Volker Amelung · Viktoria Stein ·
Esther Suter · Nicholas Goodwin ·
Ellen Nolte · Ran Balicer *Editors*

Handbook Integrated Care

Second Edition

Springer

Handbook Integrated Care

Volker Amelung · Viktoria Stein ·
Esther Suter · Nicholas Goodwin ·
Ellen Nolte · Ran Balicer
Editors

Handbook Integrated Care

Second Edition

Springer

Editors
Volker Amelung
Institute for Epidemiology
Social Medicine and Health System Research
Medical School Hannover
Hannover, Germany

Esther Suter
Faculty of Social Work
University of Calgary
Calgary, AB, Canada

Ellen Nolte
Health Services Research and Policy
London School of Hygiene & Tropical Medicine
London, UK

Viktoria Stein
Leiden University Medical Center
Leiden, The Netherlands

Nicholas Goodwin
University of Newcastle
Gosford, NSW, Australia

Ran Balicer
Innovation Division and Clalit Research Institute
Clalit Health Services
Tel Aviv, Israel

ISBN 978-3-030-69261-2 ISBN 978-3-030-69262-9 (eBook)
https://doi.org/10.1007/978-3-030-69262-9

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

Only two years after publishing the first edition of this handbook, we started working on a second edition. Three reasons were responsible for why we thought that a second edition should be published quite soon after the first one: first, even though the first edition had already more than 600 pages, we felt that some important topics were missing and therefore gaps need to be closed. Secondly, the research field changed quite dramatically and an intensive new discussion about ecosystems, population health management and their development evolved. The final reason came up unexpectedly during the preparations for this edition. COVID-19 made it very clear that strategic thinking about health system design and population health management is not a nice to have, but one of the most fundamental questions we are facing today.

The gaps we tried to close in this second edition are new chapters on people-centredness, complexity theories and evaluation methods, additional management tools and many more experiences from different countries and localities.

While there are still many different definitions and frameworks for integrated care available, a common understanding on the key building blocks of integrated care has emerged nonetheless. As we hear so often, it is not the "what is integrated care", which eludes us, it is the "how" of implementation.

There are mainly three different ways to look at integrated care: integrated care as a theoretical framework of how to organize our health systems, such as Ed Wagner's chronic care model or WHO's global strategy on integrated people-centred health services. These concepts are generic and focus on the way how we should think about healthcare provision. They are more like a compass, explaining the right way to think and defining the key elements, without giving specific instruction of how to execute it. These frameworks are referenced throughout this book as guiding lights in theory and practice.

Secondly, integrated care could be understood as a health system design tool to answer to (context-specific) challenges. Some of the most advanced examples, such as Scotland, the Basque country, Singapore or Canterbury, are described in more detail in Part B of this book. The focus here is on a whole-of-system design, which is very slowly moving towards a health in all policies understanding. This is mainly a (health) policy and political decision, defining the strategy and way forward for countries or regions.

Lastly, integrated care could be understood as a business model, for example hospitals or insurance companies investing in extending their value chain or expanding their scale and scope. In this case, integrated care is used as a strategy from different players to differentiate themselves in a competitive market, be it among primary care practices, hospital networks or private service providers. If it is seen primarily as a business model, with income generation as its primary aim, then this bares many obvious problems. There are hybrid forms, however, which argue that better and more integrated care ultimately brings better financial outcomes as well. Many ACOs and Health Maintenance Organizations (HMOs) in the USA are examples of this approach. The key lesson here is that it is futile to deny that there are huge financial interests playing out in the background, and financial disincentives to coordination and integration abound in every system.

All three approaches are highly valuable for the discussion about integrated care, but it is crucially important to make the intentions transparent. Ideally, integrated care could be both, a health system design and a convincing strategy for market participants, too. In relation to this, one of the most fascinating emerging topics is around evolving healthcare ecosystems. Again, there are two, diametrically opposed views on what healthcare ecosystems are in the first place. Based on systems theory, complex adaptive systems and similar theories, ecosystems can be understood as idealistic entities of numerous interdependent agents sharing values and goals. On the other hand, ecosystems such as Amazon, which are sophisticated, transnational and data-driven technical platforms, might become an alternative to healthcare systems, offering both—financing and provision of services. We might not like it, but other business giants like Google, IBM or Philips are all competing for a slice of the lucrative healthcare market. This development needs to be observed very carefully, as they offer both—more patient orientation, but also loosing the control of health system planning.

This second edition was finalized during the COVID-19 shutdown in most of our countries. Even if we are still far away today to judge on the right strategies and correct policies, the pandemic made blatantly obvious that public health and health services research is fundamental for a well-prepared and responsive health and care system. COVID-19 further underlines the need for more evidence-informed policy-making and interdisciplinary decision-making. We need to understand health and the management of crises as a continuous, emergent issue, with many unknowns, which require flexible and innovative approaches. In order to be able to learn from the crisis and better prepare for future outbreaks, we need to ask the right questions, invest in sound research and not sacrifice research principles due to the urgency and pressure of the crisis. This is much in line with what is required in any integrated care approach as well. COVID-19 has accentuated the stark reality that, despite the efforts of the past 20 years, there remains a continued failure to embrace integrated care systems. It has also demonstrated how quickly systems, organizations and individuals can change, if they must. As an international community of research and practice in integrated care, we must make sure not to waste this opportunity and help make the change stick.

This extensive second edition of the handbook would not have been possible without the help of many colleagues and staff members. A special thanks goes to Anna-Sophia Bilgeri, who dedicated many hours, emails and unabating positive energy to the tedium of following up with authors, keeping the editors on their toes and integrating the different pieces of this book. We are also grateful to Dr. Johannes Glaeser and Judith Kripp of Springer Verlag for their patience and continual support in the realization of this project. Ultimately, this book could not have been done without the contributions of the many authors and their willingness to share their expertise and experience with the reader.

Hannover, Germany — Volker Amelung
Leiden, The Netherlands — Viktoria Stein
Gosford, Australia — Nicholas Goodwin
Tel Aviv, Israel — Ran Balicer
London, UK — Ellen Nolte
Calgary, Canada — Esther Suter

Contents

69 Integrated Care in Germany: Evolution and Scaling up of the Population-Based Integrated Healthcare System "Healthy Kinzigtal"

Oliver Groene and Helmut Hildebrandt

69.1 Integrated Care in Germany

Germany´s health system is based on social health insurance (SHI) contributions and provides universal access to a comprehensive basket of services. Residents can freely choose their social health insurance fund. A risk compensation mechanism balances differences in the age and morbidity structure of the pool of insured between the insurance funds in order to prevent excessive risk selection (Busse and Blümel 2014, Gesundheitsfond 2008).

Ambulatory care is mainly delivered by office-based primary and specialist care physicians who are paid via a combined capitation and fee-for-service basis. Patients have the freedom to choose any provider in the ambulatory care sector and some choice of hospital upon referral (Kringos et al. 2015a, b). Hospitals receive activity-based reimbursement of services based on a diagnosis-related group (DRG) system (Busse et al. 2011). International comparisons demonstrate that the system provides high-quality health services independent of income and has low access barriers (Rietberg and Wörtz 2008). However, the German health system is also amongst the most expensive in the OECD (national health expenditure was 11.0% of GDP in 2013, compared to the OECD average of 8.9%) but the system only performs average on overall population health indicator status compared to similar high-income countries (OECD 2015). The reasons are largely seen in the disincentives embedded in the organisation of health services that are not fit to cater to the needs of chronically ill patients (OECD 2015).

The strict separation of primary and secondary care with insufficient care coordination is widely seen to be at the core of the problem, shown to lead to unnecessary duplication of services, poor care coordination and suboptimal health

O. Groene (✉) · H. Hildebrandt
OptiMedis AG, Hamburg, Germany
e-mail: o.groene@optimedis.de

V. Amelung et al. (eds.), *Handbook Integrated Care*,
https://doi.org/10.1007/978-3-030-69262-9_69

outcomes, despite the high level of funding for health care in Germany (OECD 2015). Various solutions have been proposed to overcome care fragmentation towards the development of more integrated care approaches and population-oriented care provision (SVR 2007, SVR 2009, SVR 2012). However, these have yet to be implemented at large scale, partly because of the continued complexity of a system that is characterised by incentives that reward acute care rather than health promotion and disease prevention, along with a lack of alignment of budgets, and payment systems across multiple SHI funds, hospitals and ambulatory care providers (Amelung 2011).

Reforms since 2000 have given purchasers and providers more options to develop contracts to overcome fragmentation and to improve the quality of care. These included the 2000 Health Care Reform Act, which introduced provisions for the delivery of more integrated care, the 2001 Risk Structure Compensation Reform Act, which introduced disease management programmes, the 2004 Social Health Insurance Modernisation Act, which introduced a legal framework for integrated care provision and strengthened primary care, and the 2008 Long-term Care Act, which introduced provisions that permit delegation of tasks that were traditionally performed by doctors to non-medically trained staff. More recently, the 2012 Health Care Reform Act and the 2015 Act to Strengthen Care Provision within SHI sought to strengthen primary care further, with the 2015 reform additionally establishing an innovation fund to support the scaling-up of innovative forms of care delivery. Of these, the 2000 and 2004 reforms can be seen to be pivotal to introducing integrated care approaches in Germany. Specifically, the 2004 reform required SHI funds to allocate 1% of their total income to selective contracts with GP-centred or integrated care networks, and to thus facilitate establishing such networks (Amelung et al. 2012).

Between 2004 and 2008, some 6,400 integrated care contracts were set up under this scheme, covering approximately 4 million insured, with a healthcare expenditure of 811 million Euros (Grothaus 2004). The participation in such schemes was voluntary for both patients and providers. The majority of contracts addressed specific target populations in the field of cardiology, neuro-surgery or emergency orthopaedic care, for example, introducing surgery in the ambulatory setting or other interventions that were previously performed as inpatient care. Only a small number of contracts sought to introduce more sector-wide approaches across the patients´ pathway and even amongst these, the majority only targeted parts of the pathway (e.g. integrating hospital and post-hospital rehabilitation services). Moreover, a large number of contracts were terminated when the start-up financing ran out after 2008. We here report on one model of integrated care, the “Healthy Kinzigtal (HK)”, in operation since 2005 can be seen to be the sole population-based integrated care contract in Germany that provides care across all sectors and disease areas and has been subject to rigorous external evaluation.

69.2 Case Study: Healthy Kinzigtal (HK)

The integrated care contract HK sought to systematically address fragmented service delivery, which was seen to place patients at particular risk of suboptimal outcomes, in particular those with chronic conditions and frail older people. There was a particular perception that care delivery was overly focused on (cost-intensive) services to treat disease and its sequelae, rather than incentivising more cost-effective approaches to prevent them.

The Healthy Kinzigtal model seeks to address these inefficiencies. It is based on the triple aim approach, which seeks to simultaneously pursue three aims: (1) improving the patient´s experience of care (including quality and satisfaction), (2) improving the health of the population and (3) reducing the per capita cost of health care (Berwick et al. 2008). The triple aim approach posits that the three dimensions are not independent of each other and need to be balanced in order to ensure sustainable achievements at the health system level. In line with the triple aim approach, the principal components are (a) the identification of a specific population that is covered by the integrated care system (b) minimising the risk of adverse selection (ideally by a total budget for the population served) and (c) the establishment of an "integrator" who has the know-how and competences to guide the development and implementation of health improvement programmes (McKarthy and Klein 2012). For HK, the triple aim approach was seen to provide a valid conceptual model to guide the design of the interventions targeted at patients, populations and providers, but also to provide a framework for the evaluation studies of the initiative.

69.2.1 Governance and Participation

The population-based integrated care health system is coordinated by Healthy Kinzigtal Ltd, a regional integrated care management company founded in 2005 by the then existing physician network "Medizinisches Qualitätsnetz Kinzigtal" (MQNK) and OptiMedis AG, a German healthcare management company. OptiMedis AG provides the management know-how, investment capacity, public health and health economics knowledge, and state-of-the-art data warehouse and health analytics. Healthy Kinzigtal Ltd is owned two-thirds by MQNK and one-third by OptiMedis AG. Cooperating organisations of Healthy Kinzigtal currently (2020) include 24 general practitioners, 41 specialists, 3 psychotherapists, 7 hospitals, 11 physiotherapists, 10 nursing homes, 5 home care services, 16 pharmacies, 38 sports clubs and associations and 8 gyms. Recently, eight small- and medium-sized companies have joined this network in order to offer classes in health promotion to their 3,500 employees and to reorganise their structure towards a healthy company approach.

69.2.2 The Business Model of Healthy Kinzigtal

The business model of HK has some distinctive characteristics: at its core is a value-oriented population-based shared savings contract (Hildebrandt et al. 2010). This model maintains existing reimbursement schemes and financial flows, but the integrator (Healthy Kinzigtal Ltd) assumes virtual responsibility for the development of the so-called contribution margin. The contribution margin is the difference between the amount the social health insurance company receives from the central health care fund for the expected (risk-adjusted) mean costs of care of all SHI insured and the costs that were actually incurred by their population, adjusted for baseline differences before the start of the intervention. A positive contribution margin is then shared between the insurance companies and the integrator. Another key characteristic of the model is that Healthy Kinzigtal Ltd is financially accountable for all people in the population served, not just for those that are registered members or receive care from physicians that form part of the network. HK thus serves a clearly defined population, works on a global budget and draws on the support of Healthy Kinzigtal Ltd, who—with the support of OptiMedis AG—acts as the regional integrator. The financial goal is thus to increase the insurer´s contribution margin which will provide the stimuli to integrate care delivery and engage all partners in working towards the triple aim (via "shared savings", see Fig. 69.1).

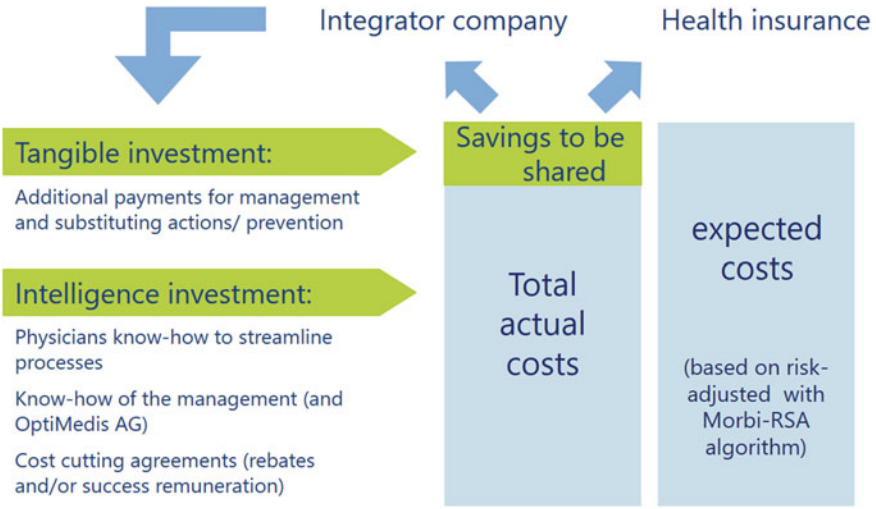

Fig. 69.1 Business model of Healthy Kinzigtal: the shared savings approach. Adapted from: Hildebrandt et al., Gesundes Kinzigtal Integrated Care 2010, p. 6

69.2.3 Coverage and Programmes

The valley of Kinzigtal has about 71,000 inhabitants; of these about 33,000 are members of the regional SHI (AOK-BW), a SHI fund that traditionally insured blue-collar workers and has a less favourable risk pool, while about 1,700 are members of the LKK-BW, a SHI fund for farmers, farm workers and their dependents, which has a similar risk pool as the AOK-BW. By 2015, of those insured by AOK-BW and LKK-BW nearly 10,500 were registered members of Healthy Kinzigtal.

In order to reach the triple aim, a set of activities and programmes were established, which all draw on a common set of underlying features: (a) individual treatment plans and goal-setting agreements between doctors and patients, (b) enhancing patients´ self-management and shared decision-making, (c) care planning based on the Chronic-Care Modell (Barr et al. 2003), patient coaching and follow-up care, (d) providing the right care at the right time and (e) overarching support through the introduction of a system-wide electronic patient record (18). A list of current prevention and health promotion programmes is shown in Box 1.

Box 1 Prevention and Health Promotion Programmes that have been developed so far:

- Strong heart (programme targeting heart failure)
- Healthy weight (for metabolic syndrome, including diabetes)
- Good prospects (care services for children)
- In balance (blood pressure)
- Strong muscles—solid bones (osteoporosis)
- Staying mobile (treating early stage rheumatism)
- Strong support—healthy back (chronic back pain)
- Better mood (depression)
- Good counselling (help, advice and support in critical times)
- Psycho acute (acute psychological issues)
- Disease management programmes
- Smoke-free Kinzigtal (including pre-surgery smoking cessation)
- Social support (to reduce stress where patients are in critical situations)
- Liberating sounds (in tune with music) and
- New: a self-management training programme (based on the Stanford Chronic Disease Self-Management Programme).

While the local planning and implementation of the disease prevention and health promotion programmes are conducted by Healthy Kinzigtal Ltd, OptiMedis AG provides the overarching management support, business intelligence

and health data analytics, whereby the data-driven health analytics both propel the planning of health programmes and guide local practice improvements via feedback reports to participating physicians.

An example of the latter is shown in Fig. 69.2, which illustrates a quarterly performance feedback report (dashboard) (Pimperl et al 2013) (Fig. 69.2). These reports are based on a balanced scorecard approach, which uses structure, process and outcome indicators and is designed to be interactive in that it allows users to select indicators to retrieve more detailed information. Some indicators are supported by targeted improvement activities. For example, the dashboard indicates problematic prescription behaviour (e.g. a high proportion of drug prescription according to the PRISCUS or FORTA D classification models for potentially hazardous prescriptions for older people) (Holt et al 2010, Kuhn-Thiel et al 2014). This indicator is supported by two monthly geronto-pharmaceutical consultation meetings for which physicians prepare a patient case report and which discusses potential problems jointly with a pharmacologist to optimise medication regimes. The infrastructure utilised to produce the dashboards has the capacity to integrate and transform multiple data sources (such as claim data, health records, patient survey), to analyse the potential effectiveness of a programme or identify high-risk patients, and provide automated benchmark reports to participating physicians. This business intelligence solution was awarded with the Best Practice Award Business Intelligence by the German Business Application Research Center (BARC). Since then, we have substantially improved our analytical capabilities and applied advanced methodological approaches to assess and improve programme impact and prescription algorithms (Schulte et al 2019).

69.2.4 A Cross-Cutting Theme: People Involvement / Service User Perspective

The patient-centred care approach is paramount to the success of HK and embedded at three levels: at the structural level, in the planning of interventions and in the interactions between physicians and patients. At the structural level, patients are represented in patient advisory boards, which elect their representatives on a biannual basis and are given the opportunity to contribute to identifying and developing new programmes. At the level of intervention planning, there is a strong focus on shared decision-making and self-management support, which is embedded in design and development. At the level of individual interactions of patients with health professionals, patients joining HK first undergo a comprehensive health check (including a self-assessment questionnaire) based on which they may be offered to participate in any of the health promotion and disease prevention programmes offered by HK. Patients are also given the opportunity to develop health-related goals (such as engaging in more exercise, quitting smoking, reducing alcohol consumption or losing weight), which are discussed with the doctor and

	Quality indicators and key figures	Your Practice	Ø-LP-GP's (n=17)	Ø-NLP-GP's (n=22)	Min/Max GP (n=39)
3. Outcomes: Which impacts have interventions on medical and financial outcomes and patient satisfaction?					
3.1 Economical outcomes	Allocation (Morbi-RSA) per patient	845,45 →	765,33	687,81	937,79
-	Total costs per patient	841,81	764,78	677,81	251,72
=	Contribution margin per patient	3,64	0,55	10,00	326,69
3.2 Health outcomes	Hospital cases per 1.000 patients (risk-adj.)	82,91	87,42	98,55	42,35
	Decedents % (risk-adj. mortality)	0,51%	0,57%	0,60%	0,00%
	Patients with osteoporosis & fracture %	3,64%	8,49%	12,98%	0,00%
3.3 Patient satisfaction	Impression of practice very good - exc. %	66,7%	61,0%	79,9%*	83,3%
Weisse Liste / GeKiM 2012/13	Med. treatment very good - exc. %	52,8%	53,0%	75,1%*	79,2%
*Ø-NLP here = Ø-Germany	Recommendation likely - certain %	85,2%	84,6%	88,1%*	95,6%
2. Process - Where do we have to be excellent?					
2.1 Diagnostic quality	Unspecified diagnoses %	20,4%	20,1%	24,1%	12,5%
	Suspected diagnoses %	1,6%	1,3%	1,6%	0,6%
2.2 Utilization	Patients >= 35 with health-check-up %	7,5%	7,8%	7,1%	17,1%
	Patients incapable of working %	39,0%	41,7%	43,8%	33,8%
	Length of incapacity for work	5,52	5,93	6,37	3,87
2.3 Improvement of Medication	Generic quota	93,0% →	88,6%	87,2%	93,0%
	Pat. with heart-fail. & guideline prescr. %	79,9%	75,4%	72,9%	100,0%
	Patients >= 65 with pot. inad. med. (PRISCUS)	14,3%	13,2%	12,5%	4,2%
	Patients >=65 with inad. prescr. (FORTA D) %	4,0%	4,8%	4,3%	0,6%
1. Structure - What ist the target population? Where can we improve structure elements to generate better outcomes?					
1.1 Patient stucture					
1.1.1 Age, gender, etc.	Ø-Number of patients	509,0	485,3	338,9	931,0
	Ø-Age	57,1	54,6	52,5	53,5
	Female %	56,8%	56,5%	55,8%	65,2%
	Patients capable of work %	55,2%	58,5%	60,5%	72,7%
	Patients dependent on care %	6,7%	7,7%	7,0%	13,0%
1.1.2 Morbidity	Ø-Charlson-comorbidity-score	1,85 →	1,26	1,14	1,99
	Regional GP-risk-score (Morbi-RSA)	1,16 →	1,05	0,94	1,29
1.1.3 Enrollment	IC-participants %	88,8%	61,1%	10,2%	88,8%
	DMP-participants %	67,4%	53,9%	32,0%	81,9%
1.2 Learning & innovation	Participation in quality circles (Ø = 1,0)	1,3	1,0	-	2,1

Fig. 69.2 Health services dashboard for a GP practice. Adapted from Pimperl et al., Case Study Gesundes Kinzigtal 2013, p. 27

then monitored over time, accompanied by individual support and participation in patient education and self-care programmes as needed. In order to support the patient-centred care approach, physicians, other health professionals and practice staff are offered training. Underlying all these efforts is an understanding of the patient as a co-producer of their health (Batalden et al 2015).

69.3 Impact

The HK has been subject to rigorous evaluation in order to assess its impacts focusing, in line with the triple aim approach, on improving patient experience, improving population health and reducing per capita costs of care. External evaluations are conducted by independent research institutions, which are coordinated by the "Evaluation-Coordination Function Integrated Care" at the University of Freiburg and include two main evaluation studies: first, a survey of a representative random sample of HK members assessing their perceived health and satisfaction, along with self-reported changes in health behaviours, health-related quality of life and levels of activation, conducted every second year (Siegel and Stößel 2013), and second, an analysis of over-, under- and misuse of health services using routine SHI claims data. This analysis is conducted as a controlled quasi-experimental study comparing the intervention population to a random sample of about 500,000 members of AOK-BW and LKK-BW not resident in the Kinzigtal region (Hildebrandt et al 2015). These evaluation studies are complemented by further research studies, including European Union-funded research projects. In addition, the AOK-BW and OptiMedis AG each conduct internal evaluations of the impact of the HK integrated care system. The financial results are assessed in relation to the development of the contribution margin described above. Key findings of the range of evaluation studies that have been carried out thus far are summarised in Table 69.1.

69.4 Dissemination and Replication

The Health Kinzigtal integrated care contract was initially negotiated for a period of 10 years (2005 to 2015). Renewed in 2016, it now runs, based on the positive evaluations, as an unrestricted contract, thus providing a stable context to pursue long-term health interventions in the region. In addition, an expansion of the model to various other regions in Baden-Württemberg and other parts of Germany is being discussed. Key questions that remain to be answered include the extent to which the positive results of the HK can be attributed to the specifics of the HK region or their population, and how can similar results be achieved elsewhere (Kringos et al 2015a, b)? While all regions will have their idiosyncratic features and particularities, we argue that the general model, interventions and evaluation frameworks are widely applicable. For example, all key aspects of the model are deeply rooted in the scientific literature and in models that have shown to be effective elsewhere, such as the triple aim approach (Whittington et al 2015), the chronic care model (Barr et al 2003), audit and feedback strategies (Ivers et al 2012), the focus on patient activation (Hibbard 2015) or pharmacological consultations to improve the safety of drug prescriptions (Phatak et al 2015). The results of HK are based on and consistent with the scientific literature.

Table 69.1 Selected evaluation findings of impacts of the Health Kinzigtal integrated care system

Triple aim	Method	Result
Improving the patients´ experience of care	• Random, postal survey amongst the insured • Questionnaire with items regarding perceived health, patient satisfaction, changes in health behaviour, health-related quality of life and levels of activation • Participants: 3038 GK members, response rate 23.6% • First assessment in 2012, since then biannual trend study	• Very high levels of overall satisfaction: 92.1% state they would recommend joining Healthy Kinzigtal • Health-related goal setting: 25.1% of risk patients voluntarily agree a goal with their physician in a consultation (which will be tracked in subsequent consultations with the patient) • Positive change in health behaviour: 19.7% state that, overall, they live a healthier life than before joining Healthy Kinzigtal (with 0.4% stating the contrary and 79.9% stating no change) • Amongst insured with an agreed health-related goal 45.4% state they live a healthier life (compared to 0.6% stating the contrary and 54% stating no change, $p > 0.001$) /entry>
Improving the health of the population	• Analysis of routinely available claim data • Controlled quasi-experimental study comparing the intervention population to a random sample of ca 500,000 members of the same SHI, but that are not from the Kinzigtal region • 6 indicators of overuse and 10 indicators of underuse of health services	• Overuse of health services: • Five out of the six indicators demonstrate an improvement compared to control group (prescription of anxiolytics, antibiotics for higher respiratory tract infections, non-steroidal anti-rheumatics, non-recommended prescription for vascular dementia, non-recommended prescription for Alzheimer dementia), one no difference (% avoidable hospitalisation) • Underuse of health services: • 4 indicators demonstrated an improvement compared to the control group (patients with chronic coronary heart disease (CHD) on antiplatelet drugs, CHD patients on statins, acute myocardial infarct (AMI) patients on statins, heart insufficiency patients with cardiology contact), 4 indicators suggest no difference (CHD patients on beta blockers, heart insufficiency patients with indicated medication, diabetes patients with

(continued)

Table 69.1 (continued)

Triple aim	Method	Result
		ophthalmologist contact, diabetes patients with CHD and statins), and 2 indicators suggest a deterioration (AMI patients on beta blockers, osteoporosis patients with indicated therapy)
Reducing the per capita cost of health care	• Calculation of the contribution margin: the differences between the risk-adjusted expected costs for the insured, compared to the actual incurred costs (high-cost cases are winsorised) • Note: the calculation is based on all inhabitants of the region (based on the postcode of residence), and not restricted to GK members from that region	• Positive development of the contribution margin • i.e. the costs for the AOK + LKK insured in the GK postcodes lie 5.613 million € under the morbidity-adjusted expected costs of 75.353 million € • i.e. for every AOK/LKK insured person living in the region, the costs are on average 150€ lower than expected • The incurred costs amongst AOK-BW and LKK-BW insured in Kinzigtal consistently lay below the risk-adjusted expected costs. This difference is expected to further increase in the coming years as some of the health programmes will only start paying off years after the initial intervention

In order to successfully transfer and scale up this model elsewhere, a number of experiences should be taken into consideration. Their relevance may differ depending on the health system context and the organisational model applied, but in HK the following issues proved relevant

- First, a key component of the triple aim model is the role of the "integrator". In our experience, this should be a regionally based organisation, partly owned by local providers, which is familiar with local (health) services issues, plans and delivers local intervention and maintains the communications with all stakeholders. The "integrator" needs to be supported by an organisation capable of providing investments, engaging in negotiations with high-level decision-makers, and of providing advanced health data analytics while at the same time (supported by shareholders) pursuing long-reaching value development instead of short-term profits.
- Second, during the first years, considerable start-up investment is needed to set up the organisational structures, integrate stakeholders and design interventions, which in turn means that appropriate funding has to be ensured for at least three years until income can generate a return-on-investment. This is because of two

types of delay: (a) the time lag between intervention onset and successful health improvements (at least one year) plus (b) the time lag in obtaining the data reflecting such improvements (which often amounts to another year).

- Third, a vision to go beyond traditional institutional boundaries in the planning of health interventions is needed, in particular in the form of interventions that place a focus on improving population health. This competence may not be readily available a priori in existing structures.
- Fourth, the size of the population needs to be appropriate to ensure networking amongst providers, the identification of local solutions and the exchange of ideas amongst all stakeholders. Population sizes smaller than 100,000 appear ideal (assuming the number of stakeholders that can be managed should not exceed 100). While it may be tempting to establish much larger regions, it is unlikely that the local "kit" (a common culture, mental models, mutual understanding of local issues and trust) needed to motivate stakeholders towards a common goal can be easily established.
- Fifth, a comprehensive information technology package (including shared patient records) and competencies for advanced health data analytics to inform intervention planning, feedback reports to providers and internal evaluation are crucial in order to ensure seamless care and monitor performance.
- Sixth, an approach focusing on "coopetition" (a portmanteau of cooperation and competition) through transparency and benchmarking and based on management theory is needed to support the continuous strive towards improvement and to facilitate effective knowledge sharing in cross-functional teams (Ghobadi 2012).
- Seventh, a balanced payment system oriented towards achieving the triple aim which is incorporated in the shared savings approach is needed. This level of accountability which allows providers to make decisions on how cost savings are (re-)invested is an important governing factor supporting regional autonomy. In HK, the majority of these savings are used to reinvest in the population health management strategy, for example, by constructing a new comprehensive health centre (partly supported by the cost savings), by distributing tokens to citizens that can be used to support local entities (such as schools, sports club or church entities) or by providing some additional financial incentives for good performance.
- Eight, in order to have long-term success, both an innovative culture and friendly interactions are essential to harness value from the relationships with all stakeholders.
- And finally, a long-term (10 year) contract with the purchasers is required to provide stability for the planning of health interventions.

Bearing in mind the scientific evidence base underlying the HK experience and considering the nine implementation prerequisites above, we argue that the results from the HK can be successfully transferred and achieved elsewhere, including in regions that are different in population structure and health service organisation. The existence of a stable physician network previous to the set-up of Healthy Kinzigtal Ltd was certainly a factor that facilitated the implementation. Likewise,

purchasers willing to share long-term savings and a robust method to monitor costs and quality over time are a qualifying condition. However, of greater importance is that the conditions reflected in the nine prerequisites can (to some extent) be created by the integrator.

Programme expansions are currently being discussed with various regions in Germany (and abroad), taking into consideration the lessons learned in HK. For example, from January 2017 to December 2019 we implemented in collaboration with a physician network a population-based integrated care contract in the borough of Billstedt-Horn of the city of Hamburg (Heinrich et al. 2018). Motivation of the project was on the one hand a high level of deprivation and on the other hand a low density of physician coverage, leading to worse health outcomes and excess healthcare costs. The project was funded by the German Innovation Fund for a three-year period, established the first German healthcare kiosk (a low threshold access point for health education and social/medical referral) and implemented many of the pillars of population health management as described for HK. Since 2020, the project has received financial support from four of the major statutory health insurance companies to extend the work into the future. In 2019, we initiated a third regional integrated care project in the state of Hesse in the west of Germany ("Gesunder Werra-Meissner Kreis"). Here, we extended on the health kiosk function but expanded its scope by training healthcare navigators which can provide health assessments, motivational counselling and referral to appropriate medical and non-medical services. A key aspect of the integrator care project is also to improve health literacy in the general population and to use the power of digital transformation to provide access to health information, health coaching and patient empowerment (Hildebrandt et al 2020).

For the next stage of expansion, we are building on the EU-funded Joint Action on Digitally Enabled, Person-Centred Integrated Care, which is planned to start on 1 October 2020. The Joint Action builds on best European best practice models of integrated care, including the OptiMedis model on population-based integrated care, and aims to transfer the learnings to many other European Member States.

We anticipate a much faster learning curve in additional new regions, bearing in mind that various prerequisites and interventions are ready to scale up, such as quality indicators, evaluation protocols, programme outlines, incentive systems, management guidelines, data warehouse and reporting systems. Ideally, if multiple regions could be set up and implemented simultaneously, that would generate a unique source of data for advanced health analytics to further evaluate the impact of integrated, population health management systems, and moreover, to allow a systematic process evaluation of how the model could be further scaled up nationally and abroad (Ovretveit and Klazinga 2012).

References

Advisory Council on the Assessment of Developments in the Healthcare System. Competition at the interfaces between inpatient and outpatient healthcare. (2012). https://www.svr-gesundheit.de/fileadmin/user_upload/Gutachten/2012/Kurzfassung-eng_formatiert.pdf. Accessed 7 July 2016.

Advisory Council on the Assessment of Developments in the Healthcare System. Coordination and Integration—Health Care in an Ageing Society. (2009). https://www.svr-gesundheit.de/fileadmin/user_upload/Gutachten/2009/KF_engl_final.pdf. Accessed 7 July 2016.

Advisory Council on the Assessment of Developments in the Healthcare System. Cooperation and Responsibility Prerequisites for Target-Oriented Health Care. (2007). https://www.svr-gesundheit.de/fileadmin/user_upload/Gutachten/2007/KF2007-engl.pdf. Accessed 7 July 2016.

Amelung, V. (2011). Neue Versorgungsformen auf dem Prüfstand. In: Innovatives Versorgungsmanagement. Berlin: Medizinische Wissenschaftliche Verlagsgesellschaft.

Amelung, V., Wolf, S., Hildebrandt, H. (2012). Integrated care in Germany—a stony but necessary road! In: International Journal of Integrated Care. (2012). https://www.ijic.org/index.php/ijic/article/view/URN%3ANBN%3ANL%3AUI%3A10-1-112901. Accessed 7 July 2016.

Barr, V.J., Robinson, S., Marin-Link, B., Underhill, L., Dotts, A., Ravensdale, D., Salivaras, S. (2003). The Expanded Chronic Care Model: An Integration of Concepts and Strategies from Population Health Promotion and the Chronic Care Model. In: Hospital Quarterly. https://www.area-c54.it/public/the%20expanded%20chronic%20care%20model.pdf. Accessed 7 July 2016.

Batalden, M., Batalden, P., Margolis, P., Seid, M., Armstrong, G., Opipari-Arrigan, L., & Hartung, H. (2015). Coproduction of healthcare service. *BMJ Qual Saf*. https://doi.org/10.1136/bmjqs-2015-004315.

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs, 27,* 759–769. https://doi.org/10.1377/hlthaff.27.3.759.

Busse, R., Geisler, A., Quentin, W., Wiley, M. (2011). Diagnosis-Related Groups in Europe. Moving towards transparency, efficiency and quality in hospitals. WHO European Observatory on Health Care Systems. https://www.euro.who.int/__data/assets/pdf_file/0004/162265/e96538.pdf. Accessed 7 July 2016.

Busse, R. (2014). Integrated Care Experiences and outcomes in Germany, The Netherlands, and England. Health Affairs 2014; Suppl 33(9): 1549–1558.

Der Gesundheitsfonds: Risikostrukturausgleich. (2008). https://www.der-gesundheitsfonds.de/die-reform-details/der-gesundheitsfonds/risikostrukturausgleich.html. Accessed 7 July 2016.

Heinrich, D., Hildebrandt, H., Lorenz, I., Fass, G., Fischer, A. (2018): Gesundheitskiosk als Kooperationsschnittstelle medizinischer und sozialer Versorgung. In: Fehr, R., Trojan, A. (Hrsg.): Nachhaltige StadtGesundheit Hamburg - Bestandsaufnahme und Perspektiven. Edition Nachhaltige Gesundheit in Stadt und Region (Band 2). Oekom Verlag München, Oktober 2018, 504–510 Link Hildebrandt H, Hermann C, Knittel R, Richter-Reichhelm M, Siegel A, Witzenrath W. Gesundes Kinzigtal Integrated Care: Improving Population Health by a Shared Health Gain Approach and a Shared Savings Contract. International Journal of Integrated Care 2010; Suppl 10:1–14.

Hibbard, J. H., Greene, J., Shi, Y., Mittler, J., & Scanlon, D. (2015). Taking the long view: How well do patient activation scores predict outcomes four years later? *Medical Care Research and Review, 72*(3), 324–337. https://doi.org/10.1177/1077558715573871.

Hildebrandt, H., Pimperl, A., Schulte, T., Hermann, C., Riedel, H., Schubert, I., et al. (2015). Triple-Aim-Evaluation in der Integrierten Versorgung Gesundes Kinzigtal – Gesundheitszustand. *Versorgungserleben Und Wirtschaftlichkeit. Bundesgesundheitsblatt., 58,* 383–392.

Hildebrandt, H., Rautenberg, J., Renner, S. (2020). Patienten als Co-Produzenten von Gesundheit und ihre mögliche Unterstützung in einem optimierten System von Integrierter Versorgung. In: Bahrs, O. (Hrsg.): Der Mensch—Zeitschrift für Salutogenese und anthropologische Medizin. Heft 59, Verlag Gesunde Entwicklung, Bad Gandersheim. Feb 2020. Link.

Ghobadi, S. (2012). Knowledge sharing in cross-functional teams: A competitive model. *Journal of Knowledge Management, 16*(2), 285–301.

Grothaus, F.J. (2004). Entwicklung der integrierten Versorgung in der Bundesrepublik Deutschland 2004–2008. Bericht gemäß § 140d SGB V auf der Grundlage der Meldungen von Verträgen zur integrierten Versorgung. https://www.bqs-register140d.de/dokumente/bericht-140d.pdf. Accessed 7 July 2016.

Holt, S., Schmiedl, S., & Thürmann, P. A. (2010). Potentially inappropriate medication in the elderly—PRISCUS list. *Deutsches Ärzteblatt International, 107,* 543–551.

Ivers, N., Jamtvedt, G., Flottorp, S., Young, J.M., Odgaard-Jensen, J., French, S.D., et al. (2012). Audit and feedback: effects on professional practice and healthcare outcomes. Cochrane Database Syst Rev. 2012;6:CD000259.

Kringos, D.S., Boerma, W.G.W., Hutchinson, A., Saltman, R.D. (2015a). Building primary care in a changing Europe. WHO European Observatory on Health Care Systems. https://www.euro.who.int/__data/assets/pdf_file/0018/271170/BuildingPrimaryCareChangingEurope.pdf. Accessed 7 July 2016.

Kringos, D.S., Sunol, R., Wagner, C., Mannion, R., Michel, P., Klazinga, N.S., Groene, O. (2015b). DUQuE Consortium. The influence of context on the effectiveness of hospital quality improvement strategies: a review of systematic reviews. *BMC Health Serv Res 15,* 277. https://doi.org/10.1186/s12913-015-0906-0.

Kuhn-Thiel, A. M., Weiß, C., & Wehling, M. (2014). Consensus Validation of the FORTA (Fit fOR The Aged) List: A Clinical Tool for Increasing the Appropriateness of Pharmacotherapy in the Elderly. *Drugs and Aging, 31,* 131. https://doi.org/10.1007/s40266-013-0146-0.

McCarthy, D., Klein, S. (2012). The Triple Aim Journey: Improving Population Health and Patients' Experience of Care, While Reducing Costs. https://www.commonwealthfund.org/~/media/files/publications/case-study/2010/jul/triple-aim-v2/1421_mccarthy_triple_aim_journey_overview.pdf. Accessed 7 July 2016.

Organization for Economic Cooperation and Development. Health at a Glance 2015: OECD Indicators. (2015). https://www.oecd.org/berlin/publikationen/health-at-a-glance-2015.htm. Accessed 7 July 2016.

Ovretveit, J., & Klazinga, N. (2012). Learning from large-scale quality improvement through comparisons. *International Journal for Quality in Health Care, 24*(5), 463–469. https://doi.org/10.1093/intqhc/mzs046.

Phatak, A., Prusi, R., Ward, B., Hansen, L. O., Williams, M. V., Vetter, E., et al. (2015). Impact of pharmacist involvement in the transitional care of high-risk patients through medication reconciliation, medication education, and postdischarge call-backs (IPITCH Study). *Journal of Hospital Medicine*. https://doi.org/10.1002/jhm.2493.

Pimperl, A., Schulte, T., Daxer, C., Roth, M., & Hildebrandt, H. (2013). Balanced Scorecard-Ansatz: Case Study Gesundes Kinzigtal. *Monitor Versorgungsforschung., 6,* 26–30.

Riesberg, A., Wörz, M. (2008). Quality in and Equality of Access to Healthcare Services—Country Report for Germany. European Community Programme for Employment and Social Solidarity (2007–2013), Directorate-General for Employment, Social Affairs and Equal Opportunities of the European Commission. https://www.ec.europa.eu/social/BlobServlet?docId=5085&langId=en.

Schulte, A. Rabenberg, Hildebrandt, H., Bohnet-Joschko, S., Wehling, M. (2019). FORTA: Ein Algorithmus zur Bewertung und Optimierung der Arzneimitteltherapie älterer Patienten, Monitor Versorgungsforschung, Nr. 05/2019, Okt. 2019. Link

Siegel, A., & Stößel, U. (2013). Evaluation der Integrierten Versorgung Gesundes Kinzigtal: Bisherige Ergebnisse. *Public Health Forum., 21,* 13–15.

Whittington, J. W., Nolan, K., Lewis, N., & Torres, T. (2015). Pursuing the triple aim: The first 7 years. *Milbank Quarterly, 93*(2), 263–300. https://doi.org/10.1111/1468-0009.12122.31.