseases. They all received bundled payments. These DMPs do not work with bundled payment for all services.

They use a special fee for the hours health professionals need to cooperate in meetings. Some individual care activities have retained their own fees.[16] In 2016, bundled payment is being developed for maternity care and chronic care for Parkinson's disease and several other chronic conditions.

In 2012, the Evaluation Committee Integral Financing (EIB) published its final report about this form of financing.[14] Ironically, its first conclusion was that it was too early to draw conclusions. There is no evidence that bundled payments are cost-effective, since the saved costs of prevented late complications only become apparent after a follow-up of five to ten years after the start of the bundled payment.

Based on a large number of evaluations carried out by the Netherlands Institute for Health Services Research and the Netherlands Institute for Public Health and the Environment, the committee also concluded that healthcare services in 2010 and 2011 had improved compared to previous years. In addition, the committee observed a cost increase in integral healthcare. This was caused by the fact that costs for secondary care had not decreased while many start-up costs had been made in the first year (2009).

Germany, the US and the UK

The Netherlands is not the only country that uses financial nudges. Section 4.6 already introduced the German integrated project Kinzigstal and the German Disease Management Programmes.

The aforementioned Kinzigstal experiment uses a variation on the bundled payment system: an integral budget is allocated based on characteristics of the target population (age, sex, social economic status, previous care consumption).[15,16]

The USA introduced bundled payment for its Affordable Care Organizations (see section 4.6). These organisations receive a bundled payment within which they are allowed to shift resources from hospitals to medical homes. Good examples of ACOs using bundled payment include the Alternative Quality Contract in Massachusetts and the Pioneer ACO, which operates in various American States. They are discussed in chapter 13. Feeley and colleagues have developed bundled payments for oncological care.[17]

In 2004, the United Kingdom introduced the Quality and Outcomes Framework, which uses quality of care indicators as a financial nudge. A better indicator generates more revenue for GPs. This is an example of pay for performance. Hundreds of papers have been published about this programme and in 2006 Gillam and colleagues[18] published a systematic review of these articles.

Their conclusion reads as follows: 'Quality of care for incentivized conditions during the first year of the framework improved at a faster rate than the preintervention trend and subsequently returned to prior rates of improvement'.

Some doctors reported improved data recording and teamwork, and nurses enhanced specialist skills. Both groups believed that the person-centeredness of consultations and continuity were negatively affected. Patients' satisfaction with continuity declined, with little change in other domains of patient experience. Observed improvements in quality of care for chronic diseases in the framework were modest, and the impact on costs, professional behaviour, and patient experience remains uncertain.'

While bundled payment seems to work, evaluation studies with a long follow-up are not available. Pay for performance failed to take off in British and American primary healthcare.

12.4 PATIENT EMPOWERMENT AND BEHAVIOURAL ECONOMICS

Traditionally, Dutch parents who bring their children to the dentist for a semi-annual check-up do not have to pay for dental treatment if oral health problems occur in the meantime. The Social Insurance Act covers these extra costs. Without this check-up, parents do have to pay for the treatment. Section 4.4 showed a more modern example of a German nudge aimed at people with a chronic condition. If the latter follow an annual one or two-day course, they pay fewer co-payments for visits to primary healthcare institutions. Section 8.2 already mentioned the South African Vitality Health Promotion Programme. A similar option is provided by The American Affordable Care Act. This law makes it possible to offer insurants who live healthy lives (do not smoke and/or have a healthy body weight) an insurance premium discount

of 30 percent or even 50 percent in special cases.[19] This discount has to be based on biometrical outcomes or a reasonable, alternative standard, such as participation in a stop-smoking course during at least six months. In an evaluation study, Madisson and colleagues note that a reward right after the end of the course is more effective than a rather more anonymous premium discount.[20]

In summary, nudges that promote healthy behaviour have existed for a long time and come in many shapes in sizes. Among these are environmental adaptations, payment reductions on treatments, financial rewards, loyalty points and excises.

12.5 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can a focus on behavioural economics within integrated care contribute to the realisation of the Triple Aim in the coming years?

A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 Improving population health

1 Nudging the consumer into the direction of rational, long-term thought according to Kahneman's system 2 is called libertarian paternalism.
2 Nudging also uses defaults in, e.g., medication diagrams and treatment guidelines. If they want to, patients can deviate from this default. In reality, they usually choose not to, as they believe these defaults have been created in their own best interest. It is plausible that defaults enhance population health.
3 Nudges also stimulate conformist health behaviour. It is plausible that this leads to better population health.
4 Nudges that promote healthy behaviour have existed for a long time and come in many shapes in sizes. Among these are environmental adaptations, payment reductions for treatments, financial rewards, loyalty points and excises. It is plausible that these all promote population health.

Triple Aim 2 Increasing quality of care for the individual

5 Financial nudges have played an important role and safe payment systems for the long run have triggered investment in multidisciplinary teams, organisations and buildings.*
6 The quality of care provided within a bundled payment system is ensured in two ways. Firstly, the GP has to comply with the multidisciplinary standard for diabetes care. Secondly, the GP has to participate in peer-to-peer groups about the quality of care. This combination enhances quality of care.

Triple Aim 3 Lowering per capita costs of care

7 In the Netherlands, incidental money created a broad movement of shared care innovations. However, problems started to occur when a successful project had to be embedded in the regular, standing payment system.
8 When a pilot provided evidence that an innovation improved people's health and/or saved costs, it was usually not possible to transfer financial resources from hospitals to primary healthcare institutions.
9 It is uncertain whether or not the aforementioned partially introduced bundled payments for US hospitals really reduce the increase in costs.
10 Pay for performance failed to enhance quality of care and save money in British and American primary healthcare services.

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13 The cappuccino model: what is it and how does it work?

This chapter starts with an introduction of the cappuccino model (section 13.1). Subsequently, the three components of the model are discussed: the population- based payment (section 13.2), a low fee-for-service (section 13.3) and a low fee for innovation or pay for performance (sections 13.4 and 13.5). Conditions for the cappuccino model are discussed in section 13.6. The chapter finishes with an answer to the research question of this book based on the findings of this chapter (section 13.7).

13.1 A CUP OF CAPPUCCINO

In 2016, Dutch General Practitioners (GPs) receive their income based on three payment segments, as has already been shown in image 12.2. The combination of these three payment segments means that Dutch GPs have a good average annual income of about 111,100 euros (measured in 2013).[1] By comparison, dentists earn an average of 107,000 euros a year and medical specialists earn an average of 189,100 euros. This payment model functioned as the inspiration for the cappuccino model as a way to finance integrated care. More abstractly, the Dutch GP payment system exists for:

1 monodisciplinary activities (segment 1);
2 integrated care (segment 2); and
3 quality improvement and innovation (segment 3).

A population-based fee is dominant in segments 1 and 2. A low fee-for-service (FFS) exists in segment 1 and 3.

The cappuccino model aims to facilitate integrated care. It includes three payment principles:

1 a population-based fee for monodisciplinary activities and integrated care (the coffee of the cappuccino);
2 a low FFS per consultation and well-defined intervention (the milk); and
3 a P4P or an innovation fee (the cream).

The term 'cappuccino model' has been chosen consciously and makes use of framing (see section 12.1 on behavioural economics). Hopefully, this metaphor conjures up positive associations. I developed this model in a Dutch book about several types of healthcare delivery.[2] Image 13.1 summarises this elaboration and shows four elements of the cappuccino model:

1 a well-defined type of care;
2 a basis for the population-based payments;
3 an integrator who receives payments and allocates them to care providers; and
4 a financer.

Image 13.1 Cappuccino model proposed for several types of services
Source: Schrijvers G. Innovatie volgens het Cappuccinomodel. Thoeris, 2014

Type of care	Population Payment basis*	Integrator	Financer
Primary healthcare	Number of insurants in a neighbourhood; demographic characteristics; socioeconomic status	PHC centre	Insurance company
Chronic care	Number of people with a chronic condition in a region	Multidisciplinary integrated care group	Insurance company
Maternity care	Number of pregnant women; number of deliveries	Integrated care group of midwives and gynaecologists	Insurance company
Youth health	Number of children; demographic characteristics; socioeconomic status	Family Centre	Municipality
Long-term care	Number of elderly people and people with disabilities	Care centres for the elderly	Insurance company
Emergency care	Number and demographic characteristics of citizens in a trauma region; population density	Trauma centre	Insurance company
Elective specialist care	Number of elective patients in the past	Regional groups of medical specialists who provide elective care	Insurance company
Oncological care	Number of cancer patients	Comprehensive cancer networks	Insurance company
Mental healthcare	Number of people with a severe mental illness; number and demographic characteristics of regional population	Regional providers of mental healthcare	Insurance company and municipalities
Social services	Number and demographic characteristics of citizens of a neighbourhood	Social neighbourhood team	Municipality

Point of departure is that 80 to 85 percent of an integrator's income consists of population-based revenue, while volume rates and the innovation fee make up 10 percent and 5 percent respectively. These percentages show the relative importance of these elements. In column 2, image 13.1 only shows the basis for the population-based payments (the coffee). For the sake of simplicity, the bases for the low FFS (the milk) and quality improvement and innovation (the cream) are not shown. Milk and cream are discussed in sections 13.3 and 13.4.

For all types of care in image 13.1, the cappuccino model distinguishes different payment bases, integrators and financers.

13.2 THE COFFEE: SOME EXISTING EXAMPLES OF POPULATION-BASED PAYMENT

In 1974, the United Kingdom was the first country to introduce population-based payment with Area Health Authorities and District Management Teams as integrators and the Department of Health and Social Security as financer. In the years after its introduction, this development unleashed a vehement discussion about payment methods. My own dissertation (1980) reports on this development.[3] In 2013, Penno and colleagues identified seven countries with population-based payment: all of these used different types of payment bases, integrators and financers.[4] In 2015, Kalseth and colleagues showed a diverse palette of cases that worked with population-based payment in Western European countries.[5] Today, in 2016, population-based funding is most advanced in the South-German valley of the Kinzig river, the Kinzigstal.[6] Section 4.6 already described this system. As mentioned in section 12.2, the Netherlands works with GP Care groups that are paid based on the number of patients with a certain chronic condition.This is also a form of population-based payment. In these developments, the Netherlands mirrors the United States, where healthcare authorities and professionals are also looking for a way to realise population-based payment or 'bundled payment'[7],[8] Bundled payment is used in the USA for the Affordable Care Organizations that were discussed in sections 4.6 and 12.4.

It is uncertain whether or not the aforementioned, partially introduced bundled payments for US hospitals reduce the increase in costs across the board. In an overview study, published in 2013, Blumenthal and colleagues[9] showed that the increase in American healthcare costs is slowing down. While this could be the result of the introduction of ACOs and bundled payments, it could also be caused by the financial crisis.[10] Dale and colleagues[11] published comparable results for 497 American primary care practices. For two years, they worked with care management fees instead of bundled payments. Organisations had the opportunity to earn shared savings, received data feedback and were supported in learning to cooperate. Dale and colleagues found no quality improvements and no cost savings.

The Alternative Quality Contract (AQC), created by insurance company Blue Cross Blue Shield, is a striking exception to the rule (see image 13.2). This funding started in 2009. Song and colleagues[12] indicate that, up until 2012, the group of patients who enrolled in 2009 spent 6.8 percent less on healthcare than people without an AQC. Similarly, by the end of 2012, the cohorts enrolled in 2010, 2011 and 2012 showed average savings of 8.8 percent, 9.1 percent and 5.8 percent respectively. The quality of the care they received was higher than that of comparison groups. These results are remarkable, as an early evaluation of the years 2009-2011, which only included psychiatric patients, showed hardly any savings at all.[13] Mid-2016, Song and Colla proposed an expansion of the AQC to the rest of the US.[14]

Population-based payment based on characteristics of the patient population contributes to the Triple Aim in four ways. Firstly, the motivation to produce more, i.e. the FFS, has disappeared. Within a capitation fee, not intervening, listening and looking meet with the same rewards as intervening. Secondly, population-based funding improves personal continuity. People who pay this fee are less likely to switch healthcare providers than people who only pay FFS. Thirdly, within this payment system, health providers can more easily replace expensive care with cheaper, high-quality alternatives. Chapter 17 for instance shows how certain house calls, carried out by a nurse, are replaced with screen-to-screen contact. Fourthly, health insurers and healthcare providers have similar financial principles: both aim to positively influence customer values and contribution margins. This facilitates cocreation and negotiation. Chapter 14 will discuss this collective ambition in greater detail.

Image 13.2 The three main characteristics of the Alternative Quality Contract
Source: Song Z, et al. Changes in health care spending and quality 4 years into global payment. New England Journal of Medicine, 371 (2014) (18), 1704-1714.

1.	An integral base funding per insurant with annual growth margins for the next five years. For insurants with an HMO policy, the integral base funding covers the entire continuum of care. The healthcare organisation bears the total risk for the total costs of all care, regardless of who provides it. Participation requires that an organisation employs GPs who, collectively, have at least 5,000-10,000 subscribed patients.
2.	Performance rewards of a maximum of 10 percent of base funding can be earned for good quality.
3.	Technical support for participating care organisations. An information-reporting system supports organisations in managing their basic budget, implementing quality improvements and safeguarding successes. This support contains periodical, mirror information about financial (e.g., declarations versus funding) and healthcare-related performances (e.g., scores on indicators), as well as professional conferences during which healthcare organisations meet each other and exchange best practices.

The long-term dimensions of population-based payments

As mentioned before, the capitation fee as base for population-based payments is related to characteristics of the patient population, such as size, age composition, gender breakdown and socioeconomic status. This makes it relatively easy to estimate the revenue from this fee for the next six to eight years. These estimates will form the financial framework for future, local, regional and national multi-year health plans. It facilitates population management as discussed in section 2.2. These multi-year plans include concentrations, task redistributions and healthcare innovations.

Annual health purchases made by healthcare insurers consequently become less important, as the choice for certain healthcare providers has already been made in advance.

These plans also enable the application of budget-impact analyses and comparative health research, both of which will be discussed in chapter 20. However, that is not the only advantage of population-based funding.

It also prevents healthcare providers from organising themselves based on their financers: e.g. in departments that provide care for social insurance companies, for privately insured citizens or municipalities. Cohesion and continuity of care through one single care plan created by both client and case manager within a disease-management programme (DMP) would then cease to exist. Things could be different if the executors of different payment system lock hands and create a long-term policy in which each financer pays a part of the DMP. This long-term perspective not only eliminates the risk of sectoralisation, but also prevents different financers from passing the buck. For emergency care, the additional argument of the so-called 'availability usefulness' applies: much like the fire brigade, emergency care has to be available 24 hours a day, even though it is rarely called upon during evenings and nights. Instead of population-based funding, the Dutch ambulance world also uses the term 'fire brigade funding'. Firefighters are not paid per fire; they are paid to be prepared.

The risks of complete population-based funding include sectoralisation, the pass-on mechanism and lethargic emergency care professionals. In order to diminish these risks, the cappuccino model adds a second payment basis: a low FFS.

13.3 THE MILK IN THE CAPPUCCINO: THE LOW FEE-FOR-SERVICE

If healthcare professionals or their institutes rely on a population-based fee for 100 percent of their income, they are dealing with a limited budget without an open end. This cannot be expanded if activities are more expensive than previously calculated. They receive a fixed amount per year, regardless of healthcare use. If these amounts are insufficient, professionals choose patients who are already present in their work setting over patients on the waiting list. In the 1990s, this happened in hospitals and home care organisations in the Netherlands. This contributed to the downfall of the

government in 2002. Setting a price ceiling by means of population-based payment can lead to long waiting lists, airlifts of patients to other countries and attention-grabbing court cases about health insurers' duty to provide enough elective interventions. The cappuccino model therefore contains a low FFS with an open end. The following two examples illustrate how this works. The first one concerns Dutch GPs. When they were particularly busy in 2009 as a result of the swine flu epidemic, the population-based payment system did not generate extra income. GPs nevertheless received extra income due to their low fee per consultation.

This additional fee (about 8 euro per consultation at the time) prevented dissatisfaction among GPs. The second example concerns Finnish orthopaedists at the world-famous Coxa-clinic[15] in Tempere. They were also pleased with a low FFS. Based on population characteristics and historical costs, their clinic receives a fixed annual budget. The clinic also receives a low fee per operation, which causes revenue to increase slightly when the workload is more than previously expected. Doctors receive this as a bonus payment on top of their fixed salary.

Finnish and Dutch experiences have inspired me to include a low FFS in the cappuccino model. An additional argument for this decision is provided by behavioural economics (see section 14.1). It is well-known that small but visible financial incentives are sufficient to stimulate desirable behaviour in healthcare professionals and patients. In effect, the low FFS could help to increase productivity and combat waiting lists.

13.4 THE CREAM: THE INNOVATION FEE

A healthcare innovation is a change in healthcare delivery that has been consciously chosen by existing organisations and aims to improve health, quality of care and/or to reduce healthcare cost.[16] Image 13.2 shows nine phases in the development of a healthcare innovation.

Image 13.3 Phases in the development of a healthcare innovation

1.	Becoming aware of the existence of a problem
2.	Studying relevant literature and documents about innovations that have already been developed elsewhere.
3.	Designing the innovation
4.	Designing the first business case
5.	Simulating the innovation
6.	Carrying out a pilot with several patients
7.	Carrying out a pilot in several different work settings
8.	Evaluating the pilot based on the three aims of the Triple Aim
9.	Making the successful innovation more sustainable

This division emerged based on literature studies and personal experience gained over the course of forty years of evaluating healthcare innovations. Chapter 19 discusses these phases extensively. The important question here is how the costs for developing an innovation should be paid. In the Netherlands, financial resources are not available in regular primary healthcare centres or hospitals.

Mission-driven professionals prepare innovations after working hours, pay innovations out of their own salaries and sometimes raise a few incidental resources by addressing internal or external funds. Unfortunately, this means that many innovations are poorly prepared and evaluated.

To prevent this from happening in the future, the cappuccino model contains a specific innovation fee. Healthcare professionals or their institutions receive this fee.

Two examples illustrate the importance of an innovation fee to incentivise innovations.The first one is this. Between 2003 and 2012, Dutch hospitals were allowed to spend a maximum of 3 percent more than their regular fees to pay their innovations. This was an incentive to create certain process innovations e.g. shared care programmes for primary healthcare. Many initiatives were realised. The second example relates to American hospitals. They have considerably improved their IT systems in the past few years. Their average EMRAM score increased from 2.8 in 2009 to 4.4 at the end of 2015. The Meaningful Use programme[17] created by the American government, explains this huge improvement during a period in which Canadian hospitals (which lacked a similar programme) hardly renewed their software at all. This five-year programme (2011-2016) rewards hospitals that innovate their software. For the first year, the financial reward amounted to 21,250 US dollars per specialist, or more specifically per professional who was registered in the Medicaid programme. In consecutive years, it amounted to 8,500 dollars. Compared to an overall hospital budget, which often comprises several hundred million dollars, this might not seem like lot of money. However, the fact that these small amounts of money resulted in such substantial software improvements proves that a low innovation fee can have a large psychological effect. The Meaningful Use programme has a high status in the USA. It is the Obama administration's showpiece and has garnered plenty of publicity. Hospital directors could therefore not afford to ignore it.

13.5 ANOTHER TYPE OF CREAM: PAY FOR PERFORMANCE

Pay for performance is a financial incentive that promotes quality of care: the following example illustrates the concept. Based on the average HbA1C of their diabetes patients, British GPs received a certain fee. If this average was favourable, GPs received more money than when it was less so. Section 12.3 already mentioned that Gillam and colleagues evaluated this P4P system. They did not find evidence to suggest

that it enhanced quality of care or lowered costs of care. Campbell and colleagues[18] discussed these results. They observe that P4P leads to opportunistic registration and does not result in better care. Secondly, they emphasise that P4P is often only introduced when standards already exist. This means the quality of care is already high and that additional financial incentives will not result in further improvements. Thirdly, Campbell and colleagues state that P4P leads professionals to become fixated on the indicators that determine the height of their payment.

Other aspects and patients with chronic conditions without P4P will then be at risk of becoming neglected. In 2014, Doran and colleagues waved goodbye to P4P in the UK after setting a payment standard had proved unsuccessful.[19] Other, more recent studies are also hesitant about using P4P to improve quality of care.[20,21,22]

Since 2000, P4P has seen wide acceptance in the United States.[23] The American national insurance schemes Medicare (for over-65s) and Medicaid (for people living at or below minimum subsistence level) and the Affordable Care Act all reward doctors and hospitals for fewer readmissions and postoperative infections.[24] In 2011, the Dutch parliament decided to introduce P4P in 2020. In 2015, Eijkenaar & Schut pleaded for a combination of population-based payment and P4P.[25] They emphasised that the first of these two payment types may result in substandard quality of care, because professionals have already been paid in advance, and subsequently pleaded for an additional incentive to maintain quality of care. They warned that the devil is in the detail: P4P should be well-designed and not stimulate professionals to engage in unwanted behaviour. Harris Lemak and colleagues, and Kirschner arrive at similar conclusions in their empirical study. P4P may have a positive influence on quality of care, but careful design is of the utmost importance.[26]

Taking all scientific studies into account, I see pay for performance as an alternative to the innovation fee. In the metaphorical cup of cappuccino, P4P is an alternative layer of cream. Both the innovation fee and P4P should be used in combination with population-based payment. Which of these incentives is given priority depends purely on the context in which professionals, institutes and financial authorities operate.

13.6 CONDITIONS FOR THE CAPPUCCINO MODEL

The integrator is one of the four aspects distinguished by the cappuccino model. Different types of care require different types of integrators, as shown in image 13.1. The integrator is introduced by Berwick in his 2008 Triple Aim paper as a necessary factor for the realisation of integration.[27] Section 2.2. and image 2.4 already discussed the crucial competences of an integrator. Within the cappuccino model, the integrator has the arduous task of allocating received funds for integrated care to specific team members. If this results in disputes or points of contention, the model does not work. Acceptation of resource allocation by the integrator is the first condition for the optimal functioning of the cappuccino model.

Shared savings

The cappuccino model also requires the implementation of the shared savings principle: if an integrated care organisation succeeds in both delivering high-quality care or improving care and reducing the cost of that care beyond prior expectations, it shares in the savings it achieves for the financer.

The American financer Medicare introduces a share of 100 percent for the provider above a minimum savings rate.[28] In Kinzigstal (see section 3.4) savings are shared equally between providers and financers: both receive 50 percent. Experiments in the Netherlands used three equal shares of 33.3 percent for providers, insurance companies and insurance premium discounts.

As these shared savings are usually achieved with the help of innovations, Dutch professionals also use the term innovation proof payment.

Other conditions for the cappuccino model

Other conditions for the cappuccino model are related to population-based funding. Eykenaar & Schut provide an adequate and accepted formula to relate population characteristics to the allocation of resources. When there is no consensus about the formula, this might lead to heated public debates.

I add another condition: a standardised accountancy system for all providers, which monitors cost development. Activity Based Costing[29] could be the supporting costing system for the cappuccino model.

13.7 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can the focus on behavioural economics within integrated care contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 Improving population health

1 It is plausible that population-based payment enhances population management and improves population health.

Triple Aim 2 Increasing quality of care for the individual

2 In population-based payment based on characteristics of the patient population the motivation to produce more, i.e. the fee-for-service, has disappeared. Within a capitation fee, not intervening, listening and looking meet with the same rewards as intervening.

3 Population-based funding improves personal continuity. People who pay this fee are less likely to switch healthcare providers than people who only pay FFS.
4 Setting a budget ceiling by means of population-based payment can lead to long waiting lists, airlifts of patients to other countries and attention-grabbing court cases about health insurers' duty to provide enough elective interventions. It is plausible that a low FFS with an open end prevents waiting lists.
5 Mission-driven professionals prepare innovations after working hours, pay innovations out of their own salaries and sometimes raise a few incidental resources by addressing internal or external funds. Unfortunately, this means that many innovations are poorly prepared and evaluated. To prevent this from happening in the future, the cappuccino model contains a specific innovation fee. Healthcare professionals or their institutions receive this fee to incentivise innovations. This happened in two cases in different countries.*
6 Poorly-designed, pay for performance (P4P) systems reduce quality of care. They lead to opportunistic registration and not to better care. Often, P4P is introduced when standards already exist. This means the quality of care is already high and that additional financial incentives will not result in further improvements. A high P4P leads professionals to become fixated on the indicators that determine the height of their payment.
7 Both a low innovation fee and a low P4P fee should be well-designed and used in combination with population-based payment. It is plausible that both enhance quality of care. Which incentive is given priority depends on the context in which professionals, institutes and financial authorities operate.

Triple Aim 3 Lowering per capita costs of care

8 Patients treated in an Alternative Quality Contract spend less on healthcare than people with an AQC and receive higher-quality care.
9 Within population-based payment, health providers can more easily replace expensive care with cheaper, high-quality alternatives.
10 Within population-based payment health insurers and healthcare providers have similar financial principles: both aim to positively influence customer values and contribution margins. This facilitates cocreation and negotiation.
11 If an integrated care organisation succeeds in both delivering high-quality care or improving care and reducing the cost of that care beyond prior expectations, it shares in the savings it achieves for the financer. This lowers the costs of integrated care.
12 Another condition for the cappuccino model is a standardised accountancy system for all providers, which monitors cost development. It is plausible that Activity Based Costing supports the cappuccino model and helps to lower the costs of integrated care.

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14 Payers and providers of integrated care

This chapter starts with an explanation of the role of integrated care purchases, using a real, but anonymised, example from the Netherlands. Subsequently, this chapter introduces the purchaser-provider split (PPS), popular in public administration as well as health services (section 14.1) Sections 14.2 and 14.3 specify conditions that allow PPS to contribute to the Triple Aim in case of scarcity. PPS entails risks that can hinder the realisation of the Triple Aim. These risks are mentioned in section 14.4 along with the measures that have to be taken when these risks actually occur. Section 14.5 concludes this chapter with the question of how PPS can contribute to the realisation of the Triple Aim.

14.1 ROBERT, A PURCHASER OF HOME CARE

Robert is a nurse and works as a care purchaser for an insurance company. He purchases district nursing care in a region with 600,000 inhabitants. In 2016, he has an annual budget of 120 million euros at his disposal. He purchases care for hundreds of district nurses. In order to do this, he negotiates with about forty different providers. Their rates differ from 40 to 81 euros per hour. Robert wants to bring these rates down. Robert argues: 'When a plumber makes a home visit, a client pays 35 euros per hour. Why does a district nurse sometimes cost twice as much?' A large number of managers have his mobile phone number in case of emergency. He encourages them to also include the work floor in their meetings. Robert wants to know first-hand what district nurses and their patients need and want. He has improved home care after hospital discharge and made sure that district nurses play an important role during this phase of care. Every year, Robert invites all district nurses in the region, about 500 of them, to exchange experiences. During these large, convivial conventions, these district nurses are generously

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>> complimented by Robert, his team and his superiors within the insurance company. After all, without district nurses a substitution from secondary to primary care is impossible. In addition, Robert maintains contact with patient organisations. It is worthwhile for the insurance company, which covers 80 percent of regional insurants, to maintain these contacts.

This real-life case perfectly illustrates the reality of working with a purchaser-provider split. This service delivery model has existed in Dutch healthcare since 2006; not only for district nursing, but for all forms of healthcare delivery. Since that year, the Netherlands has been familiar with three types of market competition: competition between purchasing insurance companies and providers; competition between providers and patients; and competition between patients and health insurance companies. Section 2.2 and image 2.5 already explained this market competition in more detail. Before 2006, providers of district nursing care also received financial resources from insurance companies. However, the allocated amounts were not based on negotiations, but on the budgets of previous years.

One hundred years ago, district nursing was provided by patient societies called Cross Unions. Members paid a low annual fee of, e.g., 0.50 Dutch guilders, by way of insurance premium and received care when they required it.

In the Netherlands, Germany and other Western-European countries, this purchaser-provider split (also known as PPS) has enabled selective purchasing. This means that a health insurance company purchases certain forms of care, e.g., breast cancer surgery, in a select number of hospitals. The company's decision to opt for selective purchasing may be inspired by either financial or quality concerns.

Since the 1990s, PPS has been introduced in the Netherlands and many other European countries, not only for health services, but also for public transport, energy and education.[1,2] The split is a part of the New Public Management movement. Its formal definition is: 'an aspect of internal markets in which the purchasing or commissioning of services on behalf of groups of the population (often geographically defined) is not carried out by providers of services'.[3] It enabled public authorities to retain their responsibility for specific services, without obliging them to provide these services.

There is no evidence to suggest that the purchaser-provider split makes services better and cheaper. In the Netherlands, healthcare costs have continued to grow at the same rate as in the years before 2006, when the purchaser-provider split was introduced in this country.[4,5] Kaiser Permanente in California is both insurance company

(Kaiser) and care provider (Permanente: the group of doctors working for Kaiser). Even though PPS did not gain a foothold in this organisation, Kaiser Permanente is nonetheless one of the best and cheapest systems in the world.[6] In the Netherlands, a construction like the one used by Kaiser Permanente is prohibited by government and parliament, because it breaks the purchaser-provider split, even though scientists have no problem with mergers between insurance companies and healthcare organisations.

The United Kingdom has replaced purchasing with the term 'commissioning'. Until 2013, GP commissioning had been popular: individual GPs became hospital care purchasers.[7] After that year, the government created Clinical Commissioning Groups (CCGs) without direct links to specific GP practices. The CCGs commission the majority of health services, including emergency care, elective hospital care, maternity services, and community and mental health services.[8] They service a population with an average of 226,000 people.

This chapter focuses on answering the question: is it possible to set up a purchaser-provider split that promotes integrated care? This question is important because it is to be expected that this split will continue to exist in future years. The role of purchasers therefore becomes crucial.

Before this question is answered in section 14.3, another topic has to be discussed: care purchasing with insufficient resources.

14.2 CARE PURCHASING AND SCARCITY

Image 14.1 shows some characteristics of care purchasing in periods of scarcity. Although they are not normative, they do exist. This section discusses the eight topics of image 14.1.

Image 14.1 Eight characteristics of care purchasing in times of scarcity
Source: The author's own experiences

1.	Financial limitations have been set in advance
2.	Everybody is spender and saver
3.	Conflict minimisation results in fair share allocation
4.	Cost reduction is a grieving process
5.	Sweeping the stairs from top to bottom
6.	Risks of passing on costs to other care providers and patients
7.	Daily routine drives out planning
8.	Integration of PDCA cycle and P & C cycle

In 1910, Taylor introduced scientific management in the industry sector. Based on scientific norms, industrial workers had to produce a certain quantity of products. The Hawthorne experiments showed that this type of management increased production costs. Labourers knew when their productivity was measured in order to set these quantity norms and would work more slowly as a result. During the financial crisis of the 1930s, companies stopped applying scientific management. It was soon replaced with budgeting, which limits a company's financial scope in advance and only sets tasks for production. Scientific norms were pushed into the background. Budget discipline became the leading motto. A new economic law was born (comparable with the chemical Law of Boyle), which states that everything liquefies under economic pressure. A 1930s Dutch Handbook on budgeting carried the motto: as hard times teach us how to pray, financial depression teaches us how to budget. Based on this short history of economics, it is to be expected that health services in times of scarcity will be confronted with pre-defined financial limitations (characteristic 1 in image 14.1), task setting in terms of output and deprioritisation of scientific norms. This is illustrated by the following example. Section 10.6 introduced the Dutch, multidisciplinary Flexible Assertive Community Treatment teams (FACT-teams, see also section 10.6). One of their evidence-based norms states that teams should consist of 11-12 FTE professionals and monitor 200 clients with severe mental illness.[8] Due to scarcity, the insurance company purchasers set financial limits in advance, ignored scientific evidence and increased their workload from 200 to 300 patients.

In future years, it will be largely impossible for healthcare providers to grow financially. Chapter 1 substantiated this statement with facts and statistics. This will be a radical change for the healthcare sector, which had always been used to growth.

Even though there are no actual budget cuts, institutions will nonetheless start to experience a feeling of scarcity. As the number of patients continues to increase, this feeling of scarcity will only intensify. Is it possible for professionals to offer goods and services in this context without getting overworked? Yes it is, when financial limitations are formulated in broad terms without specifications and instructions. If this is the case, there will be room for individual decision-making by budget holders. This improves creativity, as it challenges providers to replace expensive activities with cheaper alternatives.

Wildawsky is an American policy researcher who has devoted his entire career to the study of the way private companies and government organisations create budgets. In the 1960s, he formulated a theory about this topic, which led to his magnum opus in 1975.[9] Certain elements of this theory are important in relation to image 14.1. Firstly, Wildawsky observed that every manager is both spender and saver (point 2 in image 14.1). The spender wants the budget to be as big as possible, while the saver wants it

to be as small as possible. Department heads are savers compared to their healthcare professionals and spenders compared to their own superiors, the cluster head for example. Even the Minister of Public Health is both spender (compared to the Minister of Finance) and saver (in the contacts with insurance companies and the spending limits set for them). This view means that purchasing health insurers are not only savers when it comes to healthcare delivery, but also spenders compared to the government.

Wildawsky also ascertains that budgets often start with goal maximisation; the budget is first given a place in the institution's long-term vision. Right at the end of the budgetary process, scarcity often leads to the use of the so-called 'cheese slicer' method (point 3 in image 14.1): all departments in a certain hospital shrink (or grow) with the same percentage. Together with Wildawsky, I reject this policy-neutral way of budgeting. However, Wildawsky says that the saver who wants to minimise conflicts between different spenders will sometimes fail to escape this equal distribution of scarcity that spenders consider to be fair.

During a transition from financial growth to a period of scarcity (and even more so during a period of sudden budget cuts as a result of legislative changes or disruptive innovations) the purchasing policy of health insurers changes and the management and employees of the hospital will experience a period of mourning (point 4 in image 15.1). Saying goodbye and coping with grief are essential in this period. It is too early to focus on new beginnings, cutting coats according to one's cloth and reformulating the mission. Section 19.3 on change management discusses this in more detail.

If the management wants to inspire confidence after the budget cuts, it sets a good example by first taking austerity measures regarding its own size, income and staff support. Economists describe this with the metaphor 'a staircase is best swept clean from top to bottom' (point 5 in image 14.1).

This also includes reducing overhead costs by first cutting back on management layers, the number of branch offices, underutilisation due to inefficient timetabling and other obvious inefficiencies. This latter phenomenon is described with the metaphor 'wrecks appear at low tide'. The case story in section 14.1 illustrates this: purchaser Robert tries to bring down the hourly rate for district nursing care.

Budget economists from the 1930s already indicated three forms of risky behaviour in the event of increasing scarcity. The first phenomenon is now called passing on the scarcity (point 6 in image 14.1). A practical example of this phenomenon is the specialist who is faced with a lack of available hospital beds and consequently discharges a patient and sends him back to primary care too early. When healthcare professionals face increasing scarcity, they are more likely to pass the buck. Another

danger posed by increasing scarcity is that professionals focus all their attention on the hospital's present situation and forget about the future. Daily routine drives out planning (see point 7 in image 14.1).

What financial managers call the planning and control cycle (P&C Cycle), quality managers call the PDCA cycle. PDCA stands for Plan Do Check Act.[10,12] Nowadays, it is popular in healthcare organisations to integrate both cycles (point 8 in image 14.1). These organisations consider their budget part of the same annual programme that also includes quality projects and innovations. When both policy types are evaluated, the balanced score card (see section 10.7) shows financial and quality indicators in conjunction with one another.[11] This facilitates rational coverage and purchasing policies, as pleaded for by Gardner and discussed in chapter 20.

When the eight principles of image 14.1 are applied to integrated care, it is to be expected that:

1 integrated care works with budgets that have been limited in advance. Population-based funding is dominant here (see chapter 15);
2 the integrator of an integrated care organisation or network is a spender towards the purchaser of the insurance company but a saver towards individual members of the organisation or network. This could cause friction between integrators and professionals;
3 integrated care systems are committed to the Triple Aim. However, to reduce conflicts between actors inside and outside the system it could sometimes be preferable to use conflict minimisation as a fourth aim;
4 when integrated care results in hospital budget cuts due to substitution,this may result in a grieving process, which delays the development of integrated care;
5 purchasers of integrated care are more persuasive if they themselves have low overhead costs and are transparent about them;
6 passing on costs and time to another member of the integrated care system due to scarcity is one of the risks of continuing the cooperation;
7 starting integrated care in a period during which many providers are overloaded with their daily work is unwise. This will leave them no time to develop ideas for the future;
8 providing information about the costs and quality of care in an integrated manner, e.g., with the use of business score cards, helps the purchasers and providers of integrated care achieve the Triple Aim.

14.3 CONDITIONS FOR INTEGRATED CARE PURCHASING

In 2013, the annual congress of the International Foundation of Integrated Care took place in Berlin. Many Germans attended this congress, and among them were many

purchasers of insurance companies. When it comes to health services, the latter want to be players instead of payers. One of the conclusions of this congress was that purchasers of insurance companies and Clinical Commissioning Groups are the best promoters for integrated care. They represent the purchasing power of patients and clients. In their hands, the Triple Aim is guaranteed more strongly than in the hands of healthcare providers, because the latter also have a responsibility towards their employees: discharging patients earlier because of integrated care substitution also results in discharging employees earlier.

This theoretical, causal relation is supported by the case studies in the book *Pursuing Triple Aim*[13], which was discussed in section 2.2. In these case studies, representatives of insurance companies are leading integrative demonstration projects and lead them to success. This relation is also supported by the Kinzigstal project in Germany, discussed in section 3.4. Here, an independent organisation called Optimedis is in charge. However, it exists and functions because of the long-term support it receives from two insurance companies.

In the Netherlands, purchasers usually do not cooperate and negotiate with providers. Insurance companies work with new directives, which do not come from state agencies, but which they have created themselves. Integrated care is low on their agenda. In the UK, Clinical Care Groups support integrated care in Scotland, but not in England, as explained during the aforementioned congress in Berlin. Reflecting on the experiences above, the following question arises: under what conditions can purchasing insurance companies and CCGs be considered promoters of integrated care? Five conditions may be distinguished:

1 the right mission;
2 purchasing for target groups;
3 no competition between purchasers;
4 purchasers with sufficient expertise; and
5 support from patient and client groups.

The right mission

The mission of Dutch Social Health Insurance companies is fourfold:

1 to organise all payments traffic between individual insurants and providers and to verify the legitimacy of all payment claims;
2 to maintain solidarity between healthy and unhealthy members of the population;
3 to guarantee access to health services regardless of personal characteristics such as age, gender, ethnicity, race, health status, income and geographical residence; and
4 to maintain a sustainable growth of healthcare costs while also maintaining quality of care.

In point 3 and 4 the Triple Aim (see section 2.3) has been embedded.

For centuries, long-term perspectives have been dominant in insurance company policies. A branch of actuarial sciences (forecasting risks and calculating premiums) has consequently been developed. This may also be crucial for the development of integrated care. On the short term, substitution, patient activation and improved health behaviour may increase healthcare costs, but they reap their rewards in the long run. Employing a purchaser with a long-term perspective is therefore important.

Purchasing for target groups

Health is a huge sector. This is illustrated by the following example: the money the Netherlands spends on primary education could finance national healthcare for two months. The money spent on police and culture could keep it afloat for one month and one week respectively.[14] This necessitates the division of health services into several different categories. There are three alternative divisions: geographic regions; target groups, e.g., cancer patients and patients with dementia; or types of providers: GPs, hospitals and so on.

For integrated care, it is important that purchasing is organised according to division in target groups, because the scale of integration differs per target group of patients. Chapter 4 on vertical integration illustrates this by showing how care for people with a common chronic condition such as type 2 diabetes, which can be purchased on a neighbourhood level, requires a different type of integration than care for people with a rare chronic condition such as Parkinson's disease, which has to be purchased on a regional or national level.

No competition between purchasers

Integrated care focuses on a specific target group. In this chapter, the purchaser is assigned the role of integrator. This role is introduced in section 2.2 and in image 2.4. Two purchasers from different insurance companies who work for the same target group are like two captains on the same ship. When this occurs in a certain region, there are two options. Either these two purchasers choose to cooperate, or legislation prescribes that the purchaser with the largest market share assumes the role of integrator.

Purchasers need expertise and skills

A good purchaser has at least three competences, which have already been illustrated in section 14.1 in the case story of Robert, who purchases district nursing in a certain region. The first of these skills is practical know-how; Robert is a nurse and consequently knows what he is talking about. The second is negotiation skills: Robert tries to reduce the overhead costs of district nursing care providers. In order to do this, he needs to be well-acquainted with the Harvard negotiation rules[15] whose motto is: be soft on the person but hard on the problem. The third skill is the ability to lead and

integrate a network of providers who work for the same target group. Chapter 18 on leadership and integrated care discusses this in greater detail.

Support from patient and client groups

Purchasers work for their own patient groups. They should know what is important to them and what the providers' quality of care is. This information can be gleaned from different sources, e.g., patient questionnaires. Chapter 10 described patient-perceived quality of care. In addition, frequent contact with patient societies or councils is important for purchasers who want to develop person-centred solutions.

14.4 THREE RISKS OF INTEGRATED CARE PURCHASING

Sections 14.2 and 14.3 formulated conditions for well-functioning integrated care purchasing. However, there are at least three risks concerning the relation between purchasers and providers of integrated care.

Competition or cooperation

An integrated care provider could be a monopolist in a neighbourhood. If, e.g., GPs cooperate in a neighbourhood team, they are not competing with each other. On the contrary, they are colleagues with open relations and other characteristics of multidisciplinary teams as mentioned in section 3.5. However, there is a risk that they start to behave as monopolists or as partners in a cartel. If they do, they will try to increase their fees, restrict access to care and assume the role of bureaucrats who just sit back and wait. To prevent this from happening, an integrated care purchaser should organise sufficient countervailing power by informing patients and the local press.

Selective purchasing limits patients' freedom of choice

Another risk is that selective purchasing limits patients in their choice of health professional. This is illustrated by the following example. A woman with diabetes has had eye problems all her life due to myopia. For forty years, she has had a good relationship with ophthalmologist A. A year ago she entered a diabetes management programme.

The integrated care purchaser required her to go to ophthalmologist B, who is affiliated with the programme, for an annual retinopathy examination and to discontinue her long-standing relationship with physician A. This should not be the result of entering an integrated care team. In such cases, professionals and purchasers should be able to rely on the comply or explain rule (see also sections 2.5 and 18.2).

Professional standards are compromised by financial factors

For five years, multidisciplinary guidelines in the Netherlands have been in preparation for obstetric care and intensive care hospitals. Many mono-professional

groups are involved. They know that care purchasers will follow the new professional guidelines. It is therefore important for a professional group to be mentioned as often as possible. This created constipation instead of consensus in decision-making for obstetric and intensive care. It also caused other professional fields to over-emphasise the necessity of letting one profession fulfil certain tasks that could also be carried out by cheaper, less skilled professionals. A similar nudge could also influence the behaviour of purchasers. If they comply strictly with professional standards (created for an average of the population) multidisciplinary teams in poor and low-skilled neighbourhoods have a problem. Patients in these neighbourhoods consume more integrated care, because they have more difficulties in understanding health education.

14.5 THE CONTRIBUTION OF PURCHASERS OF INTEGRATED CARE TO THE TRIPLE AIM

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can integrated care purchasers contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 Better health

1 Integrated care systems are committed to the Triple Aim. However, to reduce conflicts between actors inside and outside of integrated care, it could sometimes be preferable to use conflict minimisation as a fourth aim.
2 Providing information about the costs and quality of care in an integrated manner, e.g., with the use of business score cards, helps the purchasers of an integrated care system to achieve the Triple Aim.
3 It is plausible that purchasers with a long-term perspective contribute more to the Triple Aim than short-term purchasers.
4 Two purchasers from different insurance companies who work for the same target group are like two captains on the same ship. When this occurs in a certain region, there are two options. Either these two purchasers choose to cooperate, or legislation prescribes that the purchaser with the largest market share assumes the role of integrator.

Triple Aim 2 Better quality of care

5 When integrated care results in hospital budget cuts due to substitution, this may result in a grieving process, which delays the development of integrated care.
6 It is plausible that integrated care purchasing is organised according to target groups, because the scale of integration differs per target group of patients.

7 If cooperation between integrated care providers results in monopolistic behaviour, the purchaser has to organise countervailing power to sustain the Triple Aim.
8 If selective purchasing of integrated care results in the interruption of longstanding relationships between patients and providers, starting integrated care is counterproductive.
9 If the preparation of multisciplinary guidelines is compromised by providers' financial concerns, the purchaser is free to not follow these guidelines.
10 If purchasers apply multidisciplinary guidelines too strictly and do not acknowledge local circumstances, the delivery of integrated care will be compromised.

Triple Aim 3 Lowering costs of care

11 There is no evidence to suggest that the purchaser-provider split makes services better and cheaper. In the Netherlands, healthcare costs have continued to grow at the same rate as in the years before 2006, when the purchaser-provider split was introduced in this country. Kaiser Permanente in California is both insurance company (Kaiser) and care provider (Permanente: the group of doctors working for Kaiser).
12 The integrator of an integrated care organisation or network is a spender towards the purchaser of the insurance company, but a saver towards individual members of the organisation or network. This could cause friction between integrators and professionals.
13 Purchasers of integrated care are more persuasive if they themselves have low overhead costs and are transparent about them.
14 Passing on costs and time to another member of the integrated care system due to scarcity is one of the risks of continuing the cooperation.
15 Starting integrated care in a period during which many providers are overloaded with their daily work, will leave them no time to develop ideas for the future.
16 A good purchaser has the following three competences: practical know-how, negotiation skills and skills to support, lead and integrate a network of providers who work for the same target group.
17 It is plausible that frequent contact with patient societies or councils is important for purchasers who want to develop person-centred solutions for integrated care.

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PART 6 THE DIGITISATION OF INTEGRATED CARE

15 The personal budget and integrated care

This chapter start with a case story that illustrates the use of personal budgets (PB) and care in kind in the Netherlands and Germany; two countries with advanced, integrated PB funding systems (section 15.1). Sections 15.2 and 15.3 define the concepts of personal budgets and their characteristics, needs assessment, mentors and PB governance. Section 15.4 answers the research question: how do personal budgets in integrated care contribute to the realisation of the Triple Aim?

15.1 CHARLES AND ANN HAVE A PERSONAL BUDGET FOR NICK

Charles is a teacher and Ann is a nurse. He works fulltime (36 hours) and she works part-time (24 hours) in the city of Rotterdam. They are married and have one son: Nick, a boy with Down's syndrome and serious physical disabilities. During the first four years of his life, Nick's parents were able to take care of him with support from family and the help of a day-care centre. Now, they have entered the phase in which Nick should be permanently admitted to an institution for children with intellectual disabilities. Charles and Ann want to keep Nick at home as long as possible. They have the necessary educational competences (Charles) and nursing skills (Ann) and their house is spacious enough to accommodate a child in a wheelchair. They apply for a personal budget (PB) paid by the Long Term Care (LTC) Act to finance 20 hours of professional support. Charles and Ann have a lengthy interview with a local LTC-needs assessor. The couple should be able to present a life care plan (see section 5.2) for Nick and convince the assessor regarding the quality of the care they can offer their son. At the end of the LTC-intake procedure, the PB is assigned. Nick's parents are free to spend the allocated resources independently. They choose to work less: Charles reduces his workload to

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>> 28 hours and Ann reduces hers to sixteen hours. They use the PB to supplement their own reduced salary. The rest of the money is spent on travel costs, since Nick has to go to a special school, and adjustments to their home. From a social point of view, this is a cheap solution. If Nick were to stay at an institution permanently, this would cost the LTC-agency about 2000 euros a week. Twenty hours of professional support in the PB format is valued at 700 euro a week. In addition, this solution more effectively guarantees their son's quality of care: Charles and Ann have a lot of empathy and attention for the child and Nick likes being with them.

In the Netherlands, cases like this have been published since 1986 to convince policy-makers and politicians that a PB is sometimes more appealing than care in kind. In 1987, I used my own inaugural lecture as professor of public health to plead for personal budgets in long-term care.[1]

Now, in 2016, Dutch politicians and policy-makers are far from convinced, due to fraud, double dealing and deceit. In the thirty intervening years, secretary of State Erika Terpstra (1994-1998) became the PB's most fervent political supporter.

Her successors tolerated what Terpstra had achieved (the personal budget for domestic help and personal grooming). However, they did not extend it to all benefits for long-term care, despite pleas from both scientific and professional circles to provide two types of long-term care: care in kind and care paid out of a personal budget.

In 2014, 841,515 Dutch people used long- term care outside of institutions, such as psychiatric hospitals or nursing homes. This amounts to 5.0 percent of the Dutch population. Of these 841,515 people, 15.3 percent or 120,035 people were PB-holders. Of all 120,035 budget holders in 2014, 81percent were younger than 65 years. These 120,035 PB users had been diagnosed with: psychiatric disorders (36.2 percent), somatic conditions or disorders (30.8 percent), intellectual disabilities (28.8 percent) and psychogeriatric disorders (4.2 percent).[2] In 2014, total PB expenditure amounted to 2.4 billion euros, or an average of 20,100 euros per person.

In Germany, a similar but more subtle development took place, unaccompanied by emotionally charged public debates and excessive media attention. Germany also has a so-called Pflegeversicherung or in English a Long-Term Care Act.[3] This act works with an independent needs assessment carried out by a joint group of insurance physicians. Once the assessment has been made, a German with certain disabilities is offered two options: care in kind or a personal budget. The height of the

German personal budget is around 50 percent of the costs of healthcare in kind. The idea is that the personal budget eliminates certain overhead costs required for care in kind. These costs form about half of all costs for healthcare in kind. When clients receive a personal budget they are not accountable for the way it is spent, but they are accountable for its results. German authorities will withdraw the personal budget if clients and their family members are incapable of organising their own care and the client's health consequently deteriorates. In practice, it appears that 70 percent of all Germans choose a personal budget and 30 percent opt for care in kind.[4] These percentages have been stable for years. The German government successfully uses its personal budget option as part of a wider family policy, which consciously tries to stimulate informal care. Despite having five times as many inhabitants, Germany spends the same amount of money on long-term care as the Netherlands.

For some groups, other European countries, such as France, Belgium and the United Kingdom, also have personal budgets for long-term care as an alternative to care in kind.[5] PB systems in the Netherlands and Germany are the most advanced.

15.2 THE DEFINITION OF A PERSONAL BUDGET

A personal budget (PB) is an amount of money assigned after an intake and assessment procedure, with which clients or their mentors can purchase their own care services. An external agency either monitors the quality of care serviced payed with the PB or the way the budget is spent. The alternative is care in kind.

One of the advantages the PB has over care in kind is that patients have more opportunities to shape their own life. They can coordinate their own care and remain in charge of their own house. The disadvantages are that they must find and recruit their own care providers, coordinate them, play the role of employer or care purchaser and keep records of how the budget is spent.

The PB can be a participation grant, in which case there is external governance of the quality of the provided care. This is the case in Germany. Patients are visited every three months by a nurse who checks if their care is in accordance with previously made care agreements. However, no one checks how the money is spent. In its participation grant form, the PB is closely related to other social grants, such as child benefits and study grants for students. Recipients of the latter two examples do not have to account for the way they spend their money. However, students do have to prove that they are passing tests. If their studies are taking too long, their study grant is withdrawn.

If the PB is a financial budget, checking and recording the way it is spent is paramount. However, the quality of the delivered care is often not monitored very closely. In the Netherlands, PBs are only available for personal assistance, nursing, coaching,

respite care and sheltered housing. A couple of years ago, a mass media debate focused on the following question: are informal carers of people with a disability allowed to use the PB to take a break from their care duties by going away for a weekend? The answer given by more than one political party was: no. The answer given by more than one scientist was: if informal carers can use the PB to fund a short holiday, they can recharge their mental and physical energy and increase their perseverance time for informal care.

There is a political difference between personal budgets and care in kind. The latter enables providers to control long-term care costs by limiting the care supply. Professional care providers directly receive a limited budget from the insurance company, state agency or municipality. They are faced with the difficult task of limiting access to their own services, either by applying higher access criteria or by creating a waiting list. This is more problematic for PBs, as these cause this responsibility to be transferred to the insurance company (or municipality or state agency). In the past, the Netherlands applied stricter cost control for care-in-kind than for PBs. This led to an increase in the number of PB applications, even though many people preferred care-in-kind.

The definition of a personal budget given at the start of this section contains three characteristics:

1 an intake- and assessment procedure;
2 a patient or mentor as spender of the PB; and
3 the governance of either the quality of care or the costs of care.

15.3 NEEDS ASSESSMENT, MENTORS AND GOVERNANCE OF A PERSONAL BUDGET

In 2013, a needs assessment and allocation filter for long-term care (see image 15.1) was introduced in the Netherlands. In the filter, five steps can be distinguished.[6] The first step consists of a description of the applicant's current healthcare situation. Steps two and three are concerned with determining the gross (including informal care) and net (excluding informal care) care need of the applicant. In step four, the assessor makes a decision. If the assessment decision does not include accommodation (step 5a), the client may choose between personal budget and care in kind (step 5b).

Since the 1st of April 2003, as previously mentioned in section 10.3, this filter has formulated care needs in terms of the International Classification of Impairments Disabilities and Handicaps (ICIDH).[7] In addition, the government introduced Care Intensity Packages, which correspond with levels of assessed care needs. In 2016, these Care Intensity Packages and the ICF language are commonplace in the Netherlands. Institutions call themselves a Care Intensity Package-7-institution for example. Government and parliament use the Care Intensity Packages in austerity

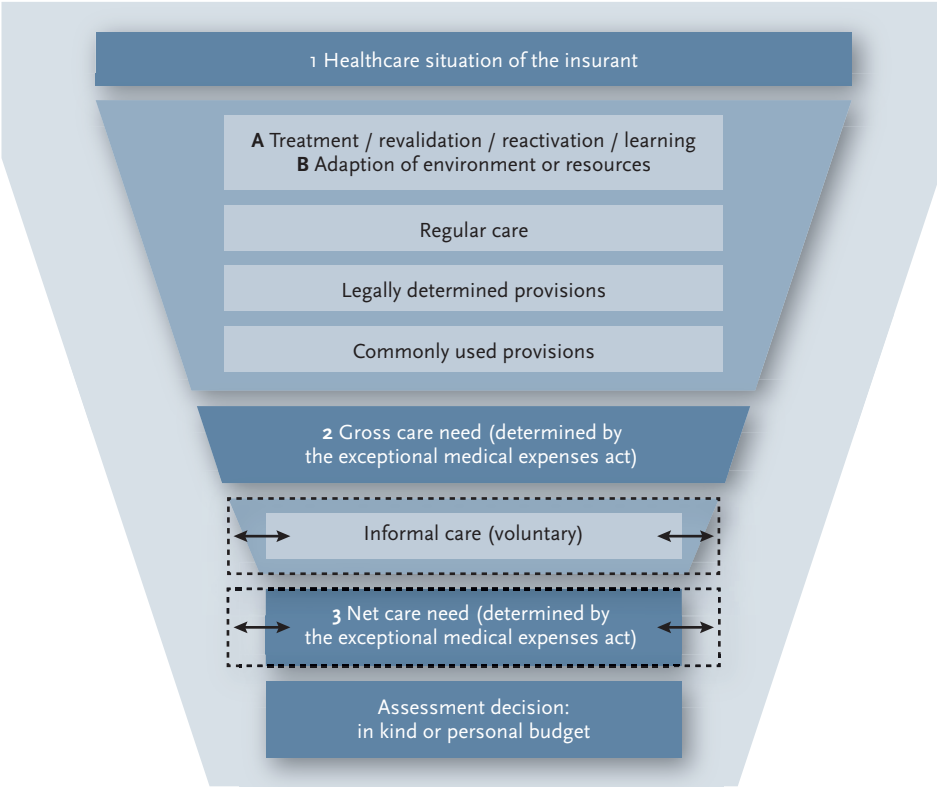

Image 15.1 The Dutch long-term care filter to assess long-term care needs and to allocate Personal Budgets or care in kind
Source: Based on: Care Needs Assessment guide, explanation of policy rules needs assessment Exceptional Medical Expenses Act 2013, as determined by the ministry of Health, Welfare and Sport, version 6.0, January 2013.

plans, e.g., Care Intensity Package 1 and 2 have been abolished. Often, clients receive less care-in-kind than these packages should contain.[8]

The client and the mentor

In the 1980s, Californian students invented the personal budget for people with a purely physical disability, e.g. people with paraplegia. These people have no cognitive or mental limitations. They are able to organise their own care and to be in charge of their own personal and domestic affairs. As shown in section 15.1, many PBs in the Netherlands are currently allocated to these kinds of patients. Moreover, for educated parents whose child has an intellectual disability – as described in the case story at the start of this chapter – the PB is often a more attractive option than care in kind in an institution.

Problems also arise with frail elderly and people with an intellectual disabiltiy. They no longer have the energy and the necessary cognitive skills to deal with a PB. A large number of small companies consequently took over the many administrative tasks that this entails. In past years, some of these companies turned out to be swindlers. They played the role of both mentor and care provider and took high percentages of the personal budget in exchange for their services. This gave the personal budget a bad reputation.

In 2016, the focus lies on this mentor role. Combining it with the role of professional care provider causes a conflict of interest and is therefore impossible. Mentors have to make a life care plan (see chapter 10 for more explanation) in which their role is described in terms of responsibilities and contact frequency.

The governance of the PB system

In 2014, a wave of fraud cases led a Dutch state agency, the Social Insurance Bank, to create a combination of the personal budget and care in kind. This facilitated increased supervision of PB expenditure. The institution currently works with drawing rights.[9] This means that a personal budget user acquires the right to buy, e.g., 200 hours of domestic help in a certain year (around four hours a week). A notification on the Social Insurance Bank's website enables users to indicate from which healthcare provider or self-employed care provider they want to buy this care and for how many hours per specific week. As the Bank is responsible for paying the healthcare provider, personal budget users do not have to deal with cash. They can, however, add extra money to gain more drawing rights. If personal budget users in this example want 600 hours of care instead of 200, they can make a personal, financial contribution to receive these additional hours. In 2015 and 2016 the software that facilitated these drawing rights appeared unable to guarantee the timely allocation of these right.

This led to a great deal of, unwanted, media attention and emergency debates in parliament. Today, PBs are still a source of vexation for many policy-makers and politicians.

Although the drawing rights model is interesting and reduces the risk of fraud, the German model is more attractive. The German personal budget is a participation grant that does not require its recipients to keep financial records. The quality of care is monitored during quarterly visits by a nurse. Although the height of many of these PBs would only cover about 50 percent of the costs of care in kind, seventy percent of Germans nonetheless prefer it.

In theory, a personal budget is ideal for patient empowerment and coordination of long-term care. It is particularly well suited to patients with good cognitive and

intellectual skills or patients whose mentors (recruited from among their informal carers) have these skills.

Experiences in Germany teach us that a majority of people who are eligible for either long-term care in kind or a personal budget opt for the latter.

15.4 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can integrated care purchasers contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 Improving population health

1 It is plausible that patients who use a personal budget have more opportunities to shape their own life. They can coordinate their own care and remain in charge of their own house.
2 The disadvantages of a personal budget are that PB users must find and recruit their own care providers, coordinate them, play the role of employer or care purchaser and keep records of how the budget is spent. It costs PB holders time and energy to organise their own care.

Triple Aim 2 Increasing quality of care

3 In practice, it appears that 70 percent of all Germans choose a personal budget and 30 percent opt for care in kind.These percentages have been stable for years. The German government successfully uses its personal budget option as part of a wider family policy, which consciously tries to stimulate informal care.

Triple Aim 3 Lowering costs of integrated care

4 Risks of working with personal budgets without effective governance include fraud, double dealing and deceit. This increases the costs of integrated care.
5 Thanks to the PB option, Germany spends the same amount of money for long-term care as the Netherlands, even though the former country has five times as many inhabitants. The simultaneous availability of both options lowers the costs of integrated care.
6 There is a political difference between personal budgets and integrated care in kind. The latter enables purchasers to control long-term care costs by limiting the care supply. In the domain of PBs, purchaser play no role.

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PART 7 DIGITISATION AND E-HEALTH IN INTEGRATED CARE

16 Electronic Health Records, big data and integrated care

Section 16.1 shows a brief history of digitisation and introduces concepts used in chapter 16 and 17. Electronic Health Records and big health databases are discussed in sections 16.2 and 16.3. Section 16.4 addresses the relation between these records and databases and integrated care. The final section of this chapter (section 16.5) answers the research question: how does the digitisation of integrated care contribute to the realisation of the Triple Aim?

16.1 INTRODUCTION

Around 1450, Johannes Gutenberg invented the art of book printing: an invention that allowed medical information, often hidden away in monasteries, to be distributed and transferred to universities and medical schools. In 1971, an American called Ray Tomlinson sent the first email and in 1989 Tim Berners-Lee invented the World Wide Web. Their inventions bridged the knowledge gap between medical professionals and citizens. The invention of the printing press was a disruptive innovation: it transformed society and led to the foundation of many new universities. More recent disruptive innovations include the invention of the steam engine, the combine engine and electricity, which, in consecutive order, resulted in the first industrial revolution in the nineteenth century, motorised traffic and the second industrial revolution in the twentieth century. The internet can also be considered a disruptive innovation, as it has been changing the way people think and act ever since its invention in 1989. By way of illustration, some statistical data about the Netherlands follow. In 2014, 93 percent of the Dutch population had access to the internet[1] and 12 percent used health apps to record physical activity.[2] Since 2014, 65 to 68 percent used the internet to retrieve information about health or healthcare. In 2015, 43 percent wishes to digitally order repeat prescriptions, 41 percent would like to use an online appointment system for medical consultations and 33 percent would like to consult their own Electronic Health Record.[3] In 2016, 98 percent of GPs uses an Electronic Health Record. For medical specialist this percentage is 86 percent.

Digitisation preceded the invention of the internet and already started before the Second World War. It represents an object, image, sound, document or signal by generating a series of binary numbers that facilitate computer processing and online data communication. Digitisation simply means the conversion of written or spoken (analogue) source material into a numerical format.[4] Many travel agencies went bankrupt as clients started to book their holidays online. The same goes for retail shops and book shops in the inner cities, which lost many clients to Amazon.com and other online retail firms.

In 1942, the economist Schumpeter introduced the terms disruptive innovations and creative destructions, one of which will manifest itself at least once every fifty years.[5]

His book has been reprinted many times. Although these innovations destroy entire industries, they simultaneously create economic growth in the long run. Recently, Christensen[6] and Topol[7] applied Schumpeter's theory to health services.

They predicted that the rise of digitisation and the internet would lead to the creative destruction of hospitals. This destruction would result in new forms of horizontal and vertical healthcare integration and redefine the relationship between professionals and patients. In this book, health information technology (health IT or HIT) is the application of digitisation and the internet to health services. Chapter 16 focuses on digitisation and integrated care and chapter 17 on the internet and integrated care. If the emphasis in health IT lies on the internet, the term e-health is used. Following the terms of the general system theory (see section 2.1), a health IT system for integrated care describes the actors and the digital relations between them.

Image 16.1 unites other concepts used to describe digitisation in health services and shows their definitions. The purpose of this image is to increase the legibility of chapters 16 and 17, not to provide a generally applicable taxonomy of health IT terms.

Image 16.1 Definitions of concepts to describe digitisation of health services in sections 16.2-16.5

Concept	Definition
(A-)synchronous communication	When professional and patient communicate at the same time, this is called synchronous communication, e.g., a face-to-face contact. When they communicate with time differences, it is a-synchronous, e.g., an email correspondence
Authentication	The process of actually confirming the identity of certain people by validating their identity documents or login codes
Big data	The collection and analysis of large amounts of data from different kinds of software using digitisation as a storage tool

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Blended care	Healthcare provided by both physical and digital contacts, e.g., treatment of depression with face-to-face contacts and online modules
Digital support systems	Decision Support Systems link health observations to health knowledge in big data bases. Their aim is to improve healthcare by influencing health choices made by professionals and patients. DSSs constitute a major topic in artificial intelligence in medicine and other disciplines
E-consult	A patient consults a professional with the help of an internet connection. This e-consult can be a-synchronous (e.g., via email) or synchronous (e.g., through screen-to-screen contact)
E-health	Digital communication by means of e-consults, telemonitoring, telemedicine and/or telecare
Electronic Health Record	Digital health record used by various health professionals, such as physicians and nurses, as well as the patient
Electronic Medical Record	Digital health record used by physicians
E mental health	Mental health services supported by the internet
M-health	Health services supported by mobile internet
Online appointment system	Online appointment system with which patients make appointments with professionals. It is similar to online booking systems for cinema tickets and airplane seats
Personal health Record	A patient-owned digital health record that allows patients to add personal health data. The PHR comprises all types of health services, can be accessed by patients at every moment and at every location, is created for a lay audience, easy to use and available throughout the patient's entire life
Screen to screen contact	Screen-based contact between professional and patient or between professionals
Smart home technology	Smart home technology uses a combination of alarms, sensors and other equipment, usually in the home environment, to help people live more independently by monitoring for changes and warning the people themselves or raising an alert at a control centre. Examples of smart home devices include personal alarms, fall detectors, temperature extremes sensors, carbon monoxide detectors, flood detectors and gas detectors
Telecare	Healthcare provided by a professional at a physical distance from the patient
Telehealth	Preventive services e.g. online self-management support
Tele-IC/Tele-Stroke care	Online intensive care and stroke care provided by professionals at a physical distance from the patient
Telemedicine	Telemedicine is the use of the internet to provide a medical diagnosis and treatment at a distance. Physician and patient are not on the same location
Telemonitoring	Monitoring of patients, e.g. with heart failure, by professionals at a physical distance from the patient
Virtual contact	Contact supported by the internet

Health IT systems

Health IT systems have at least three functionalities: digital storage of data, communication and decision support. This distinction is motivated by analytical reasons. In reality, many healthcare organisations are currently attempting to develop one single health IT system that supports these three functionalities simultaneously. Global vendors of these systems are, e.g., EPIC[8] and Cerner.[9] Davies and colleagues studied the influence of such all-encompassing IT systems in primary care on a number of quality indicators in seven different countries.[10] This influence appeared to be significant. Coordination and safety of healthcare delivery were greater in the presence of such information systems, especially in the case of patients with multimorbidity. In 2005, Hillestad and colleagues[11] compared cost growth in American healthcare delivery, retail and the telecommunication sector. These latter two sectors had already been using similar, all-encompassing information systems as part of their service delivery for several years before 2005. Davies and colleagues expect productivity in health services to increase with 1.5 percent to 4 percent, if health IT systems are introduced in a similar manner.

For measurement purposes, the Healthcare Information and Management Systems Society (HIMSS) developed the concept of health IT system maturity. There are a large number of available methods and models to measure this maturity.[12] This chapter will use the so-called Electronic Medical Record Adoption Model (EMRAM) scoring approach developed by (HIMSS) Analytics.[13] EMRAM is an eight stage maturation model that reflects different levels of health IT systems in hospitals, ranging from a completely paper-based environment (Stage 0) to a highly advanced digital environment that supports digital archiving, communication and decision support (stage 7).

The EMRAM scoring approach has been applied to over 10,000 hospitals in the U.S., Canada, Europe, the Middle and Far-East and Australia. Derived models are currently in preparation for integrated primary healthcare organisations in the Netherlands[14] and other integrated care organisations.[15] Electronic Health Records and big data systems both enable the extensive digital storage of data and written texts.

16.2 ELECTRONIC HEALTH RECORDS

For decades, Electronic Health Records (EHR, for a definition see image 16.1) have been considered a promising tool in the quest to make health services safer, faster, cheaper and more effective. Safer, because transferring information digitally eliminates errors that arise when drug prescriptions are copied by hand; faster, because diagnostic support is available more quickly from, e.g., digital laboratories and radiology departments; and more effective, because unlike paper records, EHRs are available to patients and professionals at any given moment and at every possible location. Finally, EHRs are supposed to save money, because the digital re-use of information reduces the necessity of repeating diagnostic tests. If the EHR really is the Holy Grail it is made out to be, the lack of available, well-developed and well-matured EHRs in many

countries seems to suggest otherwise. By the end of 2015, 48.6 percent of German hospitals only worked with paper records. In other countries, these percentages are 10.4 percent (Italy), 19.1 percent (United Kingdom) and 12.1 percent (Austria).[16] Spain, Germany and the Netherlands each have one hospital with a completely developed EHR with EMRAM score 7 (see definition in section 16.1). There are only two countries that score higher on the EMRAM scale. By the end of 2015, all Danish hospitals had reached score 5 on the EMRAM scale. This is the result of national regulations that required health regions to have well-developed health IT systems for primary healthcare organisations and hospitals. The other country is the United States. In 2015, 34.6 percent of American hospitals scored 5 on the EMRAM scale, 25.4 percent scored 6 and 4.1 percent scored 7. The US owes this success to a financial incentive programme that stimulates EHRs. This programme is called Meaningful Use and has been based on the principles of behavioural economics (see section 13.3).[17]

In the Netherlands, all primary healthcare centres have well-developed EHRs that are used by 98 percent of GPs. In 2015, 50.8 percent of Dutch hospitals scored 5 on the EMRAM scale, 9.5 percent scored 6 and 1.6 percent scored 7. Hospitals with a score of zero did not exist. EHRs properly support horizontal integration within primary healthcare. All Dutch hospitals with a minimum score of 5 work with one single record for all medical specialities. However, vertical integration between primary care and hospitals is not supported by regular EHRs.

Hospitals and primary healthcare institutions communicate over the phone, through fax or written hard-copy letters. This phenomenon is termed island automation: primary healthcare centres and hospitals both have well-developed health IT systems, but communicate using old-fashioned media.

Boonstra and colleagues carried out a systematic literature review of the implementation of EHRs in hospitals.[18] They identified nineteen factors that influenced this implementation and divided these in three groups: context factors (6 factors), content factors (5) and process factors (8).

A context factor can concern the culture of an organisation: an organisational culture that supports collaboration and teamwork will foster successful EHR implementation due to a high level of trust between employees. A possible content factor is that hardware availability and system reliability in terms of speed, availability, safety and infallibility, are necessary to ensure EHR use. Often, the available hardware is simly not good enough. One of the process factors mentioned by the authors is that establishing an interdisciplinary implementation group, consisting of developers, members of the IT department and end-users, engenders successful EHR implementation. Although Boonstra and colleagues focus on hospitals, their findings could also be relevant for integrated care systems. Health IT systems in integrated care are influenced by similar factors.

16.3 BIG HEALTH DATA SYSTEMS

These days, every Dutch primary healthcare professional uses a computer. The software programmes installed on these computers excellently facilitate the quick opening and closing of an Electronic Health Record. However, these computers lack a well-developed software functionality that enables professionals to create management reports. Simple questions such as 'what is the average HbA1c-percentage of my diabetes patients during the course of last year?' cannot be answered by the average Dutch GP with a press of a button. Neither can logistic data be requested at a more aggregated level. In an ideal world, such information could be requested online, during a multidisciplinary team meeting for instance, and stored in the cloud. Experiments show promising effects on the Triple Aim.[19]

Primary healthcare data form the counter of an interesting ratio, whose denominator consists of data about the entire population of the catchment area (such as size, age, income, unemployment, household composition). With the help of these ratios, districts, age groups and other groups of people with a chronic condition can be compared in terms of health and healthcare use. American healthcare institutions, such as Kaiser Permanente and the Cleveland Clinics, use advanced forms of healthcare IT that enable population management (see also sections 2.2 and 13.1). In their international best seller *The Big Data Revolution* Mayer-Schönberger & Cukier[20] plead for this type of population management. In 2013, Michael Porter, developed a format for population management in primary care.[21]

Population management is a promising prospect for integrated primary healthcare organisations that work for well-defined neighbourhoods and for vertically integrated care systems that cater to people with chronic conditions. However, nowadays, health data are almost invariably locked away in hard-to-access data warehouses, and if they have been anonymised, they are also difficult to use.

Databases had already been available for use in research and management reports many years before the emergence of digitisation. In this book, the term big database (see also image 16.1) is used for very large quantities (terabytes) of data from different sources, of which a large part can consists of unstructured data. Big data systems that are useful for integrated care have to fulfil three requirements that each begin with the letter V: velocity, volume and variety.[22] Velocity refers to the aforementioned quick accessibility of data. In practice, databases concerning, e.g., the year 2016 are only made accessible in 2018 or 2019. For up-to-date population management this is too late. Volume requires many years worth of, often unstructured, data from a great number of comparable integrated care organisations in different parts of the country. Variety has already been mentioned in the

description of population management, which relates health data to sociodemographic, genetic, environmental and social data. Depending on the development of the three Vs, four types of big databases may be distinguished (see image 16.2). Each of these four types is illustrated with a question that can be answered by that specific database.

Databases 2, 3 and 4 require advanced research methods based on the principle N= all participants of the population. They drive out research based on randomised clinical trials or population samples. Chapter 20 on integrated care research returns to these databases. Big databases also enable researchers to measure the effects of a treatment by letting clients/patients fill out questionnaires at the start and end of a treatment, and possibly also during several stages in between.

This method is known as behavioural health outcomes management (BHOM) and has already been discussed in section 11.2. In 2012, Carlier and colleagues carried out an international literature study into the practice.[23] They concluded that BHOM healthcare professionals were more likely to adjust their diagnosis and treatment. A promising example of stage 4 is the IBM website Dr. Watson, named after the founder of IBM.[24] This large computer contains all medical literature and makes diagnoses and prognoses based on patient data. Machine learning and big databases with artificial intelligence go a step further. Here, the computer learns with the help of decision trees and continuously added new data.[25,26] Big databases in stage 4 also enable genomic sequencing, or in other words, genetic diagnostics. This enables scientists to trace the link between someone's genetic make-up and cancer and chronic conditions and gives rise to personalised medicine. Chapter 6 about pharmaceutical care discussed this in more detail. Finally, the Internet of Things (IOT) can be mentioned as an application of advanced stage 4 big data. IN the IOT everything is

Image 16.2 Classification of big health databases in four stages
Source: Based on: Croonen H. Big data in de zorg: niet alleen verzamelen. Medisch Contact, 2015, 23-26

Stage 1. The simple database: what was the average HbA1c-percentage of all diabetes patients in a primary healthcare centre during the past year?
Stage 2. The benchmarking big database: is the average HbA1c-percentage of diabetes patients during the past year similar to that of other healthcare centres with the same demographic and social, patient characteristics?
Stage 3. The decision support big database: what is the treatment guideline for an individual diabetes patient characterised with variables in the domains of, e.g., age, gender, Hb1Ac, weight, stress, eating habits and physical exercise?
Stage 4. The predictive big database: what is the risk of late complications for this individual diabetes patient?

equipped with enormous numbers of small chips. They form the basis for sensors, robots and even self-driving cars. These sensors can be installed anywhere, even in the human body.

With software that analyses their data, patients in the distant future will be able to diagnose themselves, while robots will become better at operating than physicians.[27]

16.4 INTEGRATION OF CARE AND DIGITISATION IN HISTORICAL PERSPECTIVE

Integration of health services and digitisation of health services are two separate developments. The former started in the 1960s (see chapter 2) and the latter in the 1970s (see section 16.1). In the nineties, the first electronic health records appeared in integrated primary healthcare in the Netherlands. These EHRs supported the development of horizontal integration and are currently used by nearly all GPs. This can be considered the first interface between integrated and digitised care. However, there is still a long way to go. For Dutch GPs in 2016, electronically sharing information with home care organisations, nursing homes, district nurses or social services is still hardly an option.[28]

The vertical integration of primary healthcare and hospital care started in the eighties, as described in chapter 4. However, this development was not supported by the creation of one joint EHR for both sectors or by mutual, digital communication. In 2016, both parties still have their own, mutually incompatible, health IT systems, as described in a qualitative study from the UK.[29]

In the future, integration and digitisation of care will have new interfaces. One of these concerns decision support systems (for a definition of DSSs see image 16.1) for patients and professionals based on the availability of big databases. As chapters 8 and 9 have already shown, this will improve patients' knowledge of self-management support and shared decision-making.

This knowledge-enhancing quality is what makes the rise of digitisation and the internet so similar to the invention of the printing press.

Another interface will probably also improve the quality of care, as professionals receive an incentive from the DSS to compare their observations and experiences with the knowledge stored in the database (see image 16.2). The third and final interface concerns the integration of health and social services. As explained in chapter 7, this integration is still in its infancy. The future may see the rise of a completely new interface in which data and decision support in health and social services will be integrated and digitised. However, in this respect, the Netherlands and other countries still have a long way to go. The hope is that block-chains[30] will facilitate the technical creation of all these interfaces.

16.5 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can digitisation contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 Improving population health

1 In an ideal world, information about population health could be requested online, during a multidisciplinary team meeting for instance. Experiments show promising effects on the Triple Aim.*
2 Population management is a promising prospect for integrated primary healthcare organisations that work for well-defined neighbourhoods and for vertically integrated care systems that cater to people with chronic conditions. It functions better if health data are stored in easy-to-access data warehouses.

Triple Aim 2 Increasing quality of care for the individual

3 IT systems in primary healthcare improve the coordination and safety of healthcare delivery, especially for patients with multimorbidity.
4 EHRs are a promising tool in the quest to make integrated care safer, faster and more effective. Safer, because transferring information digitally eliminates errors that arise when drug prescriptions are copied by hand; faster, because diagnostic support is available more quickly from, e.g., laboratories and radiology departments; and more effective, because unlike paper records, EHRs are available to patients and professionals at any given moment and at every possible location.
5 An organisational culture that supports collaboration and teamwork will foster successful EHR implementation due to a high level of trust between employees.
6 They concluded that healthcare professionals in vertically integrated care who collect patient reported outcomes are more likely to adjust their diagnosis and treatment.
7 In the Internet of Things (IOT) everything is equipped with huge numbers of minuscule chips. These form the basis for sensors, robots and self-driving cars. Sensors can be installed anywhere, even in the body. With software that analyses their data, patients in the distant future can make their own diagnosis and surgeons will be replaced with robots.
8 The digital integration of health and social services is still in its infancy. The future may see the rise of a completely new interface in which data and decision support in health and social services will be integrated and digitised. This will improve the quality of integrated care.

Triple Aim 3 Lowering costs of care per capita

9 It is plausible that health IT systems will cause productivity in health services to increase with 1.5 to 4 percent.*

10 EHRs have the potential to save money, as the digital re-use of information reduces the necessity of repeating diagnostic tests.

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17 E-health and integrated care

In section 17.1 good e-health practices in integrated care are introduced with terms that have already been defined in image 16.1. However, bad examples also exist. Section 17.2 explains why. One of the factors that impede good practices is a lack of internet security. Section 17.3 shows five security threats and offers solutions or ways to decrease them. Section 17.4 returns to integrated care and answers the question: is e-health disruptive to health services? The final section (section 17.5) answers the research question of this book based on the findings of this chapter.

17.1 GOOD PRACTICES OF E-HEALTH

Image 17.1 shows publications about good practices of asynchronous digital communication between patients and health professionals (publications 1-5), telecare (publications 7-13) and smart home technology (publications 14 and 15). All of these publications are recent and most of them are reviews. The image briefly describes the positive results that are discussed in these papers. More information on the methodology of these papers can be found in the references. The following results are particularly noteworthy.

- While e-consults occur in both fragmented and integrated health services, integrated systems actively encourage them (publications 1, 2 and 3).
- Blended care is more successful than digital-only systems (publication 4)
- The effect of asynchronous communication on health behaviour and care consumption has not been shown unequivocally (publication 5).
- Examples of effective horizontal integrated care can be found in publications about telecare for pain management, telemonitoring of frail elderly and telemonitoring of patients with chronic conditions (publications 6, 7 and 8).
- Telemedicine and telecare in radiology, intensive care, stroke care and other types of care are promising examples of both vertical integration of care and the digitisation that supports this integration (publications 9-13).
- Published evaluations of good practices of smart home technology or house automation are currently still unavailable.
- The aforementioned researchers are trying to find standards for digital communication between devices at home (e.g., carbon monoxide detectors, flood and

innovation	Results	Author and references
1. E-consults	One third of Kaiser Permanente patients use e-consults after marketing campaigns were launched to promote them	Cooper[1]
2. E consult	Twenty-three percent of all patients seen within an academic centre enrolled in the portal in 2010, and 8.4 percent of all patients had sent at least one message to a physician. Between 2005 and 2010, the number of messages per hundred patients per month stabilised at an average of 18.9 messages per year	Crotty BH et al[2]
3. and 4. Literature reviews on e-mental health	E-mental health, especially blended care, is effective regardless of the type of disorder, kind of treatment, setting, ethnicity and age of the patient or client	Hilty DM et al[3] Deslich S. et al[4]
5. Asynchronous Communication between patients with a chronic condition and professionals	The effectiveness of asynchronous communication was analysed by examining effects on health behaviour, health outcomes, and patient satisfaction. The effects of asynchronous communication are not unequivocal. However, patients are willing to participate	Jong RM de et al[5]
6. Telecare for patients with chronic pain	Collaborative care provided by a primary healthcare centre is effective	Kroenke K et al[6]
7.Telecare for frail elderly	Costs of care for the telecare group were the same as for the regular care group. The telecare group had a smaller ratio of decedents to survivors than the regular care group	Upatising B et al[7]
8. Literature review on telemonitoring	Generally, the benefits include reductions in use of service: hospital admissions/re-admissions, length of hospital stay, and emergency department visits typically declined. Mortality figures often also decreased. Studies rarely reported neutral or mixed findings	Bashshur RL e.a.[8] Widmer RJ et al[9]
9. teleradiology	Teleradiology has become embedded in the healthcare system and integrated into a wide variety of radiology practices. Overall, the benefits of teleradiology outweigh the potential dangers	Krupinski EA[10]
10 and 11. Tele-Intensive care	Lower mortality and shorter stay in intensive care unit	Fifer S et al[11] Lilly CM et al[12] Wilcox ME et al[13]
12. Tele-dermatology	Majority of physical referrals were prevented. The mean response time of dermatologists was four to six hours. Beneficial educational effects were measured in the majority of teleconsultations. Costs were reduced	Heijden JP van der et al[14]
13 and 14. domotics	No evaluation studies available (March 2016). There is a lack of standardisation between internet software and home equipment	Delgado AR et al[15] Ingle AJ & BW Gawali[16]

Image 17.1 Good practices of patients and professionals in integrated systems

gas detectors), an online alarm centre, professionals that have to interpret these alarm signs and guidelines for the adequate provision of assistance (publications 14 and 15).

- Digitisation is not feasible on a local or departmental scale. The innovations in these fourteen publications are realised on a large scale and not limited to individual neighbourhoods, physicians or hospital departments.

17.2 NSUCCESSFUL PRACTICES OF E-HEALTH

Although the results in publications 1 to 14 are scientifically sound and distinctly positive, other papers also show the negative results of e-health implementation. Using a randomised community Trial called the Whole Systems Demonstrator, Steventon and colleagues evaluated the effects of smart home technology in comparison with regular care in the UK.[17] They found that this trial did not lead to significant reductions in care assessed over a 12-month period. Chaudry and colleagues carried out another extensive study: a Randomised Controlled Trial on the effects of telemonitoring patients with heart failure.[18] They concluded that telemonitoring did not improve outcomes for patients who had recently been hospitalised for heart failure. Section 9.2 already described how digital self-management support sometimes has no effect on care consumption or health outcomes.

There are two reasons why digital interventions sometimes fail to work. The first of these concerns the lack of internet security. This barrier is discussed in section 17.3. In itself, e-health interventions are not sufficient to effect behavioural change in patients and professionals. Such transformations also require other interventions, such as formal education, case management and motivational interviewing. Chaudrey and colleagues stress the importance of retaining a human touch. Brooks and colleagues[18] provide another reason why digital innovations sometimes fail to take effect. These researchers studied the willingness of mental healthcare organisations to introduce e-mental health. According to their research, 78 percent of physicians wanted more scientific evidence for the effectiveness of online care. They considered technology incompatible with their daily routine and were worried that more e-health would lead to a decrease in revenue from admissions and face-to-face contacts. To conquer these barriers, Brooks and colleagues conclude that health professionals need:

1 extensive training possibilities;
2 more, and more convincing, evidence that e-mental health actually works; and
3 improvements in the user-friendliness of their own software (to be used on tablets and smart phones) and the connections with clients/patients.

Using similar arguments, Christensen, who was mentioned in section 16.1, concludes that internet innovations are only effective when they are accompanied by other healthcare innovations and financial innovations.

Based on all these sources, the only effective option is the parallel innovation of healthcare, IT and payment systems, all of which focus on the Triple Aim. This emphasises the importance of the thorough and independent evaluation of strategies prior to adoption; a method that fits neatly into the context of integrated healthcare with its emphasis on evidence-based medicine (also see section 9.4). The paradigm is: evaluate first, implement later. Software producers and app designers often do not use this principle, but work with the principle of trial and error and advancing insight. They regularly place products on the market that have been insufficiently tested beforehand. A business case model which sets the added value of the digital innovation off against the future costs can be a solution for this problem. Chapter 20 discusses this in more detail.

17.3 THE SECURITY OF HEALTH IT SYSTEMS

EHRs, big databases and e-health face five security threats. Together, they curb the dissemination of e-health.

I once evaluated an e-mental health innovation that suffered from a technical software failure (see image 17.2) that allowed patients to access each other's EHR during a couple of weeks. The IT department managed to fix the problem, but by that time the damage had already been done. The trust patients and professionals had in the IT system prior to the bug had been significantly reduced. There are a few solutions for this problem. Designing software is a full-fledged profession and the development of programmes should not be left in the hands of healthcare institutions. Instead, these organisations would do better to purchase software that has already been tested and used elsewhere.

A second solution is the creation of an emergency team that is able to respond immediately to warnings about software bugs.

The hospital where I work sometimes hosts a member of the Dutch royal family. Undoubtedly, there are many professionals who would like to read the EHR details of this very important person (see image 17.2). I call these intruding health professionals internal hackers.

Image 17.2 Security risks of health IT systems

1.	Technical software failures
2.	Professionals have access to the EHRs of all patients
3.	Hackers invade the Health IT system
4.	Authentication is vulnerable to fraud
5.	Database matching may harm specific patient groups

Other professionals with access to the IT system would perhaps like to open EHRs belonging to a friend or a family member. However, this would be a violation of patient privacy. A solution for this problem consists of three steps. It is possible to design software that shows the names of all professionals who have accessed a particular EHR. The IT system then automatically gives off a warning when an unauthorised professional accesses the EHR. The offending professional can then be dismissed.

Whiz kids, criminals and state agencies try to hack big databases (see image 17.2) to find information about certain individuals. The same will happen with health databases. There are two databases in the Netherlands that are extremely difficult to access illegally: the database of the national tax authorities in which every Dutch tax payer is registered, and the electronic payment systems of commercial banks. These databases are relatively safe, due to the investment of a great deal of effort and money. Creating a healthcare IT system with adequate protection against hackers is too expensive for individual healthcare providers. However, experiences in other sectors teach us that it can be done.

The fourth security problem in image 17.2 concerns authentication (see image 16.1 for a definition). Dutch citizens who use a payment card and online banking are protected in several ways.

1 When the account is opened, authentication happens during a face-to-face contact with the client. The provided passport photo is compared to the client's face.
2 If the account is used for unusual payments, the client is immediately notified by phone
3 Clients are referred to a phonenumber with which they can instantly block the account in case the card is lost or stolen
4 Online banking is protected with an online authentication method that involves a text-message with a login code.

Compared to these safety steps in online banking, the authentication and governance of safety in online communication between health professionals and patients is insufficient. In innovative projects, Dutch professionals use so-called e-health portals to conduct e-consults. To open these portals, patients have to use a digital identity document, known as DigiD.

This DigiD merely consist of a username and a password.

There is no face-to-face authentication involved and none of the abovementioned steps are carried out to ensure safe use of these portals. In the Netherlands, the rapid introduction of e-health is impeded by the lack of widely available, electronic authentication tools that can be used by citizens, have a suffcient level of reliability and come at acceptable costs.

Health databases are not merely of interest to patients, professionals and scientists. Life insurance companies, pharmaceutical industries, employers and many other organisations are also interested (see point 5 in image 17.2).

By intelligently combining health data with social and commercial data, these third parties gain access to information that enables them to discriminate between population groups in terms of pricing services, products and insurances.

A solution against this threat is the foundation of a (national) agency or committee that is responsible for approving or rejecting database matching. Such committees can evaluate the reasons provided by third parties for matching databases and consider the (dis)advantages for patients. In Europe, most countries currently have such committees.

17.4 E-HEALTH AND INTEGRATED CARE: A PERSPECTIVE FOR THE FUTURE

Are Topol[19] and Christensen[20] right to conclude that the invention of the internet is as disruptive for hospitals as it has been for mechanical cash registers, travel agencies and video libraries? Christensen and colleagues expect that the rise of the internet means diagnostics will largely disappear from hospitals. I agree that this will happen in the long run. In the future, it will be easier for GPs to make diagnoses without referring patients to a medical specialist. This is due to three reasons.

1 They can use telemedicine to ask hospital specialists for advice. These specialists might even be working in a hospital situated at the other end of the country that specialises in, e.g., rare conditions.
2 Imaging diagnostic equipment is becoming cheaper and easier to use with sensors and smart phones with specific apps. It will consequently become easier to install diagnostic equipment in health centres.
3 GPs and specialists outside of the hospital will start to use decision support software. This includes decision trees based on the latest medical literature and analyses of big data.

These three reasons lead me to adopt Christensen's conclusion: diagnostics will largely disappear from hospitals and move to primary healthcare and national expertise centres.

This requires vertical integration between primary healthcare and hospitals on the level of diagnostic guidelines, and the willingness to reuse the diagnostic information that has already been collected in primary healthcare. Image 17.3 shows an example of how this could work.

Joyce is a GP and Eric (74 years old) is one of her patients. She makes a diagnosis: one of Eric's hips is worn. For this diagnosis, she relies on x-ray photographs of his hip, Eric's account of the pain he experiences and physical examinations of the joint. The X-ray photo is made in a diagnostic support centre and sent to Joyce by the radiologist along with the diagnostic confirmation: the quality of the hip's cartilage has been compromised. After making this diagnosis, Joyce and Eric make a decision using the shared decision-making techniques mentioned in chapter 10. She sends all diagnostic information, including the X-ray photos, to surgeon Elizabeth who works at the clinic Joyce and Eric selected. Elizabeth checks the information, meets Eric before the operation and undertakes the surgery. After 12 hours, Eric goes home and starts revalidation with the help of Joyce and her colleagues in primary healthcare.

Image 17.3 A case of enhanced diagnostics in primary healthcare

Three implementation problems are to identified with the case. Firstly, this procedure degrades Elizabeth to a technician, who does not diagnose the patient, but merely does what another professional asks her to do. The implementation of this cultural shift will not happen overnight, because surgeons and other medical specialists have a high status inside and outside health services. The second point is that the existing payment systems in most OECD countries also suggest that diagnostics will disappear from the hospital in a more gradual fashion.

These systems work with payments per diagnosis related group (DRGs), a concept invented in 1980 by Fetter and colleagues.[20] It is based on the assumption that diagnosis and treatment are carried out in one and the same hospital. It will take years to abolish this DRG-system and to replace it with a cappuccino-style payment system as described in chapter 13. Similarly problematic are the five threats mentioned in section 16.4. These will inspire reluctance in the general public and delay the digitisation of healthcare. While I adopt Topol's and Christensen's[20] conclusion that the invention of internet is an important innovation for health services, I do not expect the internet to form a disruptive innovation of the Schumpeter type, but rather a gradual implementation of the type described by Rogers,[21] which will be discussed in chapter 19.

17.5 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can e-health in integrated care contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1 and 2 Improving population health and increasing quality of care for the individual

1 While e-consults occur in both fragmented and integrated health services, integrated systems actively encourage them.
2 Blended care adds more value to the quality of integrated care than digital-only systems.
3 Examples of effective horizontally integrated care can be found in publications about telecare for pain management, telemonitoring of frail elderly and telemonitoring of patients with chronic conditions.
4 Telemedicine and telecare in radiology, intensive care, stroke care and other types of care are promising examples of both vertical integration of care and the digitisation that supports this integration.*
5 Published evaluations of good practices of smart home technology or house automation are currently still unavailable. Steventon and colleagues evaluated the effects of smart home technology in comparison with regular care in the UK. They found that this trial did not lead to significant reductions in care assessed over a 12-month period.*
6 Telemonitoring did not improve outcomes for patients who had recently been hospitalised for heart failure.
7 In themselves, e-health interventions are not sufficient to effect behavioural change in patients and professionals. Such transformations also require other interventions, such as formal education, case management and motivational interviewing.
8 A majority of physicians want more scientific evidence for the effectiveness of e-health.

Triple Aim 3 Lowering costs of care per capita

9 Digitisation is not feasible on a local or departmental scale. Succesful innovations are realised on a large scale and not limited to individual neighbourhoods, physicians or hospital departments.
10 Many health professionals considered e-health incompatible with their daily routine and were worried that more e-health would lead to a decrease in revenue from admissions and face-to-face contacts.*
11 Christensen, who was mentioned in section 6.1, concludes that internet innovations are only effective when they are accompanied by other healthcare innovations and financial innovations. Based on all sources in this chapter, the only effective option is the parallel innovation of healthcare, IT and payment systems, all of which focus on the Triple Aim.
12 The effect of asynchronous communication on health behaviour and care consumption has not been shown unequivocally.
13 In evidence-based medicine the paradigm is: evaluate, implement later. Software vendors and app designers often do not use this principle, but work with

the principle of trial and error and advancing insight. They regularly place products on the market that have been insufficiently tested beforehand. A business case model which sets the added value of the digital innovation off against its future costs can be a solution for this problem. Chapter 20 discusses this in more detail.

14 EHRs, big databases and e-health face five security threats (technical software failures, internal hackers, external hackers, unsafe authentication and conflicting database matching). Solutions against these threats are possible, but costly.

15 In the long run, diagnostics will largely disappear from hospitals and move to primary healthcare and national expertise centres. This requires vertical integration between primary healthcare, expertise centres and local focus clinics on the level of diagnostic guidelines, and the willingness to reuse the diagnostic information that has already been collected in primary healthcare.

16 The implementation of this cultural shift will not happen overnight, because hospitals have a high status in health services. Consequently, e-health does not form a disruptive innovation of the Schumpeter type, but rather a gradual implementation of the type described by Rodgers.

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PART 8 LEADERSHIP, INNOVATION AND IMPLEMENTATION OF INTEGRATED CARE

18 Dreams and reality of leadership in integrated care

Section 18.1 presents definitions of leadership, management and related terms. Three basic leadership skills are discussed in section 18.2: proposing strategic views, keeping professionals motivated and checking and assessing quality of care, revenue and costs of care. In section 18.3, nine leadership roles and their organisational types are introduced.The (dis)advantages of each of these nine types for integrated care are listed and one type is chosen as the best: the professional bureaucracy with servant leadership by physicians. Section 18.4 answers the question: how can leadership in integrated care contribute to the realisation of the Triple Aim?

18.1 WHAT IS LEADERSHIP?

Both in theory and in practice, leadership is essential to integrated care teams and organisations. Section 3.5 introduced the theoretical model created by Butt[1] and colleagues[1] to inspire teamwork. They distinguish four basic conditions, organisational factors and social factors. One of these four basic conditions is leadership. The other three are professionals who are willing to cooperate, collegial relationships and mutual dependence. D'Amour and colleagues[2] (see also section 3.5) also studied the theoretical aspects of integrated care. They emphasise the importance of shared leadership: it is unnecessary to concentrate all leadership activities in one person. Sharing power, responsibilities, knowledge and experience is more important. In his book, Leadership and Medicine,[3] Loop proposes three basic leadership skills. These requirements are partly based on his own experiences as the CEO of the Cleveland Clinics and partly on literature study. They include the ability to:

1 anticipate future developments and propose strategic plans;
2 keep professionals motivated; and
3 check and assess quality, revenue and costs of care.

Kotter[4] makes a distinction between leadership and management. The latter means *getting things done*, or in other words, influencing processes to reach an already determined aim and creating predictability. Leadership, on the other hand, is focused on change and the introduction of new aims. Although leadership and management have different connotations, they nonetheless largely overlap.

Case studies on integrated care also emphasise the necessity of leadership. In their book *Pursuing Triple Aim,* Bisognano en Kenney[5] concluded that leadership and culture are necessary factors for the foundation and continuation of integrated care (see also sections 2.2 and 10.7. The aforementioned Gesundes Kinzigstal also shows the importance of leadership (see section 4.6). Chapter 2 discussed vertical integration in chronic healthcare.

An example of this type of integration is a clinical network: a multidisciplinary network of GPs and medical specialists. Between 2006 and 2008, McInnes and colleagues[6] evaluated six Australian networks: two with a high, two with a moderate and two with a low impact on quality of care. Leadership was one of several critical factors for successful quality improvement. Other factors included: network model principles; formal organisational structures and processes; the nature of network projects; external relationships; the profile and credibility of the network.

Subsequent sections will discuss the basic leadership skills mentioned by Loop, but first I would like to emphasise the following:

1 leadership in integrated care is shared among the members of multidisciplinary teams and not necessarily concentrated in one person;
2 leadership is a necessary condition for successful integrated care, but it is not the only condition. Both points return in section 18.5.

18.2 IDEAL LEADERSHIP IN INTEGRATED CARE SYSTEMS

This section discusses Loop's basic leadership skills in more detail.

Proposing strategic views

In 2015, Kotter and colleagues[7] formulated eight items about which leaders of healthcare systems should have a strategic view (see image 18.1).

As this image shows, these items have already been discussed. Although Kotter's list is inspiring and its items should be discussed as part of the strategic views of integrated care organisations, I supplemented image 18.1 with a ninth item that relates to patients as partners. This item is also mentioned in a paper by Swensen and colleagues from the Institute of Health Improvement.

1.	Guiding the organisation towards the Triple Aim (section 2.2)
2.	Transforming the organisation's strategy from volume orientation to value orientation (section 11.1)
3.	Establishing integrated practice units (IPUs) that work for a single target group or set of problems (section 4.3)
4.	Measuring outcomes and costs for every patient (section 12.1 and 14.2)
5.	Moving to bundled payments for care pathways (section 14.1)
6.	Integrating care delivery systems (chapter 2 and 3)
7.	Expanding geographical reach by using digitisation and internet (chapter 16)
8.	Creating and enabling information technology (chapter 17)
9.	Not seeing clients/patients and their family as consumers, but rather consider them partners in the promotion of health and in shared-decision making (chapters 8 and 9)

Image 18.1 Matters regarding which healthcare leaders should have a strategic view
Source: Items 1-8 adapted from Kotter JP, et al. Leadership, Strategy, and Innovation: Health Care Collection. Harvard Business Review, November 17, 2015. Item 9 adapted from Swensen S, et al. High-Impact Leadership: Improve Care, Improve the Health of Populations, and Reduce Costs. IHI White Paper. Cambridge, Massachusetts: Institute for Healthcare Improvement; 2013.

Both Kotter and Swensen state that all aforementioned items are important for all professionals and leaders in the organisation and that the Triple Aim should be an essential part of every organisation's culture.

In order to prepare a strategic view, leaders can use a SWOT-analysis. This abbreviation stands for Strength of the own organisation, Weaknesses of the own organisation, Opportunities in the environment and Threats in the environment.[8] Systematically carrying out SWOT-analyses for each of the nine issues in image 18.1 offers a strong foundation for proposing strategic views.

Keeping professionals motivated

The USA boasts several healthcare organisations with a high outcome quality. Among these are the Cleveland Clinics, Virginia Mason Medical Center Seattle, Kaiser Permanente, Mayo Clinics and the Veteran's Administration. They are all managed by leading physicians in a facilitating, stimulating role within a non-profit organisation, in which the emphasis lies on keeping professionals motivated. For this type of leadership, Greenloaf[9] introduced the term *servant leadership* in 1970. The concept is drawn up in a model by Russell and Stone.[10]

I quote the latter two authors: 'Optimally, the prime motivation for leadership should be a desire to serve (...). Selfinterest should not motivate servant leadership. It should

ascend to a higher plane of motivation that focuses on the needs of others. As long as power dominates our thinking about leadership, we cannot move toward a higher standard of leadership.'

We must place service at the core. For even though power will always be associated with leadership, it only has one legimate use: service. Ham supports this servant leadership with the expression: happy staff means happy patients.

This has already been discussed in section 10.7. The philosophy of Total Quality Management, which has already been introduced in section 10.7, is also based on servant leadership. Here, professionals function as clients towards their leaders.

The latter provide services to these professionals, e.g., strategic views, well-functioning hardware, comfortable office space and reasonable workload. In my own experience as a research leader, these points were sometimes more important than the ability to give inspiring, visionary feedback on submitted papers.

Professionals are happy when servant leadership also displays continuity, and when there is organisational stability and consistency regarding the different goals pursued by the integrated care organisation. The aforementioned Loop arrives at similar results in his case study about the Cleveland Clinics. Evidence also suggests that this form of leadership heightens the intrinsic motivation of professionals and consequently improves quality and efficiency.

American Magnet hospitals – with excellent working conditions for nurses and good leadership – are characterised by lower mortality rates and lower costs.

A servant leadership style is not the only thing that keeps professionals motivated. Equally important is Gladwell's legitimacy principle. According to this principle people only obey an authority figure when they a. feel that they are being listened to, b. the rules are predictable, meaning that the rules will not change from one day to the next, and c. the authority figure is just: one group of stakeholders should not be treated differently from another. If leaders forget this legitimacy principle, forms of window dressing and fraud will emerge among those who have to follow them. In her book, *The End of leadership,* Kellerman writes that respect for leaders no longer exists. She focuses on the follower, the one who is being led. According to Kellerman, this follower only accepts assignments from a leader who respects agreements, is reasonably honest and reasonably competent. By setting a good example, leaders can create a culture that allows quality improvement to blossom.

Quality assurance and cost control

The third, basic leadership skill concerns quality assurance and cost control. Grol, a well-known Dutch professor of healthcare quality management, proposed that leaders have five areas of responsibility in this field. I adopt these areas, but expand their purpose to also include cost control. Below, they are discussed in the context of integrated care.

1 Multidisciplinary teams discuss quality and cost issues in the past and future and related to individual patient cases as well as a group of cases. Peer reviews are more effective than cost control or quality control by a single leader.
2 There is a culture of mutual communication about quality and efficiency. This is not only part of the agenda during team meetings, but is important for all professional contacts.
3 Even the lowest-ranking professionals might have something useful to say about quality and efficiency. They should not feel hindered by hierarchical differences and they should be encouraged to speak up.
4 There is public transparency about quality and cost data, which are valid and easy to understand. Although this is an important point, more than one study has shown that public transparency has a very low impact on the reputation of care providers and hardly influences patients' decisions.[11,12,13]
5 Care is organised and integrated around the needs of patients. Quality assurance and cost control follow horizontal and vertical integration. They do not merely focus on the quality and cost of separate diagnostic or therapeutical steps, but also on the whole chain of care delivery.
6 Leadership means applying the principle of *Comply or Explain*. Sections 2.5 and 9.4 already introduced this principle: professionals are allowed to deviate from quality guidelines or cost standards, as long as they explain their reasons for doing so. This principle encourages open questions about quality and costs of care.
7 Leadership means applying the Effiency Principle: this principle was part of the former Dutch Insurance acts and can be illustrated with the following example: if home treatment of jaundice in newborn babies could guarantee the same quality of care as hospital treatment whilst also being cheaper than the latter, providing these services at home was automatically permitted.
8 PDCA is an abbreviation used to describe a policy cycle in quality management. It has already been introduced in section 14.2. The letters stands for Plan Do Check Act.[14] In practice, the application of the PDCA-cycle disappoints, as the element of quality checking, the C in PDCA, is often neglected.[15,16] The term P&C describes a policy cycle used in financial management. The letters stand for Planning and Control. Integrated care providers who pursue the Triple Aim of improving health, quality of care and cost control, have to work with connected and coherent PDCA and P&C cycles.

This concludes this section on ideal leadership in integrated care systems. This ideal rarely exists in reality. Leaders often lack the three mentioned basic skills and the motivation of a servant leader.

18.3 NINE TYPES OF ORGANISATIONAL STRUCTURE IN THE REAL WORLD OF INTEGRATED CARE

Throughout my career, I have come across nine types of organisations that provide integrated care. Each show a different form of leadership. Each have advantages and disadvantages for integrated care. Image 18.1 shows these nine types, their forms of leadership and their (dis)advantages. Later, I found these nine types in literature on theoretical organisations. They will be discussed below.

In a *professional bureaucracy*, as developed by Mintzberg[17] healthcare professionals have their own guidelines and legislations. In the Netherlands, Weggeman is its main advocate.[18] American integrated health systems such as the Cleveland Clinic,[19] Kaiser Permanente[20] and the Mayo Clinic[21] are mainly driven by professionals and score high in terms of quality and cost control.

The culture of the organisation is both focused on external and professional matters and on client needs. Physicians play the main role.

In Max Weber's *bureaucratic hierarchy* the board of executives is ultimately responsible for all operations. This model contrasts strongly with the professional bureaucracy model. Bureaucratic hierarchy focuses on the allocation of responsibilities. The planning and control cycle is an important instrument for policy delegation and the transfer of competence. The culture of this model is inflexible and inward-focused.

In the *caste model* each professional group has its own symbols and professional code of honour.The top of the ladder is occupied by the doctor in a white coat, stethoscope dangling from his pocket, and the bottom step is occupied by the patients in their hospital pyjamas. Each caste is like a large family, whose members protect each other and which deals with family feuds and tribal wars. This model stems from interpretative sociology and symbolic interactionism in particular.[22]

The integrated care organisation as a *commercial firm* is based on consumer sovereignty and market opportunities. Internally, task redistribution and reduction of overhead costs are important to keep prices low. The hospital uses a marketing profile with customer values (customer intimacy for example) to attract a specific group of patients.

Type of organisation	Type of leadership	Advantage for integrated care	Disadvantage for integrated care
1. Professional bureaucracy	Physicians in the lead	Emphasis on quality of care e.g. continuity of care	Non-medical disciplines, such as nursing, become less important
2. Bureaucratic hierarchy	Formalistic leadership	Emphasis on guideline adherence of professionals	Too much time spent checking and unchecking: box-ticking culture
3. Caste society	Leadership expressed through status symbols and uniforms	Using the same symbols –e.g. the same polo shirts- emphasises the unity of a professional team	Professionals in different castes do not communicate enough with each other
4. Commercial firm	Leaders think in terms of financial opportunities and threats	Innovations with a good return on investment (sections 17.2 and 19.1) are implemented quickly	The long-term aspects of the Triple Aim may be forgotten about.
5. Negotiation society	Leaders and professionals think mostly in terms of interests	Open communication exists between leaders and professionals	Less emphasis on collective ambitions and social values
6. Non-profit organisation	For leaders, social values and mission are most important	The Triple Aim values are continuously expressed by leaders	Professionals will tire of overly evangelistic leaders.
7. Hypocrite organisation	Reputation policy is more important for leaders than daily quality of care	The focus lies on the wishes and demands of the target population and its values	Professional quality of care gets less attention
8. Complex Adaptive System	Leaders work with the option of conflict minimisation	There is a culture of cooperation without conflicts between different professionals	The long-term aspects of the Triple Aim may be forgotten about
9. The patient- oriented organisation	Leaders work with target groups of patients, e.g., people with a chronic condition	Continuity of care and substitution are important policy issues	New discontinuities occur when people belong to more than one target group

Image 18.2 Types of organisations that provide integrated care, forms of leadership and (dis)advantages for integrated care

In the *negotiation model,* all professionals and managers negotiate with each other. The Harvard Negotiation Rules[23] and the total quality management model (see section 17.7) form the theoretical foundation of this model.

The *non-profit organisation* sees it as its mission to provide for the care needs of the (regional) population it serves. Public interests are safeguarded by the organisation's sense of moral awareness.[24]

The integrated care organisation as a *hypocritical organisation* is a model created by Swedish management expert Brusson.[25] Seen from the viewpoint of the board of directors, the organisation sends mixed messages to the outside world. To the Supervisory Board and the health insurer this is message A, in the media this is message B and to employees this is message C. In an ideal situation A = B = C. If this is not the case, the organisation in question is a hypocritical organisation. According to Brusson, Swedish healthcare organisations in the years between 1982 and 2002 often belonged to this category. The management has to strive for A = B = C and if this fails it should admit that there are different truths.

The integrated care organisation as a *complex adaptive system* is a model in which the integrated care organisation constantly adapts itself to its environment. There is no strategic leadership. The organisation develops organically. In an important report from the Institute of Medicine, *Crossing the Quality Chasm*, this approach receives the necessary attention.[26]

In the *patient-oriented* organisation the supply of integrated care is organised according to target groups. In the Netherlands, Hattinga Verschure developed this model in 1971.[27] Christensen, who has already been mentioned in sections 16.2 and 17.2, reinvented this type of organisation with his plea for chronic care networks that require the cooperation of patients and primary and secondary healthcare professionals.

The nine organisational types discussed here, and in image 18.1, are not mutually exclusive. They each emphasise one or more aspects of existing integrated care organisations. Leading integrators should know all these types, recognise them and use them based on the aforementioned Triple Aim: better population health, higher quality of care for the individual and lower per capita costs.

Having compared the nine types of leadership, the best type for integrated care organisations appears to be Mintzberg's professional bureaucracy with physicians in a servant leadership role. If leaders choose this role, professionals from other, non-medical disciplines may also exert influence on the organisation's policy. This will

keep them motivated. Naturally, new leaders who are committed to the Triple Aim and integrated care have to accept the existing care organisation. Transforming into a professional bureaucracy with servant leadership costs a a great deal of energy, effort and time. Chapter 19 on change management discusses this in more detail.

18.4 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can e-health in integrated care contribute to the realisaiton of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1, 2 and 3 Improving population health, increasing quality of care for the individual and lowering per capita costs of care

1 Leaders of integrated care organisations need the following basic skills:
   1 the ability to anticipate future developments and propose strategic plans regarding the issues mentioned in image 18.1;
   2 the ability to keep professionals motivated; and
   3 the ability to check and assess quality, revenue and costs of care.
2 Systematically carrying out SWOT-analyses for each of the nine issues in image 18.1 offers a strong foundation for proposing strategic views.
3 The term 'management' means getting things done, or in other words, influencing processes to reach an already determined aim and creating predictability. Leadership, on the other hand, is focused on change and the introduction of new aims in an unpredictable environment.
4 Leadership is essential for integrated care teams, their culture and their organisations to reach the Triple Aim.
5 In teams, shared leadership is important: it is unnecessary to concentrate all leadership activities in one person.
6 For leadership in a facilitating, stimulating role this book uses the term servant leadership. Optimally, the prime motivation for leadership should be a desire to serve. Self-interest should not motivate servant leadership. It should ascend to a higher plane of motivation that focuses on the needs of others.
7 There is open communication in multidisciplinary teams and organisations about the extent to which the Triple Aim is realised.
8 There is a culture of mutual communication about quality and efficiency. This is not only part of the agenda during team meetings, but is important for all professional contacts.

9 Quality assurance and cost control follow horizontal and vertical integration. They do not merely focus on the quality and cost of separate diagnostic or therapeutical steps, but also on the whole chain of care delivery.
10 Leadership means applying the Effiency Principle: when a service is produced more cheaply without loss of quality, this is automatically permitted by leaders.
11 Having compared nine types of organisations in image 18.2, the best type for integrated care organisations is Mintzberg's professional bureaucracy with physicians in a servant leadership role. Leading integrators should know all these types, recognise them and use them based on the aforementioned Triple Aim.
12 Evidence suggests that servant leadership heightens the intrinsic motivation of professionals and consequently improves quality and efficiency. American Magnet hospitals – with excellent working conditions for nurses and good leadership – are characterised by lower mortality rates and lower costs.*

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19 Innovations in integrated care and change management

Section 19.1 introduces the term healthcare innovation and a nine phases-model for their development. It focuses on process innovations that occur most frequently within integrated care. When a process innovation is successful, the question is how to disseminate this innovation. The answer can be found in section 19.2. Change management is essential for the dissemination of process innovations. This will be discussed in section 19.3. This chapter also ends with a partial answer to the research question of this book: how can healthcare innovations and change management contribute to the realisation of the Triple Aim?

19.1 DESIGNING HEALTHCARE INNOVATIONS

In 1991, Van Londen and I defined healthcare innovation as a change in healthcare delivery that has been consciously chosen by existing organisations, and whose goal it is to improve the quality and/or efficiency of care delivery. I reintroduce this definition here, because the concept has been widely used in the Netherlands throughout the past 25 years. An innovation starts small, as an experiment. In this respect it is the opposite of a big bang reorganisation that changes health or social services everywhere in a country, happens all at once, uses the same legislation and structures everywhere and is not preceded by experiments. Its basic assumption is that one size fits all.[1] To date, two big bang reorganisations have already failed. The British government conducted the first one in 1974. It reorganised the National Health Service in districts, areas and regions. The reorganisation was supported by many professional groups and all of parliament and aimed to integrate preventive services, primary healthcare and hospital care on a decentralised level. It resulted in years of frustration.[2] Forty-one years later, a second attempt at a big bang reorganisation also failed: the 2015 integration of all Dutch social services on a municipal level. Section 7.2 already discussed this development. Since January 2015, there has been a great deal of frustration and uncertainty among social workers, home care organisations and professionals who work in nursing homes. Neither the English nor the Dutch big

bang reorganisations were preceded by innovative experiments. These past failings have taught us that reorganisations should always be preceded by innovation. The first section of this chapter therefore discusses the design of innovative experiments. Subsequently, the implementation of successful experiments throughout the country will be discussed in section 19.2 on change management.

Innovations can be divided into product, process and system innovations. This trichotomy follows Donabedian's division, as described in image 2.7. Product innovations concern prevention, health education, informal care, screening, diagnostics, treatment, medication and aftercare.

A decision aid (see sections 8.3 and 9.3), for example, is a product innovation. Process innovations concern task redistributions from doctors to other professionals, from hospitals to primary healthcare and from people to computers. A large number of examples have been discussed in the previous chapters.

System innovations concern the (re)design of organisational entities; integrated digital information systems; and payment systems for healthcare providers, healthcare professionals and patients. Product and system innovations concern a wider domain than integrated care alone. This is not the case for process innovations, which usually do fall within that domain.

In the Netherlands, many process innovations do not reach the distribution stage. In section 12.3, this phenomenon was termed pilotitis: Dutch healthcare is suffering from too many pilot projects, pilotitis in other words. One reason for this pilotitis is that one or more of the development phases in image 19.1 are regularly skipped.

Image 19.1 Nine phases in the development of an innovation

1.	Becoming aware of the existence of a problem
2.	Studying relevant literature and documents about innovations that have already been developed elsewhere
3.	Designing the innovation
4.	Designing the first business case
5.	Simulating the innovation
6.	Carrying out a pilot with several patients
7.	Carrying out a pilot in several different work settings
8.	Evaluating the pilot based on the three aims of the Triple Aim
9.	Making the successful innovation more sustainable

This division has been created based on a series of case studies.[3,4] Innovators are sometimes enthusiastic about an innovation without knowing which problem the innovation is supposed to solve in their own work setting. This enthusiasm can arise from reading an article, going on a research trip to another work setting or attending a course taught by an expert. Consequently, the first phase (see image 19.1) of creating a successful innovation is becoming aware of the existence of a problem. This can emerge from a quality registration, a management meeting, a peer review meeting or a patient survey. An online search for articles, reports and documents about innovations that have already been realised and proven elsewhere forms the second phase of development. In 2010, Osterwalder,[5] indicated that these types of literature reviews can be carried out by innovators in the field and are not the exclusive domain of academic researchers.

When the intended innovation does not yet exist anywhere, introducing it would mean a world premiere and scientific evaluation becomes a necessity.

The literature review can also lead to the conclusion that the innovation is already in operation elsewhere in the country or abroad: this is called a premiere, the first time in this theatre. It is also possible that the innovation existed years ago: in theatre terms, this is called a reprise. Case in point is the reintroduction of the district nurse in the Netherlands in 2015. When the innovation already exists elsewhere or existed in the past, adapting one's own working environment should be sufficient. Innovators can use research results, power of persuasion, and external expertise to develop their own innovation. This is how, in the past years, I have referred many innovative groups to Gesundenes Kinzigstal in Southern Germany and advised them to use the latter's concept of shared savings in their own environment.

The third phase in image 20.1 concerns the adaption of the already existing innovation or the complete redesign of the innovation, preferably through cocreation and with input from health insurers, patient representatives and other interested parties. This will lead to a lower risk of damage during subsequent phases. The fourth phase concerns the creation of the business case. Business case modelling is important for healthcare innovations. In this instance, linear modelling means that short-term goals are gleaned from a mission statement and that these goals ultimately lead to a business case for the new product. Nonlinear modelling means that all aspects of the business case are discussed simultaneously during several design meetings. The canvas business case method is a good tool for this type of modelling. For this method, a broadly based innovative group (cocreation) sometimes literally paints all aspects of the canvas business case model on a stretch of canvas (hence the name!). Aspects can concern the added value of the innovation, the target group and the method of financing. The

second step is determining social returns on investment (SROIs, see also section 4.3) or the monetised added social value of the innovation. An example of this is Vital Valley's SROI calculation for preventive consultations carried out by Dutch GPs. This organisation calculated that 1 euro spent on this consultation yielded 2.4 euros in monetised gains such as less absenteeism, less disability and fewer healthcare costs.[6]

The fifth phase concerns the simulation of the innovation, which has already been designed at that point in terms of flow charts and distribution of responsibilities and activities. This simulation can occur during meetings based on a case in which the old and the new situation are compared. This also enables innovators to carry out a risk inventory in advance. Many hospitals apply this prospective risk inventory to innovations such as the design of care pathways.[7] A more advanced option includes working with serious gaming and system dynamic modelling.

This latter method is of particular interest to chain innovations, but does require the presence of a shared database that contains a record of the entire chain's existing, available care services.

In phase 6 and 7, the innovation is carried out. This first happens on a small scale and later at several locations simultaneously. It is advisable to choose both a location with enthusiastic *early adopters* (see section 19.2) and a less motivated department.

If the innovation also yields favourable results in the latter work setting, this will provide a powerful argument for further dissemination. When it does not, dissemination should be avoided. Let this be clear: not every innovation is necessarily an improvement. Evaluation of healthcare innovations takes place in phase 8 of image 19.1. Chapter 20 will discuss this in more detail.

In phase 9, the successful innovation loses its innovative status: it becomes business as usual. The focus consequently shifts to sustainability. The innovation is no longer a project, but part of existing quality processes and payment, IT and organisational systems. The dissemination of the innovation to other departments, institutions and regions is ready to begin.

I will conclude this section with a word of warning. The nine phases do not always appear in successive order, but sometimes run parallel to each other and continue to re-emerge during the development process. This is reminiscent of the canvas method, which was discussed above.

19.2 HOW TO DISSEMINATE SUCCESSFUL INNOVATIONS

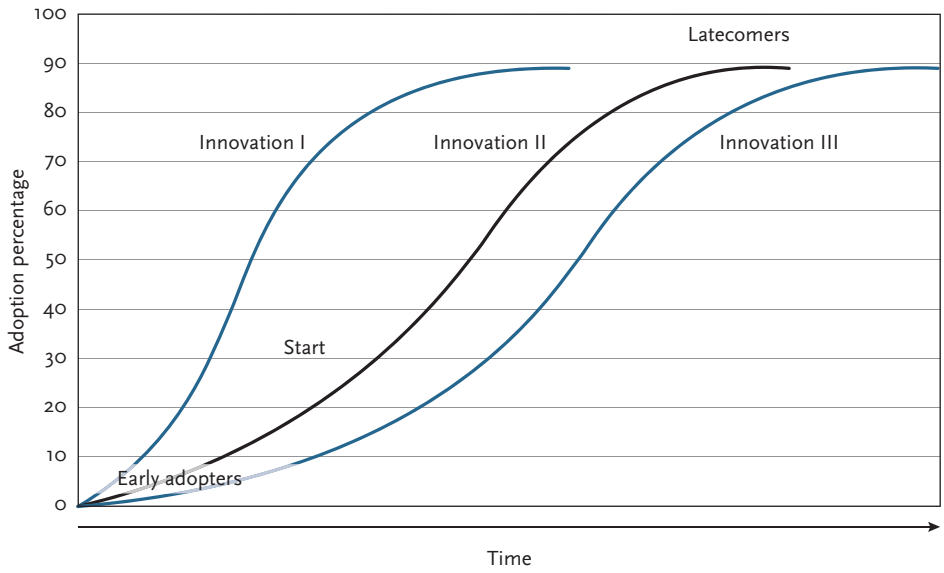
According to an overview study from 2000[8], a product innovation that is distributed spontaneously in the US takes an average of 17 years to be disseminated across the entire country. Its dissemination follows an S-curve as shown in image 19.2. Rogers, and later also Gladwell, provided a theoretical foundation for this curve.

In image 19.2 innovation 1 spreads more swiftly than innovation 2 and 3 At first, there are only a few healthcare providers and health insurers who adopt the innovation: the early adopters. Then, there is a large group, the late majority, which first chooses to wait and see, but adopts the innovation en masse after a certain phase, when the tipping point[9] has been reached. Finally, there is a small group of latecomers (late adopters) who introduce the innovation later. The question is why some innovations in integrated care fail to spread while others spread quickly.

Slow and fast adoption of innovations

In section 8.2, some successful preventive, multi-actor innovations were discussed. These innovations have existed for several years in a limited number of regions in the Netherlands and elsewhere, decrease body weight, operate based on a theoretical model, and decrease costs. Nevertheless, these innovations hardly spread. However, some innovations spread quickly across the whole of the

Image 19.2 The theoretical dissemination of innovations
Source: This image has been based on Rogers EM. Diffusion of innovations. 5th edition (1st edition 1962). New York: Free Press, 2003.



Netherlands. The first example concerns hospital transfer points for the transition of patients to primary care or other healthcare organisations. Section 4.1 discussed these points. The Dutch GP out-of-hours services also proved a swift innovation. Within several years, a country-wide network of out-of-hours surgeries sprang up in the Netherlands.

It was a matter of some urgency, as many GPs buckled under the pressure of two night shifts a week. Collaborative surgeries reduced this to around two nights a month.

Care groups for people with chronic conditions (see section 12.3) form the third example of swift dissemination. They were discussed in section. Almost all GPs started to participate in these care groups within a couple of years.

They were stimulated by a lucrative payment system of around 450 euros per patient with a chronic condition, e.g., diabetes.

The aforementioned Rogers explains the speed of an innovation's dissemination using characteristics of the innovation itself. He distinguishes five characteristics that influence dissemination speed. Image 19.3 sums up these characteristics and contains examples to clarify the slow spread of integrated prevention as opposed to the swift dissemination of GP out-of-hours services.

In 1990, Orlandi[10] and colleagues arrived at an extended version of Rogers' theory. They showed that the dissemination process can stagnate in each phase. Firstly, the innovation can be ineffective. Secondly, the dissemination of knowledge can be too limited. Thirdly, the adoption by the target group can fail: people are not convinced of the innovation's relative advantages. Fourthly, the implementation can fail to take off.

Fifthly, maintaining the innovation can fail: parts of the innovation fall victim to budget cuts and consequently disappear. The innovation will then gradually die out. Orlandi and his colleagues indicated that each innovator should already take these five stagnation factors into account during the design stage.

The theories devised by Rogers and Orlandi complement each other and are not mutually exclusive. However, they were published decades ago. In more recent years, two other theories have captured the attention. The first of these is Christensen's model.[11]

Christensen, who has already been introduced in sections 16.1 and 17.2, states that the dissemination of a healthcare innovation can only be successful if it is accompanied by both financial innovation and health IT innovation. The second, more recent group of theories concern change management. They focus on the organisational

1.	The relative advantage: the extent to which a user considers an innovation advantageous Integrated prevention: no payment for the deployment of healthcare professionals Out-of-hours GP services: funding for these services was available. GPs had to work fewer shifts outside of office hours thanks to these out-of-hours services. Hospitals were eager to provide locations
2.	Compatibility: the extent to which the innovation corresponds to existing values, experiences and work processes of potential users Integrated prevention: healthcare professionals are not used to participating in preventive district-oriented interventions Out-of-hours services: the GP's work did not change. Only the location and the organisation of the NAC (name address city) care changed
3.	The complexity: the extent to which an innovation is easy to use and understand Integrated prevention: there were no existing cooperation links on which Dutch Public Health Authority professionals and GPs could rely Out-of-hours services: GPs were already familiar with observation regulations. Organisationally, these services were not very new at all
4.	Testability: the extent to which a user can first try an innovation on a small scale. Integrated prevention: the innovation concerned an entire city, neighbourhood or region. Small-scale testing was not available Out-of-hours services: GPs gradually joined the out-of-hours services
5.	Visibility: the extent to which the innovation is visible to third parties Integrated prevention: sporadically visible in photos that showed enthusiastic local residents Out-of-hours services: visible in professional journals and mass media. New buildings on hospital grounds

Image 19.3 Five characteristics of healthcare innovations that influence the speed of dissemination
Source: Rogers EM. Diffusion of innovations. 5th edition (1st edition 1962). New York: Free Press, 2003

structure and leadership abilities of state agencies, healthcare providers and financers. These theories are so broad they will be discussed in a separate section (see section 19.3.).

19.3 CHANGE MANAGEMENT: THE HARDEST THING IN THE WORLD

In the 1970s, Ommoord in Rotterdam and Overvecht in Utrecht were among the first Dutch neighbourhoods in which health centres were established. There was only one vision and this vision was focused on creating multidisciplinary primary healthcare teams. These neighbourhoods were newly built residential areas. There was a certain social urgency: a primary healthcare team had to be available by the time the first residents arrived. Inspired founders made a plan of action for everything: professional task sharing, the building, the organisational structure and the

methods for recruiting new professionals. Their experimental status made these first centres eligible for additional funding from insurance companies and municipalities, which meant there were enough resources to develop them. These centres also attracted enough competent board members and professionals from universities and medical schools, which meant that these new organisations soon possessed the necessary skills. In later years, many founders of health centres attained a professorship.

This brief history sheds light on the conditions that influence a process of change in a neighbourhood, region or healthcare organisation. Managing a transformation like this is called change management. Following Lippit[12] five conditions can be distinguished: a vision, urgency, a plan of action, resources and skills. In the case of Rotterdam and Utrecht, these five conditions played an important role.

Image 19.4 shows what happens when one of these five elements is missing.

Image 19.4 Results of change management with and without Lippit's five elements
Source: Lippit M. The Managing Complex Change Model. Copyright, 1987, by Dr. Mary Lippitt, Founder and President of Enterprise Management, Ltd.

If there is a lack of vision, but the other four elements are available, this results in confusion. Resistance, chaos, frustration and fear arise when other elements are unavailable. Keeping all these five balls in the air is what makes change management so difficult. Sometimes change is combined with cost reduction. When this happens there are not enough resources to develop the vision, make a plan of action for the future or learn new skills (see image 19.4). This leads to frustration and plunges care professionals into a period of grief. Budget cuts entail the loss of colleagues, favourite tasks and good relationships. Section 16.2 already discussed the emotions stirred up by cost reductions. They are comparable with the five phases of grief devised by Kübler Ross:[13] denial, anger, bargaining, depression, and acceptance.

The following example shows why change managers would do best to hold off the implementation of changes until after the acceptance phase.

In 2015, many types of social services in the Netherlands were integrated in neighbourhood teams. The underlying idea was that the integration of social services would facilitate cooperation with primary healthcare. However, this change was accompanied by the implementation of cost reductions as high as 20 percent.

This simultaneous development delayed the intended development towards more cooperation with GPs and other primary healthcare professionals.

Handbooks about change management often either emphasise change in an organisation's structure or change in the behaviour of its employees. The BCH-model

Image 19.5 Pedagogical, psychological and political leadership skills in a changing organisation
Source: Quinn, Chan Kim and Mauborgne and Covey[17]

1.	Create support for their own vision
2.	Convince others of the urgency of a situation
3.	Deal with resistance when vested interests are threatened
4.	Create a leading alliance that consists of as many parts of the organisation as possible: the coalition of the willing
5.	Limit the explicit use of power as much as possible
6.	Show respect for other views
7.	Negotiate about interests with integrity
8.	Create win-win situations
9.	Present compromises as consensus
10.	Celebrate short-term successes
11.	Embed improvements in the culture of the organisation

(balance, coherence and heterogeneity) created by Weggeman[14] and the change strategies created by Kotter[15] designate structural change as the goal of change management. They provide step-by-step instructions and aspect models for change management. Quinn,[16] Chan Kim and Mauborgne and Covey see behaviour change as the central goal. Their books are more psychological, pedagogical and political in nature. They emphasise the quality of communication between healthcare professionals and between them and their leaders. Combining these models with my own political experiences (I was a municipal politician from 1984 to 1994) leads to the following list of essential skills for people in charge of organisational change.

Integrators also need change management skills

Horizontal integration demands an integrator on a local level (see section 2.2); vertical integration requires an integrator on a regional level (see section 4.6); and specific target groups require specific integrators (see image 13.1). The skills of an integrator – which, as mentioned before, may be one person or a group of people – in a stable, national organisation have already been listed in image 2.4. Leadership in a changing, integrated care organisation is more complex.

For integrated care leaders, Lippit's five elements and the skills mentioned in image 19.5 become more important. Chang[18] formulates additional skills for integrators who want to change organisational cooperation and structures.

The resistance and vested interests that are often part of change towards integrated care mean that integrators often fail to realise the Triple Aim, even when they have the necessary skills to do so. Don Berwick is the number one initiator of change processes in the United States.

In 2013, Berwick, who created several breakthrough projects and the Triple Aim approach, wrote with disappointment about the poisonous politics of resisting or silent professional parties that undermine many rational and idealistic change processes.[19]

Change management is the hardest thing in the world. It motivated me to start this book with a citation from the famous Dutch poet Elschot: between dream and deed lie laws and practical obstacles.

19.4 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can e-health in integrated care contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical

research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim1, 2 and 3 Better population health, Higher quality of care for the individual and Lowering per capita costs

1 An innovation starts small, as an experiment. Succesful innovations in integrated care are disseminated as an S-Curve, as designed by Rogers (see image 19.2). If this happens, their contribution to the Triple Aim is optimal.
2 Innovation is the opposite of a big bang reorganisation that changes health or social services everywhere in a country in the same way and at the same moment. In the short run, the latter's contribution to the Triple Aim is low.
3 Process innovations concern task redistributions from doctors to other professionals, from hospitals to primary healthcare and from people to computers. Product and system innovations concern a wider domain than integrated care alone. This is not the case for process innovations, which usually do fall within that domain and contribute greatly to integrated care and the Triple Aim.
4 In the Netherlands, many process innovations do not reach the dissemination stage. Dutch healthcare is suffering from too many pilot projects, pilotitis in other words. One reason for this pilotitis is that one or more development phases mentioned in image 19.1 are skipped.*
5 The canvas business case method is a good tool for this type of business case modelling in integrated care. The second step is determining social returns on investment (SROIs) or the monetised added social value of the innovation.This makes it possible to see how much an innovation contributes to the Triple Aim.
6 The nine phases in the development of an innovation do not always appear in successive order, but sometimes run parallel to each other and continue to re-emerge during the development process. Developing innovations is not a linear but rather an iterative process.
7 According to an overview study from 2000, an innovation that is distributed spontaneously takes an average of 17 years to be disseminated across the entire country.*
8 It is plausible that the speed of an innovation's dissemination is determined by five characteristics of the innovation itself (see image 19.3)
9 It is plausible that the dissemination of a healthcare innovation can only be successful when it is accompanied by both financial innovation and health IT innovation.
10 In change management for the introduction of integrated care five charateristics can be distinguished: a vision, urgency, a plan of action, resources and skills. If a manager pays sufficient attention to these five aspects, the likelihood of success in the dissemination of the innovation increases. However, between dream and deed lie many laws and practical obstacles.

11 Sometimes, innovations and change management are combined with cost reduction. When this happens, there are not enough resources to develop the vision, make a plan of action for the future or learn new skills (see image 19.4). This leads to frustration and plunges care professionals into a period of grief. In this case, the innovation's contribution to the Triple Aim is low.
12 Integrators are mostly involved with the development of more integrated services. They consequently do not only need the basic management skills shown in image 2.4, but also require specific skills regarding change management (see image 19.5).

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20 Methods of integrated care research*

Section 20.1 shows aspects of health services research of which integrated care research is a component. The following sections discuss three types of integrated care research: descriptive research (section 20.2), exploratory research (section 20.3) and theory testing research (sections 20.4 and 20.5). Section 20.6 then follows with recent developments in research methodology. Section 20.7 concludes this chapter with an answer to the question: how does integrated care research contribute to the realisation of the Triple Aim?

20.1 INTRODUCTION

Image 20.1 shows ten general aspects of health services research.

Image 20.1 Ten general aspects of health services research

1.	Designing the study and raising funds for it
2.	Formulating a research question
3.	Choosing a research method: qualitative or quantitative
4.	Selecting sources of information
5.	Collecting data
6.	Analysing data
7.	Testing the hypotheses of the study
8.	Comparing the results with those of other studies
9.	Writing a research report
10.	Publishing the report in a peer reviewed journal

* This chapter is based on Schrijvers G, et al. Onderzoek naar geïntegreerde zorg. In: Plochg T, et al. Handboek gezondheidszorgonderzoek. Houten: Bohn Stafleu van Loghum, 2012.

This chapter focuses on the application of these aspects to integrated care studies. For a general discussion of these aspects, I refer to textbooks about health services research.[1,2,3] This chapter only discusses the application of these aspects to integrated care. Research generally starts with the introduction of a clear set of concepts, models and theories that are to be used in the study. The previous chapters introduced several definitions related to integrated care.

This chapter consequently does not reintroduce important concepts such as cooperation, payment systems, quality of care and the different types of integration.

20.2 DESCRIPTIVE SURVEYS

Descriptive surveys for integrated care use four different research methods:

1 the literature review;
2 transversal comparative studies;
3 process evaluation; and
4 time series analysis.

Designing an innovation starts with a literature review (a more generally formulated study of articles, reports and documents) of forms of integration that have been previously realised and proven elsewhere. The second mentioned comparative transversal study concerns the extent to which integrated care occurs. This type of study often uses a semi-structured questionnaire to measure data. As discussed in chapter 2, there are different degrees of integration, which range from no integration to alignment and coordination to complete integration. Dutch examples of this type of survey can be found in the PhD dissertations written by Van der Linden[4] on vertical integration in chronic care and by Ravelli[5] on integration in mental health services. Internationally, this type of research can be found in, e.g., a comparison between integrated care at Kaiser Permanente in California and integrated care within the British National Health Service.[6]

This comparison resulted in a heated debate about research methods and the cause of the differences uncovered by this research. For science, which focuses on the formation of theories, such debates can only be beneficial. It is easy to look for statistic correlations in a transversal study without knowing the exact cause and effect of these relations.

Thirdly, process evaluations deal with the characteristics of integrated, experimental healthcare delivery. These characteristics are compared with previously documented work processes, procedures, task distributions and coordination mechanisms. Carrying out a process evaluation before embarking on theory testing research is essential, as the normative description of an innovation may differ from the realised intervention.

Finally, a time series analysis follows the development of integrated care throughout the years. Campbell, et al.[7] created a research design tailored to this end. Schäfer, et al.[8] pleaded for an adapted time series analysis, in which trends are calculated

based on a large number of moments before and after an intervention: if the results indicate a break in the trend, the intervention has made an impact.

Descriptive studies are an important part of arriving at hypotheses and complementary, exploratory studies for integrated care. They prevent experimental professionals from having to reinvent the wheel when they are looking for innovative, integrated methods.

20.3 EXPLORATORY RESEARCH

Following the Dutch methodologist De Groot[9] I define exploratory research as the collection of observed facts with the intention of arriving at theories and hypotheses.

In short, this type of research focuses on the formation of theories. Two kinds of exploratory research can be used for integrated care. Firstly, experience-related questions can easily be added to descriptive surveys and put to integrated care leaders. This enables researchers to make tacit knowledge explicit and develop theories for prospective theory testing studies. The second type of exploratory research is qualitative in nature: it works with in-depth interviews. Such studies are based on Scharpf's[10] theory (2004), which is known as actor-oriented institutionalism. In his policy theory, Scharpf assumes that each policy is created based on actors, their views and their influence on the policy. He distinguishes four basic concepts: institutional setting, actors and their views, actor constellations (or alliances) and forms of interaction between actors. Because integrated care involves many different actors, who all have their own views and work in different institutional settings, alliances and interaction patterns, Scharpf's model lends itself to exploratory research prior to theory testing studies.

The model enables researchers to predict whether an experiment with integrated care has a real chance of success, as such studies show which actors do and which of them do not support the experiment.

I conclude this section with a word of warning. The results of exploratory research should not immediately lead to national policy changes.They can, however, provide a reason to continue with theory testing research in experimental regions or other experimental settings.

20.4 THEORY TESTING RESEARCH

In the previous chapters, various theories about the effects of integrated care have been assessed and substantiated. Chapter 3, for instance, showed that horizontal integration results in better quality of care. Vertical integration (see chapter 4) leads to substitution from hospital care to primary healthcare. Integrated prevention (see chapter 8) affects health behaviour and fractionated interventions do not. Integrated care has a Triple Aim: better health, better quality of care and lower costs. Testing integrated care therefore means testing to what extent something or someone contributes to this Triple Aim. Three types of theory testing research can be distinguished:

1 the randomised trial;
2 the big data analysis; and
3 the multiple embedded case study.

Below, the first two types will be discussed. Section 20.5 focuses on the third.

The ideal statistical testing method is the randomised clinical trial. However, randomising patients into a fractionated setting is often impossible in an integrated care context. Shojania[11] wrote a clear treatise about the problem that field research does not yield evidence of effects and that the outcomes of randomised clinical trials are not necessarily applicable to the daily practice. The search is for a compromise between evidence and practical applicability.

An evaluation of integrated care innovations should yield answers to four questions.
1 What is the theoretical foundation for the efficacy of the innovation?
2 Does the innovation work according to the designed model?
3 What is the added value of the innovation for the realisation of the Triple Aim?
4 Is the business case that was made during the design phase still accurate?

If patients cannot be randomised to integrated care settings and fractionated settings, settings could be randomised. I illustrate this with an example: fifty health centres are selected at random to integrate with social services and fifty others to provide care as usual. This particular research method is called the Randomised Community Trial.

The main advantage of this research method is its ability to generalise to the total population. Its main disadvantage is that there is a risk that unmotivated settings refuse to participate in the study. This makes generalisation to all health centres in the example difficult.

The second method, big data analytics, uses statistical analysis of big databases (see section 16.3) to assess integrated care based on the Triple Aim. Examples include the regression analysis, time series analysis and multilevel analysis.

It is not easy to assess an integrated care theory based on the effect it has on the Triple Aim. Image 20.2 lists four complicating factors.

Image 20.2 Reasons why evaluating integrated care is complicated
Source: The author's own experience

1.	More than one experimental intervention
2.	Changing patient inflow
3.	Interim changes in care delivery
4.	Large significance for those who are directly involved

More than one experimental intervention

It is possible for several innovations to take place simultaneously, e.g., the simultaneous introduction of a healthcare access regulation, a multidisciplinary guideline, a programme for patient education, a joint training programme for professionals, another payment system and an electronic health record. Modernisation refers to the innovation of healthcare delivery in several domains at once.

The simultaneous presence of several different experimental interventions makes it impossible to research which intervention was crucial for differences in time, differences in the outcomes of cohort studies and the differences between intervention and control groups in transversal studies.

Neither is it possible to ascertain whether the studied interventions reinforce or merely complement each other.

Relevant literature about integrated care does not equivocally state whether or not multifaceted interventions are more effective than single interventions. However, in a review, Sjojania and Grimshaw[12] show that this is the case. A year later, they, among others, indicate that this does not apply to patients with diabetes[13] who seem to be subject to the economic law of diminishing returns. In 2008, Craig and colleagues published guidelines for the evaluation of complex interventions that included more than one innovation.[14] The grade-instrument also offers some guidelines.[15,16]

Changing patient inflow

The second problem concerns the fact that experimental integrated care can lead to a change in the inflow of patients during the research phase. This issue is illustrated by the following example. During the evaluation of a COPD-care programme[17] it appeared that GPs, thanks to extra training, used a stricter definition of COPD than their colleagues in the control group.

They counted fewer COPD patients in their practice. This hampered the creation of similar control groups within the study, which, in turn, also called cost comparisons into question.

Interim changes

The third problem concerns the fact that integrated care delivery often changes during the survey. This can be caused by an internal factor: a guideline or task distribution is adjusted in the meantime. However, it can also be caused by external factors, such as changes in healthcare budgets made by the government. Research-related causes can also be involved, e.g., because researchers provide an intermediate report that causes professionals to change their behaviour.

Generally, integrated healthcare research is subject to demonstration effects, also known as Hawthorn effects[18]: the survey stimulates professionals and management to try their hardest and draws interested patients.

As it is usually not possible to blind research parties completely, solutions for the preservation of the study's integrity include: as little intermediate reporting to involved parties as possible, reticence concerning the wide distribution of information about the experiment, careful registration of changes in healthcare delivery and analysis of possible effects on research results.

Using these solutions, it is possible to distinguish a learning curve within the cohort study: the longer the experiment runs, the better the research results.

Large significance for those who are directly involved

The final problem when it comes to assessing integrated care based on the Triple Aim concerns the significance of such research results for actors who are involved directly, such as professionals, healthcare organisations, executive boards, healthcare insurers and the government. Merely publishing the results in one international, peer reviewed magazine is usually not an option. All actors want their own publication with their own highlights. There is a risk that actors only use those outcomes that reflect favourably on them and consequently affect the credibility of the study. The influence of these actors requires the researchers to have methodological and technical knowledge of their discipline; communicative skills, both orally and in writing; neutrality towards all parties; objectivity in their commentary on research results; and emotional resilience when involved parties want to manipulate research results.

20.5 THE EMBEDDED MULTIPLE CASE STUDY AS A THIRD OPTION FOR THEORY TESTING RESEARCH

Image 20.3 shows the definition of a case study as created by Yin and Campbell.

Yin and Campbell[19] distinguish multiple case studies in which the same experimental condition is simultaneously tested in several different settings. They place this opposite the single case study, which only uses one experimental setting. A case study is embedded when researchers study both the environmental factors and the

Image 20.3 Definition of a case study

A case study is an empirical inquiry, in which:
- focus is on a contemporary phenomenon within its real-life context &
- boundaries between phenomenon and its context are not clearly evident

A case study is suitable for studying complex social phenomena
- Procedural characteristics in the situation include: many variables of interest; multiple sources of evidence; theoretical propositions to guide the collection and analysis of data
- Types of case studies might be: explanatory; exploratory; descriptive
- Designs can be single- or multiple-case studies
- Used methods can be qualitative, quantitative, or both

internal functioning of a setting. For the execution of case studies, Yin and Campbell distinguish six sources of information, namely:

1 policy documents and archive documents about the experiment and the control setting;
2 registrations and questionnaires;
3 interviews with key figures;
4 observations made by researchers;
5 participating observations made by professionals; and
6 characteristics of the physical and social environment.

Triangulation deals with the question of whether different sources of information result in mutually corresponding research results. Policy documents and interviews with key figures should yield corresponding research results. If they do not, complementary research is required until differences between sources can be explained. In addition to source-based triangulation, Yin and Campbell also distinguish triangulation according to theory and researcher. They distinguish four general theories that also apply to integrated care delivery. The first of these are knowledge theories, which assume that better-informed professionals lead to better quality. Secondly, Yin distinguishes group dynamic theories. These theories assume that the cooperation culture between professionals can account for differences in quality. According to these theories, hostility between professionals also causes mistakes and discontinuity in service delivery. The third group of theories, so-called organisation theories, states that differences in quality can be explained by the different leadership styles used by managers. The fourth group consists of social theories, which explain differences in quality based on environmental factors, such as the presence of differences in social-economic status reflected by clients' level of education. Anyone who wants to test how integrated care contributes to the Triple Aim will inevitably have to assess each of these four theories and judge which of them has been the active mechanism. According to Yin, theory or hypothesis has been proven when the three other theories have been rejected. My own experiences with multiple embedded case studies have taught me that usually all four theories play a role in the way integrated care does or does not contribute to the Triple Aim.

The third form of triangulation mentioned by Yin and Campbell is triangulation according to researcher. The question here is whether different researchers independently arrive at the same data triangulation. Triangulation according to researcher is similar to the method used by review committees. This method also concludes whether or not integrated care contributes to the Triple Aim based on documents, registrations and interviews.

It is conceivable that researchers confer their triangulation to a review committee, which usually consists of a number of people who have extensive experience and

hail from different knowledge centres. The validity, or power of persuasion, of such triangulations is more substantial than that of triangulations created by less experienced researchers.

While this is undoubtedly an advantage, it could also mean that expert opinions become more important than the information in the underlying study. Evidence-based medicine would then make way for eminence-based medicine.

20.6 RECENT DEVELOPMENTS IN INTEGRATED CARE RESEARCH

Concentration of development and research of integrated care is the first of three recent items which are discussed in this section. Section 20.4 already mentioned how integrated care may change during the course of a survey. The disadvantage of traditional integrated care research is that it is does not clearly specify which intervention is examined.

However, it is possible to make a virtue out of necessity by assigning researchers new roles, instead of merely seeing them as observers and registrars. Pharmaceutical companies concentrate research and development of new drugs in one area of responsibility and the same might be done for integrated care. This would mean that researchers assist with the design of interventions by contributing knowledge that is available within their research centre and carrying out descriptive and exploratory research prior to theory testing research. In addition, it is important to phase the assessment and save desirable intermediate changes in the experimental settings until the next phase commences. Cohesive research and development facilitates knowledge contribution, but researchers also risk becoming overly committed to an experimental intervention and consequently lose their professional detachment. Nevertheless, studies into more cohesion between healthcare innovation and research are desirable for pioneering, innovative professionals.

Integration of learning and research

A learning healthcare system – the second item – is designed to improve care over time, using continuous quality improvement strategies, and seeks to integrate a range of scientific methodologies regarding patient care.

If successful, these health systems offer an opportune setting for integrated care innovations to be incorporated into day-to-day care.[20] A learning system uses data collected on a regular base and yields lessons learned; as opposed to research, which yields knowledge that can be generalised. These lessons are not intended for publication in scientific or professional journals. Data collection is usually insufficient, control groups are often lacking or questionnaires have not been validated.

This all makes quality improvement projects, which work with the aforementioned PDCA-cycle, less appropriate as a foundation for scientic publication.

On the other hand, scientific publications sometimes take three or four years from design until publication. The value of such publications for integrated care professionals is often limited. In the meantime, the type of integrated care under scrutiny in the publication, has already been adapted and changed into a new version. The publication is, as we say in the Netherlands, mustard after the meal.

To solve this problem, the International Journal of Integrated Care does not only publish scientific peer-reviewed papers, but also organises conferences, virtual communities and courses to mobilise this silent knowledge and to facilitate the direct exchange of experiences between professionals and leaders. Other journals seem to be moving in the same direction.

Comparative health effectiveness research in integrated care

A third, recent, item is comparative health effectiveness research.[21] A paper published by Anderson and colleagues in 2009 is a good example. The main intention here is to compare the effectiveness of, sometimes completely, different health interventions that share a common goal. In the aforementioned publication this goal is the reduction of alcohol consumption.

Anderson and colleagues distinguished a whole list of interventions: health education; therapies in addiction care; media campaigns; reduction of sales points; traffic controls, e.g., breathalysers; advertising bans; improved training for bartenders; more supervision on illegally distilled alcohol; and price politics. Based on similar business cases (see section 19.1), they concluded that raising excises is the most effective and efficient intervention for the reduction of alcohol consumption. The purpose of this example is to explain the concept of CHER. It is a trending topic in oncological and other publications[22,23,24] as it answers the question: what is the most effective intervention for the reduction of cancer-related mortality?

Is it smoke cessation, screening, chemotherapy, surgical operations or radiotherapeutic interventions? All these interventions are compared in terms of effectiveness.

In theory – but until now, not yet in practice – it is possible to use the economic concept of marginal utility: the gain from an increase, or loss from a decrease in the use of the intervention. This theoretical, economic idea states that the marginal utility of each oncological intervention is equal. Within a CHER approach, the Budget Impact Analysis (BIA) plays an important role. In a BIA, the height of the healthcare budget is a given. Researchers subsequently try to optimise the use of said budget in order to achieve optimal efficiency for the patient target group.[25,26,27]

Seen in the context of population-based payment (see section 13.4) for integrated care, CHER is an interesting tool. It enables the integrator to switch resources

from hospital care to primary healthcare and preventive services. It is true that, in reality, distributions across the aforementioned options come about based on emotions, power, history and existing laws and regulations. However, the marginal utility theory, the CHER and the budget impact analysis all facilitate a more rational approach.

20.7 ANSWER TO THE RESEARCH QUESTION OF THIS BOOK BASED ON THE FINDINGS OF THIS CHAPTER

In anticipation of the complete answer to the research question in chapter 21, what follows here is a summary answer to the question: how can integrated care research contribute to the realisation of the Triple Aim in the coming years? A finding is called plausible, when it has been substantiated with a theory, but not with empirical research. A finding is marked with an asterisk when it has only been based on a single country or single study.

Triple Aim 1,2 and 3 Improving population health, increasing quality of care for the individual and lowering per capita costs of care

1 Descriptive surveys for integrated care use four different research methods:
   1 the literature review;
   2 transversal comparative studies;
   3 process evaluation; and
   4 time series analysis.

   They cannot prove that integrated care is successful.
2 Process evaluations compare the formal characteristics of integrated, experimental healthcare delivery with its real, available characteristics.
3 Carrying out a process evaluation before embarking on theory testing research is essential, because a normative description of integrated care may differ from its realisation.
4 A time series analysis follows the development of integrated care throughout the years.
5 An adapted time series analysis, in which trends are calculated based on a large number of moments before and after an intervention, is useful: if the results indicate a break in the trend, it is plausible that the intervention has influenced the realisation of the Triple Aim.
6 Exploratory research in integrated care is qualitative in nature. It is based on Scharpf's theory, which is known as actor-oriented institutionalism. Following this theory, integrated care is created by actors, their views and their influence on the policy. Scharpf's model lends itself to exploratory research prior to theory testing studies. The model enables researchers to predict whether an experiment with integrated care has a real chance of achieving the Triple Aim.

7 Three types of theory testing research can be distinguished:
   1 the randomised trial;
   2 the big data analysis; and
   3 the multiple embedded case study.
8 If patients cannot be randomised to integrated care settings and fractionated settings, the settings themselves could be randomised, e.g. fifty health centres are selected at random to integrate with social services and fifty others to provide care as usual. This particular research method is called the Randomised Community Trial. The main advantage of this research method is its ability to generalise to the total population.
9 Factors that complicate the evaluation of integrated care include: more than one experimental intervention, changing patient inflow, interim changes in care delivery and large significance for those who are directly involved. This makes it difficult to arrive at evidence for the way integrated care influences the Triple Aim.
10 A case study is embedded when researchers study both the environmental factors and internal functioning of a setting. Different sources of information are used. Embedded case studies are consequently favoured in integrated care.
11 Four general theories are available to explain the effects of integrated care on the realisation of the Triple Aim. Anyone who wants to test how integrated care contributes to the Triple Aim will inevitably have to assess each of these four groups of theories and judge which of them has been the active mechanism. A theory or hypothesis has been proven, when the three other theories have been rejected.
12 Concentration of development and research of integrated care in one area of responsibility means that researchers assist with the design of interventions by contributing knowledge that is available within their research centre and carrying out descriptive and exploratory research prior to theory testing research.
13 Seen in the context of population-based payment for integrated care, comparative health effectiveness research is an interesting tool. It enables the integrator to switch resources from hospital care to primary healthcare and preventive services.

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PART 9 CONCLUSION

21 Answering the question in a few hundred words and in one table

This book answered the research question (see section 1.7): is it possible to improve population health, increase quality of care for the individual and lower per capita costs of care using person-centred integrated care?

Person-centred, integrated care is defined in section 2.1 as 'health services that are managed and delivered in a way that ensures persons receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care services, at the different levels and sites of care within the health system, and according to their needs, throughout their whole life and in continuous discussion with the patients.'

To answer that question, I have read around 1000 documents from the 1960s until August 15, 2016. Sometimes my own experiences were also used as a source of information.

Six dimensions of integrated care were investigated:
1 type of integrated care;
2 patients as partners;
3 quality of integrated care;
4 paying integrated care
5 digitisation and integrated e-health; and
6 integrated care policies.

Each theme is discussed in one of the six parts of this book. Each part contains one or more chapters. Each chapter concludes with an answer to the research question of this book based on the findings of that chapter.

The answers to these questions per chapter have been summarised in image 21.1. For a more detailed explanation of the abridged information in this table, I refer to the underlying chapters and sections.

Summarising the table below, the answer to the research question is: yes, it is possible. Yes, integrated care is better and cheaper. The answer is yes because most of the statements are based on positive small-scale experiments. Some of these statements are only based on hypotheses. In those cases, I used the word 'plausible'.

It is a long way from small-scale experiments in one country or a single study to nationwide implementation and this development requires a great deal of change management (see chapter 19). This observation motivated me to start this book with a line of poetry that is well-known in the Netherlands: 'between dream and deed lie laws and practical obstacles'. If this book has helped to show the reader a direction for the future of healthcare, it has reached its goal.

Guus Schrijvers
Utrecht, August 30, 2016

Chapter (number and abbreviated title)	1. Improving population health	2. Increasing quality of care for the individual	3. Lowering costs per capita
3. Horizontal integration	Better health for people with a chronic condition and/or cancer	Fewer visits to emergency departments	Lower total costs for health services; fewer hospital admissions
4. Vertical integration	Higher chance of survival for patients with cancer, in case of standardised referrals from GPs to specialists	Transfer points and standardised discharge procedures improve quality of care transition	Systems with GPs as gatekeepers have lower total costs than those without
5. Case management	It is plausible that case managers contribute to better population health and to better quality of care	idem	Independent case managers for long- term care reduce use of institutional care
6.Integrated pharmaceutical care	Better health for people with chronic conditions; fewer medication-related hospitalisations	Better pharmacotherapy outcomes due to safer and more rational medication use	Lower total costs of medication use; fewer medication-related hospitalisations
7. Integration of health and social services		It is plausible that this integration leads to better explanations for health problems and to the availability of more interventions	Recovery interventions provided by social services lower cost per capita*
8. Patients and professionals as partners	It is plausible that self-management support decreases the incidence of chronic conditions	Stand-alone, online patient education programmes that only contain instructions and lack interaction between teachers and patients do not influence patient behaviour	Self-monitoring of chronic conditions reduces hospitalisations and re-admissions to hospital.
9. Shared decision-making	Patients using decision aids improve their knowledge of the options, feel more informed and have more clarity about what matters most to them	idem	SDM causes patients to forgo further treatment more often, but real cost studies are lacking.
10. Professional quality	It is plausible that a focus of integrated care professionals on retained health and long-term outcome quality promotes population health	Patients should be able to rely on one point of contact in the integrated care team with whom they make agreements about their treatment.	It is plausible that horizontally integrated care reduces the overuse of care

Image 21.1 Contribution to the Triple Aim per chapter
Source: See final section of each chapter

11. Patient-perceived quality	It is plausible that measuring patients' experiences with integrated care contributes to population health	It is plausible that professional outcome quality indicators (such as survival rates, recovery time and sustainability of health) are also important for patients	Not available
12. Behavioural economics	Nudging also stimulates conformist health behaviour. It is plausible that this leads to better population health	Financial nudges have not triggered investment in multidisciplinary teams, organisations and buildings*	It is uncertain whether or not bundled payments for US hospitals reduce the increase in total healthcare costs
13. Cappuccino model	It is plausible that population-based payment enhances population health	Population-based funding improves personal continuity	Patients treated in an Alternative Quality Contract spend less on healthcare than people without an AQC and receive higher-quality care
14. Payers and providers	Integrated care systems are committed to the Triple Aim. However, to reduce conflicts between actors it could sometimes be preferable to use conflict minimisation as a fourth aim	It is plausible that purchasers with a long-term perspective contribute more to the Triple Aim than short-term purchasers	If cooperation between integrated care providers results in monopolistic behaviour, the purchaser has to organise countervailing power to sustain the Triple Aim
15. Personal budget	It is plausible that patients who use a personal budget have more opportunities to shape their own life	A personal budget option as part of a wider family policy that consciously tries to stimulate informal care enhances quality of care	The simultaneous availability of both options, i.e. care-in-kind and personal budget, lowers costs of integrated care
16. Electronic Health Records and big data	It is plausible that population management functions better if health data are stored in easy-to-access data warehouses	IT systems in primary healthcare improve coordination and safety of healthcare provision	EHRs could save money, as the digital re-use of information reduces the necessity of repeating diagnostic tests
17. E-health	Telemedicine and telecare in radiology, intensive care, stroke care and other types of care are promising examples*	Blended care adds more value to the quality of integrated care than digital-only systems	In the long run, diagnostics will largely disappear from hospitals and move to primary healthcare and national expertise centres
18. Leadership	Making SWOT- analyses offers a strong foundation for proposing strategic views	Teamwork and shared leadership are important: it is unnecessary to concentrate all leadership activities in one person	When a service can be provided more cheaply without loss of quality, this is automatically permitted by leaders

Image 21.1 Continued

19. Innovation	Successful innovations in integrated care are disseminated as an S-Curve. If they are, their contribution to the Triple Aim is optimal	Many process innovations do not reach the dissemination stage because their quality of care is unproven	Sometimes, innovations and change management are combined with cost reduction. If so, their contribution to the Triple Aim is low
20. Integrated care research	Exploratory research enables researchers to predict whether an experiment with integrated care is likely to reach the Triple Aim	Reasons why the evaluation of integrated care is complicated include: more than one experimental intervention, changing patient inflow, interim changes in care delivery and large significance for those directly involved	Comparative health effectiveness research enables the integrator to switch resources from hospital care to primary healthcare and preventive services

Image 21.1 Continued

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Index

Is it possible to improve health, increase quality and lower costs using person-centred integrated care? This book provides an answer to that question, as Schrijvers combines more than 500 studies from the sixties until mid August 2016 with many years worth of personal experience with integrated care. The author distinguishes six dimensions of integrated care: type, patient as partner, quality of care, payment, e-health and change management. Each item is thoroughly analysed and described. His answer to the question? Yes, it is possible, but there is still a long way to go.
An electronic attachment with a selection of examples of integrated care from the Netherlands and other countries has also been added to this book.

This book is a must-read for everyone who wants cooperation in healthcare: professionals, patient representatives, directors, innovators, policy-makers, students and their teachers.

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INTEGRATED CARE

Guus Schrijvers

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