

Work Package 2 Report

Germany



Work Package 2: Thick descriptions of

- Casaplus
- Gesundes Kinzigtal

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Abbreviations

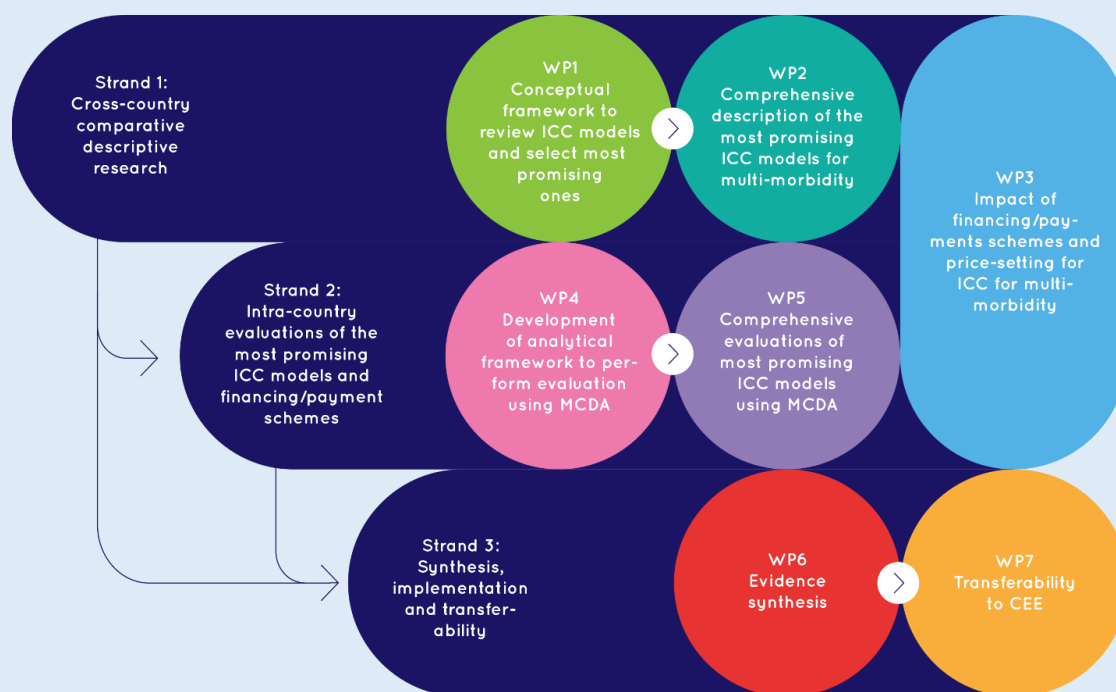
MeCo	MedicalContact AG
eGK	e-health insurance card
PHI	Private health insurance
SHI	Social health insurance
DALY	Disability-adjusted Life Years
IGES	Institut für Gesundheits- und Sozialforschung
DRK	Deutsches Rotes Kreuz
Deutsche DBfK	Deutscher Berufsverband für Pflegeberufe
OTC	Over the counter drugs
CPD	Continuing professional development
ICT	Information and communication technology
EZGB	Evangelisches Geriatriezentrum Berlin
DGCC	German Association for case management
LOH	Likelihood of hospitalization
BKK	Betriebskrankenkasse
DAK	Deutsche Angestellten Krankenkasse
TK	Techniker Krankenkasse
AOK	Allgemeine Ortskrankenkasse
GK	Gesundes Kinzigtal
AG	Aktiengesellschaft
MDM	Minimally Disruptive Medicine
GP	General Practitioner
EKIV	Evaluations-Koordinierungsstelle Integrierte Versorgung
EHR	Electronic health record
MQNK	Medizinisches Qualitätsnetz - Ärzteinitiative Kinzigtal e.V.
KV	Kassenärztliche Vereinigung
DSZ	Datenschutz Zertifizierungsgesellschaft mbH

The SELFIE project

SELFIE (Sustainable intEgrated chronic care modeLs for multi-morbidity: delivery, Financing, and performancE) is a Horizon2020 funded EU project that aims to contribute to the improvement of person-centred care for persons with multi-morbidity by proposing evidence-based, economically sustainable, integrated care programmes that stimulate cooperation across health and social care and are supported by appropriate financing and payment schemes. More specifically, SELFIE aims to:

- Develop a taxonomy of promising integrated care programmes for persons with multi-morbidity;
- Provide evidence-based advice on matching financing/payment schemes with adequate incentives to implement integrated care;
- Provide empirical evidence of the impact of promising integrated care on a wide range of outcomes using Multi-Criteria Decision Analysis;
- Develop implementation and change strategies tailored to different care settings and contexts in Europe, especially Central and Eastern Europe.

SELFIE strands of research and work package (WP) overview



The SELFIE consortium includes eight countries: the Netherlands (coordinator), Austria, Croatia, Germany, Hungary, Norway, Spain, and the UK.

Executive Summary

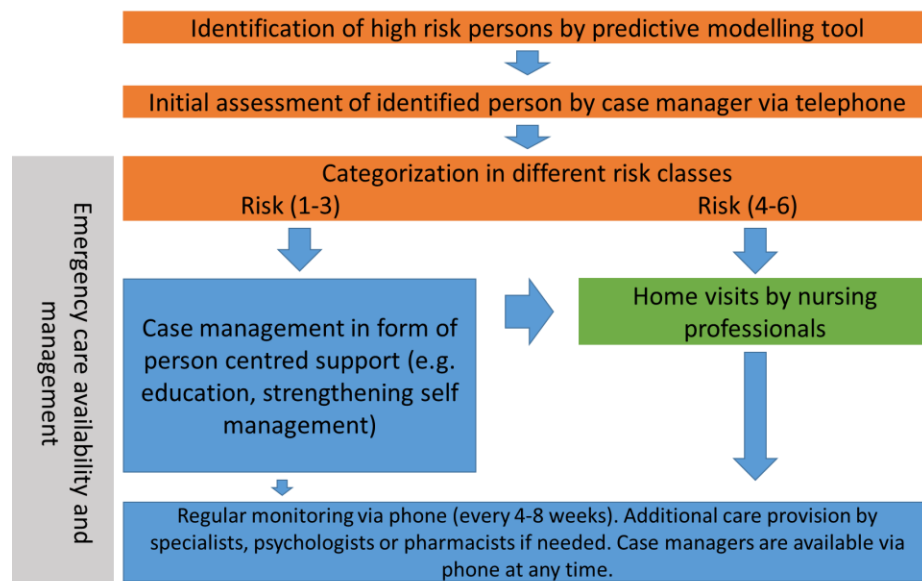
Casaplus

In order to improve and reorganise healthcare services for elderly people with multiple chronic diseases, the Casaplus case management programme was founded in April 2007. It addresses people over the age of 55 years with multiple chronic conditions and a high risk of hospital admission(s) within the next 12 months. The overall aim of the programme is to provide comprehensive, easy accessible and high-quality case management.

Service delivery

Service delivery within the Casaplus programme involves identification of high risk persons, an initial assessment, categorisation into risk classes and subsequent case management tailored to the individual person. The figure below provides further details on the process of service delivery.

Process of service delivery in the Casaplus programme



Leadership & governance

Contracted primarily by company-related health funds, Medical Contact AG (MeCo) set up the Casaplus programme, which covers multi-morbid persons throughout Germany. In 2016, 17

active service contracts between MeCo and the statutory (mostly company-related) and private sickness funds across Germany were in place. Further cooperation agreements are in place between MeCo and 177 local outpatient nursing services to conduct home visits.

Workforce

Trained case managers inform, advise, support and monitor the well-being of the elderly, multi-morbid persons enrolled in the programme. A nursing background and several years of work experience are prerequisites for becoming a case manager in the Casaplus programme. The case managers are the main care providers, work according to current clinical practice guidelines, adapt immediately to the needs of the respective multi-morbid patient and share decision making. As part of the Casaplus care team, nursing professionals visit enrolled patients at home to assess the possible risk of falling, social risks and the risk of malnutrition. Informal carers are included in the care trajectory from the beginning, if applicable and required. Other professionals are also consulted if necessary: GPs, specialists, psychologists, pharmacists and care managers at the participating sickness funds. MeCo funds continuous training for case managers and nursing professionals.

Technologies & medical products

The Casaplus programme has developed an online platform to support regular communication between Casaplus case managers and nursing professionals. Access is restricted to the aforementioned professionals. Case managers use a documentation template as a tool to structure the information gathered during the initial assessment and during the regular telephone counselling. A personal electronic health record (EHR) is thus created for every patient enrolled in the Casaplus programme. The EHR data is used by case managers for care coordination, but not shared. Tools targeted at patients, for instance remote monitoring or access to their personal health record, are not used in the Casaplus programme.

Information & research

External and internal scientific evaluation has been an essential part of the programme since its inception. The focus of the evaluation is on the triple aim. The evaluation is conducted by MeCo using a pre-post evaluation with propensity score matched pairs of competency goals (health

status, impairment, doctor-patient relationship, sustainability of behaviour change), care goals (quality of life, care status, utilization of outpatient care, utilization of supplementary services) and economic goals (costs for the utilization of inpatient care, pharmaceutical cost). The evaluation results of the 2014 client survey are positive: for instance, 97% of the participants are satisfied with the Casaplus programme, and 94% reported that the case manager provides useful advice. The programme results in annual savings per person compared to matched control.

Financing

It is important to note that the usual reimbursement schemes between statutory health insurers and MeCo are not replaced within the Casaplus programme. The contract agreement stipulates a profit-sharing of the yearly average hospital cost savings between MeCo and the sickness funds. Initially, MeCo and the participating sickness funds implemented a pay-for-performance model, but this did not yield the anticipated results. A constant capped payment amount per insured is used.

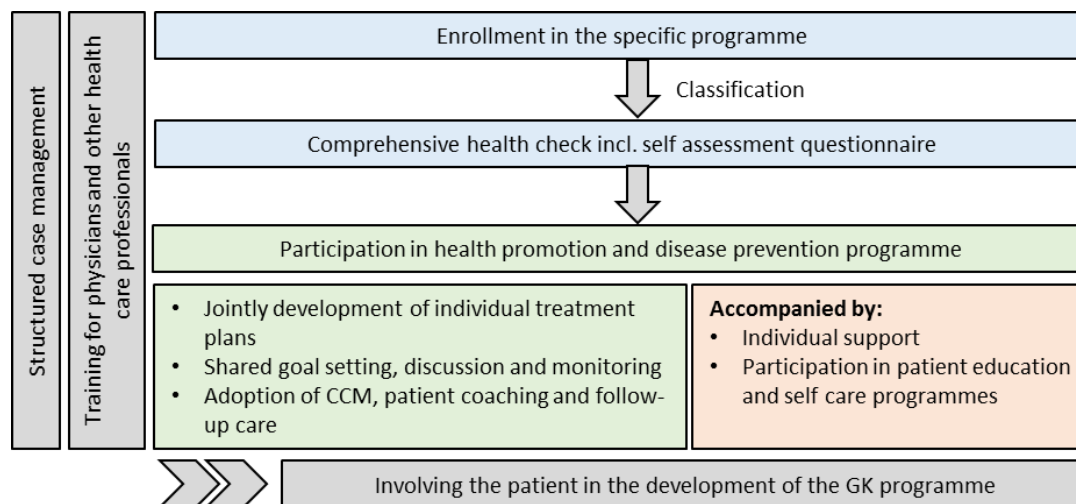
Gesundes Kinzigtal

The Gesundes Kinzigtal (GK) model was founded in 2005 and is situated in the State of Baden-Württemberg, in the rural area of Southwest Germany. The GK model pursues a population-based approach that organizes care across all health service sectors and indications. The GK model is designed around the “triple aim” approach: improving the health of the population in the Kinzigtal region, improving the individual patient’s experience of care and, at the same time, reducing the per capita costs of care. The overall aim is to foster patient self-management and enhance shared decision-making through individual care plans and shared goal agreements between the physicians and the patients.

Service delivery

After a patient has enrolled in the GK programme, a comprehensive health check is conducted. Based on this assessment, an individual care plan is developed in conjunction with the patient. Further details on the process of service delivery and accompanying measures can be found in the figure below.

Process of service delivery in the Gesundes Kinzigtal programme



Leadership & governance

Governance in the GK case is composed of the local physician network (MQNK), which owns 66.3% of GK GmbH, and OptiMedis AG, an independent health management organisation, which owns the remaining 33.7% of GK GmbH. Since the GK model prioritises strong stakeholder consensus building, the management organisation acts as a regional integrator and is responsible for the coordination of all providers in the network. Collaboration agreements are in place with sickness funds, GPs, nursing homes, community groups, 'World of Health', physiotherapists, hospitals and pharmacies. In addition to the usual healthcare providers, cooperations are also in place with 38 community groups, e.g. gyms or associations for persons with disabilities. Networking among participating providers and healthcare facilities is a priority in the GK programme.

Workforce

The GP is the main care provider, and patients are registered with a physician of their choice. This physician is named the 'doctor of trust' and acts as a healthcare coach. The patient and the physician jointly develop a treatment plan and set treatment goals, which are revised regularly. The introduction of a new professional role is currently in development. This new professional ("coordinator") will coordinate the care process and support the work of the GPs, with whom

they will collaborate closely. Professionals in the GK programme receive continuous professional training, mainly at the 'Healthy Kinzigtal Academy' training and education institute.

Technologies & medical products

All participating physicians and other healthcare providers like outpatient nursing care services and hospitals have access to the electronic health record (EHR) and the cockpit reports. The EHR comprises a standardized form of documentation, medical regime, information about allergies and intolerances, diagnosis and findings. The system-wide EHR enables information exchange, transparency and an improvement in the quality of care. Moreover, physicians use the cockpit reports, which contain, for instance, information on cost and performance, as digital benchmark information to compare the prescribing behaviour of the participating GPs. The use of benchmark information on drug prescriptions by means of the electronic patient files is innovative for Germany.

Information & research

Since the start of the contract (November 2005), comprehensive, scientific internal and external evaluations have formed an essential part of the GK model. The biannual written patient survey reveals that both the efficiency of services as well as people's experience with care provision have improved in the GK. So far, external and internal evaluations have shown that the interventions of the GK have resulted in better health outcomes compared to usual care: a reduction in hospital admissions of 20%, reduction in morbidity costs of 20% and a 10% lower mortality rate compared with other regions of Baden-Württemberg not enrolled in the GK model. Since the implementation of the GK model, the founders have proven the economic sustainability of the shared health gain approach and the corresponding shared savings contract. Overall costs have developed favourably compared to expected costs, with annual savings amounting to €5.5 million in 2013.

Financing

Without replacing the previous reimbursement schemes and financial flows between health insurers and individual healthcare providers, Gesundes Kinzigtal GmbH is now accountable for the whole (i.e. trans-sector) healthcare service budget for all people insured by AOK BW and

LKK BW and living in the Kinzigtal region. Savings have to be realized in the Kinzigtal region compared to German standardized costs and to a reference period prior to the intervention. If savings occur, they are shared between the fund and OptiMedis AG. OptiMedis AG then shares its part of the savings among the physician network. The other service providers are not part of the shared savings. Providers (physicians, physiotherapists, nursing homes) receive an additional annual payment for the time they invest in the programme and the additional time they spend on patient care and follow up.

1. Methodological approach

This report is part of WP2 of the project SELFIE. The WP leader is the *Institute for Advanced Studies* (IHS) in Vienna, the WP co-leader is the *August Pi i Sunyer Biomedical Research Institute* (IDIBAPS) in Barcelona. The stated objective of WP2 is to comprehensively describe the 17 integrated chronic care (ICC) programmes selected in the course of WP1, covering the following features:

- **Barriers to and facilitators of implementation:** how were the most promising ICC models implemented and what were the barriers and facilitators during the implementation phase?
- **Patient centeredness:** how is the delivery of care designed around the patient?
- **Use of modern ICT:** which ICT (information and communications technology) applications are used in the most promising ICC models to support the care process and what are the requirements for implementing them successfully in the treatment of patients with multi-morbidity?
- **Use of self-management interventions:** which self-management interventions are used in the ICC models and how are they adapted to patients from different cultural and socio-demographic groups as well as to distinguish the conditions for their successful implementation?
- **Involvement of new professional roles:** are there new professional roles (e.g. physician assistants, nurse practitioners) involved in the ICC models and what are the barriers and facilitators in their successful introduction?
- **Existing evidence:** what is the existing evidence of the impact of the most promising ICC models?

The methodological approach chosen to achieve this objective is that of a “thick description”. For each of the eight countries participating in SELFIE, this report contains at least two¹ thick descriptions of the programmes selected in the respective country, resulting in a total of 17 thick descriptions.

The method of thick description is a well-established qualitative empirical approach. The basic idea was first introduced by the philosopher Gilbert Ryle (1). In the 1970s, it was established as a qualitative method to investigate implicit social practices in their specific contexts by the anthropologist Clifford Geertz (2). Geertz himself does not provide an explicit definition of this scientific approach. Studying thick descriptions by Geertz himself as well as other scholars, however, makes it possible to deduce the main aspects of the method. In the following quote, Geertz outlines the aims of the method:

¹ Three in the case of the Netherlands.

“Setting down the meaning particular social actions have for the actors whose actions they are, and stating, as explicitly as we can manage, what the knowledge thus attained demonstrates about the society in which it is found and, beyond that, about social life as such. Our double task is to uncover the conceptual structures that inform our subjects’ acts, the ‘said’ of social discourse, and to construct a system of analysis in whose terms what is generic to those structures, what belongs to them because they are what they are, will stand out against the other determinants of human behavior. [...] provide a vocabulary in which what symbolic action has to say about [...] the role of culture in human life can be expressed.” (2)

In recent decades, Geertz’ methodological and conceptual work has influenced empirical research in several disciplines (3). In sociology, it is widely used in a variety of research fields, including research of care practices (4).

As shown in Figure 1, a thick description covers several levels of depth of analysis. The starting point is a formal description, which provides information on the surface of the studied phenomenon.

Figure 1: Levels of the programme description



Source: IHS (2015)

In the specific context of the SELFIE project, this formal description pertains to the general organisational structure of the programme and formal relations of the involved stakeholders. The formal description is valuable in itself, because it gives an overview of the domains and levels of integration, the

individuals and organisations involved, the tools used and the processes employed. In particular, the formal description includes the following information:

- Name of the programme
- Contact details of the programme management
- Starting date of the programme
- Geographical scope of the programme
- Target group of the programme (type of individuals/scope/included combinations of morbidities)
- Number of persons treated in the programme (total and development over time)
- Aim of the programme
- Definition/understanding of “integrated care” (as far as described in documents)
- Definition/understanding of “multi-morbidity” (as far as described in documents)
- Definition/understanding of “person centredness” (as far as described in documents)
- Definition/understanding of “self-management” (as far as described in documents)
- Organisational form and ownership of the programme (including legal form)
- Involved partner organisations (payer(s), medical and social service providers), including subdivisions (e.g. departments of a hospital)
- Involved disciplines and professions

The formal description is mainly based on available literature, a variety of documents (e.g. official documents of the programme, grey literature) and expert information. A document analysis was performed on these materials, which comprise the first source of information and the basis for obtaining “hard facts” on the respective programme.

However, written documents are in general not suitable to give a deeper understanding of what actually constitutes the programme below its surface when put into practice. These substructures are, however, essential for the functioning of the programme. In addition to the formal description, the method of thick description therefore aims to gain insights on what lies beneath the surface of the studied phenomenon (see Figure 1).

For the purpose of gathering the necessary information, interviews were conducted with different stakeholders involved in the programme. These served as the second source of information. While the interviews were also used to complement the “hard facts” gathered in the course of the document

analysis, their main aim was to obtain “soft facts” about the substructure of the programmes. Therefore, questions of “how” and “why” were at the centre of the interviews and the subsequent analysis of their contents. This comprehensive approach allows for a deeper understanding of what daily practice in the programme looks like and in which way multi-morbidity is addressed in the specific context of the programme.

A set of stakeholder types to be interviewed was defined in advance. This set consisted of the following stakeholder types:

- A. **Manager(s) of the programme**
- B. **Initiator(s) of the programme:** individuals or representatives of institutions that participated in initiating, conceptualising and planning the programme (e.g. representatives of sickness funds, physicians, etc...)
- C. **Representative(s) of sponsor/payer organisations:** individuals or representatives of institutions that fund the programme on a project basis or on a regular basis (e.g. representatives of sickness funds, representatives of municipalities, representatives of associations, etc...)
- D. **Medical and social staff**
 - D1: physician(s)
 - D2: non-physician medical staff (e.g. nurses), social staff, new professional groups (if applicable)
- E. **Informal caregivers** (e.g. relatives, neighbours, volunteers)
- F. **Clients or their representatives** (e.g. clients or persons in their close environment, representatives of self-help groups)
- G. **Other stakeholder(s):** individuals or representatives of institutions, who turn out to be of specific relevance for the respective programme and do not fit in the categories A.-F.

For each stakeholder type, the WP leader set a minimum number of persons to be interviewed. However, considering that the 17 selected programmes involve very different kinds of stakeholders, a specific sample of interviewees was developed for each individual programme. The partners discussed these samples with the WP leader, in order to ensure a balanced sample structure in each programme.

For each of these stakeholder types, thematic focus areas were defined. Based on these focus areas, a set of interview protocols was prepared by the WP leader. The protocols accounted for the different backgrounds and relevant themes of the individual stakeholder types. This served the purpose of gaining insights into the programme from various perspectives. The included questions concerned, for example,

the stakeholders' perceptions of delivery of care for persons with multiple chronic conditions, their roles and relationships in the programme, their specific problems and their personal views.

In general, all interview protocols were structured according to the following outline:

- A Brief introduction about SELFIE and the interviewer as well as clear information about the goal of the interview
- Signing and exchanging the anonymity agreement and the declaration of consent for recording
- First question: Regarding the person's qualification and position in the programme
- Next question: Regarding the main work of the interviewee and his/her specific role in the programme
- 1-2 main questions: Regarding the work in the programme (covering selected focus area of respective stakeholder type)
- (Direct and indirect follow-up questions)
- Last question: valuation of an important aspect of the programme

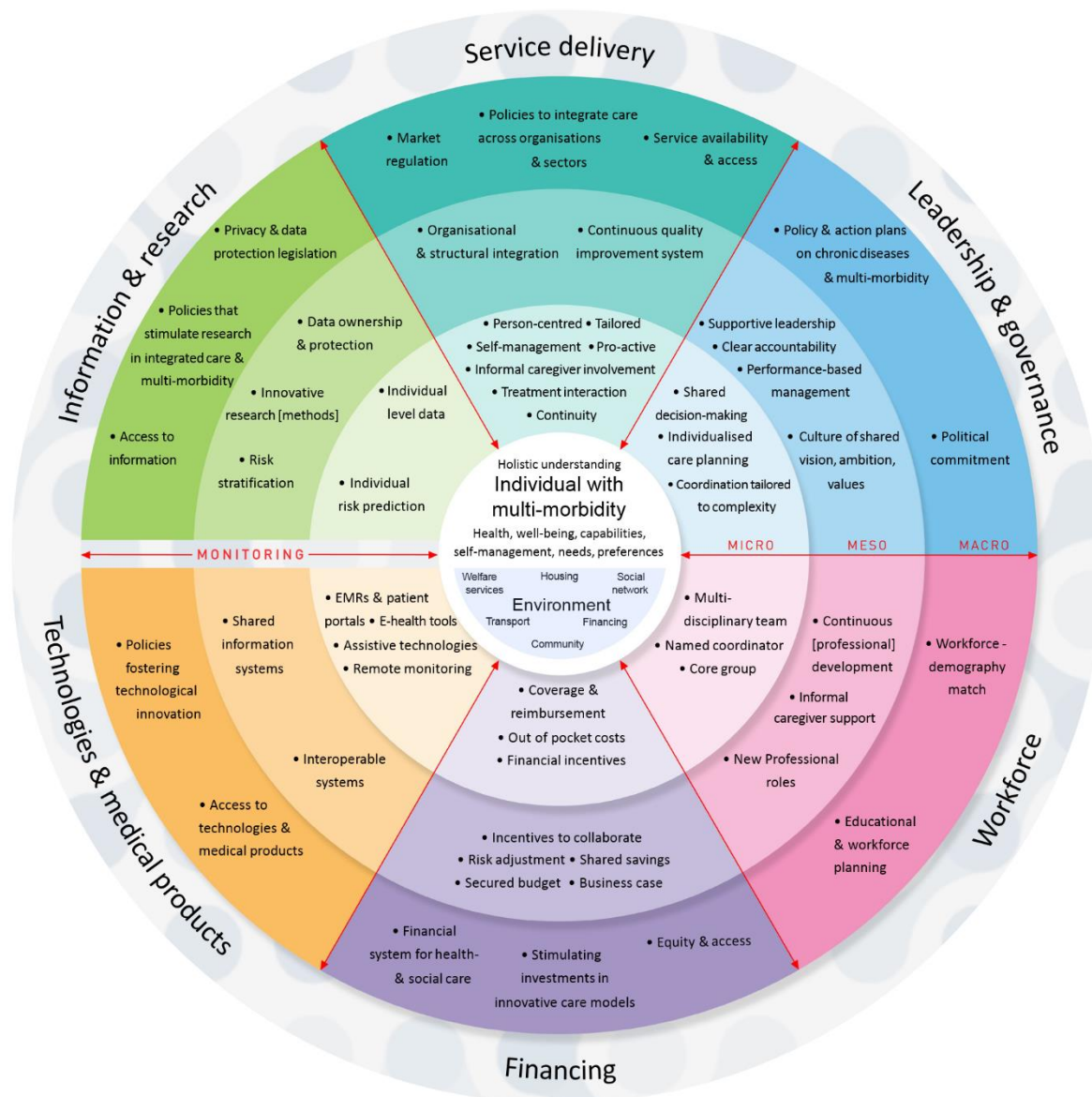
The interview protocols were adapted by the partners according to the specific context of each programme and interviewee, using prior knowledge obtained from the document analysis and from previous interviews. The interviews were carried out face-to-face and the interview duration was between 30 and 90 minutes. The interviews were recorded and transcribed. The resulting transcripts were analysed using the method of content analysis developed by Mayring (5). This method involves the following steps of abductive interpretation²:

- Selecting units of analysis
- Paraphrasing these units of analysis
- Transforming the paraphrases to short forms
- Constructing categories, where possible

The thick descriptions are structured according to the elements of the conceptual framework developed in the course of WP1. The model is depicted in Figure 2.

² Timmermans and Tavory (6) define abduction as a "creative inferential process aimed at producing new hypotheses and theories based on surprising research evidence."

Figure 2: Conceptual framework for the delivery of care for persons with multiple chronic conditions



Source: (7)

Simultaneously, each thick description covers the eight tasks of WP2 set out in the SELFIE proposal, as well as one supplementary task (denoted by TS), which was agreed on by the project consortium at the kick-off meeting and actually belonging to WP3:

- **Task 1:** To develop the approach for the qualitative analysis of ICC programmes
- **Task 2:** To investigate how the most promising ICC programmes were implemented as well as to identify barriers and facilitators during the implementation phase

- **Task 3:** To analyse how the delivery of care is designed around the patient in the most promising ICC programmes
- **Task 4:** To analyse the relationship with long term care, social care and other partners beyond the healthcare system
- **Task 5:** To investigate which ICT applications are used in the most promising ICC programmes to support the care process as well as to explore the requirements for implementing them successfully in the treatment of patients with multi-morbidity
- **Task 6:** To analyse which self-management interventions are used in the most promising ICC programmes and how they were adapted to patients with multi-morbidity from different cultural and socio-demographic groups as well as to distinguish the conditions for their successful implementation
- **Task 7:** To explore new professional roles (e.g. physician assistants, nurse practitioners) involved in the ICC programmes as well as to identify barriers and facilitators in their successful introduction
- **Task 8:** To review existing evidence on the impact of the most promising ICC programmes
- **Task TS:** To explore the experiences of the stakeholders regarding financing and payment schemes

The WP leader provided the partners with continuous guidance in order to ensure that all partners are able to follow the methodological approach described above. This guidance mainly consisted in three parts. First, in the preparatory phase of WP2, methodological guidance materials were developed by the WP leader for all partners. These materials were presented to the partners in the course of the 2nd steering committee meeting in Vienna on January 25th and 26th 2016. Second, a special training course was held at IHS Vienna for researchers directly involved in the thick description on April 14th 2016. Third, all 17 thick descriptions were reviewed in order to ensure that they are harmonised to a certain degree. In this third part, the WP leader received support from the WP co-leader. The review process was divided as follows:

- **WP leader:** Germany, Netherlands, Norway and Spain
- **WP co-leader:** Austria, Croatia, Hungary and United Kingdom

However, it is part of the method that thick descriptions are not standardized but instead should be guided by what the prominent features of the individual studied phenomenon are. Therefore, the diversity in the thick descriptions reflects different topicalities, approaches, challenges and solutions.

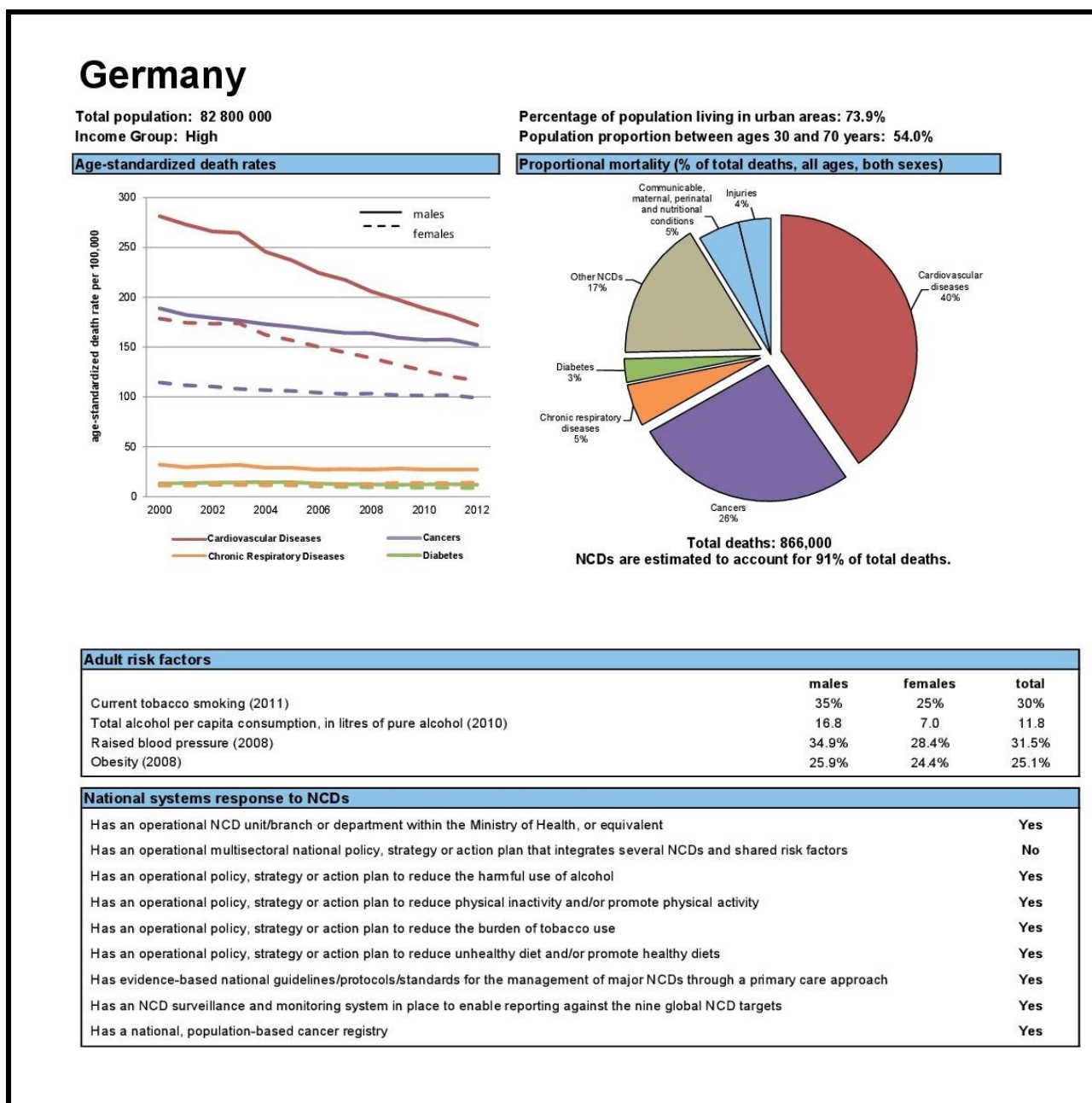
As mentioned above, the method of thick description allows for a deep understanding of the implicit structures of the investigated programmes. This is of utmost importance also as a basis for further work packages of the SELFIE project. In the context of WP3, this deep knowledge can help to understand incentives of payment methods better and thus help to develop a comprehensive guide to financial and payment schemes that facilitate the provision of ICC to multi-morbid patients, as well as a guide to pricing of ICC programmes. In the context of WP4, this knowledge it can help to identify the relevant indicators to measure outcomes of ICC programmes. In the context of WP5, it can help to gain ideas regarding how to set up a suitable empirical evaluation of these programmes. Furthermore, it may help to better understand and explain the outcomes of the empirical evaluation.

Each report is structured in the following way: After the methods chapter, chapter 2 provides general information on the national health and social care system with a special focus on integrated chronic care for persons with multi-morbidity. This chapter covers the macro level of the conceptual framework and has the purpose of giving insight into the specific context the two selected programmes are embedded in. The programmes are subsequently described in detail in chapters 3 and 4, respectively. The descriptions present important findings obtained from the document analyses as well as the interview analyses. After a short overview of basic information about the programme, the findings are structured according to the six segments of the conceptual framework: service delivery, leadership and governance, workforce, technologies and medical products, information and research/monitoring and financing. Furthermore, the implementation process is described in an additional section. The descriptions conclude with a discussion of the respective programme. The discussion summarises the distinctive features of the programme and puts the empirical findings in context of the conceptual framework.

The report includes several quotations from the interviews. These are intended to present the stakeholders' perspectives in their own words. They were selected in the process of "abduction" and are used as a source of, e.g., typical forms of care practices, cooperation forms and motivations for participating in the programme. All quotations are anonymised and translated into English. In the appendix, however, they can be found in the respective original language.

2. Macro level

Figure 3: Country Profile Germany



Source: World Health Organization - Noncommunicable Diseases (NCD) Country Profiles, 2014

http://apps.who.int/iris/bitstream/10665/128038/1/9789241507509_eng.pdf?ua=1

Table 1: Germany Key facts and figures

Model of care	Bismarck (since 1883) Decision- making powers are shared amongst 'Länder', the federal government and non-governmental organisation. Some competencies are delegated to institutions of self-regulation in healthcare. In the statutory health insurance (SHI) these are sickness funds and their associations together with SHI-affiliated physicians. Health insurance is mandatory since 2009, either through SHI or private health insurance (PHI)*.
Healthcare expenditure	
Healthcare expenditure % GDP	11,3 % (2014)
Healthcare expenditure per capita PPP \$/year	5.182 € (health) when applying international definition
Coverage (% population) (paid by taxes)	Not applicable*
Public Payer	SHI and PHI (118 sickness funds under SHI and 23 in PHI as of June 2016)
Subst. private insurance (% population)	10,8%
Healthcare provision	
Number of physicians per 100,000 population	410,8 x 100.000 inhabitants
Number of hospital beds per 1,000 population	6,2 x 1.000 inhabitants

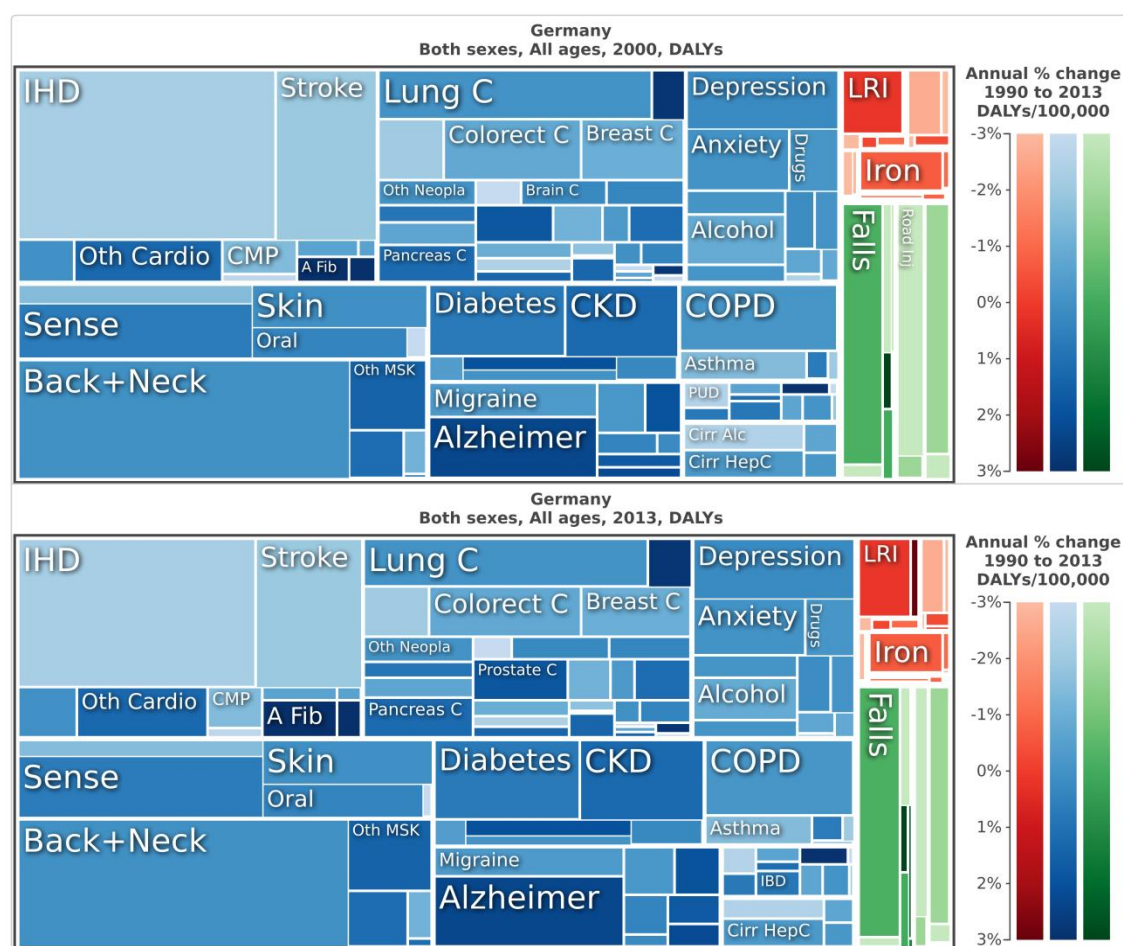
Source: (8). Notes: *Germany is unique in Europe in that it has a statutory health insurance (SHI) co-existing with a substitutive private health insurance (PHI). Approx. 86 % of the German population is insured with the SHI in 2016. PHI is mandatory for certain professional groups and is covering some more services compared to the SHI (9).

Germany DALYs

According to the Global Burden of Disease Studies (2015) (10), Germany scored comparatively well compared to other European countries with respect to Disability-adjusted Life Years (DALY). DALYs are the sum of years of healthy life lost to premature death and years lived with disability. Figure 4 shows the proportional composition of DALYs in 2000 (upper figure) and 2013 (lower figure) according to ICD-10 codes of diseases in Germany. Non-communicable diseases, coloured in blue, are by far the leading cause of premature deaths in Germany; communicable, maternal, neonatal, and nutritional diseases (coloured in red) play only a minor role, whereas the proportion of external causes (coloured in green) has stabilized on a high level. Diseases of the circulatory system as IHD (Ischemic Heart Disease) and Stroke are by far the leading cause of DALYs in Germany. However, its share was reduced since 2000. Chronic and acute pain contributes significantly to the German DALYs. Some diseases have contributed

more in 2013 to DALYs as compared to 2000 (coloured in *dark blue* or *dark red*). These are mostly diseases associated with the nervous system or mental disorders. For instance, Alzheimer has contributed 2,8 % in 2000 but 3,6 % in 2013. A similar increase can be seen for Diabetes and the chronic kidney disease (CKD).

Figure 4: DALY in Germany for all diseases, 2000 and 2013



Source: (11).

2.1. Service delivery

Description of the main policies and regulations shaping the health and social care system

In the statutory health insurance (SHI) system, sickness funds, their associations and associations of SHI-affiliated physicians operate the financing and delivery of health provision within the given legal framework. Benefits, prices and standards of health services are negotiated and regulated in joint committees of payers and providers. The private health

insurance (PHI) scheme does operate in the same framework, but some details of contracts, payment and covered service vary in comparison to the SHI. The German health system is characterized by a split between the ambulatory care sector and the hospital sector. Evaluation, payment mechanism, and planning of services provided in the ambulatory and hospital sector vary significantly.

In 1994, statutory long-term care insurance was introduced. All members of sickness funds were declared mandatory members of the long-term care insurance, following the split between SHI and PHI. It is financed from monthly contributions by members. Benefits in the statutory long-term care insurance are only available upon application and are granted as either in cash or by in-kind benefits. Starting from 2011, terms of eligibility, flexibility in service provision, evaluation and organization of the long-term care insurance was comprehensively reformed. However, its main organizational features remain intact (12).

Description of clear and well-designed national/regional policies/plans and programmes supporting integrated care for chronic patients with multi-morbid condition/complex care needs

The legal framework allows for intersectoral pilot projects of sickness funds since 1993, and has been continuously promoted by more recent legislation (2000, 2004, 2011, 2015). Provisions for integrated care models were first introduced with the Reform Act of SHI in 2000, laying the foundations for the national level introduction of care models aiming at cross-sectoral coordination. As part of the reform, disease management programmes (DMP's) were introduced, which provided new incentives for intersectoral care for chronically ill starting in 2002. The SHI Modernization Act in 2004 further removed barriers to start integrated care delivery, which still persisted after the introduction of the first integrated care models in 2000 (13). Finally, in 2011, the SHI Care Structures Act introduced a financial support system for integrated care physician networks if they have achieved certain quality standards (14). In order to initiate an integrated care contract, sickness funds are required to negotiate selective contracts with single providers or networks. Under the most recent legislation in 2015, sickness funds can also negotiate with private medical industries or pharmaceutical companies. Concrete data on the existing use of integrated care programmes are lacking, however, it is

estimated that almost all of the current 118 sickness funds in Germany use integrated care programmes. The Statutory Health Insurance Modernization Act (13) adopted in 2004, require Germany's sickness funds to spend one per cent of their total expenditure on integrated care programmes.

Description of specific policies for integration of social and healthcare programmes for management of patients with multi-morbidity with current or potential social needs?

The long-term care insurance is organized separately from the health insurance schemes in Germany. Current reform efforts aim at a better alignment of long-term care services in a local context (*Pflegestärkungsgesetz II* [15]), but do not touch upon the organizational split of health and long-term care insurance. There are several initiatives to overcome this split, by either (a) enabling GPs to coordinate health service for a patient, (b) empowering informal carers and patients to navigate through both systems or (c) introducing initiatives to make better use of medical data through electronic patient files (9). In long-term care, counselling became more emphasized: consultation services are offered to any person in need according to § 7a social code book No. 11. Organizations can acquire a certificate to offer these consultation (next to other services) according to § 7b social code book no.11 (please see *Casaplus* for an example).

Additionally, the legislative framework is recognizing the need for deeper integration along and across the long-term care insurance. Critics suggest that better integration needs an overhaul of reimbursement schemes for physicians and use of special case managers as coordinators.

2.2. Leadership & Governance

Briefly describe how governance of the health and social care system is structured at national/regional level and who the main actors are

Within the SHI and PHI schemes, several central actors can be identified. The Federal Ministry of Health develops and regulates health legislation and ensures the principles of health insurance, ministries on the level of the '*Länder*' decide on the regulation, budget and planning of health provision (e.g. for hospitals), but not in a comparable degree as for other social policies.

The Federal Joint Committee, is the highest decision making body of corporatist institutions within the system of joint self-government. A range of corporatist institutions are mandated by the social code book No. 5 (the key legislation on health insurance) to administer the SHI scheme under the supervision of federal and 'Länder' authorities. Within the system of joint self-government the corporatist institutions enter into direct negotiations or assign task to other commissions or institutes to provide comprehensive information.

The Federal Joint Commission issues directives on coverage, patient access, capacity and distribution of care in almost all sectors of health provision (e.g. dental treatment, prescription of pharmaceuticals, immunization, quality assurance).

In the long-term social care system, the Medical Review Board, operated jointly by sickness and long-term care funds, evaluates the applications for benefits and places them into one out of five categories (in effect from January 2017, replacing the former three categories).

Briefly describe how governance of the integrated care initiatives/programmes at national/regional level is structured and who the main actors are

Based on the selective contracts, integrated care programmes are coordinated amongst the participating parties. Sickness funds can freely decide on the volume and price of the contracted services. Last available data hint towards a broad range of providers involved and scope of patients. There are few initiatives to promote best practices of integrated care programmes and coordination efforts either on a 'Länder' level or on a federal level. The Federal Joint Committee was assigned to decide on additional funding for integrated care programmes in 2016. This was thought to help to overcome the current lack of governance in integrated care.

Furthermore, a range of non-governmental organizations are dedicated to promote integrated care in Germany. There are some medical associations (e.g. German association for Integrated Care- *DGIV*; and the German Managed Care Association - *BMC*) informing, advocating, networking and sharing knowledge for integrated care. They also comment on plans for legislation.

2.3. Workforce

How is the workforce prepared for and involved in the transitions and scale-up of integrated care?

Healthcare is an important employment sector in Germany, with more than 5.2 million employees. The increase in workforce is driven by rather new health professions as physiotherapists, and providers of care. Also complementary and alternative medicine providers are of increasing importance. However, the German health workforce is characterized by a very high degree of specialization. Standardized curricula and examination are granting a comparable level of knowledge across the German ‘*Länder*’ for some medical professions. Some elements in the curricula are also touching upon elements of integrated care (12).

However, the organizational split between ambulatory and inpatient care do not favour integrated care for physicians. In 2004, legislation enabled for joint practices of ambulatory care providers, very much similar to the polyclinics in the former German Democratic Republic. It is up to the individual physician to obtain further education on e.g. case management and collaborate with other medical professions.

Describe the occurrence of new professional roles and occupations involved in integrated care.

In recent efforts to update curricula and topics for physicians, elements of integrated care have been incorporated but not in a systematic or coordinated manner. There are several optional educational programmes available dealing with the challenges of providing care for people with chronic diseases and multi-morbidity.

Nurses and midwives have the opportunity to visit further education for the purpose of becoming a family nurse who is able to help and guide patients with complex needs through the healthcare system. Furthermore several institutions offer further education programmes for nurses and social workers to become case managers. The now separated education programmes for nurses in e.g. paediatric nurses and geriatric nurses are targeted by recent harmonization efforts. This way a more generalized nurse working force should be enabled to deal with an ageing society and enable more employment possibilities within the German

healthcare system. The underlying legislation is topic of heated debate and is expected to come into force in 2017 (16). However, it is not yet agreed upon in the German parliament.

2.4. Technologies & medical products

Describe national/regional policies to promote the use of ICT to support integrated care?

The use and scope of ICT depends on individual providers and how these coordinate with partners. In 2004, legislation allowed for a joint organization of ambulant and stationary providers into joint health centres (*Medizinische Versorgungszentren*) (13) explicitly stating that resources and information should be shared. However, a lack of consensus on medical data sharing hindered any reform for other health service provider.

Nonetheless a variety of pilot projects pioneer in the field of ICT in integrated care. The projects are covering a wide range of areas. Examples include a project delivering ICT supported solutions for providing emergency responders with medical information (17) and another project that aims to build up an online community for cross sectorial information exchange (18). It seems that providers of integrated care relatively often use ICT tools to ease coordination and communication amongst partners (see *Gesundes Kinzigtal* for an example). Sustainability of financing and a lack of visibility are the main problems that hinder upscaling individual projects to a national level.

Describe national/regional policies stimulating e-health applications and assistive devices?

In 2004 the federal government started implementing an e-health insurance card (eGK) and building up a telemedicine infrastructure (13). The legislation aimed to make better use of modern ICT and to better connect healthcare providers within the fragmented German healthcare system. As a result of the political process the requirements for the electronic health insurance card and the process of its implementation were subjected to constant change. Especially data security was one of the most discussed topics in this context.

In 2010, the federal government and healthcare actors established the German E-Health Initiative. The Initiative created an online platform enlisting all German telemedicine projects and they are developing an information security guideline (19).

In 2015, new legislation ruled on the timeline, as it determined milestones and duties of the e-health insurance card. In a first phase, only some data will be shared amongst providers via the card. In parallel, pilot projects are testing the telemedicine infrastructure and its data security. By mid- 2018, all providers should be connected to the telemedicine infrastructure (basic Roll-Out). In addition, patients will have several options to save personal data on the card, ranging from consumed medication, list of transplanted organs, and key medical information in case of emergency. Starting in 2019 insured and their physicians will have access to an electronic medical record, electronic medical dossier and possibilities to consult a physician online (20).

2.5. Information & research

Describe legislative framework on data privacy with respect to integrated care? Does it follow the current EU directive? Is it constraining implementation of integrated care?

Following an EU Directive of 1995, Germany has implemented core legislation on data privacy in 2001. Due to the delayed implementation, Germany was sanctioned by the European Commission. Data security remains a topic of heated debate. For instance, data security and concerns of misuse were leading causes of the delayed e-health implementation. Although the basic idea of the e- health insurance card was introduced 2004, its implementation is still ongoing.

Describe specific national/regional research programmes for integrated care and/or multi-morbidity

The German research landscape is fragmented, financed by different bodies and only sporadically coordinated. A majority of funding goes to e.g. disease orientated or basic research. One relevant network for integrated care research is the German association of health services research, which enlists currently four integrated care programmes: One programme focuses on mental disorder, one focuses on evaluation of coordination across sectors, and two are population based (21). In 2016, additional funds of € 225 million managed by the Federal Joint Committee are explicitly dedicated to research for integrated care programmes. A first call for integrated care projects was launched in summer 2016, in which 245 proposals were submitted (22). The deadline for a further review just ended in August 2016 and effects of the additional research are yet to be seen.

Describe if and how they are embedded in larger (European-wide) innovation & research platforms for integrated care?

German teams have been/ are involved in prior multi-morbidity and/or integrated care research projects, which were funded by the European Union (e.g. ICARE4EU, SUSTAIN). Additionally, Germany participates in the European Innovation Partnership on Active and Healthy Ageing.

2.6. Financing

Brief description of the funding system for the health and social care sector in general and integrated care specifically

In Germany, SHI is the major source of financing healthcare contributing 58,5 % to overall health expenditure. The other three pillars of social insurance contributed also to total health expenditure, out of which long-term care insurance contributed 7,8 % of total health expenditure in 2014. Private sources accounted for 26,3 % of total health expenditure in 2014 (9). Sickness funds are responsible for collecting contributions by employers and employees and transfer these to a Central Reallocation Pool that is subsequently transferring funds to the sickness funds. Sickness funds must cover all expenses of insured members and their dependants from the risk-adjusted transfers they receive from the Central Reallocation Pool. The transfers are independent of the individual claims to benefits by insured. Payment mechanisms for providers vary according to sector. In the hospital sector a majority of transfers by the sickness funds are handled by DRGs. Ambulatory care is reimbursed through a catalogue of predefined prices through the regional corporatist institution based on a collective contract with the sickness funds. Integrated care needs to be contracted selectively by individual sickness funds. Sickness funds are enabled by repeated legislation to deduct resources and to use these for integrated care programmes based on selective contracts. This possibility has created substantial interest among providers. Since 2016, there is an additional budget of € 300 Million a year to finance innovative and integrated care concepts (12).

Are financial policies aligned with large scale implementation of integrated care?

New legislation on integrated care programmes has allowed sickness funds to selectively contract service provision for this purpose e.g. Disease Management Programmes and integrated care programmes. Therefore, integrated care contracts constitute a new sector with new regulations and financial incentives. Integrated care contracts do not require the approval of the regional association of SHI-physicians and can be organized across sectors. For instance, a hospital can provide outpatient services if it has a joint contract with an ambulatory physician. Since 2015, also producers of medical devices and pharmacies can join a selective contract on integrated care.

Scope, Breadth and Quality of contracted integrated care are determined by the contracting parties only. Partially resulting from this, there is no data on current integrated care programmes and numbers of enrolled patients (12).

How is sustainability of funding for integrated care ensured?

Legislation enabling for integrated care has been stable since 2000 and has ensured a stable and generous financing mechanism. Provisions for integrated care were reformed in 2004, 2007, 2011 und 2015. In any of these reforms, the need to overcome the strictly separated sectoral nature of delivery, financing and decision-making structures was emphasized. In 2016, additional funding was made available to the Federal Joint Committee (23). Across the political parties there has been a consensus on the need for the integrated care, although perceptions on their organizational and financial set-up vary.

3. Programme 1: Casaplus

3.1. Basic information

Demographic change and the increasing prevalence of multi-morbidity and costs of illness are a paralleled concern, in particular for the inpatient sector in Germany. In order to improve and reorganise healthcare services for elderly people with multiple chronic diseases the Casaplus case management programme was founded in April 2007 (24, 25, 26). Initiated and exclusively contracted by company-related sickness funds, the Casaplus programme covers multi-morbid persons throughout Germany. The Casaplus programme is owned by the MedicalContact AG (MeCo), which is a stock company situated in the federal state of North-Rhine-Westphalia. It addresses people older than 55 years, with multiple chronic conditions, and being at high risk for hospital admissions within the next 12 months (24, 27, 28, 29).

The overall aim of the programme is to provide comprehensive, easy accessible and high quality care. More precisely, the programme aims at reducing avoidable hospital admissions through preventive case management and enhanced self-management skills (enrolled persons in the intervention group). Casaplus offers a case management service with a mandatory risk assessment, patient education and a 24/7 crisis management service (25). Structured case management is an essential element of the programme. Trained case managers inform, advice, support and monitor the well-being of the enrolled elderly, multi-morbid persons. Moreover, they align and coordinate care services provided by nursing professionals, participating in the Casaplus programme.

As part of the Casaplus care team, nursing professionals visit enrolled patients at home to assess possible risk of tripping, social risks, and risk of malnutrition (24). Informal carers are included in the care trajectory from the beginning, if applicable and required. Casaplus pursues a compression of morbidity of the elderly and provides a systematic case management via telephone or in the home environment. The target group is specified with respect to age (55+ years), as the persons in this target group constitute more than half of all hospitalized patients in Germany (24, 29). The Casaplus programme is targeted at persons with multiple chronic

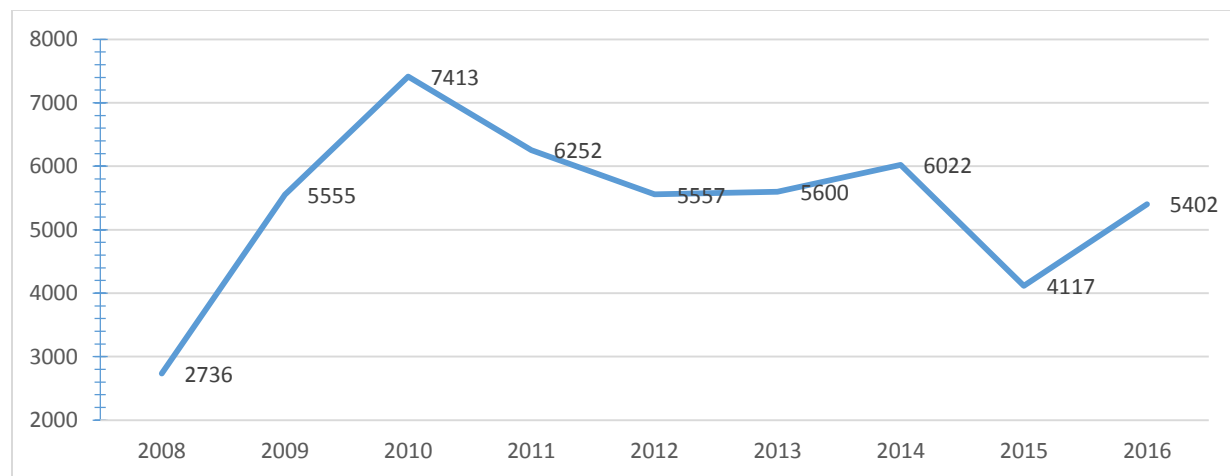
diseases. Only exception are persons suffering from severe disease, who are likely not to benefit from the programme e.g., acute episodes of some cancer and mental disorders as dementia, people eligible of benefits under the highest long-term care category and people living in nursing homes (24, 27).

The Casaplus programme operates nationwide; although there are regions where more contracts with sickness funds exist. The current structure and operating environment of sickness funds have developed historically (Box 1). For example, some sickness funds have the majority of their insured concentrated in a few cities. Although, other company-related sickness funds have insured all over Germany, the Casaplus programme still has a regional focus on Western Germany (25).

The case management programme offered by Casaplus is a voluntary extra service offered for sickness funds, based on contractual details with the MeCo. A service contract between a healthcare fund and MeCo regulates the legal provisions of services and its duration.

The programme has a single point of entry, defined as a process in which persons insured with collaborating sickness funds are identified with a specifically developed screening software calculating their risk of hospitalization (see Box 3) (29). The screening criteria were developed with an external research and consulting institute 'Institut für Gesundheits- und Sozialforschung' (IGES). If the elderly are categorized as being at (high) risk, their sickness fund will send them a personal letter, inviting the insuree to participate in the Casaplus programme. The multi-morbid persons can independently decide whether they are willing to participate (26). One distinctive feature of Casaplus is the possibility of home-visits to persons identified with a specific risk carried out by qualified caring personnel. In 2016, the average age of participating persons was 77 years with 55 % males and 19 % enrolled in long-term schemes (25). Currently, about 5400 people are participating Casaplus (Figure 5). So far this kind of geriatric case management programme is unique in Germany and 15.000 multi-morbid persons already participated since the start of the programme.

Figure 5: Number of Participants by year



Source: (25). Notes: Numbers of participants on December, 31st, except for 2016 (August 26th). Some participants are enrolled with Casaplus for a longer time period.

Box 1: The role of company-based sickness funds in Germany

As of June 2016, there are 118 sickness funds in Germany. A vast majority of these are so-called “open sickness funds”, meaning that every person can choose this sickness fund independent of their occupation. Company-based sickness funds pose the historical core of statutory health insurance in Germany, as they were organized around several occupations or firms and took care of a rather small group of employees and their families in a local context. The total number of sickness funds has decreased steadily over the decades, which affected disproportionately the rather small company-based sickness funds, after these opened themselves to non-company members. In 2016, there were only 93 company-based sickness funds left, that insure approximatively 16.6 % of all insured under the statutory health insurance in Germany. This is contrasted by the share of 45 % of all SHI insured with one of the five largest sickness funds in 2016. Since 2007, legislation allows for mergers across the formerly strictly separated sectors of sickness funds. This resulted in a wave of mergers, where often company-based sickness funds became part of new cooperation as junior partners. The MeCo was founded by some of these company-based sickness funds in 2002 to pool resources.

Source: (9) with modifications according to authors.

3.2. Service delivery

3.2.1. Design of delivery of care

Casaplus is a case management programme adapted to the needs of each individual patient (28). The case management is considered as an additional service, with professional carers acting as case managers. After a patient is classified as 'at risk for a hospital admission' an assigned case manager conducts a holistic initial assessment by telephone, structured by a questionnaire. This assessment seeks to compile as much social (health determining behaviour, supportive environment, available resources, informal care givers, needs) and medical (documented diseases, medication, risk assessment etc.) information as possible (25).

Preventing hospital admissions

With the aim of preventing admissions, the Casaplus programme provides preventive services, structured, coordinated and person centred care management (26). This approach enables persons to stay in their own homes for as long as possible and to reduce the utilization of costly inpatient services. During one interview the tasks of the case managers were described by a physician and initiator of the programme as follows: "They, so to say, have to have their focus on multi-morbidity, chronicity and the resources [of the person] That's why it was so important that employees are taking part in the daily processes of the enrolled persons and are further trained and educated" (IP10_1).

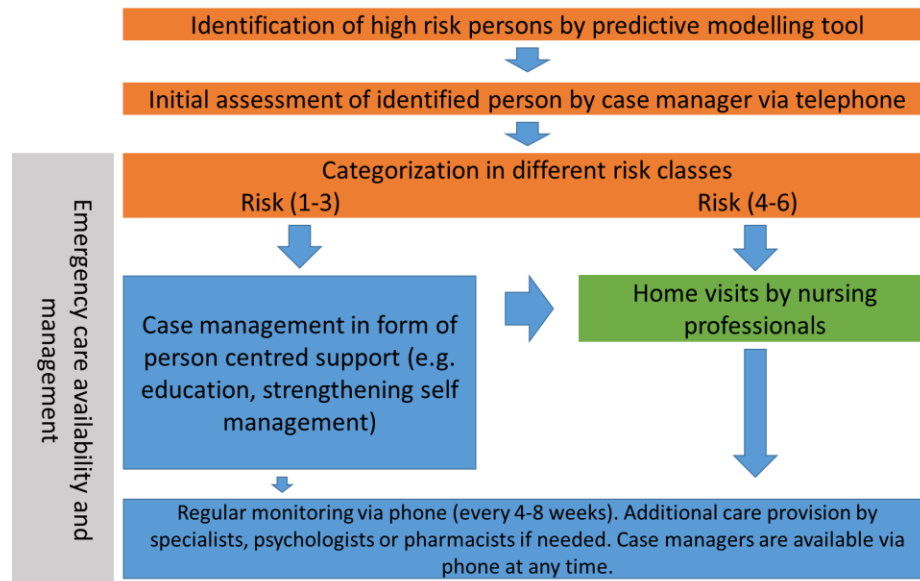
The person-centred approach in the Casaplus programme is realized by means of the following elements:

- Individual geriatric assessment
- 24/7 accessibility
- Patient coaching
- Improve hazard awareness
- Home visits (based upon the results of the initial assessment)
- Individual case manager
- Telephone based consultations with flexible appointments

- Trustful relationship with case manager

A flowchart of standardized interventions of the Casaplus programme is depicted in Figure 6 (29). Continued evaluation of their impact helps to improve the healthcare services and continuity of care.

Figure 6: The Casaplus case-management




Source: (29)

The risk clusters

According to the information collected during the initial assessment, persons are clustered into risk groups (see Table 2).

Table 2: Risk clusters (Casaplus, 2016)

Risk clusters	Typical prevalence
Cardiovascular cluster	Diagnoses as e.g. Heart failure and associated medication.
Gastrointestinal cluster	Diagnoses as e.g. Diabetes and associated medication.
Chronic pain cluster	Intensity, frequency of pain, coping behaviour.
Malnutrition	Drinking and eating habits, monitoring of vital signs.
Risk of tripping	Home environment, coordination problems.
Social risk	Personal resources and social environment.



So called „high risk“ clusters for which a home visit is scheduled

If the patient is clustered in the specific risk groups e.g. because of a social risk and a recent tripping accident, a home visit will be offered. The assignment to one of the predefined risk groups is regularly updated on the basis of a person's current needs and new information given during follow-up conversations. An average enrolled patient in Casaplus is assigned to 3.5 of the aforementioned clusters. Clustering preconditions are standardized with guidelines of medical associations and vary according to risk levels. As for the tripping cluster, the manager of the Casaplus case managers explained that preconditions are standardized according to “extrinsic and intrinsic factors that define the risk of tripping. If you tripped once, you are at risk for tripping. If you are taking medication, [...] you are at risk for tripping. If you have slipping

carpets in your flat, you are at risk for tripping” (IP01_1). The cardiovascular cluster instead is assigned when a patient is diagnosed with a cardiovascular disease and in need for medication. A manager and initiator indicated that there are only few possibilities to change the inclusion criteria of the clusters as “usually a patient remains in the risk cluster he/she has been initially assigned to, but if the risk reduces or increases the case manager adapts the diagnosis. However, these risk clusters are reconsidered during each telephone consultation and if e.g. the social situation changes or an additional disease is diagnosed the cluster is adapted accordingly” (IP02_1). Only for a few clusters, a case manager can significantly reduce the stated risk or even deactivate the cluster for the patient. The predefined clusters can capture a broad variety of illnesses and reflect complex health needs.

The case management approach

The relationship between the case manager and the patient is based on mutual trust and learning, which develops over time due to the regular contact. Each patient is randomly assigned to one case manager, who organizes every contact within the Casaplus programme for the patient. Only in rare cases of specific disease-related questions or in times of vacation, other case managers are in contact with the enrolled patient. The case management approach is used to support the physician’s work, but not to replace it. A patient described the case manager’s work as a useful addition: „You, as a lay person, receive more comprehensive information compared to a visit to the physician. Well, I’m not a physician, but the case managers there have a lot more knowledge and influence, thus they explain diseases and their potential consequences and other important things to me (IP08_1)”. The case manager provides appropriate person centred support for the multi-morbid patient in the form of health education, increasing abilities, referral to specialists, nursing care or community based services, completing forms and empowerment.

The initiator and manager of the programme said that the case managers use a standardized questionnaire to check the physical and mental well-being of the patient, but this can be adapted according to the needs and priorities of the person: “Case manager are expected to be sensitive to the enrolled patient needs and wishes and able to discuss particular questions

regarding their patient's current situation in more detail, if needed" (IP03_1). Nevertheless, the documentation template does require an update of critical parameters as blood pressure and undesired loss of weight. The nursing professional highlighted the programmes intention to include a patient's social network in the overall care process: "The aim is to minimize deficits in the care process and to use all available medical and social resources. To involve a patient's social network, to establish contacts to neighbours, these are the things we do and then you can say this person is safe" (IP05_1). Furthermore, enrolled persons can contact a case manager 24/7 via telephone free of costs. The case manager systematically develops reports for the supervised patient, which can also support the work of the general practitioner by providing more detailed insights. The report covers standardized information such as medical history, medication and hospital admission. In addition patient specific information such as pain, a deteriorating health condition or changes in his/her living conditions are documented.

Moreover person centred and tailored advice is provided with respect to problems arising during the daily life activities. An informal carer described the case manager as very helpful as: "the programme was psychologically helpful for my husband. It was helpful to talk to somebody beyond the family and the responsible physicians, I believe that our case manager helped him acquire new courage and informed him very well with respect to the forthcoming surgery" (IP07_1).

Furthermore, Casaplus helps enrolled persons to navigate through the fragmented German health system. As one physician and initiator explained: "It is a success, that there are persons who are continuously enrolled with Casaplus [...] and they are being taken care of. You know, you must not underestimate the psychosocial element. People are feeling more secure [because of Casaplus]. Nobody is sitting right next to them, but they at least know, whom to contact" (IP10_1). In order to support the patient-centred counselling approach, case managers, physicians and nursing professionals regularly participate in trainings to improve communication, consulting skills etc. Underlying is an understanding of the patient as a co-producer of their health. This means that their often complex needs, capabilities and willingness provide the starting point of the telephone coaching. The regular telephone counselling, initiated every 6-8 weeks by the case manager is documented according to a

standardized template with the option to add additional person related information. As a case manager's scope of practice is limited, additional telephone consultations with a general practitioner are offered if needed. A physician considered that particularly frail elderly tend to have specific (age- and disability-) related needs with respect to a physician: "They want to talk to the physician as soon as possible. And on a psychological level he receives a certain leap of faith and authority. I solve some of their problems simply due to my status" (IP06_1). Once a week a team of general practitioners and specialists (e.g. neurologists) provides answers to medical related questions for person enrolled in the Casaplus programme. Case managers gather all medical questions, which require an answer by one of these physicians. The team of GP's and specialists is available each week for a certain period of time for questions. The physicians are contracted by the MeCo; some usually work in their medical practice, others exclusively for MeCo.

In terms of services, the case manager coordinates the actions of all professionals and informal caregivers involved in the care process. There is no formalized collaboration between the case managers and the general practitioners responsible for the patient, but if considered relevant and with the patient's informed consent; the case manager contacts the general practitioner. One of the case managers explained this as follows: "Sometimes I have to check whether I really understood the patient correctly. In that case I call the physician, but only if I think it is really necessary to check some information about the patient or if I have a question with respect to the diagnosis (IP13_1).

Likewise, there is no formal cooperation between the nursing professional and the responsible general practitioner on a regular basis. However, if necessary patient information is exchanged with respect to medication, medical aids or nursing service related diagnosis after the patient has provided his/her consent.

Home visits

Furthermore, a home visit is conducted by a nursing professional from a local partner if required (25). Patients with a risk of tripping, malnutrition and social risks are eligible for a home visitation (summing up gradually to risk classes 4-6) (25, 29). The person concerned

receives timely information about the home visit in form of a letter from the Casaplus programme team and a phone call one or two days ahead. Thereafter, the nursing professional also calls the concerned person to provide more detailed information about the reason and process of the home visit. The nursing professional performs a comprehensive assessment using a standardized consultation guideline to identify tripping hazards and provides advice about appropriate actions in case of emergency. Length of home visits vary as questions used by the nursing professional are refined according to the person's needs and resources (e.g. questions regarding malnutrition, social risk situation). Home visits are offered to 87% of enrolled patients, primarily caused by the low threshold of the tripping cluster (25). To attain a patient's compliance, a trusting atmosphere is created, a nursing professional stated: "as a first step patients need to understand me in order to be able to follow my explanations or to comply. On the other hand I also have to understand them and have to accept a patient's will, even if they do not want to accept my advice" (IP05_1). Each home visit covers:

- Assessment of the overall domestic situation (housing situation will be adapted to the needs, advice of medical aids, actual care situation),
- Further advice, practical support for informal carers (working and nursing care techniques for health promotion and health protection),
- Ensuring adequate care (assessment of the care status and current changes, adapting care)

After each visit, the nursing professional prepares a summary of all relevant information for the patient. A standardized template helps to summarize discussed topics during the home visits (e.g. install a light at your bedside), and can be complemented by suggested technical or medical aids and topics to be discussed with the respective physician. Usually a home visit is conducted once as it is sufficient in most cases. However, if necessary the nursing professional advises the multi-morbid person to apply for an additional, even more extensive nursing consultation. To ensure integrated care, all information gathered is forwarded to the responsible case manager. After the home visit the case manager conducts a follow-up telephone consultation to monitor health behaviour and risk minimization. Patient education is

continued, including medication monitoring, symptom management, training to change health behaviour, provision of written material and regular follow-up.

Polypharmacy prevention and education service

Since 2008 Casaplug provides a polypharmacy prevention and education service. There are two different services offered additional to the information provided by GP's in usual care, to provide education and more comprehensive information about medication to the enrolled persons.

(i) A general medication consultation is provided by case managers and mainly concerns the correct timing of medication intake and the importance of medication compliance. In some cases additional information about over the counter drugs (OTC) such as pain killers and possible interactions with other medications is provided. Additionally, case managers reported on patients asking about the use of newly prescribed generics.

(ii) During the optional special medication consultation, the risks of potential interactions of documented medications are discussed. Persons at risk (e.g. due to a risky combination of drugs) and their individual risk level are identified through specific selection criteria, which were developed in collaboration with a pharmacologist and the university of Frankfurt (26). The corresponding case manager is assessing a patient's risk, by using a medication matrix to identify a not-optimal or possibly risky usage of drugs. If this ICT-tool is flagging such an interaction, an optional special consultation is offered by a pharmacist of the Casaplug programme. Usually the pharmacist conducts a second comprehensive assessment with a focus on medication.

Cautiously, side effects and mutual interdependencies are explained to the patient. Afterwards they receive an information leaflet including the consultation advice as well as a letter for their general practitioner to enable continuous and coordinated care provision. A special medication consultation conducted by a pharmacist is required by 20 to 30% of the patients due to a lack of ongoing communication between all involved professionals, care coordination and the absence of a shared medical record.

In addition, consultation for informal carers is offered from the case managers with the informed consent of the patient concerned. One of the case manager considers this to be important.” as they are burdened too, especially when their relative is seriously ill or needs admission to a nursing home or wants to inform himself or just need someone to talk to. All of this can be very important for informal carers” (IP01_1).

In case of hospital admission of an enrolled person, relevant discharge information are shared via the sickness fund with the responsible case manager, if possible. This depends on a timely provision of all relevant data by the participating sickness fund. Ideally the case manager receives information about the diagnosis and discharge to be able to follow up with care as soon as the patient has returned home. Yet, not all participating sickness funds provide all relevant discharge information in a timely manner.

3.2.2. Self-management interventions

All patients with a high risk for avoidable hospital admissions, enrolled to the Casaplus programme receive self-management interventions from the Casaplus care team.

The service offered to the enrolled persons; include coaching programmes and education in self-management of chronic care lifestyle changes. Every participant receives an information booklet containing practical information about topics discussed during the telephone consultation service, to help improve self- management in daily life (28, 29). A patient explained, that the literature provided via post includes useful information about topics discussed and thereby promotes the self-management abilities: “(...) if they send something to me, it always contains information about what I should do with respect to my pain or condition. These information brochures can help me coping with my back pain for example” (IP09_1).

Casaplus aims at stabilizing the health status of a patient within their living situation, community and social environment. The case managers assist the patients to achieve their goals in form of coaching e.g. their eating and drinking behaviour. Each patient receives an individually adapted risk training to advise patients on hazard-sensitization and to give practical advice on tripping prevention. Via shared - decision making the nursing professionals supports the patient’s self-management competencies. They offer appropriate medical aids and services

and always provide the patient the opportunity to decide themselves whether to adapt accordingly. It suffices to avoid an emergency case if the patient identifies risk indicators, potential hazards or acts according to certain instructions. Patients feel safe while having the option of calling/contacting their personal case managers in cases of emergency and insecurity (25). The empowerment and counselling of patients, combined with the prevention of disease deterioration are part of the overall aim to reduce avoidable hospital admissions. During a routine telephone consultation case manager try to support persons self-management abilities one case manager described:” We act as informants. We explain everything, how things are working; we can call a sickness fund, or can forward a care level application. [...] they can explain us their personal situation with respect to their family and in the community. I think we can help with all this and finally it is all about self-management “(IP12_1).

The self-management training is intended to help patients to address their needs and comprises:

- Counselling on tripping prevention and avoidance of tripping hazards
- Counselling on blood pressure measurement/ glucose measurement
- Counselling on medication, polypharmacy and provision of information about drugs for emergency cases
- Symptom managing
- Prevention of disease deterioration
- Early detection of crisis/emergencies
- Written information about discussed diseases and topics
- Training in early detection of cardiovascular and gastro intestinal disease symptoms

The regular phone calls by the case managers were described as person centred one representative of the sickness funds described:(...) ”usually the person does not recognise how much information he/she is providing to the case managers, as though obligatory questions are asked, they ask patient’s with a playful approach during the interviews.

Thereby, case managers receive very detailed information about the patient and this is helpful in order to provide more self-management support. They motivate the patients to become more active with respect to a healthier life style for example” (IP04_1).

3.3. Leadership & governance

The MeCo is responsible for the coordination of all the providers participating in the Casaplus programme. The overall idea to initiate partnerships within and beyond the healthcare system was to overcome fragmentation of service delivery, to enhance coordinated follow-up care and to improve communication between participating health professionals.

In 2016, 17 active service contracts between the MeCo and statutory and private sickness funds across Germany existed (25, 26, 28). Some of the participating sickness funds, were founding members, while additional sickness funds followed at a later point in time. The relationship between the MeCo and the sickness funds was described by one representative of the sickness funds as being based on trust: „ (...) we have confidence in the MeCo, as we of course already know their way of working” (IP04_1). Of additional value for the sickness funds is the low administrative burden Casaplus put on their employees, as a sickness funds input is only needed to identify possibly eligible persons for the Casaplus programme. The manager of the case managers explained that usually contracts for the Casaplus programme between the sickness funds and the MeCo are standardized with respect to:” (...) standards for the case management counselling, evaluation and descriptive reports” (IP01_1). Exceptions are contracts with private sickness funds as the regulation for private sickness funds with respect to e.g. the coverage of medical aids might differ in comparison to statutory sickness fund regulations. A contractual period is not previously fixed to a certain duration, but experience show, that some main achievements of the programme can only be realized after 18-24 months. At the end of this period the effectiveness of the Casaplus programme is re-assessed and on the basis of these results, the sickness funds decide whether they extend the contract or not.

Further cooperation agreements exist between the Medical Contact AG and 177 local outpatient nursing services. In addition, MeCo has established cooperation with the German association for caring professions (*DeutscheDBfK*) to cover regions where the DRK is not present or where the DRK could not provide a high-quality service (currently 41 nursing services). A certain quality standard is ensured as the nursing professionals are obliged to continuing professional development (CPD) (26, 28). If there is a region or a city where neither the DRK nor the DBfK is present, independent nursing services (34) or a nursing professional from the MeCo conducts the home visit. Within Casaplus one manager is responsible for all case managers involved in the programme. The functions include quality assurance, optimizing the care provision, feedback to case managers, and the continuous education of case managers. The following professions are involved in the care provision:

- 24 Case manager (telephone support services)
- 177 Nursing services (home visits)
- 1 Pharmacist (medication counselling if necessary) and one technical assistant
- 1 gastroenterologist, 1 neurologist, 1 pulmonologist, 1 gynaecologist and 1 cardiologist
- 1 Psychologist
- 2 product manager and 2 IT experts
- A care manager of a participating sickness fund functions as the interface between Casaplus and the sickness fund. The care manager is the contact person for all sickness fund related questions.
- Upon request of the patient or if the case manager determines a current need, the collaboration is extended and e.g.: informal caregivers or other services required are included.

The manager of the case managers described that an increase in the range of services offered is currently considered: “Often Casaplus ends where further care is needed and this is where I see needs for optimization. A collaboration and integration of care with other care structures and providers need to be developed, especially with respect to nursing and long-term care. Adding certain care modules to Casaplus would be helpful” (IP01_1). As case managers assist and

coordinate the care provided within the Casaplus programme, they contact or refer to nursing care facilities if necessary and communicate with professionals from e.g. the social care sector to support optimal care provision and continuity of care. As the precondition of being trained to become a case manager in the Casaplus programme is to have a nursing background the communication between the case manager and the nursing professional does not cause a barrier as the manager of the case managers pointed out: “We really only have nursing specialists in our case management team. This is important as they all have a more holistic view. Nursing specialists are already used to look beyond health issues to also consider social factors to consider the entire person “(IP01_1).

A further cooperation exists between the MeCo and the geriatric centre in Berlin. According to the professional regulations for physicians and nurses, case managers do not cover tasks conducted by a physician. There is a strict task allocation of responsibilities as one case manager outlined: “This is a different construction site so to say. We do not intervene in the work process of physicians. We support their work, but we never doubt or criticise the medical decisions of a patient’s physician at all” (IP13_1).

Box 2: Collaboration between the EGZB academy and Casaplus

Aside from many internal education programmes, case managers are asked and motivated to participate in an external training at the academy of the geriatric centre in Berlin (*Evangelisches Geriatriezentrum Berlin* -EGZB). The centre was established in 1999/2000 and is one of the very few highly specialized academies offering a wide range of geriatric topics for medical professionals. Casaplus collaborates with the EGZB since 2006. Every case manager is obliged to join the programme for two up to three days in Berlin. All costs are covered by the MeCo.

The EGZB organizes an individualized programme for all case managers that is either disease specific or structured along a care pathway. MeCo often suggests topics and experts, while the EGZB organizes the programme and venue. These way Casaplus employees obtained a comprehensive overview and research based insight into a broad range of topics. On top of this, employees can choose from trainings offered by the regular programme of the EGZB.

- 2010/2011: Dementia, Depression, Morbus Parkinson and stroke, medical guideline for risk of tripping and malnutrition
- 2012: Incontinence, diabetes, nutrition for elderly
- 2014: Rheumatism, amyotrophic lateral sclerosis, dentistry for elderly
- 2015: Pain management
- 2016: Legislative changes to long term care financing, benefits and regulations

3.4. Workforce

A new professional role introduced to the Casaplus programme is the 'case manager'. Casaplus case managers obtain their case management training at e.g. Bielefeld University, a specialized study programme for two years. A nursing background and several years of work experience are a precondition in the Casaplus programme in order to become a case manager. The case management training covers important courses like ethics in managed care, social law, effective case management, avoiding tripping etc. It trains them to deal with a diverse range of situations and provides them with comprehensive knowledge of the health and social care system facilitating an effective provision of additional services to the enrolled persons.

The need for this comprehensive overview next to specialised medical training was acknowledged by the Casaplus team and resulted in an individualized study programme at the Lüttringhaus in 2013. Costs of the training are completely covered by the MeCo. (28). This training is in line with the requirements of the German Association for case management (DGCC). Additionally, all case managers obtained training and a certificate for nursing consultations according to § 7a of the German Social Code No. 11. During this training, all case managers are educated about the specifics of the long-term care insurance in Germany, how applications for benefits are evaluated, technical aids can be financed and individual care plans adapted to the needs and current situation of the person. To earn the certificate, case managers have to take lessons in social law, case management and nursing.

The Casaplus case managers work according to the current clinical practice guidelines, adapt immediately to the needs of the respective multi-morbid patient and advocate for patients' rights and their entitlements. To be eligible for the case management training within the Casaplus programme, a prospective case manager needs to have a professional nursing/ care background as all team members of the Casaplus programme are specialists. The case managers receive continuous professional education on a yearly basis in form of participation at specialist conventions, regular training and development with respect to medical aspects and communication. With respect to collaboration, one of the case managers expressed the wish to increase cooperation among professionals: "Working together with more professionals would

be really positive as the patient would benefit. To have an entire network of carers would be an advantage and I do not only think of physicians now. It would be helpful to increase for example, the role of informal care givers and neighbours, if available “(IP12_1).

The case managers can individually choose among the different continuous training options, but the focus should be on communication and counselling. Indeed, case manager have to document at least 40 hours of training a year and can jointly decide on desired continuous professional development for the next year. Moreover, internal trainings for case managers focusing on e.g. hypertension, diabetes etc., are offered by physicians involved in the Casaplus programme and are held once a month.

Continuous professional development is offered to Casaplus nursing professionals as well. The MeCo provides professional development days to the employees of the nursing services on a yearly basis. The manager of the Casaplus case managers said these cover the following: “client specialist courses, discussion rounds, workshops, exchange of experiences as well as further training options” (IP01_1). Moreover, nursing professionals receive additional training in prevention, documentation and communication by the case managers.

Some of the involved sickness funds work with an interdisciplinary team to adapt to the particular needs of the geriatric and multi-morbid target group in the Casaplus programme as described by one representative of the sponsor/ payer: “(...) everybody here has its own perspective, one team member has this strength and another one a different strength (...) thus everybody in the team adopts a different approach” (IP04_1). Understanding the needs of the enrolled persons is a pre-requisite for the planning and adaptation of services.

3.5. Technologies & medical products

The Casaplus programme developed a specific online platform to support regular communication between Casaplus case managers and nursing professionals. Access is restricted to the aforementioned professionals. It is used to exchange information necessary for a continuous care process and allows taking immediate action if required (26). Tools targeted at

patients, for instance remote monitoring or access to their personal health record are not applied in the Casaplus programme.

Case managers use a documentation template, a tool to structure the information gathered during the initial assessment with respect to chronic diseases medication, the regular telephone counselling, from informal care givers and other involved care providers. This data management tool was bought from an external software developer and adapted to the particular requirement of the Casaplus programme (25). Thus, for every patient enrolled to the Casaplus programme a personal electronic health record is created. The data gathered is not shared in a database with external providers. The central collection of relevant patient's health data is a precondition for the optimal coordination of patient care within the Casaplus programme. One case manager highlighted the importance of the electronic patient file: "It is really helpful to look into my notes before I call the patient again after six or eight weeks. With the help of my notes I can continue where the conversation ended the last time and I can immediately identify the most important issues and questions I have to ask again or aspects where I have to act more sensitive for example. Of course every case manager has his own style of completing the template with respect to providing comprehensive or more to the point information. Overall every case manager abides to the template" (IP13_1). However, the documentation is a point of discussion at the moment as a manager and evaluator of the Casaplus programme reported that: "the documentation effort will increase in the future as we want to gather more information for our evaluation. Beside the economic indicators we aim to gather information about competency goals. We want to better illustrate what we achieve with our telephone coaching, whether the patients have managed to develop health competence, increased empowerment etc. This will be burden the case managers more and we have to develop a new documentation template or even an entire new electronic tool" (IP02_1).

A written consensus by each person before entering the programme is thus necessary. The case managers have access to all patient information enabling them to coordinate care, adequately communicate with other care providers and plan with the patients. As the electronic patient file is only accessible for case managers, nursing professionals receive the relevant patient information via a standardized electronic form before they conduct a home visit. A nursing

professional described: “We use a shared electronic portal and I can access all relevant patient information and tasks for the home visit via this portal. This information is a good preparation for the home visit” (IP05_1). Afterwards, the nursing professional forwards the information gathered electronically, using the online version of the consultation template. To ensure the protection of the personal health data, the data gathered by the nursing professionals is deleted after forwarding it to the case manager. Within Casaplus there is an additional tool to communicate with specialists, GP’s and pharmacists. If a case manager requires an additional consultation by other team members, the electronic system saves this request and allows for a standardized feedback to the case manager. However, in the communication between the case managers and the enrolled patients, the telephone is the dominant means of communication.

To enable a coordinated appearance and processes between Casaplus and the participating sickness fund, the latter also receive access to particular information about the enrolled patients, e.g. when and how many personalised invitations were send out, or how many insured persons are currently participating in the Casaplus programme. One representative of the sickness fund/ payer organisation described that: „the information exchange in the Casaplus programme is different compared to usual care. We have a more regular information exchange and therefore have the option to identify patient’s needs and worries earlier. This is helpful in order to adapt our approach and also maybe the Casaplus programme together“(IP04_1).

A predictive modelling tool is used as decision support to select multi-morbid persons eligible for participation in the programme. Predictive modelling is based on morbidity and healthcare utilization indicators for instance such as: age, gender, pharmaceutical prescriptions, discipline of prescribing doctor and diagnoses. The ICT applications support an in time identification of patients with a high risk for hospital admission within 12 months.

Box 3: The predictive modelling tool to identify possible new clients for Casaplus

In 2007, MeCo and an external research institution (IGES) have jointly developed a predicting tool to identify patients in high risk for hospital admissions within the next 12 months. Data is provided by respective sickness funds, as prescriptions of medications, documentation of visits to specialists, and hospitals stays for the last year, which allows a regression analysis. MeCo uses this analysis to identify patients with a high risk for hospital admission within the next twelve months (likelihood of hospitalization- LOH model) adjusting for age, gender and morbidity of each insured. Insured with an estimated likelihood of over 0.5 are selected and offered to participate in the Casaplus programme.

3.6. Information & research/monitoring

External and internal scientific evaluation is an essential part of the programme since its inception. Continuous monitoring and the evaluation of outcomes allow future improvements of the design of the programme. The focus of the evaluation is on the economic outcomes, including questions focussing on: “was the number of hospital admissions reduced?, how did they experience the effects of care (the insured person, the environment, the relatives)? Were the per capita costs reduced?” (IP04_1).

The MeCo is conducting the evaluation internally on the basis of the evaluation concept initially developed in cooperation with the external institute IGES. An additional audit was conducted by the IGES Institute for the evaluation of health outcomes of all participating persons in 2011 (26). Since then, the evaluation is conducted by the MeCo with a pre-post evaluation with propensity score matched pairs of competency goals (health status, impairment, doctor-patient relationship, sustainability of behaviour change), care goals (care status, utilization of outpatient care, utilization of supplementary services) and economic goals (costs for the utilization of inpatient care, pharmaceutical cost) (24, 25). One of the programme managers explained the use of the administrative data gathered: “in regular intervals the sickness funds receive information about what we actually do: How many invitation letters were send out, how many phone calls did we conduct, how many home visits, and information about the current participant structure. We provide them a picture of the service delivery” (IP02_1). The internal evaluation by MeCo also includes a descriptive part for sickness funds to provide them

with an overview of all activities. On a yearly basis participating sickness funds receive the evaluation reports from the MeCo to check whether the results are still in line with their interests and to provide an overview of enrolled persons and changes in their medical parameters (e.g. newly prescribed medication and reduced risk of interactions).

The second evaluation examines the client satisfaction of every multi-morbid person enrolled in the Casaplus programme. The client reports are conducted annually in a written format for selected enrolled patients. The questionnaire focusses on the relationship between the case manager and the patient, the quality of care, the satisfaction with the care provision, and achieved personal goals. The MeCo evaluates the results of the client survey for each sickness fund. Evaluation results of 2014 revealed that 97% of the participants are satisfied with the programme, 94% reported that the case manager is providing useful advice and 65 % report that the case manager provides answers to questions they are not able to ask their physician (30). Two case managers explained that they experience the continuous evaluation was helpful for their work process: „for me it is positive, as thereby I learned a lot. Thereby we can change our approach and can help the people. Of course, we cannot save the world, but can adapt the care better to the individual with more information” (IP12_1).

Since 2016 a client survey (response rate 60%) is conducted with all persons who left the programme. Reasons for leaving the programme can be: the sickness fund terminated the cooperation, additional care is not required anymore, and the person moved to a nursing care home or has died.

The programme results in 591€ annual savings per person compared to matched control. These savings result from reduced costs for hospital admissions and medicines. The evaluation is conducted by means of a propensity score matching. These results were partly statistically significant (27).

Measurement, internal and external evaluation and feedback for participating professionals and sickness funds are considered important in ensuring continuous improvement.

3.7. Financing

It is important to note that the usual reimbursement schemes between statutory health insurers and the MeCo are not replaced within the Casaplus programme. The contract agreement stipulates a profit-sharing of the yearly average hospital cost savings between the MeCo and the sickness funds (27). However, sickness funds and the MeCo reported that the benefit for the patient is more important for all involved stakeholders. There was no initial competition for the selective contracts among the participating sickness funds and the MeCo. Once a sickness fund decides to contract the MeCo, the Casaplus programme is implemented (26). Moreover, the sickness funds described that there is no competition among the insurers for the Casaplus programme as “the target group are the frail elderly which usually do not switch their insurance anymore” (IP04_1).

Initially, the MeCo and the participating sickness funds implemented a pay-for performance model, which did not work as expected. The initiators described: “We generally had bad experiences and just got in trouble with our sickness funds, particularly if the results were good. Then, they wanted to re-negotiate. ‘No, this cannot be correct. No, we are not going to pay this’ and so and so on. Therefore, we allowed the contract to expire, as it only caused trouble, especially with the good clients where we were in accordance with respect to the character of the programme” (IP03_1).

After this first programme phase, the payment amount was capped and kept constant since then. The MeCo receives their payment on a monthly basis and described that: “Planning security is very important for them, for us as well, thus this way of payment prevailed” (IP03_1). The aim is to avoid financial fluctuations, thus sickness funds try to keep the number of insured persons subscribed to the Casaplus programme as stable as possible.

Participating nursing professionals receive a fixed sum for each home visit, which on average lasts 30 minutes. This visit is comparable to the obligatory control visit according to §37.3 of the social code book number 11. Care providers have the incentive to receive full coverage of their further training and education programmes. There are no additional fees for the persons enrolled to the Casaplus programme and they are able to opt out of the programme at any

time. Simultaneously, there are no financial incentives for multi-morbid persons to enrol to the Casaplus programme.

3.8. Implementation process

3.8.1. Historical information

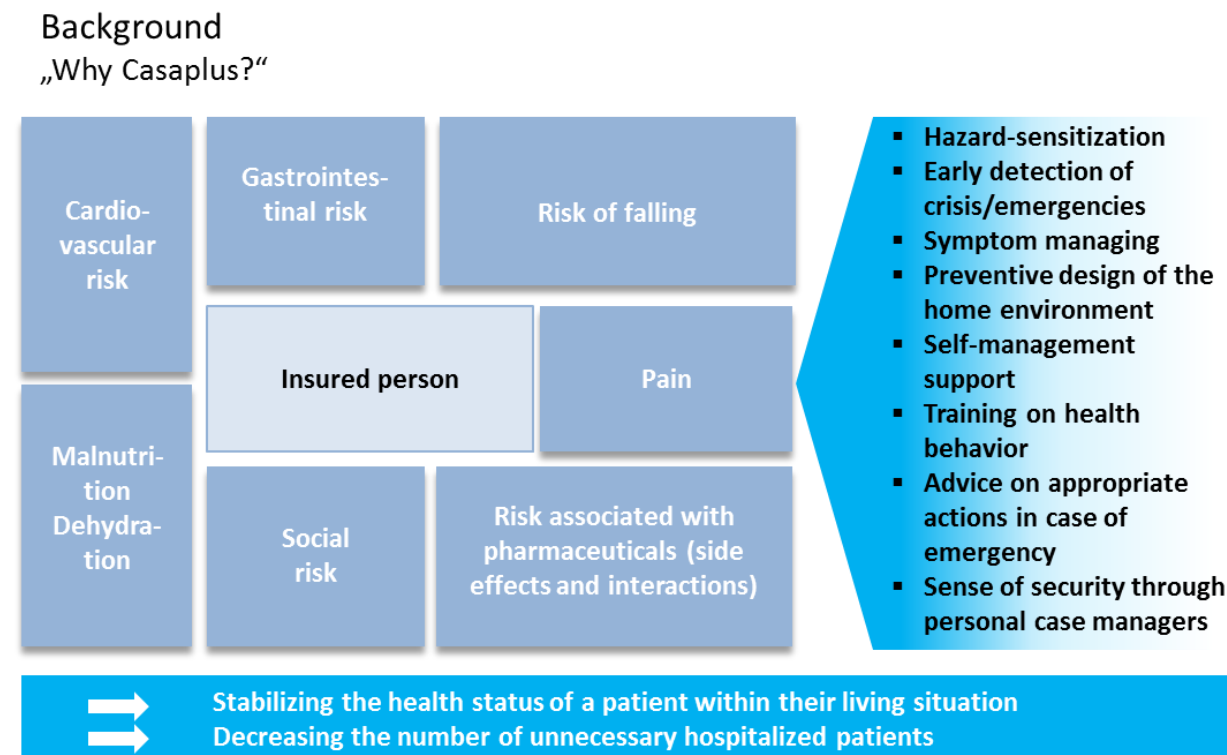
The MeCo has long-standing experiences as service partner of sickness funds. With an interdisciplinary team of experts, the MeCo supports companies with the coaching of employees and insurers since 2002. Supporting self-management activities of the chronically ill enrolled persons is an integral part of the work of the MeCo, in order to improve the health related quality of life of the enrolled. Given the increase of disease burden and healthcare costs due to the rising prevalence of multi-morbid persons, the need to overcome this challenge was the initial idea for the development of the Casaplus programme for multi-morbid persons.

In 2006 company- related sickness funds recognised the need for additional care for multi-morbid persons. A representative of the sponsor/ payer explained that: “(...) in those days we already recognized that it is necessary to have special programmes for chronically ill patients as we are close to our insurers and their feedback” (IP11_1). Sickness funds approached the MeCo to develop and initiate a programme targeting at frail elderly and multi-morbid persons, and keeping costs for hospitalization stable. The MeCo also acknowledged the need to diversify its services offered apart from disease specific programmes. The MeCo launched a telephone based consultation service for elderly and piloted the programme in cooperation with the Audi BKK in 2006. In 2007, the Casaplus programme was created and contracted by seven sickness funds.). All of these sickness funds are shareholders of the MeCo. Longstanding and mutual trust amongst the initiators supported the initiation of the Casaplus programme. One of the programme initiators described: “A real trustful relationship developed over time with the sickness funds” (IP01_1). An expert panel consisting of different disciplines (geriatrics, nursing care and general medicine) accompanied the development of the Casaplus programme. During the initial phase process guidelines guiding the daily practice were developed by these experts.

The intention was to improve the care of multi-morbid persons by developing person centred care services and the creation of low-threshold, comprehensive and high quality care for patients <55 years. Consequently, resulting in a decrease of the number of preventable hospitalization cases and a reduction of per capita costs (24, 25). Figure 7 depicts the underlying founding idea of the Casaplus programme (Figure 7).

A main barrier for the implementation of Casaplus was the insecurity to organize home visits and coordinated care amongst medical professions. Initially collaboration with general practitioners was strived for. However, the vast majority of contacted general practitioners reacted sceptically and initially refused any form of collaboration with the Casaplus programme as described by an initiator and manager of the programme: "You have to clearly say that the interest of the doctors was comparable to zero during the initial phase of Casaplus. Appointments were not met or cancelled, no need to talk" (IP02_1). Sickness funds also were sceptical about costs and neutrality of nursing services to be contracted in the Casaplus programme. Therefore, MeCo first approached the umbrella associations of the German Red Cross to ensure a high quality and a strict separation between home visits within Casaplus and additional services offered by nursing professionals. After successful piloting Casaplus with the Audi BKK the case managers were hired and actively involved in the set-up of a nationwide programme. Case managers were thought and put at the very centre of Casaplus and involved in the implementation process.

Figure 7: Background. „Why Casaplus?“



Source: (25)

3.8.2. Present information

After two years, changes took place and the new risk cluster ‘chronic pain’ was added to the services offered and counselling guidelines were developed accordingly. The case managers identified a need for this additional cluster as more than 40 % of the enrolled persons complained about any form of chronic pain.

In the beginning of 2016, the composition of participating sickness funds changed. One of the larger company-related sickness fund merged with the third largest sickness fund in Germany in 2013. Since January 2016 the first not company-related sickness fund is participating in Casaplus and has an equal distribution of enrolled persons across Germany. In addition there are some particularities, e.g. they run their own evaluation. Additionally, MeCo negotiates with sickness fund under the private insurance scheme to contract Casaplus. During their first contacts, some of their insured are distinctive to current enrolled persons with respect to their expectation, education and income.

The programme is designed around the multi-morbid person and continuously strives to adapt their service to the people's changing needs. Over time, some organisational matters were optimized within the Casaplus programme. A representative of the payer / sponsors described some of these changes: "We recognised that the number of participants decreased. Therefore, we changed our invitation letters and personalised them and changed the wording to speak more with the words of our clients" (IP04_1). The statement of a case manager describes the continuous adaption to patient's personal needs: "After having asked the obligatory questions, we come to the person. I always want to know better, what they want, need and how they feel. During each call. This is the only way to optimize my consultation according to their needs" (IP13_1).

Some sickness funds also installed a telephone-based acquisition for Casaplus.

3.8.3. Future implementation/development

Further programme development aims at the diversification of Casaplus. Firstly, case management training for informal carers is discussed. This is thought to help informal carers to stabilize patients at home as long as possible. Case manager identified several topics that should be covered during this training, as secure financing, medical training for care, inform on legislative changes to support informal carers etc. As the implementation is easy as the structures are already given, the financing is the only challenge currently discussed.

At present patients participate on average two years in the Casaplus programme. However, some persons are enrolled for a longer period of time. It is intended to adapt the care provision for this particular group of participants in form of e.g. longer intervals between the regular case management telephone services. Enrolled person's would receive another screening to check whether they are still eligible for participation, thus at risk of hospital admission. Although this option is not yet decided upon, it would help the continuity of care within Casaplus and would also reduce costs for participating sickness funds. Additionally, case managers are capable of providing consultations for long-term care. This is, however, not yet an element of Casaplus and its reimbursement for MeCo. As part of the relaunch, MeCo is discussing whether sickness funds can also contract additional consultation under the long-term care scheme separately

from Casaplus. Additionally, elements of the evaluation are adapted mainly targeting home visits, effects of the programme for the target group with respect to health outcomes. Furthermore, the statistical model used during the process of patient identification will be refined and elements of risk stratification will be added.

It is envisaged to increase the collaboration with other specialists and the social sector to increase integration and optimise patient care (for more information about fragmentation in the German Healthcare system see macro level section). The idea is to extend the professional nursing care and collaborate with long-term care facilities including a patient centred individual treatment plan and continuous home care for those in need. As part of the process, a need for change of the documentation template has been identified. The documentation template will be further enhanced adding economic indicators, patient's skills in terms of self-management abilities, and indicators for health literacy etc. This should diversify the evaluation for Casaplus apart from economic indicators as savings from hospital admissions. In 2016, the documentation template was partially modified.

3.9. Discussion

3.9.1. General discussion

The MeCo and collaborating sickness funds have set up a kind of geriatric case management programme, which is currently unique in Germany. Casaplus combines case management for multi-morbid persons with possible home visits to the persons. The programme adapts to person's individual needs, resources and social environment. Evaluation results show that expected outcomes, reducing avoidable hospital admissions through preventive case management and enhanced self-management skills, have been achieved.

At the broad contextual and system level, a number of existing and changing national legislation also had important impacts on the implementation of the Casaplus programme (see macro level description).

An important contextual factor was that the sickness funds recognised the additional care need for their multi-morbid insured persons. This positively influenced the realisation and

implementation of the case management programme as it is usually difficult at political, institutional and organisational level to understand that health is not only the outcome of a purely medical intervention. Another enabling factor was that the competition for selective contracting is still uncommon in the German healthcare system, as it is dominated by mutual and uniform contracts between the traditional associations of statutory sickness funds and service providers. Although, company-related sickness funds co-initiated Casaplus and thus identified the need for this additional service, only temporary contracts exist. A decisive outcome criterion whether to prolong the Casaplus or not are the costs savings from a reduction of hospital admissions. This puts MeCo into a constant bargaining situation with respect to volume, price and offered service with new sickness funds interested in Casaplus and makes them vulnerable to patient fluctuations, as for example seen in 2015 (see Figure 5).

From a sickness fund perspective it might take too much time until the expected increase in health and reductions in costs begin to start. Thus, to align the interests of the collaborating sickness funds and the MeCo, the latter aims at extending the length of the contractual agreements.

Additionally, the current resource allocation towards sickness funds adjusts for gender, age and morbidity next to a basic flat rate per insured. Avoidance of acute episodes and well-compensated (new) morbidities in a person is therefore not a direct (financial) incentive for sickness funds to engage with programmes like Casaplus. However, sickness funds not only strive for costs savings but also for social approval and a good reputation. Given the target group of Casaplus the willingness to switch sickness funds because of selective contracts and additional offers as Casaplus is rather low. Acquiring new insured by offering Casaplus can therefore only partially motivate sickness funds.

A potential barrier might be that the enrolled persons may be very reluctant to take more responsibility in health matters and become more empowered during the participation in the Casaplus programme. Furthermore, the MeCo and the cooperating sickness funds must convince the multi-morbid persons eligible for enrolment by referring solely to the argument of a higher service quality and a comparative health gain to be expected by care provided as there

are no financial incentives. Also persons keep being responsible to communicate health needs to their GP and specialists, although they are more informed via the Casaplus programmes. Only in some urgent cases, the case manager can directly influence treatment options of their clients. Thus, Casaplus cannot overcome the fragmentation of the German healthcare system, but has further potential to deepen the cooperation among specialists and with the social care sector. Approaching GPs and specialist to participate in Casaplus was very difficult in the initial phase in 2006/2007, however, recent feedback was more positive.

3.9.2. Discussion of the programme in the context of the conceptual framework

Service delivery

A key strength of the programme is its patient-centredness and the intensive relationship between the enrolled persons and the case managers. These spend more time with enrolled persons during the regular telephone consultation, compared to usual care. This enables a holistic assessment, the option to ask additional questions, and to close potential administrative and medical information gaps. Simultaneously, patients have more time to ask questions and share their concerns; therefore case managers can ensure a higher level of understanding and compliance. Moreover, it is more likely that patients engage in the care process and the services provided, if the relationship is based on trust. With the provision of this additional supervision and counselling service, the Casaplus programme closes a service gap.

Tailoring care is done on the basis of a formal holistic assessment, considering diverse health and social aspects. However, a person's resources are currently not recorded. Extending the scope of the assessment would be helpful as an individual's resources and abilities are especially relevant in multi-morbidity, as persons need to deal with multiple problems and providers.

Leadership and governance

The MeCo is a cooperative partner of statutory and private sickness funds in a wide range of products. Although, Casaplus makes up only a small share of the total workload, the MeCo was able to react flexible to fluctuation in enrolled persons. Thus, case managers are delegated to

other telephone-based activities within MeCo's activities in times of decreasing enrolments in Casaplus. This contributed to the stability and high level of expertise within the case manager team in Casaplus.

Workforce

The activities of German physicians (compared with other countries) are characterised by their wide spectrum, i.e. they include tasks that could be carried out in a more affordable and possibly even more suitable way by other care professionals. Thus the Casaplus service approach is innovative as the case managers complement and support the physician's work, without replacing it. Furthermore, competencies of the case managers could be enhanced even more. Delegating and re-shifting of tasks to the case managers could optimize the integration care for the enrolled persons, save time and costs.

Case managers involved in the Casaplus programme learned from each other, developed good lines of communication and created common values. However, the collaboration with other professionals (GP's, specialist etc.) and across sectors could be extended, as it currently is only on an occasional basis.

Technologies and medical products

Data protection and privacy are an important issue in the Casaplus programme since creating a system of electronic patient files accessible for all care providers depends on the provision of a patient's informed consent.

Information and research

To develop a tool to identify eligible persons for the Casaplus programme was a prerequisite for its successful implementation. Although sickness funds have a comprehensive set of person-centred data, data processing tools were lacking. The current LOH model is capable of identifying persons at risk for hospital admission within the next 12 months and who likely benefit from the Casaplus programme. Although, more advanced methodologies for risk stratification are available now, sickness funds participating in Casaplus value the low administrative burden of the current process. An important feature of the Casaplus programme is a sensitive and lawful handling of personal data. As an effective and sustainable data

protection is central for MeCo's work they received an official certificate of the German data protection agency (DSZ) proving that they act according to recognized standards and fulfil them to a high extent in 2015.

Financing

Although there was a commitment to innovative payment for the services provided it was difficult to implement. Instead of supporting the Casaplus programme, the implementation of the pay for performance payment resulted in discussions and conflicts between the MeCo and the participating sickness fund during the initial programme phase.

4. Programme 2: Gesundes Kinzigtal

4.1. Basic information

The Gesundes Kinzigtal (GK) model was founded in 2005 and is situated in the State of Baden-Württemberg, in the rural area of Southwest Germany. The GK model pursues a population-based approach that organizes care across all health service sectors and indications. The GK model addresses the entire Kinzigtal population, regardless of disease or age. The GK model is designed around the “Triple Aim” approach: improving the health of the population in the Kinzigtal region, improving the individuals experience of care and at the same time reducing the per capita costs of care (31, 32, 33). The GK model is combining a redesign of services, IT-integration, public health and prevention measures and aims to integrate social and healthcare services (31). The GK model aims to foster patient self-management and enhance shared decision-making with individual care plans and shared goal setting agreements between the physicians and the patients. The statement of one physician and initiator of the programme illustrates the GK philosophy: "So in general, we maintain a bottom-up approach" (IP06_02).

The leading care concept used in the model is the Minimally Disruptive Medicine (MDM) care model, which is a patient-centred and context-sensitive approach designed to address all factors influencing the implementation of the care (34). Although multi-morbid persons are no exclusive target group in the GK model, specific care modules are offered for them, including: polypharmacy interventions, digital cockpit reports for physicians, and self-management training programmes (31). The GK model is one of a few integrated care programmes in Germany with a population based integrated care approach. Distinctive features of the GK model are the holistic person centred focus, a trusting relationship between health- and social care professionals and other partners in the region. External and internal scientific evaluation is ongoing since the inception of the model and results show improved outcomes with regard to the triple aim (31).

4.2. Service delivery

4.2.1. Design of delivery of care

Each person insured with one of the participating sickness funds can be enrolled to the GK programme. Participating insurance funds, cooperating physicians and other providers in the region promote the GK programme to call the patient's attention.

After a person enrolls in the GK model, a comprehensive check-up, including e.g.: medication, medical history, resources etc. by a GP follows. If a person is classified as being at risk, an individual treatment plan is developed accordingly. Furthermore, based on the completion of a questionnaire regarding their general health situation, further treatment goals are jointly agreed upon. One physician explained this process as follows: "If I have a patient with for example overweight and Diabetes, I try to actively involve him. I ask the patient: What can you contribute to the improvement of your health status? What are you willing to contribute? What is your aim for your personal health? It does not matter whether the patient expresses the wish to be physically active, to reduce weight or to change the diet. Usually I try to include the patient's wish and adapt the treatment options accordingly in order to achieve the highest compliance and motivation. Of course I try to motivate the patient and try to activate the self-management abilities. All this information is already recorded in the patient file and treatment goals are jointly formulated. Treatment goals should always be feasible and achievable, hence adapted to the patient" (IP05_2).

GK offers tailor-made care programmes for enrolled persons. The physician serves as a coach, who provides enrolled persons with expert knowledge, in order to jointly develop a treatment plan that enables the person to pursue his or her prioritized health goals. Contacts between enrolled persons and physicians are more frequent compared to regular care as physicians constantly monitor the achievement of treatment goals (31). Enrolled persons and the community are considered as active partners in the GK model.

GK supports physicians with case management know-how, offers incentives to them and provides additional services for the enrolled population such as health education programmes.

Providing the right care at the right time and a continuous improvement of care services are guiding principles of the GK model. Care provision is based on meeting the “triple aim” approach which is about empowerment of the enrolled patients, vertical and horizontal integration of the healthcare services, the improvement of the health services through training of healthcare professionals and the evaluation of impacts (32).

Structured case management is an essential element of the GK model. For instance, physicians can involve social workers to supplement the care provision and to adapt to the comprehensive needs of the multi-morbid persons enrolled. Besides, partnerships with hospitals allow coordinating post-discharge care to reduce readmission rates and to improve continuous care. Defined procedures are part of the service contract between the hospitals and the GK as the programme manager explained: “[...] the obligation according to the hospital contract is, that the physician has to get a fax (with all information) on the day when the patient leaves the hospital” (IP01_2). Jointly developed care pathways, synchronizing medications across formularies specific to hospitals and ambulatory care providers, agreed between hospitals and other care providers, are other facilitators of better coordinated follow-up care (33).

Promotion of coordination and integrated care is a key activity in the GK model, because it is understood to be a major vehicle in achieving the ultimate aims (improving the health of the population in the Kinzigtal region, improving the individuals experience of care and at the same time reducing the per capita costs of care). For instance, much effort is devoted to the further development of coordination and cooperation among providers and facilities in a healthcare system which is very fragmented, particularly between the ambulatory and hospital sector (31). To further develop care services and in order to implement a new programme or care module in the GK model, all relevant stakeholders are involved as outlined by a manager of one of the programme offered within GK: “So every programme needs a structure. Respectively a preparation. This starts, when a new programme is created with a comprehensive research. At first there will be corresponding research by the project manager. [...] Then, in addition, a project group is always established for the creation of such programmes, which consists of the individuals involved. Usually physicians are part of it, of course. Within the depression management programme, for example, we also have psychotherapist on board. In other

programmes such as the 'ÄrztePlusPflege' programme of course also nursing professionals are involved. Because it is always important that all relevant participants are involved" (IP03_2).

In addition, collaboration with a community centre with joint housing options and nurses is currently under development. Moreover, several hiking trails designed for families and two walking trails for memory training are already implemented. As health promotion is a key instrument in the GK philosophy, a specific employee health management programme targeting small and medium-sized enterprises, which typically would not have the resources to provide such programmes in-house, was developed. Occasionally, the GK holds regional health festivals to be visible and present in the community and to get participants to try different types of physical activity (35).

Personal needs are the starting point for service planning in the GK model. This patient-centred approach is realised by means of the following elements:

- Developing individual treatment plans,
- Setting shared goals between physicians and members/patients,
- Enhancing patient self-management and shared decision-making,
- Adopting the Chronic care model, patient coaching and follow-up care provided by the physician of trust,
- Involving patients in the development of the programme (Patients advisory board),
- A patient's Ombudsman to ensure that members' interests are carefully considered,
- Patient satisfaction survey every two years. (31)

According to the programme manager: "The patient-centred care approach is paramount to the success of GK" (IP01_2) and embedded at three levels: at the (i) structural level, in (ii) the planning of interventions, and in (iii) the interactions between physicians and patients. At the structural level, patients are represented in a patient advisory board which elects their representatives on a biannual basis (all persons enrolled to the GK can vote). Moreover, patients have the opportunity to contribute to identifying and developing new programmes. One patient who is a representative of the patient advisory board explained the tasks as follows: "If other patients approach me with their needs and concerns; I forward their issues.

I forward their concerns so that these are considered and implemented as far as possible” (IP08_2).

Currently the patient’s advisory board consists of five elected members and one ombudsman. 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 GK first undergo a comprehensive health-check (including a self-assessment questionnaire). Based on the results they may be offered to participate in any of the health promotion and disease prevention programmes offered by GK. Patients are also given the opportunity to develop health-related goals (e.g. engaging in more exercise, quitting smoking, reducing alcohol consumption, or losing weight). These goals are discussed with the doctor and 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 an active co-producer of their health (36).

Currently the structure of services offered is changed in order to strengthen patient centredness even more, as said by a non-physician medical staff responsible for the implementation of several sub-programmes: "With regard to the new developments we just got to a very interesting point, because we're about breaking down the rigid structures of the programme. And to give the patient the opportunity to individually put its programmes together. And we have stated that we are going to break this programme down and create some kind of care module system, so that there are very clear topics, such as medicine, therapy, medication, exercise, relaxation. [...] so that the patient has the option to select different modules of the programme, of course always upon the physicians’ recommendation [...]" (IP06_02). The key activities and programmes offered in the GK model are depicted in Box 4.

Box 4: Overview of programmes and services

2006	<ul style="list-style-type: none"> – Chronic heart failure management – Diabetes mellitus type II management (Disease Management Programme, DMP) – Breast cancer management (DMP) – Shared decision-making training
2007	<ul style="list-style-type: none"> – Lifestyle intervention for patients with metabolic syndrome – Quit smoking programme (smoke-free Kinzigtal) – Active health promotion for elderly – Intervention by psychotherapists/psychiatrists in case of acute personal crisis – Coronary heart disease management (DMP) – Start of electronic integration of all physicians (central patient record)
2008	<ul style="list-style-type: none"> – Prevention of osteoporosis/ osteoporotic features – Social case management for patients facing problems with finding appropriate information and management for their complex social situation – Asthma management – COPD management
2009	<ul style="list-style-type: none"> – Medical care for the elderly in nursing homes – ‘Gesundes Kinzigtal gets moving’ initiatives – Patient academy classes initiative
2010	<ul style="list-style-type: none"> – Start of planning health and fitness training centres – Better management of major depression – Start of central electronic patient records
2011	<ul style="list-style-type: none"> – Physical exercises and treatment for patient with back pain – Early detection of treatment of rheumatic disorders – Hypertension and prevention of renal diseases – Improving medication adherence of elderly patients by distributing unit dose blisters
2012	<ul style="list-style-type: none"> – Health promotion programmes for unemployed – Reduction of antibiotic medication for various indications – Music therapy for patients with chronic pain problems – Start of a new approach to the development of a central electronic patient record connecting all physicians
2013	<ul style="list-style-type: none"> – Educational campaign for incontinence and pelvic floor training – Health promotion/health management for small and medium-sized companies and their employees – Coaching high cost patients with complex psycho-social needs (enlargement of the social coaching programme) – Start “Selbstbestimmt & Sicher”, a programme supporting elderly and sick patients by using monitoring devices to detect falls and to ensure their safety in their own apartment or house (to reduce unnecessary nursing home stays and hospitalisation) – an EC funded project on “ambient assisted living” – Start of the new central electronic patient record connecting all physicians (CGM-net) – Start “Gesundheitsakademie Kinzigtal [health academy Kinzigtal]” – a training and

	education institute mainly for healthcare professionals
2014	<ul style="list-style-type: none"> – Reduction of delirium stages for patients in hospitals: to reduce the number of anxiety and complications after a surgery (GK in collaboration with the hospital staff) – Smoke free intervention before a surgery together with GP's and hospitals –supporting patients to stay free of smoking 4 weeks prior to elective surgery and offering smoke free training – “Beyond Silos” – EC-funded project to connect the ICT-systems of the central electronic patient record of the physicians with the ICT-system of social care – Screening interventions for the population with a migration background and their specific health needs
2015	<ul style="list-style-type: none"> – Start of the construction of a training and education centre “Gesundheitswelt Kinzigtal [world of health]” – Start of “Gesunde Betriebe im Kinzigtal [Healthy companies in Kinzigtal]” – a network of small and medium sized companies dedicated to improve the health of their employees and families – Implementation of a version 2.0 of several programmes having already started in earlier years (after evaluation and redesigning the outlays of the programmes)
2016	<ul style="list-style-type: none"> – ÄrztePlusPflege the aim is to promote the continuity of in nursing homes and to reduce hospital admissions – Sozialer Dienst further integrated social services in order to complement the work of medical care sectors i.e. in case of re-integration to the workplace after a chronic disease episode

Source: (31)

4.2.2. Self-management interventions

Physicians, other health professionals and practice staff are trained in supporting patient self-management and shared decision-making. The enrolled person and the physician jointly develop a treatment plan and set up treatment goals, which are regularly revised and adjusted. GK offers a range of services for the enrolled persons, such as patient education programmes and patient self-care programmes covering different chronic diseases. The GK model aims to improve healthcare services through training of healthcare professionals, more integrated delivery of healthcare services and continued evaluation of their impact. This approach should result in a move away from the traditional acute care focus towards a goal oriented alliance between the physician and the patient. A patient described the shared decision making: “I always have the right to have a say. It concerns my health. A physician can tell me what he wants, but if I say ‘no’, I mean ‘no’ and consequently the care is adapted. The physicians here always ask me what I want to do to change something or how I prefer to start” (IP08_2).

Moreover, the GK includes the patient in decision-making processes and presents their ideas for additional care programmes to their management board. Structured case management in form of self-management support is an essential element of the GK programme as shown during the interview with a non-physician medical staff responsible for the implementation of several sub-programmes: "Yes, there is a ... there is a conversation, from which you can receive information, okay, about what they are looking for, what can they do, [...] in fact we want to do little care, because actually we want to actively make the patient aware to do something on their own [...]. We do not want to be the clucking hen, who asks every week did you do this, did you do that. Thus, like this the patient is never going to do something independent. So the idea and our philosophy is in the end to support self-empowerment, so that the physician is not the coach for a patient's entire life, but simply the companion, a 'supervisor' for a certain time" (IP06_02).

With respect to the care for multi-morbid persons he also explained that: "We do not have a special programme for multi-morbidity, but we have different programmes that could be combined" (IP06_02). GK is currently organizing the implementation of a self-management training programme in 2016, in which coaches and patients with multi-morbidity will jointly develop individual coping strategies. The aim is to train patients with multi-morbidity in improving their coping skills and the organisation of their daily activities and family lives, irrespective of their specific diseases. Within six sessions a patient with multi-morbidity will be trained in the new health academy of the GK GmbH. The classes will be held jointly by a health professional and a multi-morbid patient, who is opting to act as a coach. Their training is based on a specific manual developed by Lorig & Holman. Furthermore, GK offers services, such as patient education programmes and patient self-care programmes covering chronic illnesses (31).

The community engagement and increased health literacy are supporting an informed choice and the co-design of services (35). However, such a cultural change will develop over time and the GK model is actively facilitating that step by step.

4.3. Leadership & governance

The governance of the GK case is composed of the local physician network (MQNK), which owns 66.3% of GK GmbH and OptiMedis AG, an independent health management organisation, which owns the remaining 33.7% of GK GmbH (37).

The management organisation acts as a regional integrator as the GK model prioritises strong stakeholder consensus building and is responsible for the coordination of all the providers participating in the network (35). So far 58 % of all the GPs and specialists of the region have a partnership with the GK. The GK holds long-term contracts with three statutory, non-profit sickness funds (see Box 5):

- AOK Baden-Württemberg (AOK BW): a sickness fund which belongs to the German statutory healthcare system. As of 2014 it served around 31,500 policy holders in Kinzigtal.
- LKK Baden-Württemberg (LKK BW): a sickness fund that only serves people in the agricultural sector. As of 2014 it had about 1,700 policy holders in Kinzigtal.
- TK – Baden-Württemberg (TK BW): a sickness fund that recently joined the GK model with a special and innovative treatment agreement as explained by the programme manager: “The TK recently joined the GK, which entails a certain innovation because we moved away from our present care model towards a model of reimbursement of costs for individual programmes, which will be offered to the patients” (IP01_2). TK insured persons now get reimbursed for their participation in five specific programmes (see Box 4).

Box 5: Sickness funds involved in the GK model

Originated in a contract with the AOK BW and the LKK BW, the coverage of participants in the GK was certainly limited. The LKK BW can only insure people occupied in agriculture and their dependents. The AOK BW, one of the previous “local” sickness funds was only open to people living in a predefined area. Although, this was reformed in 2007, the AOK BW has still a very regional focus. In 2016, the AOK BW had 4,05 million insured within the SHI of Germany.

This is contrasted by the 9,1 million insured of the TK in 2016. Before 2007, only occupations of engineering or technicians were insured by the TK. Since then, the TK has gained a lot of new members (as did the AOK BW), disproportionally in young age cohorts. It is thought, that some important average parameters of the portfolio of insured as age, morbidity, claims for demanded health services etc. vary significantly across the sickness funds participating.

Since 2016 the AOK and the GK have an innovative and unique contractual arrangement. They have agreed on the continuation of the successful contractual with an indefinite contract valid with effect from 01 January 2016th. An initiator and physician of the programme stated this effectively means that “[...] we are no pilot project anymore, we are a substitution of regular care” (IP02_2).

Currently, almost half of the 10,000 inhabitants of the Kinzigtal region are enrolled in the GK model (see table 3).

Table 3: Overview number of enrolled persons

Year	No. of Participants
2012	9053
2013	9806
2014	10190
2015 (December)	9271
2016 (April)	9692

Furthermore, the GK brings together different stakeholders involved in the service provision. In addition to usual healthcare providers, cooperation's with 38 community groups, such as sport clubs, gyms, dancing and hiking clubs, associations for persons with disabilities, women's groups, local self-help groups, and since 2013 the 'Healthy Kinzigtal Academy', exist (see Box 6). The 'Healthy Kinzigtal Academy' provides training and programmes to strengthen health literacy, primary prevention, lectures on health and self-management for a whole variety of diseases and health issues. Moreover, it is a training academy for healthcare professionals (31). Although informal caregivers are not the primary target group within the GK model, regular trainings are offered in the 'Healthy Kinzigtal Academy' for them as well. The newly build "World of Health" is a medical physical exercise center for the persons enrolled to the GK.

Physicians can involve social workers to support members (patients) of the programme in their treatment, and thus improve the compliance among patients.

Box 6: Stakeholders involved in the service provision

Partnership contracts:

- 2 sickness funds (AOK BW, LKK BW)
- 33 GPs and Paediatricians
- 27 Medical specialists and psychotherapists
- 10 Physiotherapists
- 8 Hospitals / clinics
- 11 Nursing homes
- 5 Ambulatory nursing agencies
- 2 Psycho-social care agencies
- 16 Pharmacies

Cooperating partners:

- 6 Sport clubs
- 38 Voluntary associations, sports clubs, social clubs etc.
- 4 Other cooperating partners (e.g. women' groups, self - help groups)

GK has implemented its services during recent years by drawing up a number of service contracts and establishing a strong network of service providers as described in the previous paragraph. The partnership contracts established with the organisations help promote professionals' cooperation, and set common objectives. This is particularly true for the GPs, physiotherapists and nurses associated with the GK GmbH (36). The motivation behind these different partnerships is to overcome fragmentation in service delivery, to enhance coordinated follow-up care, and to improve communication between participating providers and health and social care facilities. Networking among participating providers and healthcare facilities is a priority in the GK programme. This statement of a non - physician medical staff person illustrates a typical situation for the collaboration among participating providers in the GK: “[...] the nursing management is currently also always involved in case conferences, which take place here in Gesundes Kinzigtal in which also physicians participate who cooperate with Gesundes Kinzigtal, and other care services or the management of care services. [...], in which you can simply discuss: What are the possibilities, what were the ideas of the other managements or what do the physicians have a say about it? [...] it takes place – as far as I know – once a month” (IP07_2). The founders of Gesundes Kinzigtal strongly believe in lateral management and working together face to face. This is not just a way of thinking but also considered to be a very important management tool. Eight times per year all participating physicians have meetings to exchange experiences and discuss potential improvements of the programme. Interdisciplinary networking is fostered by three-monthly quality 9 circles for all participating providers (31). The indirect ownership of the physician network of the Gesundes Kinzigtal GmbH is of great importance for the commitment of the partnering physicians and the OptiMedis AG (32).

4.4. Workforce

Patients being registered with a physician of their choice, often referred to as a gatekeeping system, is an important feature that distinguishes healthcare systems of countries. Germany is a country where such a system is not in place. By the introduction of the ‘doctor of trust’ the GK programme has been able to realise a sort of gatekeeping system, which is known to be

beneficial for coordinating care and avoiding unnecessary interventions. The patient and the physician jointly develop a treatment plan and set treatment goals, which are regularly revised.

In order to provide their enrolled persons with the utmost freedom of choice, they can choose their doctor of trust among GP's, specialists and psychotherapists but around 90% choose a GP (31).

Within the scope of the planned care modules (see section 4.2.1), the introduction of a new professional role is currently in development and will be tested within three involved GP practices. A non-physician medical staff member, who is responsible for the implementation of several sub-programmes, described this new professional role as: „ It is something that just doesn't exist in the usual healthcare system. This is a new role, yes" (IP06_02). All practices participating in the GK will be involved latest at the beginning of 2017. The tasks of this new profession will incorporate mainly the anamnesis, the planning of the individual treatment plan and especially the arrangement of the new care modules.

This new professional ("coordinator") will coordinate the care process as described by a non-physician medical staff member, who is responsible for the implementation of several sub-programmes: "[...] ... the GP's know their clients, they know exactly, okay, here I have a patient who is in need of more intensive care. According to the physicians' recommendation the patient consults the coordinator and an appointment will take place. At that point the coordinator is again conducting an anamnesis, which has already been done by the general practitioner, but which is supplemented by other factors. From that moment the coordinator gets in contact with the different sites. And then it depends somewhat on the patients' self-reliance; if the coordinator has to take part in the meetings, or if the patient can be sent off on his own. But ultimately, the coordinator is the one who initiates the networking between the different partners" (IP06_02).

As a result, the physicians can be relieved but they decide if they hand over those tasks or if they still fulfil them on their own. The name used for this new profession is also currently discussed the manager of the GK programme explained: „ [...] maybe 'health adviser', which sounds more general, or a 'coach' ... we don't know yet, something in this direction" (IP01_2).

The qualification/background needed for this coordinator role is also not clear yet as mentioned by the manager of the GK programme: “It's much about conversation [...] how I can manage to identify the patient's needs, how I can handle difficult patients. Professionals will be qualified and trained in this direction to be able qualified for this kind of tasks. But there is no need for extensive medical knowledge because ultimately the direction is already determined by the physician and by the modules, also the contraindications will be clearly defined in advance. After the selection of the specific programmes or modules there will be a possibility for consultation with the physicians if needed. But more qualification is actually not necessary” (IP01_2). During the initial phase health professionals working at the ‘Healthy Kinzigtal Academy’ will take over those tasks.

4.5. Technologies & medical products

All participating physicians and other healthcare provider like outpatient nursing care services and hospitals have access to the electronic health record and the cockpit reports. The electronic health record (EHR) comprises a standardized form of documentation, medical regime, information about allergies and intolerances, diagnosis and findings. The system-wide electronic health record enables information exchange, transparency and an improvement of the quality of care. This infrastructure is open to each health provider participating in the GK model. They can access data through a key card provided to the patient who thereby implicitly gives consent to the use of his or her personal health data (37).

The physicians agree which data to include in the electronic health record and each patient gives consent to the physician to access the patient data. A standardized physician's letter is used that routinely includes information about the patient's diagnosis and therapy. One physician and initiator of the GK programme described that: “the implementation of the electronic patient record is considered as a precondition for improving the quality of pharmaceutical care; in particular reducing unnecessary medication and an overuse of services, particularly for multi-morbid patients”(IP02_2).

The cockpit reports contain digital benchmark information to compare prescribing behaviour of the participating physicians. The use of benchmark information on prescribing drugs by means of the electronic patient files is innovative for Germany (38, 39).

All GK enrolled persons can make use of online appointments; in addition online prescriptions will probably be set up soon in all practices as outlined by a non - physician medical staff, who is responsible for the implementation of several sub-programmes: "Well the online prescription just need to be activated, but to say it in other words, the physicians are not yet ready for it" (IP06_2).

As part of a scientific trial the GK cooperated with the 'Sozialstation Hausach' for a duration of three years and tested Ambient Assisted Living (AAL) interventions for frail elderly persons, such as: devices that monitor the opening of doors, e-metering of electricity or daily physical activity of persons. The latter for example contained monitoring of patients by using movement sensors at the patients home to detect tripping. In case of a tripping (2 hours of inactivity), the data/information was sent to a server at the Research Center for Information Technology at the University of Karlsruhe (project partner) and the participating persons received a phone call in order to check their current health condition. In case they do not answer the phone, relatives or trained staff of the 'Sozialstation' was alerted.

In the communication between the doctor practices and patients, the telephone has almost a monopoly. This is caused on the one hand with the lack of a comprehensive IT infrastructure in the Kinzigtal valley and on the other hand with the relatively high average age of the target population. In particular, patients were reluctant to adopt e-Health programmes, for instance, for controlling heart insufficiency by electronic transfer of data on blood pressure or weight. "Scepticism and distrust of technology by patients was driven by a variety of issues, for example the lack of trust regarding data safety and a careful monitoring of the data from the physicians. In general, they prefer the face to face contact with healthcare providers".

The implementation of the electronic networking system took more than five years. Initially, scepticism also existed among older physicians, but meanwhile the electronic health record is accepted and used by all physicians, as one initiator and physician reveals: "IT is important,

without it nothing works anymore. I consider a central patient file as a decisive step” (IP02_2). Physicians receive a financial incentive including a compensation for their investments for the implementation of the improved IT-capacities. The initiator and physician further highlighted that: “The implementation of the electronic health record system could only be achieved on the basis of profound mutual trust among providers and the programme” (IP02_2).

Major obstacles in this respect are the relatively poor infrastructure in the remote areas of Kinzigtal and the attitude of the majority of the target population towards these applications. In the most rural areas the telephone continues to be the mostly used device for the communication between enrolled persons and healthcare practices.

Part of the idea of implementing new modules of care and the previously discussed new coordinator role, is to combine the services provided by the coordinator with work of the general practitioner. Therefore, the new coordinator will receive access to the electronic patient file to exchange information with the responsible general practitioner. Thus, continuity of care is guaranteed as the manager of the GK stated: “[...] the physician is able to ask adequate follow-up care questions after having received the information from the new care coordinator” (IP01_2).

4.6. Information & research/monitoring

Since the beginning of the contract (November 2005) comprehensive, scientific internal and external evaluations are an essential part of the GK model. The internal evaluation is conducted by one of the two sickness funds (AOK BW and LKK BW) and the OptiMedis AG (38). A representative of the sponsors/ payers described the importance of the internal evaluation as follows: “This just shows that it could be possible, [...] that both the cost side benefits and the insured persons as well, because at the same time we were running evaluations, whether the quality is adequate. This was for us as a sickness fund extremely important” (IP04_2).

External evaluation was conducted by an independent research institution, which is coordinated by a separate coordination agency, “Evaluations-Koordinierungsstelle Integrierte Versorgung” (EKIV) at the department of medical sociology at Freiburg University, Germany

(38). Until now, the evaluation results of the care data are only available until 2011 due to the particularities of the extraction of the routine claims data. Results of the economic evaluation are available until 2012. The latest available evaluation report is from 2014 (40).

The impact of all activities, services and programmes is evaluated by applying all three dimensions of the Triple Aim approach: improving the health of the population, improving the individual's experience of care, and at the same time reducing the per capita costs of care (32, 38). Different evaluation methods are used to measure these results, these include:

- Programme participants vs. risk adjusted non-programme participants
- Enrolled persons vs. risk adjusted non-enrolled persons
- Patients of involved physicians vs. patients of non-cooperating physicians
- Real development versus predictions

Experience of care

The first scientific evaluation involves a biannual survey with enrolled insured persons (randomly selected) in form of a written questionnaire to monitor patient satisfaction. Outcome indicators measured include inter alia: perceived health, satisfaction with the care provided and the physicians, changes in health behaviour, health-related quality-of-life and levels of activation. The survey results demonstrated high levels of overall satisfaction: 92.1% state they would recommend joining GK and 19.7% state that, overall, they have lived a healthier life since joining GK (with 0.4% stating the contrary and 79.9% stating no change). Among enrolled persons who had developed a health-related goal, 45.4% stated they now live a healthier life (compared to 0.6% stating the contrary and 54% stating no change) (35). Results of the patient surveys from 2014 have shown that members having agreed upon shared treatment goals were more successful compared to patients that had not set such goals. The former members, for instance, had been able to realise a healthier lifestyle (41). Survey results show that almost all patients would participate in the GK again model and would recommend their friends and family to participate (42).

The efficiency of services has improved as well as people's experience with the care provision in the GK (43). One of the physicians said that: Of course, patients already described a positive effect gained from the tailored programmes offered, especially those who increased their physical activity. Independent of their disease, whether they have Diabetes or rheumatic problems, several have already achieved to improve their health status. Patient's start to recognize that they are able to change something on their own and I have the impression that several programmes are well accepted among the patients "(IP05_2)

The second scientific evaluation is a quasi-experimental study comparing the intervention population to a matched random sample of around 500,000 sickness fund members from neighbouring regions (35).

Health outcomes

So far, external and internal evaluation has shown that the interventions of the GK have resulted in better health outcomes compared to usual care. Reduction of hospital admissions of 20%, reduction of morbidity costs of 20% and a 10% lower mortality rate compared with other regions of Baden-Württemberg not enrolled in the GK model (38, 43). The difference in mortality rate was reduced by half 2.5 years after enrolment among those who were enrolled in the GK model, compared to those who were not. Among those enrolled, 1.76 percent had died; the rate was 3.74 percent among those not enrolled to the GK model. This conclusion is further supported by the fact that even after the exclusion of deaths in the first six months (to take into consideration the fact that terminally ill people were not enrolled), the difference was still almost as large (1.59 percent versus 2.94m percent) (44, 43).

Overall, a propensity score matched control group suggests an increase in life expectancy by 1.4 years (35, 45).

Costs

Since the implementation of the GK model, the founders prove the economic sustainability of the shared health gain approach and the corresponding shared savings contract (45). Overall costs have developed favourably compared to expected costs, with annual savings amounting to €5.5 million in 2013. Results of an internal evaluation of the AOK and GK over the period of

2006-2013 show that the programme has led to a net annual saving for the sickness funds (AOK and LKK) of close to 3% (after having shared the 6,5% surplus difference with GK) (37, 38). The contribution margin, which is the difference between what the insurer gets from the central health fund pool and its spending, improved within the first years after the start of the model. The margin improved by €151 per person per year in the enrolled GK population, compared to the non-enrolled population (46).

One of the main drivers of these savings is related to emergency hospital admissions. Between 2005 and 2010, emergency hospital admissions increased by 10.2 per cent for patients in Kinzigtal, compared with a 33.1 per cent increase in the comparator group (32). GK expects that savings will further increase in the coming years as some of the health programmes will start paying off years after the initial intervention. The reasons for the observed effects are not yet fully understood and require further long-term evaluation.

Routine data analysis has shown a decrease in the overuse of health services for the prescription of i.e. anxiolytics, non-steroidal anti-rheumatics, non-recommended prescription for Alzheimer dementia, and an increase in the prescription of antiplatelet drugs and statin (where appropriate) for patients with chronic coronary heart disease (CHD) (35). However, a number of indicators have yet to show a significant change, as e.g. the analysis shows deterioration for osteoporosis patients with indicated medication, perhaps due to insufficient observational time (45, 35).

4.7. Financing

Without replacing the previous reimbursement schemes and financial flows between health insurers and individual healthcare providers, Gesundes Kinzigtal GmbH is now accountable for the whole (i.e. trans-sector) healthcare service budget for all people insured by AOK BW and LKK BW living in the Kinzigtal region (32).

To initiate the programme, the programme was financed from a start-up funding ('Anschubfinanzierung') from the two participating sickness funds, based on §140 SGB V (Integrated care). Since 2007 the model's main source of financing is a shared savings contract. Providers are directly reimbursed by the two sickness fund, as usual, while sickness funds in Germany receive prospective morbidity adjusted allocation per patient from the central health insurance fund regardless of a patient's actual costs. Savings have to be realized in the Kinzigtal region as compared to German standardized costs and to a reference period before the intervention. Standardized costs are the average costs across all sickness funds. If savings occur, they are shared between the fund and OptiMedis AG. The OptiMedis AG then shares its part of the savings among the physician network. All other service providers are not part of the shared savings (37). As a reduction of costs for all insured persons is crucial for achieving savings, the GK has an incentive to reduce inefficiencies inherent to the system, particularly where these are extremely high. The potential to increase savings is higher among patients using more healthcare services than average (31, 37). The financial goal of the GK GmbH is to improve the contribution margin of the two participating sickness funds, the AOK BW and LKK BW within the Kinzigtal region and to receive a share of the health benefit it provided (economically measured in the improvement of the margin of the contracted sickness funds) (31, 45).

On a yearly basis provider (physicians, physiotherapists, nursing homes) receive an additional refunding for their time invested to the participation in the programme and their additional time spent on patient care and follow up. In addition, physicians receive a financial incentive including a compensation for their investments for the implementation of the improved IT-capacities. Usually, patients do not receive any financial incentives, with one exception: Persons enrolled in the smoking cessation programme received one drug for free, which supports smoking cessation.

The different forms of contracting were explained by the manager of the GK as follows: "There is one form of contracting, where we pay money, where we have a cooperation agreement with an attachment entailing the information for which performance we have to pay in addition. That concerns the physicians, the physiotherapist and also the nursing homes. Then there are other forms of contracts, where for example the gyms grant our members a discount" (IP01_2).

For the patients/members of the GK programme, interventions and activities are available mostly free of charge (for some training programmes a minor co-payment is required, but often the patient gets refunded after having participated in at least 80% of the training sessions). Providers and patients are actively involved in the development of the programme (31, 45). The contract with the newly joined TK sickness fund is currently negotiated.

With the new and indefinite contract which is valid with effect from 01 January 2016 the financing model with the participating AOK BW sickness fund will change substantially, as described by one initiator and physician as follows: “Well, the new contract will initially be a large challenge for us. This means we will receive a budget for our enrolled patients from the usual payment system (KV System). Now we will make it on a fee for service basis. We now bear an entrepreneurial risk here as a really integrated network. We have an entrepreneurial risk, which no one can take away from us [...]” (IP02_2).

As a next step valid with effect from 01 January 2017, the GK will be responsible for the entire AOK budget, which the AOK previously paid to the Association of Statutory Health Insurance Physicians (KV) (see Box 7). From 2017 the GK will receive the entire budget for all insured persons. This innovative payment method was described as simultaneously beneficial and challenging for the GK model, the GK manager explained: “the Association of Statutory Health Insurance Physicians will request 9% more than on average for this innovative payment agreement, which will burden our performance. Thus it will become more complicated how we can deal with different incentives and e.g. how we deal with care providers that are not participating in the GK model, but providing care to persons enrolled in the GK. On the other hand this our chance. Currently we are negotiating how the contract and payment agreement will look like in 2017. This will constitute major changes, which will possible influence our future evaluation results. [...] it is not clear now, but possibly we will then have a bundled payment a lump sum for all physicians. This would require entire transparency among the participating physicians, however, there is much left to be discussed” (IP01_2).

Box 7: Collective agreements between SHI-affiliated physicians and sickness funds in outpatient care

Collective agreements on health provisions are negotiated between the regional association of SHI-affiliated physicians and the association of sickness funds. Therefore, providers do not have a direct contact with sickness funds while negotiating collective agreements. The scope of service and, in principle, payment is equal for all providers of a region according to the collective agreement in a given period. The total budget negotiated in the collective agreements are based upon (i) the core budget adjusted for morbidity, number of insured and regional particularities and (ii) additional funds for several strands of health prevention and screening. The core budget is based on data from the previous year.

Services in ambulatory SHI care or by office-based physicians, dentists, pharmacists, midwives and many other health professionals are subject to predetermined price schemes. The most strictly regulated and sophisticated reimbursement catalogues have been developed for physicians and dentists. First, the sickness funds make total payments to the regional associations of SHI physicians for the remuneration of all SHI-affiliated doctors, based on a budget calculated on previous years. Second, the regional associations of SHI physicians have to distribute these total payments among SHI-accredited physicians according to the Uniform Value Scale. The Uniform Value Scale describes the various services that can be charged by SHI physicians (§ 87 SGB V) and, therefore, has the function of a benefit catalogue and is binding for all practicing physicians and for the outpatient care of all those insured through the SHI system. Physicians are therefore incentivized to collect as many points in the Uniform Value Scale as possible, although the final budget is capped and regulated. Next to the bureaucratic burden, also the system per se was often critiqued as it is incentivizing providing more health services.

Source: (12) with modifications according to authors.

4.8. Implementation process

4.8.1. Historical information

The political framework in Germany during the time of project's inception was supportive of the programme particularly through start up financing, which it received from 2004 until 2008. Between 2004 and 2008, as laid down in the "GKV-Modernisierungsgesetz" (GMG), sickness funds received funding that allowed them to use 1% of the resources for ambulatory physicians and hospital care for the conclusion of integrated care contracts (9). Until 2007, GK benefited from the start-up funding according to the above-mentioned political framework (45).

The programme GK GmbH is a limited liability company. Founded by a local physicians network (Ärztendorf –MQNK), existing since 1993 with more than 40 physician members, and a health management company with a health sciences background (OptiMedis AG), established in 2003. After jointly establishing GK GmbH (GK), they convinced two sickness funds, the AOK Baden-

Württemberg and the LKK, to participate in a cost-saving agreement (31). One representative of the sponsor/payer described the experiences during the initial process as follows: "Initially I had not understood that this project [...] would take the overall responsibility not just for the enrolled insured persons but also for the ones not enrolled. [...] the reason I was sceptical at first, was that I have experienced many integrated care projects, where 'cherry picking' is practiced. [...]. And as I understood that the GK model does not work at all like this, my initial scepticism vanished" (IP04_2).

MQNK provides medical expertise and its members. They are familiar with the region and its people and aware of the strengths and shortcomings of the region's healthcare system. OptiMedis AG adds medical sociology, health economics, and integrated care management to this partnership, as well as management know-how and the capacity for financial investment (32).

The main idea behind the GK was described by an initiator and physician as the following: "[...] previously, you were as care provider or as a consortium not allowed to make selective contracts [...]. This situation implied from the outset the death of any innovative approach. Thus, I said, we have to liberate ourselves from those rigid contracts. That was one central aspect. And the other aspect was, that I have spent a lot of time with Managed Care concepts from the USA, and I have thought about, how this could be introduced and optimized in Germany [...]" (IP02_2). The founders and initiators of the GK model were confident that enhancing patients' self-management capabilities in combination with intensifying health promotion will lead to an improved population health in comparison with normal care (45).

4.8.2. Present information

Since 1 June 2016 the sickness fund TK also cooperates with the GK initiative. A scaling up of the GK model is planned for different regions in Germany and abroad, depending on contractual negotiations with sickness funds, research and innovation funding. Specifically, a replication is planned in other areas of Baden-Württemberg, Hamburg, Berlin, Bochum and Saarland. Moreover, a company was established in the Netherlands (OptiMedis NL) to implement the model in various Dutch regions. In Belgium the government is currently looking

for an innovative approach for the integrated care of chronically ill persons and is negotiating with OptiMedis AG about a programme for the German speaking region. In addition, GK's manager said that there is „[...] another initiative by former sickness fund employees who want to start an OptiMedis AG in Belgium, at national level. There we are currently in a process at various levels and even the Ministry is interested in supporting this initiative (IP01_2)“.

With respect to the care for multi-morbid persons, GK currently develops specific care modules, as already emphasized in section 4.2 and 4.4. The overall aim lies in the ability to adapt the existing programmes to the specific needs and wishes of the GK members/patients as explained by a non-physician medical staff responsible for the implementation of several sub-programmes as follows: “[...] To sum up we will develop a personalized programme planning for the patients. Thus, [...] we will actually get much closer to the subject of multi-morbidity” (IP06_2). Different modules for the assistance of the patient could be either a training module, a self-management module, a psychotherapeutic brief intervention or a particular module where the physician assistant regularly reminds patients of certain things (by telephone). As explained in section 4.4 a new profession will be responsible for the consultation and planning of those individual programmes, if the responsible physician makes an appointment for their patients.

Gaining additional sickness funds to participate in the GK is an elaborate process as the manager of the GK pointed out that: “What happens occasionally is the development of new contracts and the acquisition of additional sickness funds for the GK model. This process is very laborious, complex and sometimes time consuming” (IP01_2).

4.8.3. Future implementation/development

The manager of the GK described that potential areas for future implementation/development include migrants and gender specific topics were described, for example: „At the moment we are working on the issue of migrants, a not a very large, but existing group in Kinzigtal. Initially, we dug deeper in this theme. But the physicians said that's not a problem at all. But now we have found out, about the Turkish community, that they don't know anything about the GK

model and that they have no link to it until now. So we are working on this issue currently. Recently, we also organized a Woman Health Day and soon a Men Health Day” (IP01_2).

4.9. Discussion

4.9.1. General discussion

The GK programme is characterised by its comprehensive population based integrated care approach, its depth of coordinated organisation of care across all sectors, its scope of provided care from health prevention to secondary care, and indications covered. Ten years after its launch, the GK model has created a comprehensive portfolio of health services across the usually strictly separated health and social care sectors. By achieving an indefinite contract with one sickness fund and long-ranging contracts with two further sickness funds, its long term sustainability seems secured. Instead of producing care services, as usual in healthcare systems, the GK programme pioneered in producing better health for the entire Kinzigtal population. Over ten years’ time, the investments in well-designed preventive and health promotion programmes have led to reductions in morbidity and mortality as well as lower overall costs for the sickness funds involved. The continuous, comprehensive external and internal scientific evaluation of the project can serve as a good practice in the German healthcare system.

The Kinzigtal region has been a favourable environment for the initiation of the programme. The physician network, that existed since 1993 served as a solid basis and physicians had a strong position in primary care due to the limited number of healthcare facilities in that area (31). From the outset, there was a concerted effort to bring people together to define a common vision, to share goals and activities among all participating providers and mutual trust among the participating providers developed over time.

Nowadays the physician network is more than just an interest group as one of the physicians of the network emphasized: „ [...] it meanwhile became a very familiar and friendly base. The physicians know each other and work together. Medical findings are exchanged to the benefit of the patient, physicians take care” (IP05_2)”. By using the central health record every physician has access to the results of their participating colleagues, e.g. to medications or lab

results of the patients. This requires trust between the physicians and joint experiences in working in teams. Another enabling factor is the reduction of bureaucratic obstacles, as described by one representative of the sponsor/ payer:” There are on the one hand, the structures programmes we created. On the other hand, we have the unbureaucratic collaboration among all involved providers, in particular among the physicians and the sickness funds [...] on this basis we are able to find timely solutions that enable us to improve the care of the patients, accelerate the care process and finally save costs“(IP04_2).

Furthermore, the GK expanded its network to other sectors in the last years, and are now also covering long-term nursing care. By expanding their network to also not-health relevant organisation as e.g. enterprises, the GK plays also an important role as a regional network, that creates jobs, visibility and sensitivity towards early health prevention.

The GK has created an unusual cooperation between sickness funds and providers, enabled by their innovative financing approach. Providers are incentivised to engage in health promotion, coordinated care and long-term care plans that could deliver savings. As these savings stem from the efficiency gains in coordination, procurement, improved health outcomes and prevention of health service provision, providers and sickness funds alike have experienced a cultural change. In 2016, the GK is no longer a pilot integrated care programme, but responsible for the overall health provision in the area in the long term. This emphasizes the trust in the GK and value of the achievement, but also a challenge of re-organising the foundation of its success in terms of financing and contractual relations. The programme also received (inter)national attention, and initiatives to set up similar programmes in other parts of Germany, Belgium and the Netherlands are underway. It will be interesting to see whether favourable outcomes can be replicated in these settings as well.

4.9.2. Discussion of the programme in the context of the conceptual framework

Service delivery

Service delivery in the GK model enables care integration across the care continuum. Health and social care providers are included in provision of care, which is particularly important for the comprehensive needs of the multi-morbid persons enrolled. Due to the involvement of different providers from different sectors follow-up care is better coordinated and the continuity of care is promoted. Key features of the GK model are the development of individual treatment plans and goal-setting agreements between the doctor and patient. Enhancing patient self-management is an essential element as well as shared decision-making. Enrolled persons are pro-actively involved in the development of the treatment plan and entire care process. However, the involvement of informal carers could be enhanced, particularly with respect to the multi-morbid persons enrolled. So far, regular trainings are offered to informal care givers, but further support, active involvement in the care or in the programmes offered at GK would be even more beneficial. The implementation of the individually adaptable care modules will be an important step in adapting the existing programmes to the specific needs and preferences of the multi-morbid GK patients.

Leadership and governance

Another key driver of the GK model was the establishment of an organization, whose pivotal role was the redesign of population health management and financial management to facilitate system integration. Moreover, a concerted effort to bring people together to define a common vision, to share goals and the development of mutual trust among all participating providers are key to the model's success. Enrolled persons are considered as active partners in the development of the GK model; therefore a patient advisory board has been founded. A novelty is that the management organisation acts as a regional integrator as the GK model prioritises strong stakeholder consensus building and is responsible for the coordination of all the providers participating in the network. The GK model is no longer a pilot project, but responsible for the overall healthcare in the area. This development is based on trust among the GK and the sickness funds as well as the management of re-organising its financial and contractual relations.

Workforce

The activities of German physicians (compared with other countries) are characterised by their wide spectrum, i.e. they perform tasks that could be carried out by lower care levels or other professionals. Therefore, the introduction of a new coordinator –, a role already seen in many integrated care projects – who will coordinate, plan and arrange the care for the enrolled persons, always in close cooperation with the responsible GP, is envisaged. This new professional should will be trained in communication, identification of patients' needs etc. in order to complement and support the physician's work, without replacing it. It remains to be seen however, when and in what shape exactly, this new role will be implemented.

Through the introduction of the 'doctor of trust' the GK programme has been able to realise a regional gatekeeping-type system, which is known to be beneficial for coordinating care and avoiding unnecessary interventions. The patient and the physician jointly develop a treatment plan and set treatment goals, which are regularly revised.

From a physician perspective there is also a personal interest to promote the GK model. Their interest is to make this region attractive for younger colleagues to guarantee service provision in the long-term. GK invests money to attract young doctors to the region by offering training positions to make them familiar with the GK model. Young physicians are expected to become aware of the advantages of working in such a physician network, but also attentive to the additional tasks and services expected within the scope of work in the GK model.

Technologies and medical products

By using a shared health record all physicians have access to information about what other practitioners ordered, diagnosed or prescribed for their patients. Although physicians already share patient information by using the central medical record, this could be improved by supplementing this with an integrated nursing record. This could help optimising patient care and facilitate better nursing care. There still exists reluctance to implement planned ICT solutions such as online prescriptions among GPs. However, many other technologies are already implemented. For instance there is interoperability with cooperating hospitals and their information systems and interoperability with the information systems of the social care

organization. As part of a scientific trial the GK tested Ambient Assisted Living (AAL) for frail elderly persons. The elderly often had problems operating the electronic tools or forgot to e.g.: press a button after 24 hours to inform the researchers that they do not need any support.

Information and Research

The GK model benefits from the continuous, standardised evaluations since the beginning and the transparent exchange of data and results among the participating providers. Based on the evaluations, programme managers and sickness funds are able to judge the different programmes and their effectiveness for the persons enrolled. Providers can assess, analyse and discuss their results with all GP's involved and are able to improve their care provision based on the comparison with their colleagues.

Financing

An innovative aspect is the programme's financing, as the shared savings arrangement is still an uncommon business model in Europe. It includes both incentives for sickness funds and providers and integrates actors which usually operate separately. The aim of this business model is to invest in health in order to improve it in the long-term. Instead of producing care services, as common in healthcare systems, the GK model pioneered in producing better health for the entire Kinzigtal population. Although it was challenging in the beginning to convince other stakeholders of this business model, the continuation of the GK model now seems guaranteed due to the indefinite contract.

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6. Appendix

Table 4: Anonymised list of the interview partners

Interview partner number	Stakeholder	Interview date
Programme 1 Casaplus		
IP01_1	Manager 1 of the programme	23.05.2016
IP02_1	Manager 2 and evaluator of the programme	23.05.2016
IP03_1	Initiator and manager of the programme	23.05.2016
IP04_1	Representative of the sponsor/payer 1	24.05.2016
IP05_1	Health/ nursing professional	24.05.2016
IP06_1	Physician	24.05.2016
IP07_1	Informal caregiver 1	23.05.2016
IP08_1	Client 1	23.05.2016
IP09_1	Client 2	23.05.2016
IP10_1	External stakeholder/ physician and initiator	22.06.2016
IP11_1	Representative of the sponsor/payer 2	22.06.2016
IP12_1	Case manager 1	23.05.2016
IP13_1	Case manager 2	23.05.2016
Programme 2 Gesundes Kinzigtal		
IP01_2	Manager and initiator1 of the programme	09.06.2016
IP02_2	Initiator2 and Physician 1 of the programme	16.06.2016
IP03_2	Non-physician programme management staff	17.06.2016
IP04_2	Representative(s) of the sponsor/payer	28.07.2016
IP05_2	Physician 2	17.06.2016
IP06_2	Non-physician programme management staff	16.06.2016
IP07_2	Non-physician medical staff	16.06.2016
IP08_2	Client 1	16.06.2016
IP09_2	Client 2	16.06.2016