BUDAPEST CORVINUS UNIVERSITY

THE COMMUNITY HEALTH EXPERIENCE MODEL

Health transaction network-based
service development in practice

PHD THESIS

Supervisor: Dr. Simon Judit CSc

Dr. Lantos Zoltán Tibor

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Dr. Lantos Zoltán Tibor

The community health experience model

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Institute of Marketing and Media
Department of Marketing Research and Consumer Behaviour

Dr. Simon Judit CSc

Corvinus University of Budapest
Business and Management Doctoral School

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I Introduction

The aim of this study was to develop and test a health transaction network-based service in practice with focus on the transactional nature of health value generation networks. First, I analysed the transactions in the networks, and then proposed a design structure – the Community Health Experience Model – for effective person-centred health value generation networks. In the second phase of the work I described how the system design of the complete transaction network was tested in a real-life pilot environment focusing on fall prevention in individuals with osteoporosis.

According to global and social trend analysts the need for holistic and sustainable health will be one of the drivers of innovation, and health care sector will be the main engine for economic growth in the coming decades [Nefiodow2006]. In this process the system of health care services will also transform adapting to the changing environment. Technology is shifting from its central role and develops into a service element of patient-centredness on the one hand, and cost efficiency and effectiveness of treatments will be more important as resource scarcity remains a feature of the public sector, on the other.

In line with growing global trends, the patient—the customer who uses services—has come to the focal point of managing and running health care services. Traditionally, health care viewed medical treatments as a one-way process, health care assumed all the responsibilities, and patients were treated as the subject of the cure. Physicians treat their patients as a 'kind of heroes' while focusing on the actual intervention [Gawande2010]. In the new health care system everything has been shifting towards an interactive relationship and shared responsibility where collaboration with, behaviour and decision-making of patients as customers are becoming of the vital importance. Furthermore, physicians' individual responsibility is being superseded by therapy-related, and in broader sense, health-related collaboration between physicians of various medicines and health care professionals on the one hand, and with service providers, social actors and civil organizations, on the other.

Paradigm shift also means that curing diseases effectively does not depend on the advancement of and compliance with healing processes only, apart from professionals, patient's responsibility and active involvement in the therapy is also needed. This is particularly true for health maintenance including prevention and post-rehabilitation.

A wide range of professional and technical support has been available for patients to facilitate self-management, enhance motivation and implement continuing activities. Increased role is given to information customized to the customer-patient, and to informed consent and decision-making of the patient about the purpose, potential risks of the treatment and the healing process, as well as about the collaboratively attainable outcomes [Epstein2005].

At the system level, intervention-based controls imposed by health care providers lead to decreasingly smaller and smaller efficiency increases; there is one single actor remaining in the system, the beneficiary of the service—the sick, the patient—who has become the key player of an efficient medical treatment and recovery process. Various research studies confirm that coordinated support and service provision to patients, as well as patient-physician collaboration are the largest reserves in efficiency of interventions [Vermeire2001].

Lack of coordination of separate interventions has led to huge deficiencies, and this is one of the key objectives of efficiency improvement [Glouberman2001a]. Carefully coordinated interventions can achieve a much higher value than a series of successive or coexisting interventions that are almost independent from each other. Furthermore, there are also serious deficiencies in patients' lifestyle, change of behaviour, adherence to physician's advice and medication, thus the effectiveness of treatment processes is highly unpredictable.

Summing up the history and development of health care services in terms of change directions, the following can be stated:

- In the past fifty years the effectiveness-based approach is increasingly taken over by efficiency-seeking efforts;
- This requires a new—adequate and more regulated—behaviour from service providers;
- Very recent expectation of the patient is to be engaged in the therapy;
- And additionally, individual medical treatments provided by subordinates are replaced by health care services that are based on team work and horizontal collaboration.

Consequently, it can be stated that collaboration is of the vital importance in the health care sector at present will be in the future, the main areas of cooperation are:

– collaboration between service providers,

– collaboration between service providers and patients,

– experience exchange between and network-type collaboration of patients.

A) Background

II Marketing paradigm change

II.1 Cooperative society

Societal transformation has an increasing impact on everyday life. Instead of solutions of competing capitalism, solutions of cooperative capitalism have been emerging in more and more segments of our life [Smith2003]. Uber and Airbnb, fiercely criticized but widely used, are two examples of this development. Yummber, a social platform (yummber.net) is currently a less known Hungarian invention which supports communal share of home-prepared meals. Snacks or lunches cannot only be shared with classmates or colleagues but also with an entire block or a residential quarter.

The most important change is that the seemingly unsustainable consumerism [Worldwatch10] has been superseded by value-centredness with its various implications. In a competitive environment, market actors have preferred to pursue an aggressive policy to push out competitors and to increase consumption for decades, but today market actors increasingly strive to develop cooperative solutions across the world. Competing enterprises and market players run various processes of the similar or same kind in their value creation process, therefore they tend to turn to each other and seek legally acceptable forms of collaboration. The term ‘co-opetition’ was born to name this dual market behaviour [Brandenburger1996]. Another particularly important approach of the cooperative society is the hybrid business model in which value-based collaboration has been developing between for-profit enterprises and the civil society [Drayton2010]. The greatest advantage of this phenomenon is that value goods will be available for much more people than before enhancing the overall social value considerably. Thereby, social interests come into the forefront to replace individual ones, as a result of which health and living in harmony with the nature have been gaining ground instead of the narrow overriding economic wellbeing.

In the aggressively competitive environment, the society and its power structure have become increasingly system-centric, and people were overshadowed sometimes entirely by the rational, mostly technocratic and result-focused machinery. Not only people, often humanity as well. Instead of rigid system-centric solutions, social value

creation with people in the centre has been the main guiding principle of an increasingly cooperative society. To this, the Internet and particularly the mobile Internet have created a technology platform, and opened up opportunities for collaboration across the society.

These days personal experience is in the focal point of the economic system which is achieved through relationships at community level, and this era was preceded by eras of production and services [Pine2011]. As a result, our views about value exchange have also changed fundamentally. Philip Kotler, together with Achrol [Achrol2012], calls attention to the fact that in the new social order we have to think entirely differently about marketing, that is, about value exchange. At individual level, experience is the purpose of exchange, at community level relationships are becoming dominant and the main driving force of value interactions; whereas in the globalizing society the main task is to define individual and social responsibilities within the framework of the new society. In the light of the latter increasing expectation, the trend-like credibility crisis of several large enterprises and brands that pursued aggressive competition becomes clear [Andreopoulos2011].

Our view about exchange of values in line with its features has also been changed in the past decade [Vargo2004]. According to Service Dominant Logic:

> The application of specialized skills and knowledge is the fundamental unit of exchange.
>
> Indirect exchanges mask the fundamental unit of exchange.
>
> Goods serve as distribution mechanism for service provision.
>
> Knowledge is the fundamental source of competitive advantage.
>
> All economies are services economies.
>
> The customer is always a co-producer.
>
> An enterprise can only make value propositions.
>
> A service-focused view is customer-centred and relationship-oriented.

Knowledge is the unit of exchange that can be embodied in goods or services. Knowledge invented, acquired, developed and organized by manufacturers and service providers is packaged into various products and services that work as means in the

process of value exchange. In this framework it is easier to make sense of interactions without money such as local moneys (http://helyikozossegipenz.blogspot.hu) or cash equivalents, e.g. community's grandmother services or 'smile voucher' to encourage exchange of household services in a community ((www.szivessegbank.lap.hu).

An essential aspect of practical implementation of exchanges and value creation is that producers and service providers can only make value proposition because value is created by the customer while using the knowledge embodied in the product or service. For example, I can enjoy the benefits of a Zepter pot promoted to be healthy only if I start to cook something in it. But if I am reluctant to use it because it is difficult to wash up, or I am scared to use it because it was very expensive, the promise is unfulfilled because the spot sits unused in the cupboard.

Therefore, in the modern sense of exchange, value creation is always the outcome of co-production, and a customer can buy various products and services during the value-creation process. In summary, the relationship between actors in the exchange process is becoming more important than the transaction itself. Personal experience and the supportive relationship in particular is the base of brand loyalty and customer satisfaction. Retail research findings revealed that, for example, we prefer to do shopping where we can get an important piece of delicacy for ourselves and for our family, or take a bite to treat ourselves conveniently; whereas various ingredients of our weekly meals are bought in several stores of the eight food stores we visit every month on the average [GfK2008].

II.2 Individual-centric approach

Actual and potential customers are becoming more informed due to the fast increasing amount of interactions on the Internet, and regarding products and services customers are becoming more and more independent from corporate communication. The influencing power of enterprises, especially the power to manage perception of their products has been decreasing gradually. Furthermore, corporate communication designed for mass media has become increasingly impersonal in contrast with the personal nature of social media. This has contributed to the corporate credit crisis mentioned in the previous paragraph, and drew attention to the fact that organizations have to change their customer relationships if they want to be successful. Instead of heavy promotion—'push strategy'—they should strive to establish long-term

customer relationships. Marketing emphases have to be changed considerably and reconsidered radically [Rust2010]. Talks should focus on customers rather than on marketing, even the marketing department can be renamed to customer relationships or customer department. Thereby, the customer as an individual is put into the centre of an organization, and he/she is not handled as the subject of an often abstract marketing activity appearing only through the products of the organization. New organizations would find it much easier to implement this approach as the entire organizational structure and all the internal processes should be devised in line with an 'upside-down' logic. Through organizational change management it is a slow and lengthy process involving many risk factors and pitfalls, and this is the reason why this approach could be employed only to a small extent. Typical examples of the lack of individual-focused marketing are how even the biggest enterprises deal with their brands in the social media [Holt2016]. They prefer to pursue their own well-established and so far successful 'push' strategy and controlled communication, whereas individual-focused information provision is varied and experience-based. Similarly to redesigning communication, enterprises have to reconsider and redesign research and development, market research, customer relationships, supportive information systems, data collection and metrics including cost-benefit analyses.

II.3 Customer experience

As a result of the development of digital devices and contents, the relationship between companies and consumers has changed considerably from other aspects as well. Attributable to Internet communities and contents, the scope of impulses customers are subject to has become remarkably varied and diverse most of which can hardly be influenced by companies, if at all. While previously, companies tended to control customer relationships, together with brands and value creation forms, one of the fundamental changes of the digital era lies in consumer control over relationships and brands in particular, which in turn affect corporate communication and relationship opportunities considerably, as well as building brand equity. The importance of personal experiences is reinforced by the social media. Great many interactive customer experiences appear, much more than before, without the consent of the manufacturer or the service provider the offering of whom is the subject of experience.

The focus of the economy has also changed, in an experience-based economy value creation takes place mainly by living through the experience [Pine1999]. The value of brands and companies is largely defined by the relationship attached to the brand and the company which in turn is the inevitable outcome of a series of experiences offered by a product. In this context, according to the Customer-Brand Relationship theory, relationship can be considered as the main characteristic of the value creating relationship, while the path is defined by the impulses of a series of experiences [Fournier2012]. This Customer Journey is described by Rawson [Rawson, 2013].

It is necessary to manage customer experiences in an integrated way and to brand customer experiences to increase brand equity; experience branding distinguishes impulses customers are subject to in every channel according to the unique selling proposition of the brand [Smith2002].

As the complexity of customer journey and customer experience starts to increase companies—instead of communicating as previously—should deal with the design of experiences, including integrated communication and channel management. Customer relationships and customer experience management broadens the scope of the required marketing tools as well, including first of all the increasingly expanding digital technology regimen, and then the innovation of combined online and offline interactions. Furthermore, marketing research tools have also been broadened considerably, such as ethnography, customer experience mapping, experience point analysis, value research and key experience exploration.

Additional to designing customer journey, designing an implementation organization together with an implementation team is also needed to achieve consistent customer experience delivered by products. This approach appears when organizations start to form customer experience teams whose task is to manage customer experience processes with the so-called multichannel marketing tools.

II.4 Co-creation

As companies can no longer control the entire customer journey and most of customer experiences that are related to their products, they need a different type of collaboration. They can link to a series of transactions carried out by individuals and the transaction network, thereby the customer. In value creation they are becoming equal partners implementing co-creation [Grönroos2014].

Grönroos and Gummerus, in their article, give a detailed description of the corresponding new Service Logic.

Value is created by the customer or any other user in the form of value-in-use, in a so-called value generation sphere which is closed to the service provider. Value-in-use appears as a result of a new and current resources integration, or is created with the use of currently possessed knowledge and skills.

Value is created as a result of a cumulative process in the process of customer value generation, but value can sometimes be destroyed in this process.

Value is always perceived and defined by the customer, uniquely experientially and contextually.

Fundamentally, companies as service providers act as facilitators in the customer value generation sphere, in such a way that they develop and provide potential value-in-use to customers and non-customers.

If the co-creation platform has already been established or can be established through direct interactions among actors of the vale generation process, the service provider can be involved in the consumer's value generation, and the opportunity for co-creation among the actors appears.

Social value co-creational activities that affect independent value generation processes may take place between customers and individuals in their ecosystem.

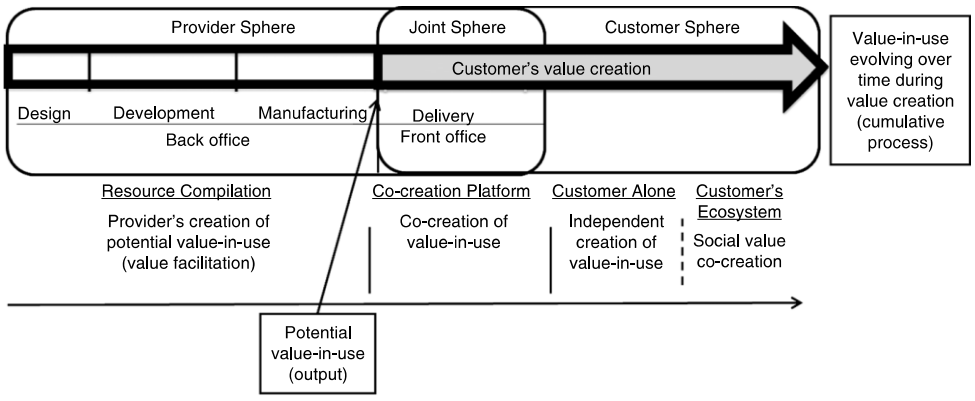

Figure 1: Value creation in the entire co-creational value generation sphere by Grönroos [Grönroos2014].

The co-creational approach further clarifies the role of organizations and organizational marketing.

Services are regarded as the use of resources in a way that supports customers in their everyday practices, physical, mental, virtual and possessive, and facilitates value creation thereby.

The aim of marketing is to involve the service provider into the customer journey to enable reciprocal value creation among actors where service is the facilitator.

Companies as service providers do not limit their operations to making promises through value propositions.

In direct interactions and with the use of the co-creational platform, companies as service providers have the opportunity to enter into value creation with their customers. Through interactive marketing they can influence value creation actively and directly, thereby to keep promises, and additionally, they can contribute to develop and maintain customer relationships.

The usefulness and effectiveness of co-creation is justified from various perspectives. Looking at the usefulness of co-creation from customers' perspective for beauty and body care services, it was revealed that customers' active engagement in service value creation showed positive correlation with customer satisfaction [Vega-Vazquez2013].

In health care, customers' involvement in their therapeutic decision-making also has positive impacts. Improving emotions that are specific to a decision-making process has strengthened customers' involvement in the decision-making process; and strengthened emotions and increased involvement have enhanced the perceived service quality of and satisfaction with the service that was produced in a co-creation process [Gallan2013].

An investigation into co-creational practice of health care customers describes five typical behaviour patterns. Two of them—team management and insular controlling—are accompanied by indicators of higher activity level, stronger self-management and improved life quality; two others—pragmatic adapting and passive compliance—can be described by indicators of lower activity and poorer life quality; and the fifth one is the partnering group with mid-level activity [McColl-Kennedy2012].

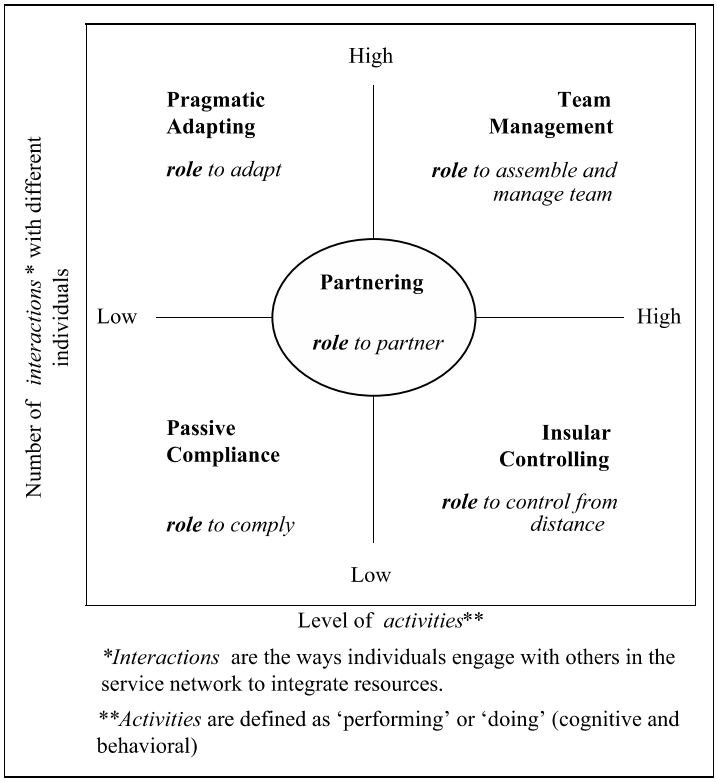

Figure 2: Implementation types of customer value co-creation by McColl-Kennedy [McColl-Kennedy2012].

III Health ecosystem

Trend research and macroeconomic analyses suggest that establishing and serving health care will be the engine of the first century of the new millennium [Nefiodow2006, Congressional Budget Office2007]. International and Hungarian investigations and analyses reveal that more attention is devoted to health [GfK Roper2011], more is done for health [Lantos2011], and more and more spending goes to health [McKinsey2012]. All these take place in the framework of a comprehensive social transformation, and it means that the health care sector should become patient-centred [Epstein2010], or rather person-centred [Christopherson2010]. When people are put into the centre with the value creation of their health and the respective economic environment, the Service Dominant Logic [Vargo2004] provides a good research and analytical framework for describing and explaining the processes. This logic helps to understand and redefine the health ecosystem.

It is particularly true for the health industry that knowledge invented, acquired, developed and organized by producers and service providers is packaged into various

products and services that work as means in the process of value exchange. In many cases it is the very special knowledge that makes a major entry barrier against new entrants.

When health-related exchanges are studied from individual's perspective in the Service Logic [Grönroos2014], it can be stated that individuals buy various specialist skills and knowledge to look after their health from various, often independent sub-markets [GfK2011 and GfK2012a], meanwhile establishing their value-creation sphere.

Trend analyses [GfK Roper2011] show that continuing efforts should be made to live a healthy life permanently. To achieve this, we come across a variety of knowledge, and we use some of it. Any knowledge—products and services—that supports personal health experience efforts is well worth an exchange, but individuals try to avoid everything that cannot support or decrease their efforts.

Fundamental health-related exchanges are considerably overshadowed by the indirect exchanges during the organizational operation of the health care system. Consequently, the actors of the system fail to see or ignore most of the health-related exchanges that occur outside the system [GfK2011 and GfK2012a]. Furthermore, organizational units also ignore most of the exchanges that are taking place between other organizational units [Glouberman2001a and b].

Thence, individuals perceive the health care system as a machinery in which people are lost, or even become inhuman.

Effective-proven health care products are outcomes, in most cases, of knowledge acquired in serious research programmes. Besides, usage also needs significant amount of insight and experience.

Scientific research results, on the one hand, and insight and experience gained in everyday practice, on the other, work as sources for competitive advantage of the knowledge. Previous competitive advantage of the so-called evidence-based clinical examinations is getting replaced by knowledge and skills acquired in everyday practice. To this, the technological basis is established by the transferable and home-care devices, as well as by the analytical methods that support the analysis of daily gathered data. Additionally, social media—that is becoming a more and more significant form of knowledge transfer—provide ample opportunities to share individual experiences of customers.

In a human-centric society in which experiences and relationships are the core elements of value creation, health is also seen from a different perspective.

Primarily, health is a health-related experience, and in special cases going through a recovery experience evolves into a personal value [Lantos2006]. Since personal experiences have become dominant features of our society regarding individual values, health is seen more as a personally lived well-being—health experience—than selected bodily functions of a human being performing in line with defined metrics.

Health as a value does not 'exist' [Joe2014], it has to be created in a continuing process. Health is the outcome of human activities to which energy is needed continuously, which in turn needs permanent resources. Strong social network [Reblin2008] and faith, the power of human spirit [Puchalski2001] are the two essential health 'energy resources'.

It is reasonable to say that health is the outcome of social activities [Park2015]. Partly because of the socially created knowledge that can always be more comprehensive than that of an individual, and partly because of the power community provides to healthiness.

Every member of the society buys some knowledge of various level, content and amount, and competence in the form of products and services to maintain their everyday health continuously on a certain level [McColl-Kennedy2012]. Thereby, exchanges in their entirety create a health ecosystem that includes health-supporting knowledge and competences in the form of products and services, as well as an entire network of these exchanges together with participants.

It is the individual and shared responsibility of the members of the society and the health ecosystem to run the system in such a way that health value increases in importance.

In line with general marketing, that is, in line with the value exchange logic, products or services provide an opportunity to individuals to create health in an exchange process. Exchange is based on knowledge and competences that are utilized in 'health co-production', and industry experts call it health co-creation [The Health Foundation2008]. Health care services and the health care system in a traditional

organizational structure can also create health value but only with the engagement of the customer, the patient.

Studies among patients [GfK Roper2008], [GfK Healthcare2011] reveal that various solutions are adopted to create health during the health co-creation process, competences are chosen from a very wide range to contribute to recovery and/or health-related experience. In this process, health care is usually the only actor although often not the most important one. When we consider the ability of health care to provide health experience and a supportive relationship, we can understand the reason why its importance declines and marginalization increases in the health ecosystem gradually [GfK Hungária2010-2013], [GfK2011 and 2012a].

When the health and the condition of the society is to be analysed and managed uniformly, it is worthwhile to see the entire health ecosystem as a single unit that includes the whole amount of health value exchanges in a time unit, such as a year. The role one particular type of exchange plays in health value creation can be described by the share of this type of exchange relative to the total amount of exchanges in terms of quantity or value. Share of Health can be used by analogy to the general Share of Wallet—the share of the total amount of customer exchanges—[www.businessdictionary.com] With the knowledge of this term, the share of the Hungarian public health care and its health share has been reducing within the Hungarian health ecosystem which in turn has been increasing considerably from year to year [GfK2011 and 2012a]. The share of values of health-related value exchanges has been decreasing relative to the total values of health value exchanges.

The underlying reason, in part, is that private services have been increased considerably, particularly in outpatient care, and the number of people with health problems whose first choice is a private health care provider has also been growing [GfK2011 and 2012a].

However, the share of non-medical services has been increasing even more considerably, the significant proportion of them is uncontrolled and unpredictable in terms of health value creation. In contrast with the health care system their performance is much better in terms of making health experience promises and establishing personal relationships. They are much better in the area of customer care, but the performance in health care is lagging far behind that of the customer care.

Nevertheless, health value exchanges take place to the value of almost one third of the total health insurance fund through products and services the outcomes of which cannot be estimated, e.g. ghost removal [GfK2011 and 2012a]. The whole amount of privately financed health value exchanges is estimated twice as much as the health insurance fund, and a significant share is not coordinated with the value creation of health care services, despite the fact that user most often use them together.

In summary, it can be said that a special part of the health care system is a segment of the whole health ecosystem. Typically, it plays a role in treating illnesses mostly ignoring other health-value exchanges of the patients which considerably decreases the efficiency of health-value exchanges, ultimately the effect the whole health ecosystem on the state of health.

However, there are numerous examples how countries can control their health ecosystem in a coordinated way. Australia and New Zealand are the most progressive ones from this point of view [Wise2000], furthermore this approach is being developed systematically in Canada [Forget2011] and in the Scandinavian countries [Magnussen2009].

Similarly to other areas in Hungary, considerable social polarization can be seen in the Hungarian health ecosystem that is managed—without appropriate control and integration—uncoordinatedly. Almost 40 percent of the population is actively involved in their own health creation [GfK2012b]. Some of them, ‘people living in health’, are highly educated in terms of health, and their self-management is also advanced, while others the ‘trend followers’ are similarly purposeful and responsible. They prepare a functional health plan for themselves, and if needed also for their family members, they seek for and buy the required health competences, sometimes use them through social functions. They monitor their conditions and live an active social life in terms of health as well. If they can, they try to avoid the public health care system, take little medication and spend much on their health. Of the co-creation groups of McColl-Kennedy presented in page 19, ‘team management’, ‘insular controlling’ and ‘partnering’ groups correspond with this health behaviour group in Hungary.

At the opposite extreme, 60 percent of the population is fairly passive or entirely passive [GfK2012b]. They can be viewed as health destroyers. Some of them keep

telling to themselves that ‘I should do something’ but they are unable to translate their knowledge and information to action. Strong support and expectations are needed to stand the chance. Others are ‘passive compliers’, and think that they have no influence on their health. They are the ones who appear in the public health care system, and they take most of the prescription drugs. The situation gets even worse because the more passive they are, the sicker they become. Due to their passive behaviour, as health co-creation does not take place, health care services and drugs are hardly utilized. This is partly the reason why health care professionals feel as if they beat the air, and their job meets little success. ‘Pragmatic adaptors’ and ‘passive compliers’ of McColl-Kennedy’s co-creation groups can correspond with these two Hungarian groups.

IV Value chain model of health value creation

IV.1 Medical concept

The need for patient-centred care, as referred in a study, emerged during the development of health care services and health care systems more than two-decade ago. The joint study of Harvard Medical School and Pickering Institute [Gerteis1993] suggested patient-centred care as a care delivery model instead of focusing on medical sciences and medical technology, and expressed the need for patient-focused service management. The most important components are summarized under the following points.

- Education and knowledge management

  It is required to keep pace with the rapidly changing medical knowledge in practice to make the care delivery team able to select always from the most advanced procedures, on the one hand, and on the other, it is also needed that health care professionals share their knowledge with one another to ensure that patients perceive the diverse and multi-component services they receive as an integrated care.
- The health care team consists of physicians, nurses and technicians.

  The development of medical sciences necessitated significant differentiation between various disciplines, including non-medical professions, and additionally considerable support apparatus is also involved in care delivery.
- Each of the above professionals is in contact with the patient, and directly or indirectly with each other.

  The diverse need for care can only be satisfied if various professionals provide complimentary services side by side.
- Integrated and collaborative teams, and health care delivery management.

  For the best treatment outcome, the treatment process has to be organized in line with the treatment goal and coordinated in terms of time, place and service content.
- Recognition of patient needs and choice of values.

  Apart from medically justified and diagnosis-based treatment decisions, patient's needs and decisions also have to be considered in the final treatment plan. Most probably, this jointly-made consensual decision can lead to an effective therapy.
- Patient's information and active engagement in the cure process.

Active involvement of the patient in the treatment process supports the entire treatment and healing process considerably, thereby recognizing that healing is remarkably attributed to patient's own activity.

- Information – decision-making – supports to the counselling process.
  As regards patients' engagement in the treatment process, it is suggested that patients receive detailed information about their condition, opportunities and their role to play. They should be involved in the therapeutic decision-making, and should receive continual counselling to be able to improve their condition.
- Free flow and access to information.
  One of the keys to an effective treatment process is the direct access to patient and treatment information for all the stakeholders. This can ensure that the best decisions are always made that will lead to the best treatment outcome.

IV.2 Barriers to practical implementation

The above described medically required patient-centred care delivery model was implemented only sporadically, and some of its elements solely, it has failed to become a uniform delivery model for years. The contradicting operation of health care systems and organizations lays at the roots of this problem. Mintzberg and Glouberman, two highly respected authors of management literature conducted an investigation into health care systems and institutions applying management-organization methods [Glouberman2001a and b]. Their research results revealed that there are four disconnected subsystems of health care systems and health care institutions:

1. subsystem of intervention-focused medical activities,
2. subsystem of care- and cure-focused activities of nurses and supplementary staff,
3. subsystem of control- and restriction-focused administration,
4. subsystem of directorates, representatives and politicians representing the community.

Their analysis reveals that these four subsystems have different goals, apply different methods and techniques, and additionally they hardly affect each other. Thus, they can be described as four disconnected subsystems. The fragmentary nature of the system is just the opposite of the above described medical concept, and leads to a large amount of continuing efficiency reserves in the system. Although the subsystems and their members invest considerable effort individually to deliver health care services on the

highest possible level or in the most efficient way in line with their operation logic, but due to fragmentation patients receive low-quality and inefficient services in the end. Furthermore, regarding patient value, the allocation of finite and increasingly scarce resources relative to technological opportunities is made randomly, and the competition for resources is not transparent.

From management point of view, authors do not see more than one opportunity to organize the services system efficiently: a collaborative system based on open and intensive communication, common values and goals.

Although the management of health care systems and institutions has changed considerably in the recent years, experiences and investigations confirm that the fundamental fragmentation did not disappear, in fact, in certain areas it has strengthened [Bohmer2010, Gawande2010 and Mate2014]. The essentially fragmented organizational operation continues to maintain the efficiency reserves that cannot be seen from inside the subsystems, and considering the system in its entirety imperfections are expanding leading to low-quality services for final users, patients and customers. Consequently, the perception and the acceptance of the whole health care system changed for the worse, and both funders and users see it with growing reluctance.

IV.3 Model of individual-centric and process-based health care services

Michael Porter constructed a model for medical concept, a framework in which opportunities, economic and financial limitations can be considered and managed [Porter2006], in Hungary this model was briefly described by Judit Simon in a book titled ‘Marketing in health care’ [Simon2010]. In 1993, a study on medicine-oriented and patient-centric delivery model investigated a decade of health care operation and explored reconstruction opportunities. According to Porter, profound change can take place and effective resource allocation can be made only if competition for and optimal allocation of resources takes place on the level of prevention, diagnosis and treatment of individual diseases or disease groups. This is the level where real values are created or destroyed from disease to disease, from patient to patient. The aim is to increase health value and to create value on the level of disease or medical conditions that can be achieved by developing competences, reducing malpractices, increasing efficiency and improving outcomes. Thus, competition and efforts should be focused on values

for patients, and not on technologically professional delivery or cost reduction; this is called ‘value-based competition’ by Porter.

Complete transformation of the whole health care system is required to reach this type of competition and to allocate resources this way, in such a way that every service provider is motivated to implement a strategy aimed at value increase and health-value generation.

What changes are needed according to Porter?

- Instead of the so far traditional structure, delivery and services have to be organized around disease groups and medical conditions.
- The scope and type of services to be provided have to be defined.
- Integrated practice units defined by medical specialties should form the service units of the system.
- Each practice unit should organize its operation in line with its strategy.
- Patient characteristics, outcomes and performance indicators of methods have to be measured in every integrated practice unit.
- Costs should be defined and resources should be allocated across the entire cure and care process (‘single bill’).
- Excellence, uniqueness and effectiveness should be the features of health market services. This requires a new marketing concept in which uniqueness, high quality, outstanding teams, treatment opportunities, the reliability of diagnoses, excellent outcomes of certain disease groups, integration and optimization of the cure process have to be communicated. Institutions should change their branding policy as well, and instead of broad institutional brands branding should be focused on uniqueness and practice units.
- Competition should not be limited geographically, practice units should be allowed to compete regionally, nationally and even across borders.

Health care also needs to have a service strategy that defines the goals, activities, customers and service quality of the institution or the organization. The general starting point of a service strategy is to define a business or businesses in which the service provider wants to compete. The health care service market should behave

similarly, despite the fact that service providers rarely think of themselves as business actors, although they are also actors of a service market, the health economy.

In most industries including the service industry it is obvious to formulate a strategy and define relevant businesses. Unlike in health care, the reason of which lies mainly in the traditional intervention-based management and structure of health care delivery. Therefore, hospitals mostly compete with each other providing the same wide range of services, and competition exists between various professions at most, for example in the 'service market' of anaesthesia or nephrology.

In Porter's view, competition at this level interferes with the value generation process because it is physician-, intervention- and institution-focused and not patient-centric.

In the system of health care services, value for patients can only be defined relative to their disease or medical condition. It is not the performance or the skills of an individual physician that matter, it is the final outcome, in fact, real value creation is defined by coordinated individual performances and skills. Similarly to an operation where it is not only the surgeon's qualities that matter, the anaesthetist, the radiologist and the nurse also play an important role, and if the diagnosis, preparation, cure and rehabilitation are not done appropriately, the patient will not recover even though the intervention was technically successful.

The practice units of health care services have to be organized around disease groups that include the whole therapeutic and health care management process. This is called care delivery value chain by Porter. In Hungary, the term "egészséggondozási értéklánc" = 'health management value chain' was introduced [Lantos2012], indicating that not only actors of the health care system but also other service providers and the patients have a role to play in a sustainable value creation process.

The care delivery value chain as a model also provides a conceptual framework to consider goals and activities of health care and public health care coherently, and additionally to implement health-related collaboration extensively and consistently.

In the new health-value-based competition health care providers have to provide only well-defined services in which they can create unique values. This requires a paradigm shift; service providers should abandon their long-standing practice that 'anybody entering the room will receive a treatment'.

What type of attitude shift is needed to implement everything according to Porter?

- The approach should be fundamentally patient-centric, medical practice should be organized around the value for patient, and not around the comfort of the physician.
- Therapeutic activities should refer to the patient and the whole patient journey.
- Physicians should work in a field in which they have the highest level of expertise, because only there can their outcomes be well above the average.
- For the patient, an integrated team can provide the highest value which cannot be created by participants' individual performance. Physicians should be aware that individual actors can rarely control the entire cure process, and they should know which part of the process they are involved in, and what their task is.
- Every physician is responsible for his/her outcomes. They should have to right to provide services but only if they achieve good outcomes.
- Outcomes should be attainable for every actor of the value chain.
- Data should be recorded, stored and transferred, and should be an essential part of the medical practice.
- It is the task and the responsibility of a physician to improve his/her contribution to the therapeutic process continuously, to seek contact with excellent service providers to create the highest possible value for patients in the care delivery value chain.

IV.4 Care delivery value chain

The basic unit of the new organization model that is based on integrated practice units and the whole patient journey is the 'care delivery value chain' on the basis of which the whole health-value creation processes can be seen on a disease group. Typically, some of the processes are linked to medical treatments, the fundamental activity of current health care, such as diagnosis and intervention; others are related to the currently overshadowed therapeutic activities on the edge of population's health care and responsibilities, such as rehabilitation; health management activities for which the responsibility rests with the population typically take place at the beginning and at the end of the process. They together, in a coordinated way, can create health value typical of a disease group, and the full health of the customer.

Primary activities of the value chain that are related to health-sustaining processes are the following:

Monitoring, prevention

Primary prevention, screening tests, identifying risk factors, status survey. As regards health-value maintenance, this is a crucial phase that can help prevent medical treatments. It is more about health management activities than therapeutic tasks. The responsibility of a patient is much bigger than that of the health care, and a wide range of social support and collaboration can create the highest health value. Nonetheless, public health care systems place hardly any or no emphasis on this phase of the value chain, more attention is devoted to treatments corresponding to the health care logic than to prevention.

Diagnosis

Anamnesis, various diagnostic tests including several professions, and designing a treatment plan. An accurate diagnosis will define the effectiveness and the predictability of additional processes. It is necessary to store diagnostic test results electronically to make them accessible to every service provider.

Preparation

Preparing the patient for interventions, optimizing his/her condition, decreasing risk factors. Physicians usually give lesser importance this phase, although it can considerably define the outcome of the intervention.

Intervention

It can be surgery, medication, psychotherapy, or any other intervention. Traditionally, this is the core of medical activities, and this has defined the full operation and finance logic of health care systems so far. Although it is an essential part of the delivery process, it is far from being the entire cure process; furthermore, more and more data confirm that for example in the case of medication, it has only a modest effect on health-value creation. There is a wide range of medical interventions, individual or combined ones.

Recovery/rehabilitation

Post-intervention treatments and follow-up examinations that also receive less attention from the actors of the delivery system. Less attention is devoted to the post-intervention phase, the immediate recovery period of the patient, this phase is not managed appropriately although in many cases complications and need for further hospitalization could be prevented.

Follow-up/management

Neither can this phase be viewed as a part of the therapeutic process, it is more about health management, the responsibility lies with the patient. Further treatments, in which repeated diagnosis, preparation and intervention might be needed, can also be prevented by long-term self-management of the patient and by the support he/she receives during this process.

Support activities of the process are of the utmost importance as without them integration of health care delivery processes cannot be achieved.

Access

How and at what level does the patient meet the service provider; how do processes follow each other to provide optimal access for the patient?

Measurement

In every phase of the value chain, outcomes are recorded, assessed and compared by a uniform technique.

Information provision

It is essential to inform the patient about every phase of the process, thereby his/her collaborative efforts strengthen and he/she becomes an active participant of the value chain.

Knowledge management

Continuing development and regular sharing of provider team's knowledge, continuous development on the basis of new knowledge.

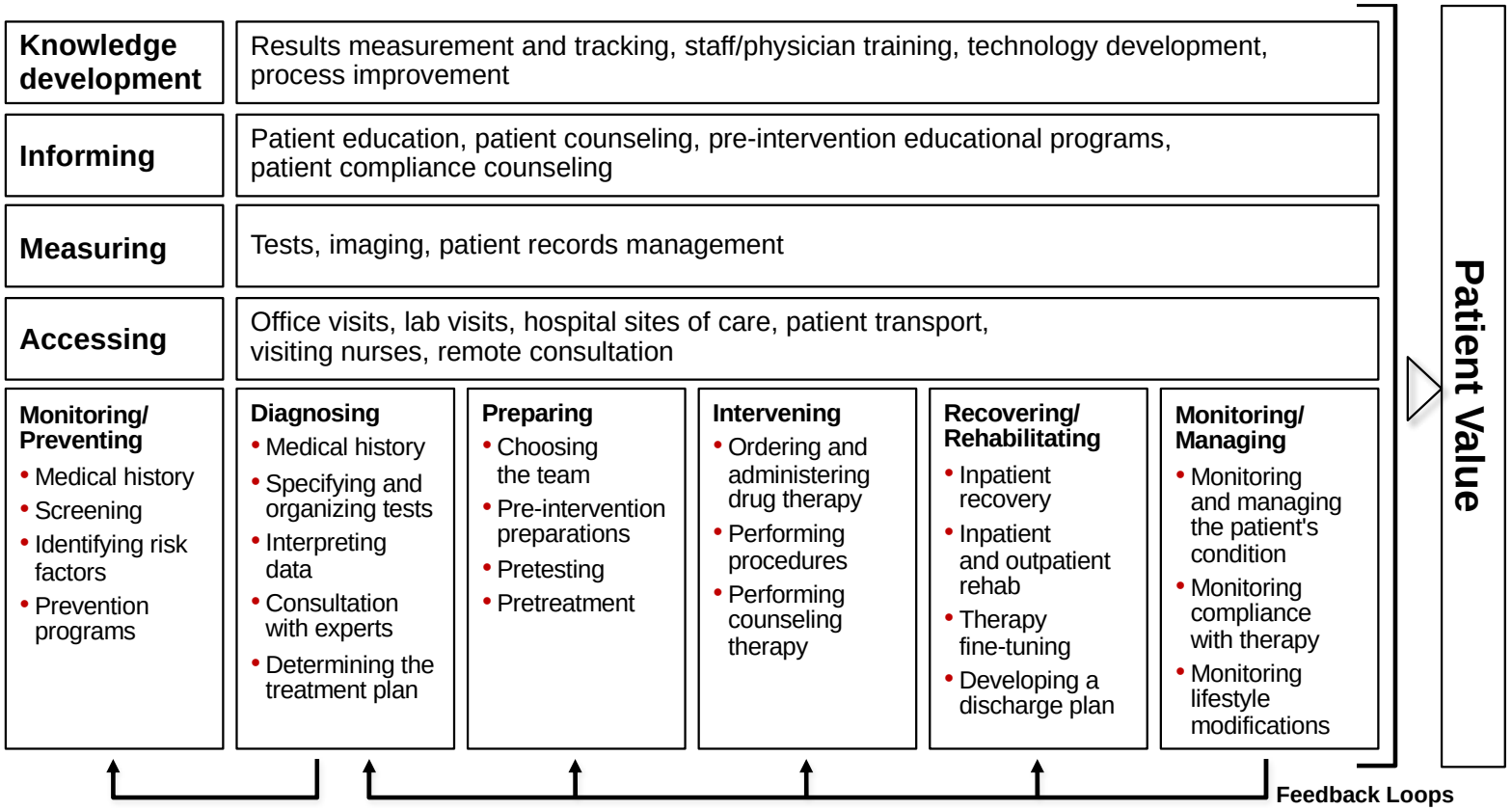

Figure 3: The Care Delivery Value Chain for one integrated practice unit [Porter2006]

V Communication development between physicians and patients

WHO Adherence Report [WHO2003] reveals that low-level patient collaboration and an average of 50% therapy loyalty are global problems, and for this reason, the benefits of drug therapy cannot be fully reaped, and eventually patient satisfaction is damaged. If collaboration with the patient increased, additional unnecessary tests and hospital admissions could be avoided, and the growing trend of health-care spending could be reversed. Thereby, lifespan could increase, patients' life quality could improve, thus, health benefits can be achieved. Reasons for low-level therapy loyalty, among others, are the following:

1. Fear of drug side effects due to inappropriate medical information.
2. Medication does not have an immediate effect; therefore the patient regards the drug as ineffective, and stops taking it.
3. The patient is unable to change his/her habits, and unable to take drugs 2–3 times a day.
4. When the medical condition or the life quality of the patient improves, the patient immediately stops taking the drug, etc.

Communication shortcomings are one of the main reasons of low therapy loyalty. Communication through other actors and the incentive system inevitably leads to dual failure of the physician and the patient. When a pharmaceutical company wants to motivate the patient through the physician, the medical representative has 7 minutes on the average. During this time the representative has the opportunity to communicate only the most general information, but hardly to motivate and inform the physician completely.

The message of the manufacturer is filtered through the physician and conveyed indirectly to the patient. The sender's message is distorted twice, noise has a dual effect, firstly through the physician's filter, and secondly through the patient's filter. The gap between the languages spoken by the physician and the layperson produces an additional noise effect. Buda found the two actors' meeting complicated as due to his/her expertise the physician has the upper hand, he/she has the so-called expertise power [Buda1994]. When authorities and role-related powers cannot reach their goals

in the area of patient collaboration, the physician cannot rely on anything else than on his/her communication and influencing skills, as well as on his/her enhanced empathy. Patient education and shared vocabulary take on an added importance because what is cold for the physician, is flu for the patient, and chronic bronchitis is thought to be asthma. There is a wealth of valuable information, therefore information about the benefits of the drug has no chance to go beyond the physician [Lantos2004]. This study is confirmed by the results of another survey that also revealed that for patients, medication is about side effects and fear from them [Horváth2004], which is a hindrance to patient's recovery and collaboration in the therapy.

The importance of communication improvement is emphasized by the fact that of all other factors that can affect collaboration (such as patient's characteristics, nature of the diseases, treatment attributes, advancement of the health care delivery system), this one is the easiest and quickest to be modified in the most cost effective way.

The physician-patient relationship and collaboration can be improved by applying a combination of various methods. Appropriate tools, among others, are the following:

- Teaching knowledge and skills relating to medical communication to medical students;
- Providing post-graduate credit-granting courses for specialists;
- Professional publications, educational articles, radio and TV programmes to achieve collaboration and effective communication from both sides;
- Organizing conferences in a defined subject;
- Involving patients' organizations to enhance collaboration;
- More efficient use of eHealth tools.

VI Collaboration with the patient

Patients' attitude to collaboration has developed considerably in the last two decades. From compliance to therapeutic instruction we have come to the term of health co-creation (the relevant terms and definitions are detailed in Appendix 1). Due to the development of patient-centred health care system, increased attention is devoted to patients. Close correlation is observed between patient experiences, the outcomes of self-assessment-based health care, adherence to recommended medication, participation in prevention and the use of health care resources. Evidence also suggests that patient experience is also linked to quality indicators of technical standards and side effects [Doyle2013].

Therefore, it is recommended to use patient experience as a central quality indicator of health care, and it should not be seen as a subjective indicator and separated from safety and effectiveness indicators of 'real' clinical work.

Health-related observations and investigations devote more and more attention to perception, feelings and experiences of patients and healthy individuals, as a result of which more and more data and information is available about differences between 'patient perceptions' and medical experiences, studies and knowledge [Webster2015]. The perceptions of patients and individuals do not only include more everyday practical experience and knowledge, but their information content is different in terms of quality as well, primarily due to emotional experiences and sensations. Experienced patients with a specific disease can offer useful advice to their peers because they know the perceptions, symptoms and what they have to do every day. Additional to physician' advice, peer experience is used for specific diseases, particularly in mental diseases [srn2011]; furthermore, Internet forums where experiences are shared also confirm that those who have this type of knowledge and expertise are willing to share it; and there is also a considerable need among informed, and thereby supported patients, and individuals who are regarded as healthy from other aspects.

Person-centred care put the patient in the very centre of the service network completely redesigning the mode of collaborations. Person-centred care refers to a type of care where the care provider focuses on the needs and resources of the patient and can be defined as co-creation of care between the patients, their family, informal care takers, and health professionals [Ekman2011], and personalised care planning includes the following components [Coulter2015]:

1. Patients and clinicians identify and discuss problems caused by or related to the patient's condition(s), giving due consideration to both clinical tests and treatments and the practical, social, and emotional effects of their condition(s) and treatment(s) on their daily lives.
2. They then engage in a shared decision-making process involving goal setting and action planning, focused on determining priorities, agreeing about realistic objectives, solving specific problems, and identifying relevant sources of support.
3. The agreed plan is documented and followed up.
The person-centred care approaches using these three components showing improvement of care quality and specific outcomes [Fors2015].

Individual health planning can be considered as the basic unit of person-centred service-oriented health care, the main purpose of which is to structure individual's efforts to support the implementation of the plan [Willliams2003]. Individual health plans always belong to individuals, individuals can be the initiators, and they can put together a plan even without health care involvement.
The individual health plan is a professionally based document that is useful for health care professionals as well, and it is a clear, retrievable written document which includes the status survey and health risks of an individual.

- The health plan helps the individual to define his/her health-related goals and an action plan which helps the individual to achieve his/her health-related goals taking his/her needs and opportunities into account.
- Primarily, the health plan serves the interest of the individual, it belongs exclusively to him/her, it helps the individual to behave more purposefully and to become healthier, additionally to reduce the risks of diseases—especially non-infectious diseases—, to facilitate early recognition of diseases and to prevent complications.

The main purpose of individual health planning is to improve and maintain individual's condition, to change health-related behaviour, to develop a more conscious attitude to health, to avoid and to detect diseases—especially non-infectious diseases—early, as well as to prevent complications [Snyderman2012].
Individual health plans always belong to individuals independently from the place they were made and the support given during the planning and implementation process.

Correspondingly, the methodology is designed to accurately describe the tasks of actors how to develop and carry out a health plan.

Individual health plans serve, first of all, the interests of individuals, therefore they are entirely individual-centred. Individual health values and health behaviour can exert influence on the community, thus individual health plans are of significant indirect societal usefulness as well.

Methodologically, individual health planning (hereafter referred as health planning) can be distinguished as to the planner uses health services or he/she prepares the health plan on his/her own.

When health care services are used, individual service plans are based on individual health plans, thus facilitating effective collaboration and co-creation between individuals and the service provider team.

VII Sustainable health care

Since patients as customers use a wide range of health competences selecting from a much broader scope of competences than the whole health care system, only a health care system that is an integrated part of the health ecosystem can be sustainably successful, effective and efficient. Therefore, goals, fields of activity and operations are established accordingly; it is clearly defined which health-value exchanges they want to support and to what extent, and how all these are subject to patient-customers' efforts during the health co-creation process. Two decades of health care organizational developments, including directed health care delivery and disease management programmes, and we have come to the current community solution-based and patient-centred approach that is also much more human-centred.

It is clearly seen from the operation of the health ecosystem that sustainable health care can contribute only partially to health-value exchanges, and its effect considerably depends on all the other health-value exchanges. Since the strength of social network is the most influential health factor, social network and social delivery system influence each other most significantly. Neither its operation, nor its effect is independent, and there is a considerably overlap between the two, and they, in fact, are social services.

On social level, one of the two aspects of a well-functioning sustainable health care is that ecosystem is regulated by law, according to which health-value exchanges are favoured that are transparent and can create higher health value relative to expenditures. Only in such an environment can health care can operate efficiently.

The other aspect is that in compliance with the same principle, sustainable health care should contribute to health-value exchanges transparently, and exchanges that are best utilized in terms of health values should be financed by public funds.

Implementation requires great many new solutions or effective coordination of current solutions, and intended and planned transformation is needed for many years. Furthermore, social agreements have to be made incessantly on what criteria are used to rank health-value exchanges, which diseases are regarded as important, and which components of prevention, treatments and care are supported. For example, is it the medication of chronic diseases, health-supporting community sites or solutions, or

devices for remote diagnoses that social security should fund? Shall we spend more on the last six months of life, or on the first thousand days starting from the conception?

Thence, essential features of a sustainable health care that can best satisfy the needs, operation and organization of an increasingly collaborative society are the following:

- It is the primary task of health care to create health value on social and individual level. Values can be measured by indicators of human bodily functions on the one hand, and indicators of personal health experiences, on the other.
- It is part of the health ecosystem in which it is precisely defined which symptoms, diseases and risks should be handled, and which health-value exchanges should be finances and to what extent.
- Being integrated into the health ecosystem, it is tied with all the fields where health-value exchanges take place or are influenced.
- Health-value exchanges are assembled according to treatment units and/or processes, and are funded in bundles, e.g. 12-month outpatient rehabilitation of heart attacks in one unit.
- Added health value—change in health value relative to the initial health value/condition—is financed.
- Combined effect of the above two solutions is that funding becomes a tool to facilitate innovation.
- Coordinated processes are operated that include three major interconnected sub-processes: health care services, patient activities and support to patient activities.
- Above processes are coordinated in line with health co-creation, and patient involvement, encouraging patient decision-making and patient activities are its fundamental tools.
- The basic unit of services management is the activity component compliant with health-value exchange and the related competence.
- Competences required by health value creation are made available near where patients live, and typically in the form of social services.
- To ensure efficient distribution of resources, a feedback system is operated continuously together with transparent control of operation processes and outcomes applying process and outcome indicators.
- Activities and decisions are evidenced by measurements and investigations that are increasingly supplemented with real practice based data analyses.

– The feedback system and continuous study of the environment help adapt to the whole health ecosystem in line the role played.

Patient and human centredness, and integrated implementation of health care services make it necessary to design and perform the role a health manager or a therapy manager can play. Their task is to ensure that for the ‘health consumer’ the most appropriate one is selected from the available services and treatments. A ‘health counsellor’ should provide support to his/her customer to live a healthy life, to come to a decision with regard to health care services and to utilize financial options as best as possible [IBM2008]. The patient-centred model of various cares, services and public health programmes reveals that without help and support patients and health consumers face extremely difficult situation when they have to decide about their health.

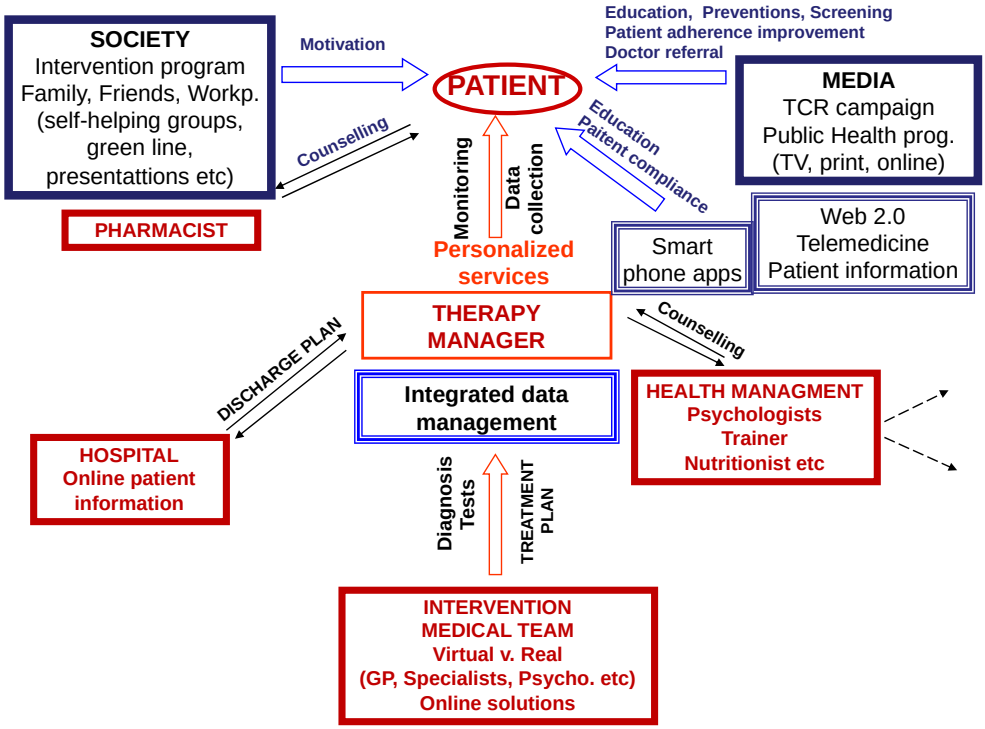

Figure 4: Model of Patient-centric Health Care after Lantos and Csépe

In the system of diverse services, support and information, it is also clear that tailor-made and the most useful health service, both on individual and social level, can only be provided with the help of integrated data processing in which everything is related

to the patient health value that is defined for a disease or a disease group and achieved in the care delivery value chain.

Within the health care system, a health manager supported by a properly integrated database system can substantially contribute to an outcome-based—health value based—health resources allocation. He/she can manage the patient and the patient journey concurrently, and within a defined period of time can achieve recovery and life quality improvement of the patient using available resources effectively.

B) MODEL DEVELOPMENT

VIII Construction of the implementation model

The major objective of the design of the implementation model was to harmonize the individual customer journeys with the process of the care delivery value chain in order to harmonize the value generation activities of individuals and health care providers. Using the framework of marketing science, models that follow the sequential nature of life course were selected for each sections of the transactions between the individuals and the providers.

As a preparatory work for the real-life pilot, implementation of the 'entire co-creation sphere', 'customer sphere', joint sphere' and 'provider sphere' was designed and accomplished. These spheres constituted the transactional health ecosystem which is established as a network in accordance with the Service Logic in the health care environment including the extension of the health care provider sphere onto the health services sphere. The main steps of that preparation with the applied methodology were:

1. Condition-specific transaction analysis according to the Service Dominant Logic, with key experiences of customers' conditions and transactions typical of the health ecosystem in the centre.
2. Description of activity chains, with three sub-activity chains that refer to the service provider, the customer and the supporters of the customer; value chain phases are selected using the Care Delivery Value Chain.
3. Assigning implementation competences to the activity components of the value chain according to the ARA model.
4. Designing a competence matrix with the standardization and grouping of competences assigned to activity components according to the ARA model.
5. Developing methodology of personal health counselling which is the leading actor in the 'joint sphere' of health co-creation in Service Logic (see Figure 1 on page 18).
6. Developing methodology of personal health planning to support individual value-in-use creation in the 'customer sphere' of Service Logic.
7. Establishing practice groups and developing operation methodology according to Service Logic to implement resource pooling in the 'provider sphere' on the level of health care services.

8. Designing methodology according to Service Logic aiming to develop and run community-based health care services to create and support an ‘entire co-creation sphere’ within the ecosystem.

VIII.1 Condition-specific transaction analysis

In accordance with Service Dominant Logic, transactions that were carried out with the involvement of the patient as a customer were investigated in 31 diseases and adverse medical conditions. According to medical criteria on the one hand, following the recommendations of the Hungarian and international guidelines in particular. Furthermore, according to health care processes in which patients are engaged, and according to supportive additional self-management processes.
The 31 investigated themes are included in Appendix 2.

VIII.2 Description of activity chains

Each of the 31 transaction series was described as a chain of integrated activity components according to the care delivery value chain model. Activity components were defined by the ARA model (Actor–Resources–Activity) [Håkansson 1992].

1. Components

All the activities that support health value generation for a patient, and that are included in the service delivery process and support that process independently from the implementer.
They are divided into three large groups:

1. Health care services
2. Self-management and health improvement of the patient
3. Support provided to the self-management and health improvement of the patient

Activity components were defined as basic units of the service delivery process.
One activity component defines one type of interaction.
An activity component as a type of interaction can be described with the following features:

- place, in the real or virtual space;
- time, absolute and relative, e.g. time elapsed since the start of medication;

- subject/theme;
- types of participants (actors) – health care staff, patient(s), family member;
- is it about needs or demands (who is the initiator, and what information is the initiation based on)—claims are typically made by patients, e.g. pain; decisions about needs can be made by physicians or health care staff, e.g. based on risk factors, e.g. smoking;
- patients can be
  active or passive, → passive patients with or without decision-making capacity → patients without decision-making capacity can be with or without a guardian

Activity components can be described in terms of the above parameters, and additionally in terms of

- tasks as activities;
- inputs—what task is taken over and from whom, and what the measured parameters are;
- outputs—what task is given to whom, and what the measured parameters are

Larger groups of activity elements correspond with the components of the care delivery value chain:

(A) Components of the value-creation process to create health value

Prevention/monitoring

Medical history

Screening

Risk analysis

Components of the prevention programme

Diagnosis

Medical history

Tests

Data and result interpretation

Expert consultations

- Defining a health plan
- Preparation
  - Selecting participants
  - Activities prior to intervention
  - Pre-test
  - Preliminary treatment
- Intervention
  - Drug therapy
    - prescription and implementation
  - Implementing operations and procedures
  - Consultation
- Rehabilitation
  - Recovery in a hospital
  - Hospital discharge plan
  - Inpatient rehabilitation
  - Outpatient rehabilitation
  - Therapy finetuning
- Monitoring/Health maintenance
  - Condition-based monitoring
  - Condition-based maintenance
  - Monitoring loyalty to therapy
  - Monitoring behaviour change

(B) Servicing health value activities—supporting value-creation processes

- Knowledge management
  - Measuring and monitoring outcomes
  - Education and further education
  - Technology improvement
  - Process development
- Information provision
  - Patient education
  - Patient counselling
  - Training programmes before treatments

Counselling and coaching related to therapy loyalty

Supporting self-management

Measurement

Tests

Imaging procedures

Patient data processing

Measuring self-management

Attitude measurement

Access

Visits the GPs' surgery

Laboratory tests

Inpatient treatments

Delivery

Nurse visits

Remote consultation

2. Relationship between components

Activities can be divided as follows:

A. Aimed at health value (prevention, diagnosis, preparation, intervention, rehabilitation, health maintenance)
    a. Following directly in terms of time
    b. Following with delay

    1. Unambiguously subsequent to each other—A always follows B
    2. Conditionally subsequent to each other—A follows B if condition applies
        a. Condition linked to medical diagnosis
        b. Condition linked to patient activity
    3. Exclusive—linked to special conditions
    4. Collaborative
    5. Concurrent/Parallel

B. Supporting health-value activities (knowledge management, information

provision, measurement, access)

1. Linked to an activity component
2. Supporting a process or more activity components

3. Principle of operation

Process-based continuous service provision in which every activity component has its added value in the value chain. Each health-value activity component is characterized by an added value. (It is neither the input nor the outcome in itself.)

Phases in process management

transfer and delivery of the activity;

decision;

decision-making points;

decision-making aspects—medical-professional, patient claims, patient willingness, financing;

process compliance: duration of activity units, deadline of task transfer, waiting lists, space constraints, capacity constraints, technical constraints.

Measurement, data collection, feedback about the health value—quality control
Control and follow-up applying the Balanced Scorecard methodology
Methods of review and modification to every point

Name of the sub-process	Definition
I Prevention/monitoring	Primary prevention, screening tests, identifying risk ıctors, status survey. As regards health-value ıaintenance, this is a crucial phase that can help prevent ıedical treatments.
II Diagnosis	Anamnesis, various diagnostic tests including several professions, and designing a treatment plan. An accurate diagnosis will define the effectiveness and the predictability of additional processes.
III Therapy preparation	Preparation of the patient, optimizing of his/her medical condition, decreasing risk factors, designing a treatment plan.
IV Intervention	It can be surgery, medication, psychotherapy, or any other intervention. Traditionally, this is the core of medical activities. There is a wide range of medical interventions, individual or combined ones.
V Rehabilitation	Post-intervention treatments and follow-up examinations that also receive less attention from the actors of the delivery system. Less attention is devoted to the post-intervention phase, the immediate recovery period of the patient, this phase is not managed appropriately although in many cases complications and need for further hospitalization could be prevented.
VI Monitoring/Health maintenance	Further treatments, in which repeated diagnosis, preparation and intervention might be needed, can also be prevented by long-term self-management of the patient and by the support he/she receives during this process.

Table 1: Defining value chain sub-processes that correspond to the care delivery value chain.

Sub-process (obligatory)	Sub-process (optional)
I Prevention/monitoring	1. Prevention
	2. Exploration
	3. Risk management based on care and service planning
II Diagnosis	1. Developing risk profile and designing a health risk plan
	2. Recognition
	3. Making diagnosis based on an examination plan
	4. Status survey based on an examination plan
III Therapy preparation	1. Devising a disease-specific health plan
	2. Designing a therapy plan
	3. Developing an action plan
	4. Preparing a care plan
	5. Habilitation/rehabilitation planning
	6. Other preparative activities
IV Intervention	1. Finalizing therapy
	2. Treating deterioration in medical condition
V Rehabilitation	1. Habilitation/rehabilitation
VI Monitoring/ Health maintenance	2. Tracking/caring/nursing patients in stable medical condition

Table 2: Lists of sub-processes belonging to value chain sub-processes that correspond to the care delivery value chain.

Description template for an activity component

GUIDE		
INPUT	**Sender/related process or activity step**	The name of the related process or the number of the previous activity step. This piece of information should be uploaded into a table only after the process is illustrated.
	Information package	An information package that is meant to be the basis of the activity. Usually, it is also the output of the previous step.
	Condition	The condition, the outcome of which requires that the activity is performed. Usually, this will be the output of the previous step. The condition cell has to be filled in when the step is a step of clinical activity.
ACTIVITY	**Description of the activity**	The number of the process step (activity) in the process. If the activity (including concurrent or subsequent activities) has to be divided into sub-activities, the following signs have to be used: 1/a.; 1/b., etc. Activity steps are defined by the following four questions: • Who? (competence and responsibility) • Where? (location and device) • When? (time) • What? (output) The end point of an activity component (that is, to describe it as an individual item) depends on the following: • separate competence is needed, or • takes place in a different place, or • takes place in different time.
	Name of the activity	Short and concise title of the activity item.

GUIDE		
	Type of the activity	One of the following process phases: **PR:** Prevention; **DG:** Diagnosis; **TP:** Therapy preparation; **IV:** Intervention; **RH:** Rehabilitation; **MO:** Monitoring/Health maintenance
	Description of the activity	Detailed description is required by further data processing, and it is based on the clinical recommendation(s) selected as the source. If the activity consists of more than one activity item, they have to be listed separately.
	Background recommendation(s)	Providing Hungarian clinical recommendation(s) as background, in the absence of it (them), clinical recommendation(s) based on evidence(s) or professional consensus, the practical introduction of which is ensured by the respective activity! Information has to be provided in the following way to be able to identify the recommendation and other resources: • ID and the title of the clinical health care professional guideline (clinical guideline, if it comes from abroad) (e.g. 000678); • year of publication (also month, if available); • if available, a link (URL) and access to it; • number of the recommendation, if there is one (e.g. Recommendation5), in the absence of this, indication where it is found in the (pdf) document (e.g. bullet points 3, top of the page, page 23).
COMPETENCES	**Competences of the implementer**	Implementer is responsible for the execution (not for the outcome) of the activity.
	Competences of the participant	Participants actively support the implementation of the activity, and their involvement is required in the accomplishment.
	Set of competences	I HR competences

GUIDE		
		II Infrastructure, devices, equipment III Organizational, operational competences
	Competence elements	Elements related to the corresponding levels of a set of competence
	Patient competences	Competences of individuals with which the activity is carried out or supported.
	Supporter competences	Competences that participate in the implementation of the activity, or facilitate the implementation, providing help to the patient.
OUTPUT	**Receiving/related process**	Activity-linked process. Only the relevant linked processes need to be marked. At this point, the so-called exit points can be defined, that is, the processes into which the individual moves.
	Information package	Information package as the result of the activity. Usually, this is also the input of the following activity.
	Condition	Expected condition(s) as an outcome of the activity that require additional well-defined activities to be performed.
OTHER ASPECTS	**When?**	Time interval; length of the waiting time relative to the previous step, or within which the relevant activity step has to be carried out. Critical time intervals, that are to be applied, are based on these time-related data during the practical implementation.
	Identified risk	If there are potential barriers or known hazards (e.g. clinical technology, [occupational] health care, financial-economic, communication, financing, funding, environmental, business, time factors, etc.) in the implementation of the relevant

GUIDE		
		activity, they have to be considered in the risk analysis.
	Critical step?	The answer is yes, if the respective activity is at risk regarding the implementation, outcome or the quality of the outcome of the described process (e.g. from the perspective of patient safety). As it is compulsory to designate an indicator to each critical component, it is advised to attach max. 3–5 indicators to one process, and based on them, decision has to be made as to which of the many steps should be considered as critical.
	Recommended indicator	A qualitative or quantitative indicator suitable to measure and compare the respective activity. If the activity is critical, it is vital to identify the indicator.
	Competences of the external auditor	Expectations against external auditors that control/confirm the implementation and execution of the process/activity or the evaluation of the outcome. (Excluding e.g. ISO MIR system audit, audits conducted by authorities.)

Table 3: Scope and content of information needed to describe an activity component

X.3 Determination of implementation competences

Competences were assigned to 31 diseases studied according to the Service Dominant Logic, and to each activity component that described the transaction processes of the health hazardous condition. The whole set of competences was summarized and categorized (Figure 5); relationships were analysed and as a result of which a uniformly applicable health care and patient competence matrix was created (see Appendix 3)

I. Set of HR competences,
II. Set of competences to operate infrastructure, devices and equipment,
III. Set of competences in management and operation.

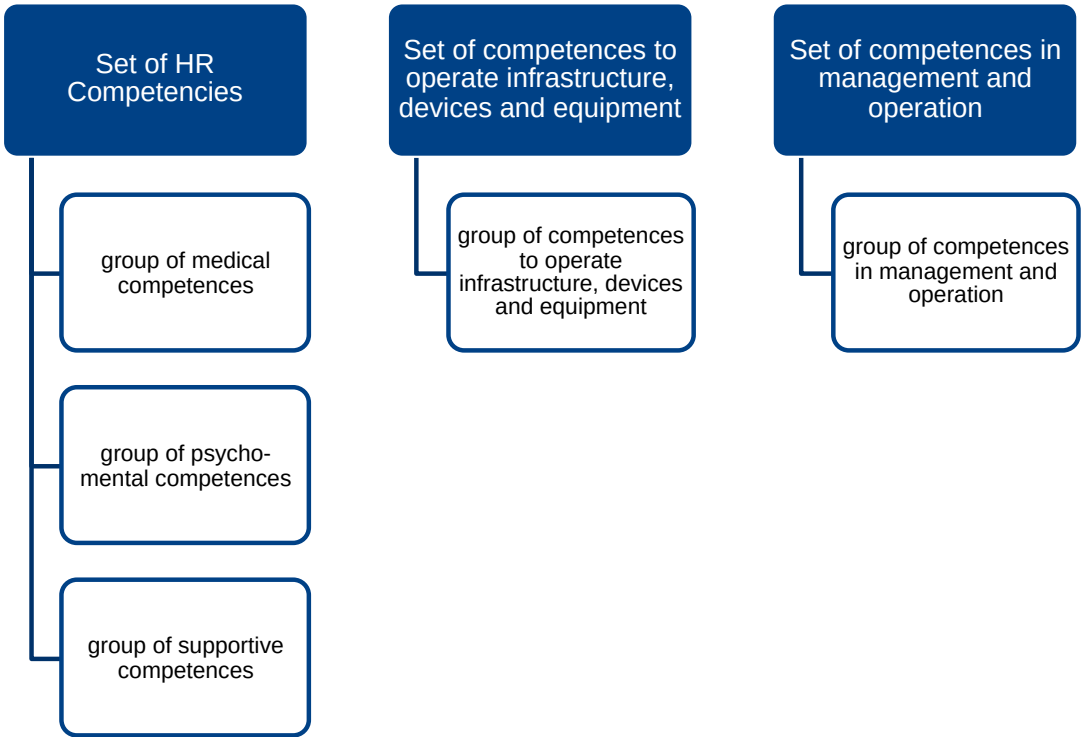

Figure 5: Set of competences in the health care.

X.4 Individual health counselling

The primary aim of the task is to create a joint sphere of the service provider and the customer in the co-creation platform defined by Grönroos and Gummerus [Grönroos2014], and described in Chapter II.4.
Health counselling is the further developed regimen of a therapy manager or health manager described by Lantos and Csépe in 2011.
The focus on patient and human centredness and the integrated implementation of health care services make it necessary to specify and design the role a health counsellor should play. The patient-centred model of various forms of care, services and public health programs reveals that, without help and support, patients and health consumers face an extremely difficult situation when making health-related decisions. Very few health consumers are able to select all the necessary and beneficial competences and determine their appropriate combinations and sequences, especially in accordance with specific healthcare interventions.

A series of expert workshops was conducted and managed to develop a sophisticated design, and additionally, managed a process of short interviews with GPs and health counsellors of practices involved in the health counselling test process [John2015].

To foster positive attitude of GPs and practice nurses was the first and greatest challenge from the perspective of creating a joint sphere between the service provider and the customer. Based on feedback, the primary attitude of individuals coming to health counselling to health counselling was overwhelmingly influenced by this. In most cases, interviewed GPs talked positive about health counsellors.
In a few cases, collaboration got stuck due to technical or organizational reasons, and some GPs refused to allow anybody into their practice from the outside world. Their openness was influenced by the trust they had in the counsellor, whether they have known him/her, or whether they were involved in the selection process of counsellors.

Needs of individuals are the second important aspect of health counselling. Qualitative feedback made it clear that despite previous negative experiences health counselling is able to modify individuals' sense of their own importance in health care considerably. An individual health planning software applied in the joint sphere and

customer sphere as an instrument to create value-in-use offered an opportunity for customers to work out their own health plan, and to make the plan available in the long term. On completion, increased responsibility was felt for their own condition.
Health counselling assessment was influenced by individuals' expectations and preliminary assumptions about what a health counsellor could do. Individuals found it easy to collaborate and hold health consultation with counsellors whom they have known before from health care.
It was also essential how the GP or the practice nurse introduced the task. But the most crucial one was the attitude, behaviour and the competence of the health counsellor.

Health counsellors came from various fields, 74% of them from the health care sector, only 8.8% from the social sector, and an additional 17.2% from other fields. During the preparation phase, health counsellors were not expected to have a qualification in health care, only basic health care knowledge that was needed to provide counselling. Initial experiences and feedback confirmed that competences applied during transactions were strongly related to health care, therefore it is worth considering health care qualification as a prerequisite in the future.
Feedback revealed that tasks were performed easily by health care workers with nurse background, or with health care qualification and good relationships with practices, and who were open to new approaches. Colleagues with social worker background were also popular, however several of them did not have the basic medical knowledge, or in some of the transactions they crossed the border of counselling, and initiated interventions to solve personal problems.
Data suggest that in the case of healthy people who completed the health plan test together with their GP, and people who were engaged but did not participate in the health counselling process, the percentage of goal setting and action plans were 47%. When a health counsellor was also engaged in the health counselling process, both indicators were 77% in both cases. This clearly underlines that individuals were more strongly encouraged to act if they worked together with a health counsellor.

Feedback from GPs on health counsellors

Senior health counsellors interviewed 106 GPs of the more than 150 GPs working with health counsellors about their first impressions on health counsellors between 26 May

and 10 September 2015. Interviews were based on a structured questionnaire and were conducted by phone. The questionnaire is found in Appendix 7.

Outcomes could be influenced positively by three groups of factors:

- senior health counsellors were the interviewers who were in contact with some of the GPs;
- open and cooperative GPs responded to the questionnaire;
- GPs and nurses have already been familiar with most of the health counsellors.

Fields of investigation:

Knowledgeable about health counsellors and the development programme.

The letter from the project management concerning health counsellors was read by 72 (68%) of the 106 GPs.

GPs were asked to assess health counsellors' role based on the feedback of their patients who were involved in the programme. Of the 106 GPs, 64 received positive feedback about the role of health counsellors, 27 persons did not respond the question. Only one GP received negative feedback, four GPs were given neutral and four other mixed responses concerning the role.

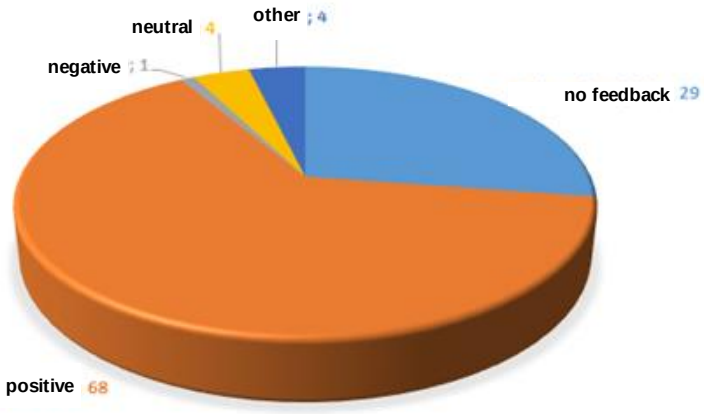

Figure 6: According to GPs, how involved individuals assess the role done together with a health counsellor.

A good example of the benefits of health counselling given by a responding GP:

'There are health care professionals among my involved patients who could not imagine that a consultant can tell anything new to them.' They told me after the

meeting that indeed, the discussion highlighted a few things, and they learned a different approach. These individuals found the meeting useful.'

The overall impression of GPs about health counsellors was highly positive on a 7-scale Likert scale. The performance was rated as 7 by 64 GPs, and 6 by 14 GPs. Nine GPs have not responded yet, indicating that they have been working together only for a very short time. Seven persons awarded 5 points, and only 2 responses were in the negative domain, in these cases the collaboration was hindered by technical and organizational reasons.

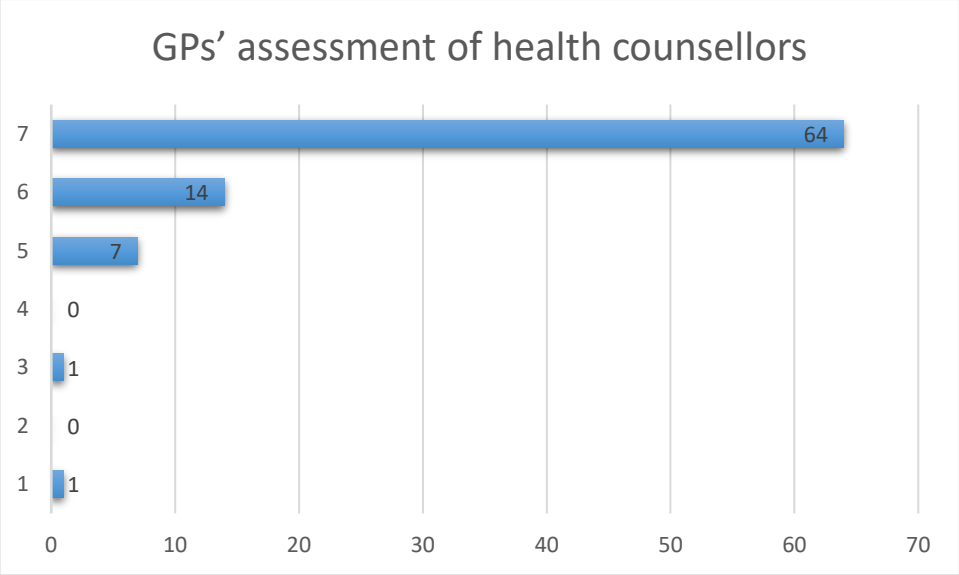

Figure 7: GPs' assessment of health counsellors.

GPs highlighted the helpfulness, openness, empathy and competence of counsellors as positive.

'Our health counsellor is a very kind, enthusiastic and lively young woman. She generates a high-spirited and lively discussion with patients. She willingly gives advice, and if the individual has any special question, she sees to it, and sends the answers in an e-mail.'

'A pleasant atmosphere was quickly created in the first counselling meeting. Confidence grew quickly among the participants. Counselling was carried out in a lively mood, participants were mainly young, honest and open.'

It was highlighted as an advantage that the counsellor was a local resident and knew the participants.

Interviews with the counsellors revealed that in most cases the practice nurse was their partner, and not the GP.

When the relationship between the GP and his/her patients was good, patients felt particularly encouraged to participate in the test programme.
GPs selected active and open individuals into the programme. Responses clearly suggested that support from and confidence of GPs are essential to strengthen the role of the health counsellors.
''I have good personal relationship with my patients, and this is why they took part in the programme. Strong confidence between the physician, the patient and the health counsellor is crucial.'

Characteristics that GPs expected from a health counsellor.
Openness, credibility, empathy and good communication skills as well as the associated interpersonal, motivational and convincing skills, and patience are particularly emphasized in the responses.
It is reasonable to expect that health counsellors are highly skilled and qualified in health care.
'Health counsellors should be relaxed and calm in whom patients can have confidence quickly, and want to rely on their advice. They should be highly qualified, very knowledgeable, and they should be able to respond to any health-related questions.'
Needs also emerged for customer-centredness and personal credibility, as well as for knowledge relating to IT and dietetics.

The most important feedback from GPs was that they found the role of health counsellors useful and necessary.
Health counsellors were expected to hold a strong health care qualification, and it was also highly recommended that the role should be performed by people with extensive experience in health care.
GPs also required that the borders of competences are clearly defined, they believed that skill development and IT competences, such as conditions regarding the place and infrastructure of health counselling were also essential.

In summary, the creation of this role was clearly supported and encouraged by practices who were involved in the test and who were willing to receive health counsellors.

Feedback from patients

Responses suggested that 12% of individuals recalled negative memories, and 54% of them had positive memorable memories of the personal meeting with the health counsellor. For reasons of the diversity of impressions and the new nature of the activity, the outcome can be seen more as positive.

Self-assessment of health counsellors

In the last stage of the test period, an anonymous questionnaire was sent out and health counsellors were asked in the programme to share their views of certain issues. From 110 health counsellors and 21 senior health counsellors 92 (70%) questionnaires were sent back. The purpose was to know what personal impressions they formed about the role, what kind of knowledge, skills and competences were needed to carry out the role efficiently, and how they assessed their relationship with other health care staff they contacted while doing their job.

Respondents came from various fields, 73.9% of them from the health care sector, only 8.7% from the social sector, and an additional 17.5% from other fields. During the test period, health counsellors were not expected to have a qualification in health care, only basic health care knowledge that was needed to provide counselling. Feedback from physicians, health counsellors and individuals confirmed that for the future it is worth considering health care qualification as prerequisite for the role.

About 60% of respondents said that professional credibility was needed to convince individuals to participate in the programme. This can be attributable to the fact that the vast majority of them came from the health care sector, therefore individuals regarded their health care knowledge as unquestionable. Furthermore, their convincing skills and support from GPs and practice nurses encouraged individuals considerably to become committed to the programme.

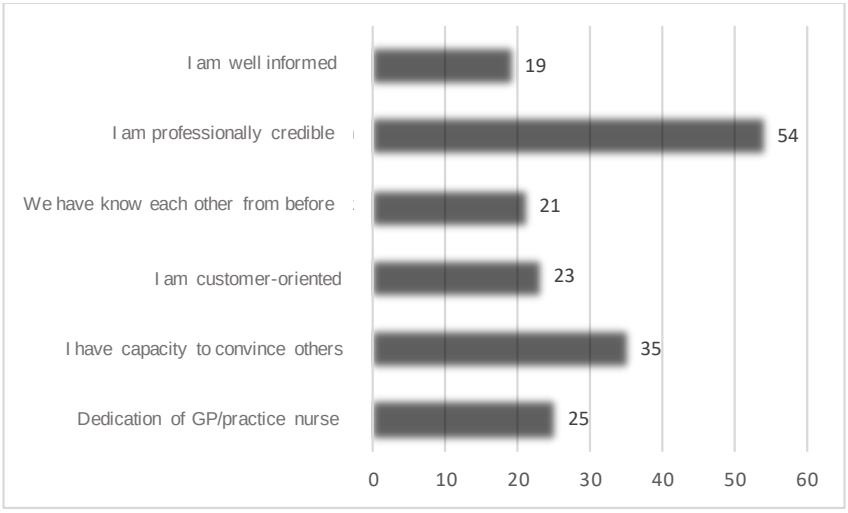

Figure 8: Health counsellors' opinion about the main factors that supported individuals' involvement.

While the professional credibility of the counsellor was the main factor to convince individuals to take part in the collaboration, being well-informed or having known each other previously were far less important.

Health counsellors collaborated with GPs, practice nurses or other health care professionals, but the most relationships that worked excellently were developed with practice nurses, 84% of the cases. The next one was the relationship with health care staff, 73% of those relationships were excellent, 64% of the relationships with GPs were also excellent, and 25% was 'more working than not'.

Research findings suggested that counsellors could collaborate most efficiently with practice nurses of all health care actors.

During the test period various problems arose in the counselling process: difficulties with preparation, administration, information and IT arose in good numbers. As regards supportiveness, most mention was made to senior health counsellors (25), then practice nurses (15), followed by health counsellors (13) and GPs (8). Staff members of the community health centre (2) were also referred to, and additionally help desk staff (4), management (2), skilled workers (2) and professional managers (2). Six counsellors emphasized their experience that also helped, and based on their feedback, communication, speaking the same language, information via e-mail, flexibility, the Internet, kindness and humour also helped in certain situations.

Lack of information (21%) and technical difficulties (43%) were the most frequently mentioned unresolved problems. However, 23% of respondents did not face any problem he/she could not overcome.
Two thirds of health counsellors (69%) assessed their activity entirely efficient and successful. On third of them (30%) assessed their role fairly efficient and successful, and only one respondent felt his/her role insignificant and unsuccessful.

In most health counsellors' view, health counselling roles and activities are needed and required. Some of them said: 'I can imagine the role of a health counsellor as the job of a district nurse, in collaboration with the respective GP districts to work efficiently and successfully.'
Several respondents said that long and continuing work was needed until the health counselling role becomes widely and accepted and integrated properly into the health care system. Several recommendations were made about the importance of follow-ups, case discussion and continual training for counsellors, that organizational shortcomings should be remedies, IT problems solved, health counsellors' identity strengthened and more time is needed.
According to health counsellors, professional competence (81%) and empathy (80%) were the two most often mentioned competence of the essentially needed ones. Customer-centredness and being well-informed were regarded as important by 62% and 37% of respondents respectively. As regards prerequisites to the role, 25% of the respondents mentioned convincing skills, 14% of them personal appeal and 7% reputation.

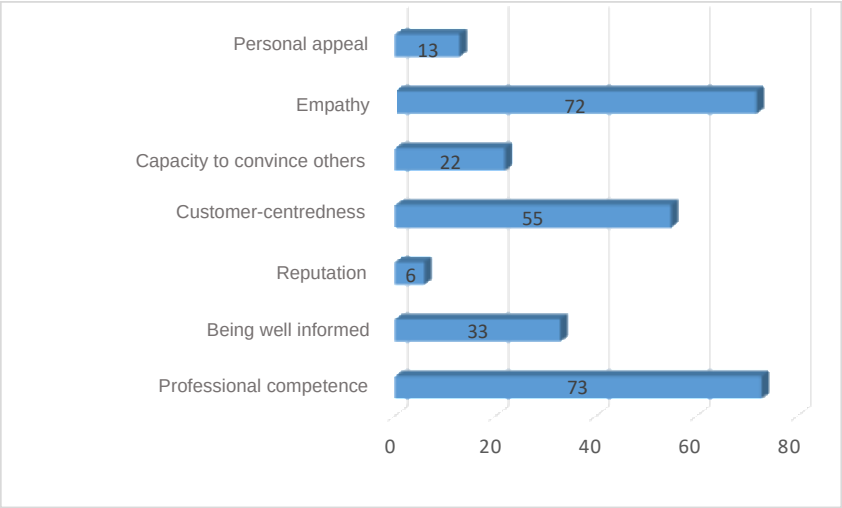

Figure 9: Essential competences for the role according to health counsellors (three answers were allowed).

The concept of a health counsellor

Health counsellors are **integrated actors of the health care delivery system** the main tasks of whom include **ensuring and coordinating relationship** between community members and health care as well as social services providers of various type and level, **encouraging and supporting** individuals/customers and communities to improve their health, and thereby providing equal access to services cost efficiently and higher life quality for individuals.

Act CXXIII of 2015 on Primary Health Care came into force 1st August 2015, and about the tasks of primary health care it says:

ba) monitoring condition, providing health-related information and education, improving health, supporting health planning [Magyar Közlöny, 2015 (Hungarian Gazette, 2015)].

The future task of health counsellors is to facilitate GPs' activity, who with the support of the new actor con concentrate on their medical tasks. Health counsellors stand by individuals in the **process of health planning and implementation** to make the intended behaviour changes **easier, quicker and safer.**

In our view, health coaching tasks are the basis of the health counsellor's role. However, from perspective of practices/practice groups, it could be useful to combine

the above tasks with cases management. Health coach is a reliable health care professional (nurse, trainee, assistant, clinical psychologist or physician) who, combining coaching techniques with his/her expertise, provides support for individuals to manage their medical condition, mainly chronic diseases, such as heart disease, diabetes, cancer, etc. [Moore2009].

The roles of the health counsellor

The various roles of the health counsellor is best described by the so-called *teamlet* model [Bodenheimer2007]. The model is based on a process in which health counsellor support shortens the duration of medical visits, but continued presence of the health counsellor is required before and also after the visit.

Goals

- To broaden experiences and improve skills of individuals;
- To improve the throughput and output outcomes of prevention by delegation routine processes to the individual (mainly in chronic diseases);
- To ease the burden on physicians;
- To reduce health care spending by decreasing hospital and emergency care through continuous follow-up and support to individuals.

Support to self-management	**Bridge between health care (physician) and individuals**	**Navigation in the health care system**	**Emotional support**	**Continuity**
Provides information. Teaches disease-specific skills. Promotes behaviour change. Improves problem-solving skills. Encourages to move forward and get involved. Provides information about health maintenance and health conscious behaviour.	He/she is a friend and ally of the individual. Ensures understanding and agreement. Provides help in understanding texts.	Connect the individual with sources. Provides support. Encourages. Gives voice to individuals.	Shows interest. Wants to know feelings. Shows compassion. Teaches coping techniques.	Creates a familiar atmosphere. Follows the individual. Builds trust. Ensures presence. Ensures access.

Table 4: Summary of a health counsellor's tasks.

The tasks of the health counsellor

The health counsellor performs tasks in the domain of service management, one-to-one teaching and counselling/coaching.

Management tasks

- Needs of individuals are explored and identified.
- Needs and health values of individuals are in the centre of his/her activity.
- Service paths are managed, supported and monitored.
- Complaints are handled.
- Is aware of the professional guidelines of health management, activity components and the service process.

- Data are managed, reports are interpreted and shared.
- Individual reports are made.
- Continued participation in service development, forwarding newly arisen needs.
- Individuals' satisfaction is followed.
- Relationship is maintained with individuals, medical and support teams.
- Data and information concerning the individual are shared with medical teams and the individual.
- Relationship is maintained with health care providers of various level and community members.
- Satisfaction and other indicators concerning the individual are followed, developed and shared.
- Self-management group meetings are planned and organized, mainly within the practice.

Support and health coaching

Definition of aims: Defining short-term and long-term health-related aims in collaboration with the individual, and designing an action plan to achieve the aims.

Health plan design

- The individual is supported in designing his/her health plan.
- The individual is supported in keeping to his/her health plan.
- Tools:
- Motivating interviews are made to encourage the individual to perform health supporting activities.
- Online and offline support is provided to behaviour change.
- Optional: individual's health plan is supported by coaching sessions with family members.

Supporting behaviour change

- Individuals and groups are supported to improve and maintain their health in line with their health-related needs.
- The individual is informed about behaviour change elements that would support his/her medical condition.
- Recommendations are made on behaviour change.
- Information is provided about professionals who support behaviour change.

Support and encouragement is provided to behaviour change.

Counselling and health development

Information management

- Individuals are informed about patient rights.
- Individuals are informed about payable and free-of-charge services.
- Knowledgeable about healthy way of living, including natural therapies.
- Individuals are provided with information packs (online, offline).
- Family members are involved in the counselling process, if the individuals agrees.

Skill development

- He/she is aware of survey findings about skills and motivation, and is able to interpret them.
- He/she can teach how to take medication and how to use medical devices taking individual competences into account.
- He/she supports individuals to understand disease, therapies and medication.
- He/she can tell how to use devices properly.

Figure 10: Factors affecting the health counsellor's impact.

Innovative elements

1. The health counsellor complements GP's work by reducing the preventive, supportive and counselling tasks of the GP, thus the GP can spend sufficient time on his/her curing tasks.
2. At system level, health counsellors have the competences to perform supplementary and supportive activities.
3. In health counsellors' role, strategic priority is placed on the following: 'Citizens are encouraged to behave responsibly and collaboratively and to involve themselves in health improvement, choosing a healthy lifestyle, and if necessary, in recovery and healing. We provide you with a wide range of health-related information and skills.' *(Healthy Hungary, 2014–2020; Health Care Strategy).* The structure of the Hungarian Health Planning Application provided more than just a status survey, individuals were encouraged to define goals and to prepare action plans.
4. The purpose of health counselling is to optimize health values, that is, to maintain state of health and to control symptoms of chronic diseases by encouraging to live a purposeful and permanently improving health-related style in line with individuals' risks and willingness.
5. Thereby, inpatient and outpatient health care needs of healthy people and patients with chronic disease are reduced to a minimum.
6. Customized health counselling can influence individuals' (therefore the whole population's) market basket of health care services (health consumption), and pushing consumption towards scientifically evidenced dietary supplements, as well as therapies, motion exercises, health maintenance and recovery techniques.

X.5 Individual health planning

A series of expert workshops was conducted to support design and investigate individual health plans.

Total number of registered users on the platform of online health planning application:

		22,172 persons
out of which	number of persons involved by physicians:	13,453 persons
	number of individually registered persons:	8,719 persons

Number of persons who filled in the health plan:	14,846 persons
Number of persons who defined health-related goals:	10,036 persons
number of persons who designed an action plan:	9,901 persons

Early October 2015, a survey was carried out into the experience of GPs who had helped healthy people to prepare their own individual health plan, GPs were also asked about the test outcomes based on the feedback they received from individuals, from the owners of health plans.

Feedback:

- Seventy questionnaires were sent out, and 44 were returned completed;
- Over 80% of GPs who were involved in the trial said that individuals had positive attitude to the opportunity of developing a health plan, none of them had experienced negative attitude;
- Of the above referred physicians, 59.1% said that it had been fairly easy to convince individuals to take part in the trial, 11.4% of them said that it had been very easy to involve individuals, whereas 29.5% of them had to face difficulties;
- Of the respondent physicians, 65.9% said that the majority of involved individuals had found it easy to prepare a health plan on an online platform;
- Over 84% of GPs said that their professional job had been eased by individuals' independent online activities;
- Over 95% of physicians said that the purpose of health planning had been clear to the vast majority of participants;

- Of individuals, 61.4% found the health plan fairly useful, and 18.2% of them very useful;
- Almost 60% of GPs confirmed that most of their patients worked towards the goals defined in their health plan, whereas 31.8% of them said that only a smaller part of the involved individuals did so;
- Based on feedback, 63.7% of GPs said that individual health plans had given them mainly support in their professional job, whereas 29.5% of them said that their job had been fully supported;
- Almost 90% of GPs said that health plans increased individuals' commitment to preserve their health mostly or entirely;
- Of GPs who completed the online survey, 45.5% said that they would definitely recommend health planning to additional patients of theirs, and 41% of them do not know yet.

Key learnings about health planning

- Individual health plan makers will use the tools they find the most useful for themselves. As regards individually designed health plans, the role of communication focused on health development is of the paramount importance. Essential components of individually designed health plans:
    - Educational materials based on risk assessment designed to facilitate health behaviour;
    - General information to direct attention to potential risks of activities that were recommended as necessary to achieve health-related goals;
    - Self-control
- If health services are used, the methodology aims to accurately describe the process of individual health planning, the tasks and scopes of the actors, the way services are provided and health plan implementation is monitored.
- Support is provided to health planning by the following health service providers:
    - Specialists (including those who completed GP and pediatrician GP special exams);
    - health counsellors,
    - nurses,
    - practice nurses,

    - qualified nurses,
    - nurse specialist, such as dieticians, physical therapists;
    - mental health caregivers;
    - staff members of the Health Development Offices;
    - psychologists.
- To provide support to health plans development and implementation is not a one-man job, it is offered in a process of interconnected health services. Accordingly, those who are involved in the individual health planning process, can perform sub-tasks only, both in the planning as well as in the implementation phase. The completion of these sub-tasks is closely related to processes described by health management guidelines and the therein defined competences.
- Health plans always include specific goals and an action plan and/or a service plan to achieve those goals.
- Health plans always include procedures to monitor activities and outcomes.
- Three key elements of a health plan:
    - to raise awareness of behaviour change and healthy way of living;
    - care plan,
    - individual service plan.
- An individually prepared individual health plan does not include more than behaviour change elements and health awareness.
- An individual service plan is prepared if risk assessment of individual's condition necessitates health services. Obviously, this component has to be made for existing diseases as well, and complemented by a care plan module.
- It is highly important to define that health plan is an outcome-oriented process and not a simple document, therefore the term 'plan' always includes the elements of planning and implementation.

However, it is important to distinguish responsibilities of individuals and the health care delivery system both in the development as well as in the implementation phase of health planning. Only health activities can be sharply distinguished from each other. Correspondingly, every activity element carried out by the individual is the responsibility of the individual, and every activity element carried out by a service provider is the responsibility of the service provider.

The role—encouragement and motivation—service providers play in the preparation, implementation, monitoring and re-assessment phase of health planning is of the utmost importance. However, health plans can only be made with the engagement and consent of the individual, therefore to design an individual health plan, including setting health-related goals is the responsibility of the individual. If the individual refuses to make any behaviour change, rejects to collaborate in the therapy, declines to follow the individual service plan, this will be recorded in the individual health plan as the decision of the individual. In these cases, the service provider's responsibility for the change of attitude to health remains but the service provider cannot be held accountable for any failure of the therapy.

Therefore, it is an essential task of community health planers being aware of the health attitude of passive groups of people to design a special action plan to address this problem. Social responsibility comes with the responsibility for the whole health value of the community. A coordinated action plan of the community can influence the health attitude of the entire community. Individual responsibility means collaboration with goals of the community. Therefore, community and individual health planning affect each other considerably, and the effectiveness of individual health plans is influenced by the effectiveness of community activities significantly.

The quality of health counselling is the key to the improvement of community and individual health values. Health plans do not provide a detailed methodology to health counselling, although holistic and accurately customized individual health counselling is a critical success factor in which individual lifestyle, attitude to health, social and cultural conditions are considered.

Each adult, either as an individual person or a guardian, can be involved in health planning, either directly through the practice or via info-communication tools. Health planning can be initiated either by individuals or primary care professionals. Opportunity to individual health planning is equally open to adult persons with a disease and those who regard themselves as healthy. If it is needed or necessary, a family member can also be involved in individual health planning.

To achieve goals, all the factors that pose risk to good health have to be identified during the individual health planning process.

Fundamental elements of the planning process are the same as the diagnostic components of primary care: individual and social anamnesis, family anamnesis, mapping out occupational and life style attributes (using interviews, questionnaires),

physical examination, independent from the complaints and symptoms the individual has at that moment. If these components are carried out, and obtained data and information is assessed, the risk level can be defined.

The risk level will define what the individual has to do in relation to his/her condition. It is the basic feature of health planning that the responsibility for taking decision to reduce the risk level regarding his/her condition on the basis of received or requested information rests with the individual. This will be the basis of behaviour changes and other to-do activities (e.g. medication, if needed). To take decisions, individuals should always be provided with accurate information, either in face-to-face encounter with a service provider or when they use the available info-communication tools.

The primary aim of health planning is to **change/modify behaviour** based on the evidence-based consideration that health behaviour can be responsible for getting non-infectious diseases. Similarly, facilitating **individuals' adherence and collaboration in the therapy** is also part of health planning.

Health planning does not come to an end when the ways of reducing risk factors are defined, outcomes of individual's decisions should also be **monitored** (if it is possible). The method and frequency of monitoring are defined by professional criteria. For the individual, it is important to receive feedback and encouragement.

Every significant component of individual health planning carried out in primary care should be recorded electronically and/or on paper.

Individuals can start their health planning by using questionnaires made available on info-communication devices.

As preconditions, available questionnaires and assessments should

- come up to professional expectations;
- be clear, unambiguous and easily understandable for everybody;
- be recordable;
- be saved for the individual, and
- include unambiguous advice/opinion if the outcome of the assessment necessitates specialist health care.

Therefore, we can also talk about individual health planning if the individual comes to a decision and requires the necessary information on his/her own. Individually prepared health plans enter the primary care system when individuals start to use health care services either on their initiative, by invitation or due to symptoms and

complaints, and they inform a health care professional about the risk assessment of their condition obtained through various communication channels, and decisions and activities thereafter.

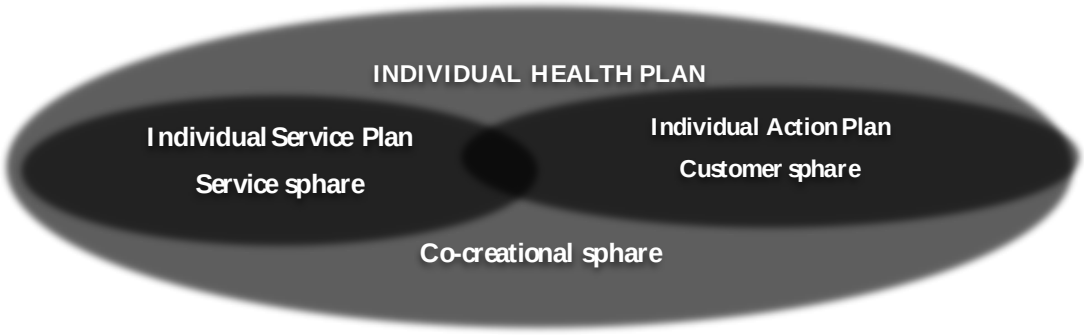

Figure 11: Model of a health plan together with co-creation spheres.

X.6 Practice groups, integration of local services

Joint collaboration of actors, introduction of new functions, involving professionals with special qualification and the more flexible and efficient use of available resources are essential to have good access to competences in the service provider sphere, and to use them effectively. In connection with the health sphere of customer-patients, the to-be-developed practice group will facilitate equal opportunities and more efficient use of available competences. The practice group can also ensure collaboration with local social care, the complex primary health care of a geographical unit in which GPs occupy the leading role.

Instead of small, independent practices that are connected to the customer sphere of their patients through narrow channels and can utilize competences only to a limited degree, it is worthwhile to establish a wider collaboration of competences to create a joint co-creational sphere of good size that will connect to patients' customer spheres to a larger degree. As a result, progress can be achieved in three areas concurrently:

- enhancement of healing experience of the service provider;
- efficiency increase additional to health value improvement;
- enhancement of individual health experience.

Practice groups are primary health care service providers based on voluntary collaboration, and—as professional and business communities, also as interest groups,

by contractual arrangements—provide preventive, medical, health care services locally, for the population of a defined region.

During the research period, a series of expert workshops with 50 potential GP practice groups was conducted, two or three times with each group, and 6–16 persons per group between April and October 2015.

Outcomes of the workshops

Making use of currently available competences, GPs of a residential area intend to establish collaboration firstly in the following areas:

Collaboratively provided health care services

- Specialties: diabetology, cardiology, psychiatry, psychology, family therapy, physical therapy, physiotherapy, dietetics.
- Providing care and primary preventive services, health education.
- Home care and rehabilitation.
- Laboratory services, blood delivery, basic diagnostic tests (RTG, UH, DOPPLER).

Specialty care can take various forms and funding, can be provided as a mobile specialty service or on a contract, using current or future licenses, or buying external services.

Preventive programmes

Screening tests, preparing and delivering information lectures. Organizing patient clubs, delivering health education lectures, providing lifestyle counselling and information.

Running disease management programmes

Disease management programmes are designed to develop practice-focused procedures to put recommendations on health care guidelines about innovative, local services into practice. Their primary role is to facilitate health maintenance, to provide health education, patient education and prevention for patients with chronic diseases.

Running health development programmes

Health education in schools, disease-related education, counselling on nutrition, anti-obesity programme, motion exercise programme, education about addiction, mainly about smoking and how to stop smoking.

Potential practice groups involved in the trial had considerably differing views about the strength of collaboration.

There were GPs, who additional to their voluntary participation in the group and in the joint preparatory work, finally preferred to run a practice independently. Basically, they are worried about changes that can affect their practice, they feel safer in the current situation, and think that doing anything jointly with others may have adverse effect on them, primarily relating to legal issues of practices, secondarily to funding issues.

Most physicians preferred some loose form of collaboration. They are aware of the service-related limits of their practices. However, they feel that services expansion would result in enhanced satisfaction for everyone. They would be more satisfied because they could expand their services by involving currently hardly available service forms, and thus improving the care and treatment of their patients, they would be more successful in achieving their professional goals. Patients would also be more satisfied because they could be engaged in a more complex service delivery processes under the guidance of a specialist, and would feel less lost in the maze of the health care system. However, these GPs think that their safety both in economic and legal terms is guaranteed by practice law, therefore they can only accept collaboration in professional and management areas, and they refuse any collaboration of economic, financing or legal nature.

The smallest group, about one tenth of the physicians involved in the trial was the most innovative and dynamic, they were on the view that with closer collaboration forms they could achieve the goals to the greatest possible extent. Their main motivation is to achieve improved efficiency, which is regarded as an important aspect of their professional job as well. Unlike other physicians, they can anticipate the implications and outcomes of the required changes, in addition to their medical competences they have economic and/or management competences as well, therefore they feel more confident in their ability to manage changes more effectively, and thence to achieve a much better position. They believe that in addition to professional collaboration practices should be fully integrated economically and legally as well.

X.7 Community-based health services

X.7.1 System of local health care services

A network-type operation was designed aiming to create value-in-use of health care services in compliance with the Service Logic, the co-creational service framework developed by Grönroos and Gummerus [Grönroos2014].

1. The condition-specific ‘job-to-be-done’ type of needs was defined, which is the experience-based goal of customers, and can establish a co-creative platform.

2. The next step was to define the condition-specific joint sphere, provider sphere and customer sphere including members of the provider team, customers in similar condition and supporters of value-in-use value generation.

3. Integrating health counsellors and community-based health care managers, new resources were integrated into the current system of health care resources using current expertise and skills extensively.

4. The cumulative value creation process was supported by health counselling sessions.

5. During counselling sessions, positive customer experiences were strengthened to enhance perceived values.

6. Value-in-use value generation was facilitated by planned activities in local co-creational spheres organized by community-based health care managers.

7. Online creative platforms were created and applied, and additionally co-creative condition-specific group sessions with moderators were developed and organized.

8. Independent co-creational activities of customers were encouraged.

9. Introducing health counselling, new resources were ensured to support everyday activities of customers.

10. Health counsellors and community-based health care managers helped to involve health care providers into the health-value creation process of customers.

11. With coordinated and goal-oriented activities of the extended provider team, the co-creative platform was strengthened making it capable of influencing customers’ value creation actively and directly.

It is useful to manage and implement health care delivery processes aiming to create a health value driven co-creational process in such a way that the operation of the health ecosystem is considered, and bearing in mind that health is the responsibility of individuals and the outcome of their activities. It is suggested to allocate service delivery processes and the corresponding activity elements according to professional competences, and to run the service provider side in professional team work accordingly.

Bearing in mind how health care has been managed so far, our starting point should be the current approach of health care delivery and the health-centred approach of public health care. Health development is an essential element of this approach which aims to develop health culture based on the collaboration of every segments of the society and with the help of primary preventive activities. The traditional 'health care delivery' system should to be connected to this activity in terms of approach and organizational structure. Competences aiming to carry out health value generating activities should be made available in collaboration with each other replacing their so far independently organized format. To achieve this, attitude adjustment and structural development are needed to shift goals of health care activities from interventions towards health creation. The model of community-based, locally organized service units provides an appropriate structure and operation model to perform this task.

The integration of public health care tasks and traditionally defined health care tasks appear as uniform health care tasks that fit into the health ecosystem. In this sense, health-related activities provided by other sectors are also classified as health care services.

Based on the collaboration of the individual and the service provider, health care delivery considers the biological, psychological, social, cultural and mental aspects in one unit. Based on the individual-centred and community-focused approach and optimized and coordinated inter-sectoral processes, health care services are provided to cover health-related needs of the community.

The health care system encompasses inter-sectoral health-related activities in their entirety, the term 'local' (customer sphere) does not only define geographical borders it also defines service levels, as the nature of available competences suggests. Thus,

the British-type of primary care encompasses primary health care services. In terms of content, two essential aspects are highlighted:

- In order to reduce health inequalities, the aim is to improve access to locally available services and to enhance their quality;
- To strengthen public health tasks at primary level, and a more emphasized expansion of these tasks in line with the health-related needs of the population.

Tasks of the local health care system are in compliance with the 10 essential public health operations defined by WHO [WHO2011] but complemented with health care services and their management.

Figure 12: The 10 Essential Public Health Operations (EPHO) [WHO2011]

In this system support tasks—data collection, data management, that is monitoring, analysing, giving feedback, decision-making and planning—appear as central functions organized at a higher level. Tasks concerning management, planning, financing, HR, quality assurance, research and methodology also belong to central functions. All of them create an opportunity to run key operations locally: health development, health protection, disease prevention, health care services and services management—in short, health care tasks.

Correspondingly, local health care delivery is concentrated on traditionally defined primary care and outpatient care, and the two together can be called primary health care.

Based on this approach, some of the key requirements of local health care development are the following:

- horizontal integration between the participants,
- expansion of local services, focusing on
    - public health care tasks, including health development, health protection and disease prevention,
    - care, as well as on
    - expansion of opportunities to offer professional services through vertical integration.

Consequently, a possible definition of local health care: the totality of generally available, health-centred, community-focused health care services provided by groups of medical professionals in various combinations, and based on corresponding, community-based health-related needs assessment, and thereby services can satisfy the health-related needs in line with the possibilities of the community. Health care services are managed in partnership with the individuals, families and communities, enjoying inter-sectoral support concurrently. Comprehensive professional coordination of health care services is ensured.

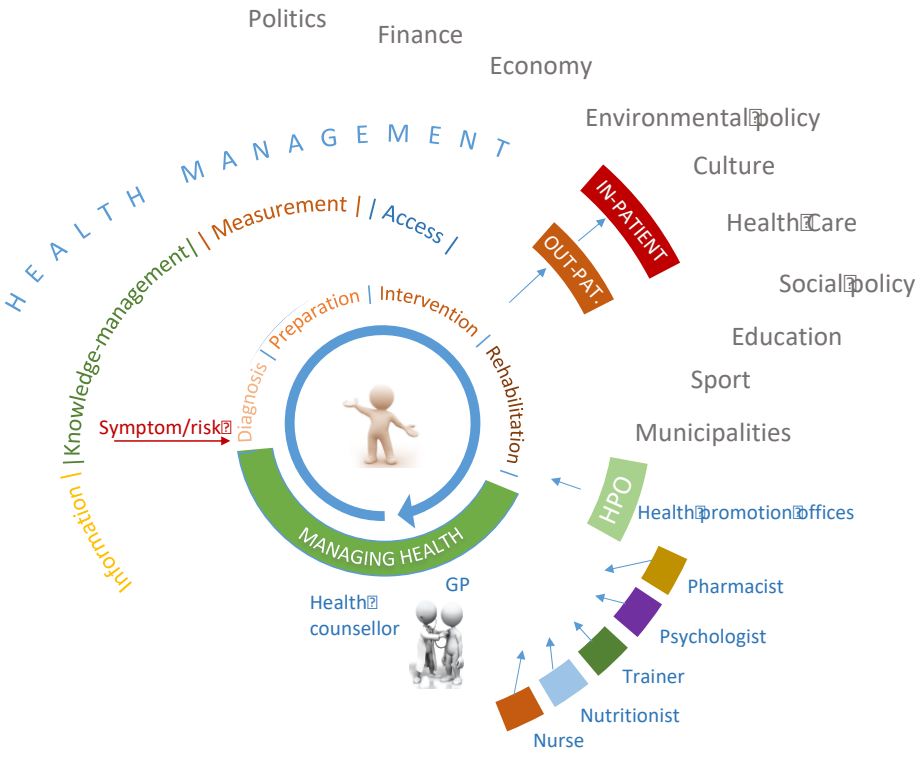

Figure 13: Individual-focused mapping of the network system of locally-based health care services, as suggested by research findings.

As regards the concept, it is essential to perform supportive, management and methodology development functions to provide high-quality operation and ongoing development of health care services. Without these functions, much more time were needed to design the operation model, and in all probability, the completed operation became heterogeneous.

Therefore, this fact justifies that supportive management functions that bring about attitude shift and facilitate health-centred operation model should be built in. It is highly important that management functions supportive to attitude shift should also be integrated into the system, thereby they can ensure that preventive and care-related actions—that were considerably neglected in the previous health planning and health management system—will be performed in coordination with diagnostic and therapeutic components.

Coordination between health development, health management and approach to public health care could be a model in the implementation structure, which could be an example not only to primary health care but also to the entire health care system. In

this way it can be achieved that prevention, care and public health care related tasks were given greater emphasis, and provided in close coordination with other service-related actions. Integrated operation requires a methodological background, a supportive and guiding organization that can provide the same quality across the system.

It is an essential aspect that community autonomy is given and decisions are taken at the level of locally-based health care services. Thereby, it can be assured that health care services are undoubtedly aimed at satisfying the health-related needs of the community. It is vitally important to support self-governing organizations, grass root community initiatives, because they alone can influence the health of the community. The institutional framework is not designed to limit these processes, on the contrary, based on them, methodological and organizational guidelines are offered, and continuous development is facilitated by communicating best practices. As a quality controller, protects professional guarantees.

Development-related cases and international best practices suggest that community-based health care, uniformly managed across the country, can have the following effects on the renewed health care system:

- Quality improvement, significant increase in healing effectiveness;
- Increased rate of preventive actions, development of health culture;
- Correct shortcomings in the area of prevention, at the level of primary health care;
- Support to organizing and implementing screening programmes, preparing the service network for managing screening implications;
- Mental health care, as well as its integration into the health counselling system;
- Spreading individual health planning methodology, improvement of therapy loyalty due to health counselling system;
- System-level application of community-based health planning, harmonizing community health needs and service capacities, the result of which an optimized service map can be made, and health inequalities are reduced gradually;
- As a result of individual service journey planning and management, the implementation of service processes comes nearer to professionally prescribed processes, leading to more efficient services and more satisfied customers;

- Service processes carried out through co-creation lead to enhanced health experience;
- Due to increased rate of early diagnoses and more effective care, complications are decreasing, and consequently, inpatient interventions are reducing;
- Due to coordinated use of competences, efficiency is improving which leads to increase in health values and decrease in excessive use of resources for higher-level services.

System-wide health-centred service management is established, which exerts substantial effect on the condition of the population through placing more emphasis on prevention and care. This effect will lead to an increase in the health value of the community.

X.7.2 Structure of local health care services

Health care services are developed within the framework of local health care system, based on community health needs and on decisions of the community, in the interest of healthiness of the community and with the authorization of the local government. Methodological institutions of health care management play a key role in supporting the planning process and achieving the defined goals. And they also play an integration role in coordinating the health care actions of the various actors. Organized services can enhance the health experience of the community and foster health culture.
As a result, communities become healthier, and the health care system more efficient and sustainable.

Professional integration is the fundamental element of the structure of local health care services. Immediate benefits of professional integration:

- Quality improvement,
- Optimized task allocation,
- Enhanced health experience,
- Services are provided for districts so far without provision,
- The principle of subsidiarity is applied more extensively,
- Expansion of local services through tasks expansion.

Methodology of professional integration

According to international experiences, there are two essential—and critical—structural elements of professional communities:

- Self-organization of professional communities has to be ensured in line with the health needs of corresponding communities and in compliance with social, cultural and geographic conditions of the community;
- Taking organizational goals into account, continuing support should be provided for professional communities to enhance development and operation the level and method of which is community-based health management.

Different settlement structures, different social and cultural circumstances, different medical condition can lead to the different organizational forms. Consequently, sufficient room should be given to social needs compliant models ensuring that they can operate in line with a uniform goal system. Community health care management, funding methodology and legal environment play a key role in developing the structure, operation and the same directions.

Local health care system is a unit operated in a network structure and cluster system. It is essential to ensure community-level decision-making, self-government and self-organization; however, it is also vitally important that development directions, approaches, quality assurance system and cultural shift oriented operation are uniform. The legal environment should ensure the independence of local decision-making and the uniformity of professional, methodological and quality assurance tasks. The role, local governments play in the name of the community putting forward recommendations and making decisions, is of the utmost importance, and that is supported by the government of the national health care system which is incorporated into the system and ensures the same quality level. Local governments ensure intersectoral integration in compliance with the approach defined by the 'Health in all Policy' [WHO2012], and thereby enable system-wide implementation of community health care services.

A community area can take various forms: can be defined as smaller or larger units within a town, or covering one or more towns. As regards the size of a community area of local health care services, international experiences and limited resources suggest to select a region with about 80–150 thousand inhabitants, a region which is geographically homogeneous, and the borders of which are primarily defined by GPs' service districts. It is also advised that the community area and the administrative area

overlap each other considering the management and administrative aspects of service provider competences and the joint co-creational sphere. The community area includes all the services that are the components of the system of local health care services:

- individual adult and pediatric primary care services,
- practice groups,
- group practices,
- specialist services.
- dentistry,
- mental health support,
- district nurse services,
- specialist nurse services,
- pharmacies,
- school health care,
- occupational health care,
- sectoral health services,
- community-based health care services and health development offices,
- integrated health and social institutions.

The new service delivery model is based on functional, horizontal, vertical and intersectoral integration of community-based relevant health care and neighbouring service providers; and existing institutions of the outpatient health care delivery system (primary health care–GPs, pediatricians, dentists, nurses, day and night duties—outpatient and inpatient clinics, pharmacies and health development services), form the backbone of the model, with special attention to GPs and outpatient clinics. This is complemented by new forms of health care services that either did not work previously, or were underdeveloped, they mainly come from the area of prevention but others are also included such as service development in the virtual space, innovative and gap-filling service development programmes, and borderline services in unity with health care services, e.g. social care. Additionally, public health care tasks within the framework of local health care services are also included. In detail:

- Monitoring and assessing population's health and well-being;
- Monitoring and treating risk factors and situations that are detrimental and hazardous to health;
- Health protection in the area of environmental health, occupational health,

epidemiology and others.

- Health development to deal with social determinants and to take steps to reduce health inequalities;
- Disease prevention and early-stage diagnosis of diseases;
- Governance to promote health and well-being;
- Providing an appropriate number of competent public health care workforce that can satisfy the needs;
- Health-related communication and social mobilization, and to safeguard health-related interests.

As the results of implemented developments allow, functional integration is implemented step by step. It is vitally important that suggestion- and decision-making roles of local governments are ensured. Local-level integration is fundamentally based on community initiatives that should receive financial support and to which legal framework should be provided. Furthermore, it is essential to support the process of self-organization in order to develop services to satisfy community needs. It is also essential that integration take place as smoothly as possible, and with as few dysfunctions as possible. To guarantee, an appropriate integration-collaboration plan has to be designed which always has to precede the implementation. Every existing service delivery unit provides health care currently, and the continuity of which is to be maintained during the transformation.

Functional integration will result in a form of efficiently managed professional communities which is the integrated service unit responsible for local health care services.

Health care offices that perform health management and health development functions on community level are management and professional supportive units providing support to health care units of communities. These centres provide the following services for health care units:

- development directions in line with community needs and efficiency enhancement;
- operational support;
- fundamental public health tasks;
- health development based on public health competences and knowledge relating to health communication;

- practical community-based health planning;
- indicator-based effectiveness analysis and interpretation;
- health management, coordination between intersectoral integrative activities;
- quality improvement.

XI Experience-based community model of health value creation

To summarize the outcomes of the implemented research and development programme, I have developed a community model based on customer experiences of the care delivery value chain, and I named it ‘Community-based health experience model’.

The model provides a framework to analyse, develop and manage

competences available in the health-ecosystem,

to implement a person-centred network,

to increase individual health value.

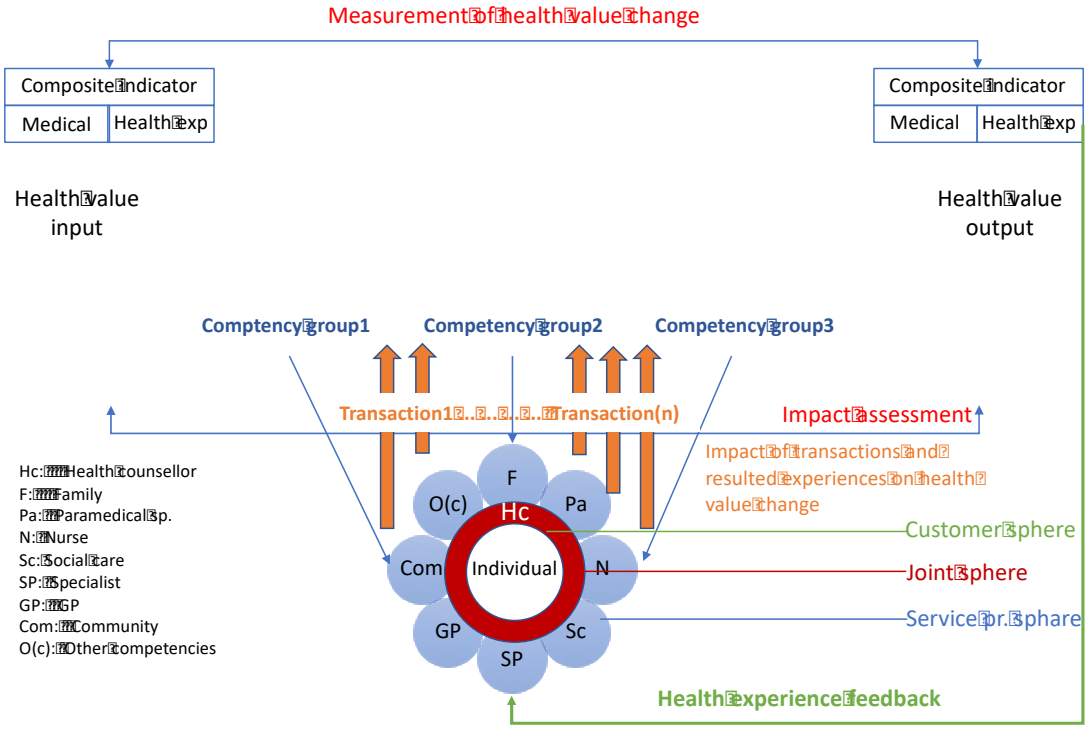

Figure 14: Model of individual-focused, community-based health value creation, redesigned by the care delivery value chain in line with Service Logic.

The core of the model is that individual’s own effort is of the utmost importance to achieve an increase in individual health value. To this, motivation, energy and strengthening are given by individual’s positive health experiences. For individuals, there are three large groups of competences to facilitate value-in-use value generation:

1. Competences that individuals have learnt and acquired as part of their health literacy;

2. Competences that individuals receive from the service provider sphere as customers;
3. Competences that individuals receive from experts, experienced people, typically online, in an exchange without money.

Within the framework of individuals' health behaviour and attitude, positive or negative lived experiences, and their extent, considerably affect the use of competences. The more positive the lived health experience, the more the competence is integrated into everyday health-related activities.

Interconnection and interaction between individual health competence spheres result in a **network** of co-creational community-based health spheres. They can operate optimally and efficiently if the whole co-creational sphere together with its components—customer sphere, joint sphere and service provider sphere—can operate as a **uniform** set of competences. This uniform competence sphere allows that each competence—used to create value-in-use value creation by individuals—in part synergically, can facilitate value increase.

These co-creational spheres are connected to typical **phases of the health value increasing value chain.** For example, fracture preventive health management after the first fracture for women sustaining osteoporosis.

In marketing terms, the **health task** is comprised of a series of activities between the initial and the desired health value—'job-to-be-done'. **Key experience** is part of the initial health experience—e.g. fracture-induced fear and mild physical disability, as a result, the individual becomes aware of tasks to be done.

Identical or similar key experiences associated with the 'health task' to-be-done define the group of individuals who will be the participants of the community-based health sphere. These health spheres tend to overlap each other partly, and undergo **dynamic** and constant changes as participants' health value changes. For example, when the risk of fall is diminishing and regular physical activities are becoming a key experience, or when changes take place into the other direction, and the third osteoporosis-induced fracture happens, serious physical disability and anxiety can be arisen. Thus, two persons previously changing experiences in one community-based health sphere find themselves in two considerably different community-based health spheres.

Regular **feedback** is needed about the degree of value-in-use value creation to efficiently utilize competences of the co-creational community-based health sphere, therefore **measurements** and **analyses** are needed. Joint use of **medical** and **health experience indicators** can ensure that the model integrates service provider sphere organized in compliance with medical criteria and individuals' perception—competences of the customer sphere driven by personal health experiences. The two indicators can be applied when the whole co-creational sphere is in operation. When only the provider sphere is involved in the health value generation, e.g. surgery is carried out in deep general anaesthesia, only the use of medical indicators is justified; while when only the customer sphere is involved in the implemented health value creation, e.g. weekend hikes are done on a friend's advice, only the health experience indicator is to be used.

A **uniform measurement** and **management** framework can ensure that instead of fragmented and rigid processes, the health care provider sphere can provide their customers with network-type and flexible person-focused interactions implemented in professional team-working. In the customer sphere, through feedback on interaction-related outcomes, the measurement and management framework can provide an improved guideline to individuals on the effects of competence transactions, and therefore individuals will consider medical aspects in their choice more carefully than before.

The **health counsellor,** working as a representative of a new profession in the **joint sphere,** plays an essential role in facilitating coordination between the customer sphere and the provider sphere. Using individual **health planning** tools, the health counsellor develops a functional project plan in which the followings are defined: linkage between the provider sphere and the customer sphere, processes to be implemented by the two actors and co-creational tools provided by the service provider, either directly, e.g. group exercise or indirectly, e.g. creating a closed online forum or providing a gym for free.

The job of a health counsellor was developed by merging two previously performed health-related activities. The health counsellor acts primarily as a case manager in the provider sphere and provides support to manage the service plan; and acts as a coach in the customer sphere to facilitate the self-management process of the customer in his/her customer journey to achieve his/her goals.

Health planning also has a role in raising awareness of individuals. Our health-related activities have a fixed starting point and a set goal or goals for each jointly defined phase.

The co-creational learning process, for service providers, is taking place primarily through the knowledge they acquire from feedback on health experiences and thereby affected medical outcomes, and the co-creational process facilitates practical implementation of customer-centredness.

From service provider's point of view, health counselling based on individual health planning, and the co-creational sphere organized thereon, tends to enhance positive health experience; whereas from the customer sphere's point of view, professional foundation is strengthened.

The whole co-creational sphere and all the community-based health spheres have to be organized to bring the model into operation, it is unreasonable to expect self-organization-based operation.

It is useful to delegate a manager to each of the three co-creational sub-spheres to organize and manage the model:

A **professional manager** with a medical degree to manage the provider sphere;

A **senior health counsellor** with a counselling or coaching qualification to manage the community-based sphere;

A **social manager** to organize and manage the framework of the customer sphere.

Furthermore, a **community health planner** should be employed to carry out and support measurement, analysis and planning, and additionally

a **business administrator** to ensure sustainability and to sustain a uniform financing framework.

The basis of measurement and management is measuring composite health-value indicators in line with the care delivery value chain, and thereby to **follow health value changes** both with medical indicators and health experience indicators. The effect of exchanges is studied separately on medical indicators and health experience indicators.

C) REAL-LIFE PILOT

XI Hypothesis

H1: The greater the extent of patient involvement in the treatment and care of their diseases in the co-creation process, the higher the indicator-measured effectiveness of health care services.

H2: The greater the rate of patient involvement in the treatment and care of their diseases in the co-creation process, the higher the perceived quality of services.

H3: The more fully are competences shared in evidence-based health care processes and team work thereon, the more positive the physicians' healing experience and the patients' recovery experience.

H4: The more health-value creating transactions are implemented in the management of collaborative community-based networks, the higher the indicator-measured service quality.

H5: The more expansive the community-based local health ecosystem, the more efficient the utilization of available health competences.

XII Trial

XII.1 Experimental trial of the full implementation of the model

The aim was to make investigation into the operation of a network-based transactional health ecosystem on endemic diseases,

selecting themes corresponding to the key components of Care Delivery Value Chain, such as prevention, diagnosis, intervention, rehabilitation and health management, and exploring the change in the ‘entire co-creation sphere’, ‘customer sphere’, ‘joint sphere’ and ‘provider sphere’ individually,

involving healthy individuals, patients with diabetes and with suspicion for diabetes, osteoporosis, COPD, stroke, and additionally screening school children for cardiovascular risks and oncology. A total of 26,549 persons, involved by 794 GP practices.

Methodology was non-interventional clinical trial with the authorization of the National Research and Ethical Committee of the Medical Research Council. Self-controlled examination and measurements with standard questionnaires after 3 months and 5 months.

Submission extract can be found in Appendix 11

XII.2 The theme of osteoporosis and its outcomes

XII.2.1 Methodology

As this dissertation is limited in terms of size, I will discuss one tested area, the osteoporosis and the corresponding research findings.

The test included medical and health experience-related health value measurement based on self-controlled health value generation, and measurements of various other transaction-induced experiences at the enrolment; and then three months later patients were asked to complete a standard questionnaire online, and professionals were asked to report online.

From the process of ‘DON’T GET BROKEN AGAIN! —prevention of osteoporosis-based fractures’: testing fall prevention sub-process.

Selection criteria:

- women above 65 years of age,
- people with established osteoporosis without having had a fracture before,
- people with established osteoporosis having had an osteoporotic fracture before,
- people having had a fracture caused by light pressure in the previous 12 months (risk of osteoporosis).

Implemented and examined transactions:

(1) Visits to GPs, (2) consultation with practice nurses, (3) preparing health plans, (4) regular individual exercises to prevent falls, (5) group exercises to prevent falls, (6) online information home page.

Measuring outcome indicators:

Medical: Primary risk of falling, number of secondary falls, online survey with a standard questionnaire

Health experience: Primarily: the extent of self-management; secondarily: health literacy; online survey with a standard questionnaire

Measuring transaction effects:

Online survey with a standard questionnaire about customer experience

Online survey with a standard questionnaire about user experience

Online survey with a standard questionnaire about healing experience

Measurement methodologies

Developed by the Hungarian Institute of Rheumatology and Physiology

Fall risk questionnaire

According to the methodology of GfK

Consumer Experience (ConX), User experience (UX), Health experience questionnaire

Own development

Healing experience questionnaire

GPs assessment of group exercises

Analysis was made by IBM SPSS Statistics 24 on Macintosh program.

Correlation analysis was made with the Shapley-value regression analysis.

Questionnaires and test sheets are included in the Appendices.

Sample and duration

N=20 locations: Three districts of Budapest with settlements from the metropolitan area (IX., XI., XII.), Csorna, Debrecen, Heves, Hódmezővásárhely, Kazinzbarcika, Kiskőrös, Pápa, Pásztó, Pécs, Siófok, Szeged, Szarvas, Szombathely, Tamási, Tiszafüred, Zalaegerszeg, Vásárosnamény

N=84 GPs

N=53 physical therapists

N=1761 actively involved patients who received additional health transactions through additional care services.

The track period of involved patients was three months, between 27 April and 18 October 2015.

N=932 women with diagnosed osteoporosis were followed, risk of falling was chosen as a medical indicator, fall risk questionnaires were completed at the enrolment and 3 months afterwards.

The process of the trial

1. Physical therapists working with GPs and practice nurses were selected.

2. Fall prevention exercise programme was developed by the Hungarian Institute of Rheumatology and Physiology, a corresponding training booklet about exercises was produced (see Appendix 8), physical therapists were trained how to perform the tasks of the programme.

3. GPs were trained about the tasks to be performed by staff members of the Community Health Management Office, and during the trial period their task accomplishment was followed continuously.

4. Individual health plans, corresponding treatment plans and action plans were prepared either by the GP or his/her practice nurse in the GP's surgery, patients were trained to do fall prevention exercises, opportunities were ensured for the study group to take part in a motion exercise group, and support was provided to monitor their own health with an individual health planner. Health counselling was provided to help the study group fill in and then follow their individual health plan.

Fall prevention questionnaires were made available and completed online.

5. The study group participated in a 30-minute fall prevention exercise managed by physical therapists twice a week, and attendance was registered online by physical therapists.

6. TUG, Reach and Romberg tests were carried out optionally by physical therapists at the first visit and after three months, test sheets were completed and FRAX was calculated also by physical therapists.
7. Within three days after the first visit and the visit after three months, GPs and the study group received a link to an online questionnaire and were asked to complete it.
8. After three months the study group was summoned back to their GP for a follow-up test, and then they were asked to complete the fall risk questionnaire again.

XII.2.2 Results

Health value changes (N=932)

A. Medical

A.1. Risk of falling decreased with 12% of patients

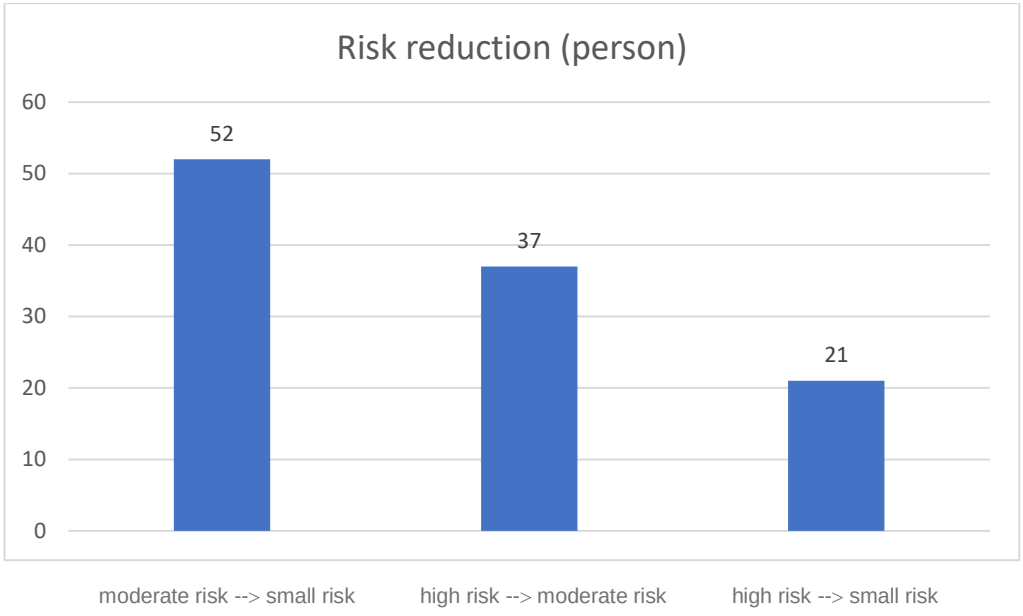

Figure 15: Fall risk reduction relative to initial and achieved risk classification.

Six patients with walking frames have become walking patients.

A.2. Number of falls decreased with 4.5% of patients

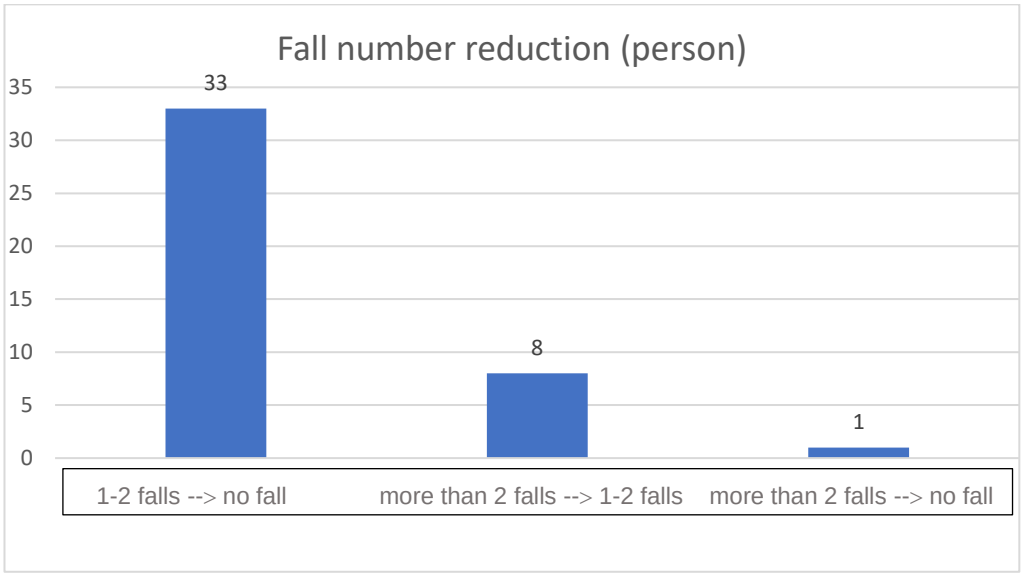

Figure 16: Decrease in the number of falls relative to initial and achieved fall numbers.

B. Health experience

B.1. Self-management increased from 7.25 to 8.06, a 0.81 point improvement on a 10-point scale.

B.2. Health literacy improved from 7.85 to 8.26, a 0.41 point improvement on a 10-point scale.

Change in customer experience at the experience points (N=283)

Points increased from 22.37 (74.6%) to 23.58 (78.6%) of the maximum 30 points that could be given to six questions.

Qualitative assessment of group exercises made by GPs

I conducted an online survey among GPs dealing with osteoporosis about their opinion on group exercises at the beginning of October 2015.

- N=57 questionnaires were sent to GPs, N=31 was returned;
- Eighty-seven per cent of the respondent GPs said that individuals had supportive attitude when they were offered the possibility of doing group exercises;
- More than 50% of the involved physicians found it easy to convince individuals, and 32% of them found it difficult;
- Eighty-seven per cent of the physicians thought that because classes were provided near where patients lived, it was easier for most patients to participate;
- Of the GPs, 96.8% said that because a professional physical therapist was involved, it made their job easier;
- Eighty-four per cent of the respondent GPs believed that most of the involved individuals understood the purpose of therapeutic exercises, and 16% of them said that all the individuals were aware of the purpose of the exercise;
- Ninety per cent of individuals involved in the trial found therapeutic exercises very beneficial or beneficial;
- Fifty-five per cent of the physicians thought that most individuals they invited did therapeutic exercises at home as well, while 35.4% of them believed that a small part of individuals were active outside the classes as well.

- All the respondent GPs said that group exercises supported their job either entirely or mostly;
- Almost 75% of the physicians said that group exercises enhanced individuals' commitment to preserve their health mostly, and according 25.8 % of them entirely;
- Ninety per cent of the respondent physicians would recommend other patients of theirs to take part in therapeutic exercises.

XII.2.3 Analysis

The primary medical health-value outcome that revealed decrease in risk of falling at 12% of the patients is an outstanding outcome even by international standards. Of all physical activities, only Tai Chi proved to be effective with a 10% decrease some years earlier [Gillespie2012]. The group version of fall prevention exercise provided greater customer experience for the participants than individual home-based exercises, although only less than half of the patients had positive memorable memories of the group exercise (42.5%) and a fairly large rate of them had negative memorable memories (15.1%). During the three-month period, the number of participants who found the group exercise positive grew by 15% to near than one and half times, and those who reacted negatively grew by 8%, more than doubled. This means that self-management and encouragement to be engaged can influence only some of patients positively.

The growth rate of positive memorable experience of home-based exercise was much lower than that of the group exercise, 9% vs 15%, while the growth rate of negative memorable experiences was similar in both cases, 7% vs 8%. Reasons can be that apart from sharing experience with others, group exercise gave additional impulse to participants in the one hand, and user experience of the training booklet about fall prevention was moderate, on the other. Although the training booklet was prepared by the best professional team in Hungary, it was not found as useful as and could not provide the same user experience than other (online) information materials of the programme.

The secondary medical health-value outcome, the change in number of falls decreased in 4.5% of patients but the three-month trial period was insufficient to come to conclusion.

The primary health experience health-value outcome, the degree of self-management improved considerably, by 11%, which corresponds with the decline in risk of falling and the experience of GPs. The secondary indicator, the health literacy improved by 5% implying that major change of this indicator cannot be expected within such a short period.

Based on the changes in customer experience values, the service expansion improved the perception of GPs' services most substantially, positive memorable experiences doubled (from 31.5% to 60.3%), and negative ones reduced to the half (from 41.1% to 20.5%). Partly because GPs had a more positive attitude to this task as they could offer real solution and care to their patients, and gradually experienced the positive impact of fall prevention exercises. This is confirmed by the fact that their healing experience improved slightly during a short period of time (5.3%). Their opinion about group exercises also suggests that this opportunity mostly enhanced their satisfaction with their job.

However, in the case of practice nurses, positive memorable customer experience decreased by 10%, and negative memorable experiences increased by 15 %. The underlying reason can be that they were the only ones in the service provider team who did not receive special training and had little information about the new opportunities. Patients were encouraged to manage themselves, consequently their questions changed both in terms of numbers and content, and nurses were not prepared to answer them. This experience taught us that if service expansion accompanied by competences expansion, training and information should be provided for every actor.

The online health planning application was received positively. This effect can be observed in the improvement of self-management and health literacy. Nearly half of customer experiences were positive memorable (43%) which is definitely a good outcome a new service with an entirely new approach can achieve. It is particularly true because negative memorable experiences were very few (6%). It is reasonable to consider that half of customer experiences (51%) were not memorable, and about

half of them negative, the other half positive. In everyday sense, half of the users found it nothing special which points to the necessity of customer-focused development.

In comparison, I studied an extensively visited health care information portal on the Internet and searched for customer experience of this nature. In comparison with health planning, the rate of non-memorable impulses was much higher, almost three quarters of the visits (72% vs 51%). The fairly low rate of memorable positive experiences (24%) show that a portal focusing essentially on information provision cannot serve more than only a small percentage of customers, because these days visitors look for different competences, and what they mostly need is to share personal experiences and opinion.

XII.2.4 Hypotheses verification

H1: The greater the extent of patient involvement in the treatment and care of their diseases in the co-creation process, the higher the indicator-measured effectiveness of health care services.

The rate of patient involvement can be described by a ratio. The number of patient-completed health transactions per individuals relative to the total number of planned health transactions in the ‘Don’t get broken again!’ trial process.

$$\frac{\sum \text{implemented transaction}}{\sum \text{planned transaction}} = \text{individual involvement}$$

Service effectiveness is defined by the rate of risk of falling, the primary indicator, and the rate of self-management, the primary health experience indicator.

The rate of patient involvement was closely correlated both with the rate of risk of falling and the rate of self-management.

risk of falling	r=0.78
self-management	r=0.67

H1 hypothesis is confirmed.

H2: The greater the rate of patient involvement in the treatment and care of their diseases in the co-creation process, the higher the perceived quality of services.

The rate of patient involvement can be described by a ratio. The number of patient-completed health transactions per individuals relative to the total number of planned health transactions in the ‘Don’t get broken again!’ trial process.

$$\frac{\sum \text{implemented transaction}}{\sum \text{planned transaction}} = \text{individual involvement}$$

I described the patient-perceived service quality as the rate of customer experience and GP’s recommendation.

The rate of patient involvement correlated both with the rate of the customer experience composite indicator and GP’s recommendation.

customer experience r=0.68

GP’s recommendation r=0.63

H2 hypothesis is confirmed.

H3: The more fully evidence-based competences are shared in treatment and care processes, and thereon based teamwork, the greater the healing experience of physicians and health experience of patients.

The rate of competence sharing among physicians is described by a ratio. The number of implemented health care transactions by physicians relative to the total number of planned health transactions in the ‘Don’t get broken again!’ trial process per individual.

$$\frac{\sum \text{implemented transaction}}{\sum \text{planned transaction}} = \text{treatment-care competence sharing}$$

The rate of physicians’ healing experience was defined by the rate of total value of word-of-mouth, therapy loyalty and life quality derived from patients’ answers to the healing experience questionnaire.

The rate of patient health experience was defined by the combined rate of health literacy and self-management.

GPs' healing experience r=0.58
patient health experience r=0.71

H3 hypothesis is confirmed.

H4: The more health-value creating transactions are implemented in the management of collaborative community-based networks, the higher the indicator-measured service quality.

The total number of recorded health transactions in the 'Don't get broken again!' trial process defined the number of health value increasing transactions in the 20 locations of the trial.
I described the service quality with the rate of customer experience and GP's recommendation.

customer experience r=0.74
GP's recommendation r=0.57

H4 hypothesis is confirmed.

H5: The more expansive the community-based local health ecosystem, the more efficient the utilization of available health competences.

The total number of recorded health transactions in the 'Don't get broken again!' trial process defined the number of health value increasing transactions in the 20 locations of the trial, and thereby the scope of local health ecosystem.

The utilization of health competences was defined by the rate of risk of falling, used as a primary indicator, and the rate of self-management, the primary health experience indicator.

The scope of the local ecosystem is closely correlated both with the rate of risk of falling and the rate of self-management.

risk of falling	r=0.81
self-management	r=0.78

H5 hypothesis is confirmed.

XII.2.5 Impact assessment

A health economic model was designed to estimate the effects of the model developed for and tested in the trial, additional to data measured and recorded in the trial, data recorded in the database of the National Health Insurance Fund was also used from a three-year period between 2012 and 2014.

1. Individual health plan and service plan—incident project plan

2. Type, place, service provider, time and duration of implemented service-related incidents

2.a. From the database of the National Health Insurance Fund

2.b. From the database of GPs

2.c. From online questionnaires completed by service providers

2.d. Information from the medical systems of service providers imported as standardized data package

3. From online questionnaires about self-managed health-related activities 4. From online questionnaires relating to patients' self-assessment about their state of health

5. Incident-related patients' reports submitted in online questionnaires—user experience, customer experience, satisfaction

6. Service provider-measured outcomes reported in online questionnaires

7. Short written evaluation, opinion from patients reported on an online interface

Care levels of osteoporosis

The analysis—conducted on the database of the National Health Insurance Fund used to assess the impacts [Bacskai2015]—revealed that the number of encounters in the health care system, the extent of care, showed significant correlation with the degree of patient collaboration. The conditional probability of becoming a member of a collaborative group for patients who were not involved in a care incident was 58%. If the patient was involved in 1 care incident, the same figure was 65%. If the patient was involved in 2 care incidents, the same figure continued to grow, the probability was 68%. In this case the difference was significant, p=0.002 If the patient was involved in 3 care incidents, the same figure continued to grow, and amounted to 74%. The difference was significant in this case too, as p=0. If the number of care incidents continued to grow, the probability of becoming a member of a collaborative group grew to 71%, then to 75% and afterwards 87%; outcomes were significant until 6 care incidents.

When the care is increased to level 2, and correspondingly the number of collaborative patients also grew, the data of the National Health Insurance Fund indicate costs reduction in inpatient care:

For the whole population in one year: HUF 122,840,354 can be saved

For the whole population in five years: HUF 614,201,770 can be saved

Estimation is valid for patients with up to two fractures and who can satisfy the selection criteria of the trial defined for patients sustaining osteoporosis.

The trial carried out with patients with diagnosed osteoporosis showed that a model of community-based health experience can deliver more positive outcomes in treating an endemic.

The significance of the estimated impact is substantiated by the European Vertebral Osteoporosis Study (EVOS) according to which about 600 thousand women and 300 thousand men aged 50 years and over are affected in Hungary. The significance of osteoporosis lies in pathologic fractures and their complications, and hip fractures in particular. Various surveys revealed that 12–20% of patients with hip fracture die in the first year after the fracture, about half of them need care till the end of their life, and only every fifth patient can recover fully. Most vertebral fractures occur gradually,

and remains hidden for long, the data of the National Health Insurance Fund show that in 2013 only 10% of incidents were detected immediately.

According to my impact model, the expected probability of fractures in the non-collaborative patient group is 3% in a six-month period, and for the collaborative patient group it is 2.3% respectively.

• Both costs and the number of fractures were lower, more encouraging in the collaborative patient group;

• The likelihood of becoming a member of a collaborative patient group is improved by the number of care incidents.

If the level of care and collaboration achieved in the trial were applied generally, cost reduction can be further facilitated. In the collaborative group the probability-adjusted costs of inpatient treatments are HUF 20,728 per patient for six months, whereas in the non-collaborative group costs are HUF 27,387 respectively. Taking the difference of HUF 6,659 into consideration, we calculated the costs for the entire population for a 5-year period, and costs can be decreased substantially. We could identify 54,701 patients with two fractures in the entire patient population, thus multiplying the number of patients by cost saving per patient it makes HUF 364,253,959 in a six-month period.

For the whole population in one year: HUF 728,507,918 can be saved

For the whole population in five years: HUF 3,642,539,590 can be saved.

XIII Discussion

The outcome of my research, the community-based health experience model—based on the experimental trial and test results obtained during the model development process—in my view, corresponds with the Service Logic [Grönroos2014] and its adaptation to the health ecosystem. According to the presented trial outcomes:

1. **The individual is in the centre of health competence networks** that facilitate health value generation based on and described by the model.
2. The scope of health competences used by the individual has to be described by the **competences of the entire health ecosystem,** which is much larger than the scope of competences available in health care.
3. The holistic approach taking the whole human being into consideration is achieved by the competence network, as defined by the model, in such a way that **health experience** aspects and corresponding indicators are integrated. In contrast with previous integrated health care systems, the primary development lies in the integration of health experiences typical of the entire health ecosystem into the model. Therefore, the community-based health experience model from the standpoint of health care systems can be regarded as health experience augmentation.
4. The **health-related task,** which is perceived and to be accomplished by the individual, is defined in the status survey and goals are recorded in the **health plan**; the task can be performed alone by the individual in individual's customer sphere, or with assistance in the joint sphere, or perhaps in the service provider sphere without the consent of the individual. Activity elements and health-related goals of the individual health plan are derived from the activity chains of the care delivery value chain, and thereby **the health-related task corresponds with a well-defined phase of the care delivery value chain.**
5. The care delivery value chain compliant with the health-related task defines the **to-be-done activity elements** aiming **to create health value,** as well as the corresponding **competences** needed in the customer sphere, the joint sphere and the service provider sphere. The service provider process and the customer journey leading to health value generation are implemented in collaboration with competences in co-creation.

6. Online and offline **customer spheres**—that are **linked to health-related tasks** and in which health experience is the main driver of the transaction—can increase the number and frequency of individual-initiated connections to key competences of the service provider sphere through the joint sphere.

The model was studied primarily from the standpoint of health care system restructuring, in my thesis I focused on co-creational spheres as defined by Service Logic, emphasis was given to the 'Don't get broken again!' programme designed and implemented for women sustained osteoporosis, outcomes were described and analysed.

In line with Ekman [Ekman2011] and Snyderman [Snyderman2012], health counselling based on individual health planning is a new and essential element of service development from the standpoint of health value generation. This is complemented by competences based on value chain processes of health economics and assigned to test processes; and competences are organized in ecosystem-type community-based health spheres through designing and developing community-based health management, in concordance with the proposed health care ecosystem approach of McColl-Kennedy [McColl-Kennedy2012].

The rate of involved individuals who set their own health-related goal and wrote action plan for themselves increased by almost two-thirds (64%)—and this points to the immediate benefit of individual health counselling. On the recommendation of the GP, 47% of individuals set health-related goals and wrote an action plan, but if individuals—additional to the recommendation of the GP—discussed the role of goals and action plans with the health counsellor, the figure increased to 77%.

Short-term benefit of individual health counselling manifested itself in the achievement of the defined goals. In the three-month follow-up period, one health counselling session was enough to produce changes with 49% of the participants. Changes manifested itself in body weight loss, health risk reduction, life style changes and screening tests patients underwent. These changes are so significant that if health counselling were used in treating diabetes and caring diabetics, if a joint sphere based on individual health planning and health counselling were created to treat diabetes even without restructuring the existing service provider sphere and customer sphere—

according to an impact model, about HUF 6.7 billion funding costs could be saved annually.

Individual health planning in a structured online form can satisfy unmet customer needs. Nowadays, nearly half of the Hungarian population prepare health plans of various level and content. Although, only in their mind; based on this plan they search for, use or buy the health competences they themselves or their family need.

The extent of need for health planning is indicated by the fact that 8,179 persons registered individually on the online interface in the three-month test period, although public communication was very limited, and online application was available only on the website of the National Health Development Institute. I received direct feedback through the process of health counselling, and the usefulness of health planning was by no means obvious. Experience suggests that health planning can only be successful if it is regarded as a customer sphere tool, and planning is seen as the sole responsibility of the customer. This approach was frequently the subject of debate, and sometimes of heated debate, with physicians in the development and the trial period. By force of habit and practice of the service provider sphere, physicians cannot imagine any other health plans than the ones developed by health care personnel and monitored by the attending physician. For them, health planning carried out without a physician or a health care worker was unthinkable. Furthermore, trial outcomes confirm that the customer is the best person to prepare a health plan, and customer journey should be made in the customer sphere.

During the trial, particular attention was devoted to develop professional team work in the service provider sphere, as Gawande proposed [Gawande2010]. On the one hand, GPs who willingly took part in the programme were familiar with this approach and method, and on the other, workshops and information meetings were conducted to highlight the personal benefit new procedures can bring for them. Collaboration was smooth and trial goals were impressively achieved in GP practice groups in which collaboration had a history, or there had been a professional leader chosen or emerged from among themselves. GP practice groups significantly differed from each other in terms of activities. An average-size GP practice group consisted of 41 physicians, but the three most active professional group had by 90% and 40–40% more members respectively, and the three least active ones had by 56%, 51% and 49% fewer members respectively.

It was the task of local community-based health care offices to organize team work in accordance with test processes, to find qualified workforce to assist GPs and to manage their work, as Glouberman earlier proposed based on thorough management science considerations [Glouberman2001b]. They were also considerably different in terms of effectiveness. Twelve qualified workers were involved on the average, but there were groups where by 33% or even by 50% more workers were involved, and there were others where by 50% or by 40% fewer workers were involved. Community-based health care managers had more chance to find the right colleague to deliver the additional competences if it was about a more active GP practice group. In the short period of the trial, locations with improved infrastructure, Budapest districts and large cities were at an advantage, but well organized and collaborative GP practice groups were also similarly successful in developing collaborative competences in the service provider sphere.

These experiences suggest that without GPs with self-organizing capacities, on instructions and expectations, under funding pressure it is very difficult to create a service provider sphere that can satisfy the criteria of the primary health care network and an effectively and efficiently managed modern health care system within the current health ecosystem.

In line with the integrated practice unit approach of Porter and Teisberg [Porter2006], it is the task of community-based health care offices to help organize and manage the entire health co-creational sphere. In the development and trial period, I studied how this task was performed, and offices were considerably different from this point of view as well. Apart from looking at tasks carried out in the trial process, qualitative methods were applied to study the tasks designed to create the entire co-creational sphere. Their effectiveness was assessed by their collaboration with local governments, social actors and local peer institutions, such as rehabilitation institutions and health development offices. Two aspects influenced effectiveness of offices considerably in starting to create the entire co-creational sphere, the strength of medical professional competences of physicians, economists or health care developers individually, on the one hand, and the scope of their personal relationships, on the other. If the office had at least one staff member with strong competence in this field, the network-based co-creational sphere was implemented quickly. More staff members could facilitate both the scope and the speed of the development. In the long

term, the strength of professional competence will be the most important factor to facilitate that all or the most of affected persons of the co-creational sphere accept the community-based health care office and its activity through a competent person.

The estimate of an impact model on diabetes treatment and care showed that professional team-work of GP groups—either in the form of practice groups or group practices—can save an annual amount of HUF 6.2 billion funding costs in the service provider sphere.

Based on the estimate of the impact model, systematic operation of the countrywide network of community-based health care offices and managing the entire health co-creational sphere organized and supported by these offices, HUF 7.1 billion funding costs can be saved annually.

Community-based health spheres—organized in compliance with individual-centred competence network and corresponding to the community-based health experience model–would achieve progress in every co-creational sphere in terms of health value generation.

In the service provider sphere, network-organized competences—as described by professional health care recommendations and in line with care delivery value chains—can increase both the efficiency of value creation and the extent of healing experience, enhance the satisfaction of health care workforce and facilitate customers' satisfaction. Furthermore, the costs of effective use of competences also go down, and thereby available resources can be spent on not yet available competences in the service provider sphere, joint sphere or customer sphere, and the entire attainable health value of the population can be further increased.

By formal creation of the joint sphere, we allow combined implementation of certain phases of service provider processes regulated by professional health care recommendations and of the customer journey carried out in the customer sphere and affected by individual health-related beliefs and health experiences; and additionally the corresponding competences organized by different logic can be used as much coordinately as possible aiming to achieve health value generation. As regards the entire health ecosystem, the most significant loss in terms of utility is caused by detrimental effects of competences inside and outside the health care system. From physicians' side, patients seem to be ill-informed and stubborn, fail to follow their

advice, and are bought into all sorts of quackery, whereas from patients' side, physicians do not even listen to them, prescribe medicine, and nothing else, fail to provide guidance on the usefulness of products and services that are widely available outside the health care system.

The biggest step we can make towards developing substantial health value creation is the integration of the customer sphere into the entire co-creational sphere. We accept that we cannot cure most part of diseases, and that everybody is responsible for his/her health, people can do the most for their own health. The biggest support can be provided to people by their own community and social net. Therefore, activities that are regarded as public health tasks tend to be shifted towards such consideration that people should not be changed, instead opportunities and community-based health spheres should be provided to help them change. A step forward could be if online spheres were designed more purposefully, and if they were connected more closely and organically to the service provider sphere and the joint sphere. 'Patient education' should be given less emphasis, instead participation in the community-based sphere and exchanges of health-related and other experiences could be encouraged. Health planning application in collaboration with egeszseg.hu portal was one of the online spheres in the trial.

In line with McColl-Kennedy [McColl-Kennedy2012], the entire health co-creational sphere can best satisfy the expectations of advanced health care systems and the 'Health in all policy' practice that represents the whole population on the highest level. Primarily, it is the responsibility of the regulatory environment to ensure operating conditions, local governments on local level, regional and national bodies on higher levels, bearing in mind that both the service provider sphere and the customer sphere have, and not before long the joint sphere will have cross-border parts.

The entire co-creational sphere makes it possible that the fabric of health care services or an increasing part of it, the outcome of a development process, will be concurrently professionally founded and customer-centred. This process will be accelerated and more accurately assessed by data collection relating to health value indicators, time series and correlation analysis. Thereby, contribution of individual competences and their exchanges to health value generation can be defined. In a strictly regulated state funded health care, the implementation is connected to information systems development and application. It is the task of regulatory bodies to expand this on

private health care providers as well. Authorization is required from these bodies to define competences of the joint sphere, and particularly the customer sphere, to measure exchanges and health value changes; thereto online developments with new approaches are needed, and health planning application can be one of the components.

Regular measurements based on health-value indicators can make health care systems planning and management more efficient, as Porter proposed [Porter2010], and at the same time facilitate effectiveness and efficiency, service provider and customer satisfaction. In line with Hollingsworth, essential prerequisite is a uniform IT sphere and services using measurements, analyses and real-time data [Hollingsworth2010].

Due to measurements, data acquisition, analyses and assessments, service providers' competences can be planned more comprehensively in terms of content and required accessible quantity. The more data and the longer time series we have, the more accurate the measurement and the smaller the service units included.

Effectiveness and efficiency of competences and competence groups can be assessed in real service environment, and thereby assessment opportunities of health care technologies can be improved substantially. Thus, innovation can be accelerated considerably.

Outcome measurements, in accordance with Lovis, open up opportunities to correct management and politics of various professions [Lovis2011]. By revealing differences and deficiencies, showing best practices, on the one hand, and by detailed impact analysis leading to health-value outcomes, on the other. Thereby, the standard and effectiveness of quality assurance and organization development will be improved.

The development and trial I have carried out so far need further research. It is worth extending the analysis onto the whole database, from which additional experiences can be achieved, on the one hand, and due to a more robust database, conclusions can be firmer and more far-reaching, on the other. Due to outcomes of various data series, it is more likely that analytical methodology can also be further developed, relationships can be revealed and analysed between health experience and medical elements of health-value outcomes. Furthermore, the body of knowledge about the model can be further advanced by extending processes to be investigated and involving new diseases as well as health hazards, and thus, providing more ammunition to develop a uniform health care system.

XIV Summary

In this century, health is the driving force of the global economy, encounters of innovations of life sciences, nanotechnology and info-communication technologies result in—thought to be science fiction so far—yet accessible solutions to broad segments of the population. Current medical technologies become obsolete in a few years time, and people tend to self-manage their health increasingly. Being at the beginning of this process, health care managers and experts, all over the world, are considering how to make or restructure the service delivery system value-oriented and patient-centred. Due to the size and complexity of systems and the centralized nature of medical technologies, the ongoing transformation process based on solid economic foundation takes place very slowly. Therefore the health care system is becoming more and more expensive and difficult to sustain, and an increasing number of potential customers attempt to find other solutions to self-manage their health. Additionally, series of new competences emerges, almost every day, designed to create health value. Individuals can use more and more competences in the form of products, services and information; health ecosystem, the outcome of health economics that is the driving force of the global economy, is growing at a considerable pace.

Currently, the two systems operate almost entirely independent from each another; the health care on solid medical professional foundation and with weak customer relationships; the other parts of the ecosystem with very strong customer-centredness in which customer experience comes into the forefront, often at the expense of professional foundation.

From the standpoint of the entire health ecosystem, it is reasonable to deal with, study and manage competences that can facilitate health value creation in a uniform sphere. The community-based health experience model discussed in my thesis is designed to implement this. The uniform sphere is the entire co-creational sphere with three sub-spheres. The customer sphere in which individuals tend to choose and use health-value creating competences in line with their decisions, ideas and experiences, and make exchanges of various level among one another. The provider sphere which corresponds with the health care and the entirety of health care services. It operates efficiently if integrated process are carried out in professional team-work in compliance with the needs of customers. The joint sphere is the meeting point and the coordination point of the two, its main actor is the health counsellor or the health manager—who are

developed to satisfy the health ecosystem—and individual health planning application is designed to support their activities. As technologies advance and a large amount of systematically collected data is analysed, an increasing part of the health counsellor's job can become algorithms of an automatic counsellor, installed into smart phone or body-worn device applications. However, theoretical considerations, scientific research findings and experiences with current algorithms suggest that the primacy of personal counselling will remain for decades.

The basis of the community-based health experience model is the care delivery value chain, the basic economic model of health care transformation. I described the condition-specific and/or health-risk-specific processes as processes of activity components that correspond with health-related transactions as defined in the Service Dominant Logic. Certain activity elements were defined in detail according to the Actor–Resources–Activity model used to describe the collaboration between organizational markets. Actors and resources assigned to certain activity elements were grouped according to a uniform competence matrix. The way competence network of individual-centred health-value creation is organized is in conformity with the Service Logic.

The practical usefulness of model development was investigated on a test market, and trial outcomes proved that the community-based health experience model can provide a substantial additional amount of health value generation even in a three-month period. Based on trial experiences, the model can be introduced widely and efficiently supported by well-considered timing and change management tools. Analyses made by estimating models suggest that following the introduction, the community-based health experience model increases the effectiveness and efficiency of health care services considerably, and enhance the satisfaction of service providers and customers. Both health experience and healing experience are improving.

The developed model provides opportunity—apart from the transformation of the existing health care system—to develop, organize and manage new health care services by addressing the so far independently considered aspects in a uniform framework. Observing the development of the health ecosystem, the community-based health experience model can be applied even beyond health care systems quickly and more widely than in the strictly regulated and rigid-considered health care systems.

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XVII Appendices

Appendix 1: Patient engagement approaches

Therapy loyalty services can be classified according to tools aimed to improve patient's collaboration in the therapy:

Patient education: information about health-related behaviour, diet, motion exercises, etc.

Patient preparation and checking his/her knowledge: thorough and easy-to-follow preparation prior to outpatient or inpatient treatment, giving detailed and checking given information when discharged, etc.

Patient motivation: bonus-malus systems—tasks for funders and insurers to reward and urge collaboration.

Technical support to encourage patient collaboration:

Information provision: detailed technical information related to a defined treatment, evaluation of things to do, perceived effects and side effects, etc. [Clarke2011].

- Device and drug provision: delivery to patient's home, providing clear how-to guides, sending medication reminders, checking medication, help to take drugs, monitoring drug consumption, supplying new drugs for the ones taken, etc.
- Remote monitoring and remote supervision systems: using telemetric devices, changing doses based on measures, sending alerts when medical condition changes, etc. [Finkelstein2001], [Miletics2010].
- Signals to encourage collaboration, reassuring warnings, therapy loyalty services [Port2003].
- Personal/virtual coach, inspector—now also entertaining and playful web services—rehabilitation and cognitive exercises, physical therapy at home, maintaining and enhancing mental health at home [Kozyavkin2011], [Breznitz2011], [Owen2011].

Recent assessments of remote care and remote monitoring techniques revealed that most patients were satisfied with the use of devices, and willingly accept these new forms of health care services [Clarke2011], [Steel2011]. It was revealed that these procedures can result in significant improvement to patient's quality of life, on the one hand [Clarke2011], [Wainwright2003], and—as following the analysis of data received from the patient, immediate intervention can be made into the therapy—

deterioration of patient's medical condition can be avoided, and thus efficiency of the therapy improves [Clarke2011], [Liu2011].

Effective collaboration with the patient can only be expected after proper preparation. Infocommunications technology is particularly suitable to provide detailed, thorough and clear information for the patient via eLearning before outpatient or inpatient treatments about how and what treatment he/she is going to receive, what effects and side effects can be expected, what to do to enhance effects and to reduce side effects. It is essential that following the treatments and before discharging from the hospital the patient understands and remembers everything because it defines whether he/she would be able to adhere to the prescribed therapy on his/her own, therefore it is advised to check what he/she has learned. In the United States patients attend a preliminary information lecture, then receive written information, electronically or printed, adapted to their condition, a process-like description of the expected treatment, a professional protocol written for a layperson. Before patients are discharged from the hospital they have to recall, perhaps answering questions in an eLearning system, what they were told about the inpatient treatment and what to do during post-treatment at home [Balogh2011], [Wallace2010].

Patients' attitude to collaboration has developed considerably in the last two decades. From compliance to therapeutic instruction we have come to the term of health co-creation including the following terms and definitions.

Patient compliance

This term applies to patient's collaboration in adhering to the prescribed/recommended therapy. It is a term primarily used in the pharmaceutical market; it refers to the accuracy of medication and adherence to the instruction and prescription. Hence, compliance with drug-taking instructions. Compliance is a fundamental 'quality' indicator pointing to the degree and the quality of collaboration [Egészségtudományi fogalomtár2014 (Glossary of Health Sciences, 2014)].

Compliance, in broader sense, refers to the extent patients follow the advice given by health care professionals (e.g. information about drug intake, behaviour change). The term covers a kind of obedience-based approach in which a professional prescribes a one-sided and passive formula for the patient to implement. Consequently, when non-compliance occurs, it is considered to be the patient's failure [Bartal2011].

Adherence

Intrinsic motivation should be based on patients' health awareness and their needs to become healthy which is, compared to direct instructions, is a much more difficult task. The term 'adherence' refers to a more advanced and patient-centric concept, and implies patient's 'insistence' to therapy. Therapy loyalty can be used as synonym for adherence that usually refers to a specific therapy, not necessarily to preparation, rather to an agent or an agent group [Dankó2013].

Adherence indicates that treatment goals are discussed and agreed on jointly by the patient and a health care professional. The term assumes interactive and collaborative relationships, and takes patient's role in managing his/her condition into account. Failures and successes are shared [Bartal2011].

Persistence

Time dimension indicator of drug intake quality refers to a period throughout which the patient is taking drug with some regularity [Ágh2012].

Persistence refers to the duration throughout which the patient undergoes a therapy, it is the easiest and most objective indicator of adherence. Appropriate persistence is particularly important for medications for which premature interruption of the therapy endangers the outcome of the whole treatment [Bartal2011].

Therapeutic alliance

The concept of therapeutic alliance goes back to Freud's theory of transference in 1913 [Horvath1993]. Initially, it was viewed only as negative but in his later works, Freud adopted a different interpretation of transference, he did not consider it as a projection, instead he attached possible positive relationship to the developing relationship between the therapist and the patient [Ardito2011].

In 1965 Greenson defined the term as a working alliance, real collaboration between the patient and the therapist [Ardito2011].

Patient engagement

Patient engagement means that patients are involved in the decision-making process about the therapy and asked to express their views, thus engagement includes sharing information, emotions and sign, as well as accepting the instruction of the health care provider team [Vahdat2014].

Patient health behaviour

Health behaviour is any activity undertaken by a person who believes to act for the purpose of his/her health to prevent or identify a disease in its symptom-free phase [Kasl1966].

Grossman's model describes individuals not only as consumers of health but also as producers who do not simply buy their health—for example, by consuming various health care services—but also produce health themselves [Grossman1972].

The health belief model [Rosenstock1974] emphasizes the role of faiths and beliefs in projecting health behaviour. The probability of a health behaviour can be defined by the following perceptions:

- perceived severity of health threats,
- perceived susceptibility to a disease,
- perceived benefits of taking preventive actions,
- barriers to taking actions, or actions incurring costs.

Patient preferences

Patient preferences are statements or actions that reflect the desire of a health consumer for a specific one of health options [Corbett2014].

Patient attitude

The concept of attitude originates in social psychology, and denotes a psychological tendency that is manifested in the preference of a person, how much he/she likes or dislikes something, and to what he/she attaches importance. In attitude tests, respondents are usually asked to rank or classify various aspects of the subject investigated [Brandtmüller2009].

Patient motivation

Motivation is a complex concept, proven to be tied with various factors, such as prescribed treatment regimen, personal attributes of the patient, the physician and the therapist, as well as with features of the wider social environment [Popovic2014].

Health literacy

Health literacy refers to a degree of skills of a person to obtain, process and comprehend basic health information and health care services required to come to the right health decisions [Parker2003].

Patient education

It is required to create perfect harmony between biomedical medicine and the bio-psycho-social model. Internal and external barriers to efficient prevention should be removed, and it is required to move from health care information to health education, and then to health development.

Small and large group discussions can serve as forums for fundamental transformation where education ‘in community, through community and for community’ aims to become adapted to the new situation [Gödölle2010].

Patient-centred communication

The goal of patient-centred communication is to support health care professionals in providing health care services that are in line with the values, needs and preferences of patients, allow patients to contribute to and participate actively in the decision-making regarding their health and health care services [Epstein2005].

Health-related coaching

Health coaching is the practice of health education and health information provision applying coaching techniques to enhance the well-being of individuals, and to encourage to achieve their health-related goals [Park2014].

Support to patients

Social support is the functional content of a relationship that can be classified into the following four behaviour groups:

Emotional support including sense of sympathy, love, trust and attention that are closely linked to health.

Material support including services and material help.

Information support, such as recommendations, advice and information that help the patient face his/her problems.

Assessment support, access to information that helps undertake self-assessment [Rad2013].

Disease management

Disease management programmes are coordinated forms of services deliveries for patients with chronic diseases. The task of disease management is to coordinate required services during the entire period of clinical care. Each service is based on scientifically proved evidences, and the patient is actively engaged in the process. Disease management is a systematic approach to coordination between health care interventions and communication.

Essential components of disease management are the following:

- Comprehensive and multidisciplinary services for the entire period of the disease;
- Integrated and continuing service delivery through the coordination of individual components;

- Orientation of the population (patient orientation);
- Active patient management techniques (education, reinforcement, self-management);
- Evidence-based guidelines, protocols, regulated patient journeys;
- Information technology, system solutions;
- Continuous quality improvement. [GYEMSZI2011]

Appendix 2: Investigated condition specific value chains

The 31 condition specific processes analysed in the model implementation.

	Topic
1.	Care of moderate cardiovascular risk in the age of 35-50
2.	Screening of cardiovascular risk in the school health provision in the age of 6-18
3.	Cardiovascular risk reduction in the child primary care
4.	Recognition and management of hypertension
5.	Complex care of hypertension and concomitant conditions
6.	Early detection and prevention of complication of hypertension
7.	Care of cases in mild and moderate risk groups of chronic ischaemic heart disease
8.	Recognition, treatment and care of peripheral arterial disease (Fontain I-II)
9.	Optimization of stroke patient journey
10.	Stroke rehabilitation
11.	Interdisciplinary secondary prevention of vascular diseases
12.	Aftercare of gestational diabetes
13.	Life-style care of diabetes
14.	Medical treatment of diabetes
15.	Self-management of diabetes
16.	Prevention and early recognition of diabetes complications
17.	Recognition, diagnosis and follow-up of COPD
18.	Support of patient collaboration in COPD
19.	„oncology alertness" – education of self-examination, early recognition
20.	Care of terminal patients
21.	Diagnosis and care of back pain
22.	Competence based, result-oriented differential diagnosis and care of rheumatic diseases – inflammatory disorders
23.	Competence based, result-oriented differential diagnosis and care of rheumatic diseases - arthritis and soft tissue disorders
24.	Competence based, result-oriented differential diagnosis and care of rheumatic diseases - metabolic disorders
25.	Recognition and treatment of depression, support of patient collaboration
26.	Diagnosis, treatment and care of functional dyspepsia
27.	Gynaecological bleeding disorders in reproductive age
28.	Gynaecological bleeding disorders in premenopausa
29.	Diagnosis, treatment and care of cystic fibrosis
30.	Diagnosis and treatment of breast cancer
31.	Care and rehabilitation of breast cancer

Appendix 3: Set of competences

Set of HR competences

In line with the features of health care services, the set of competences can be divided into the following competence groups:

- group of medical competences,
- group of psycho-mental competences, and
- group of supportive competences.

Definitions of each competence group, current and intended jobs and roles of each competence; as well as competence components and their levels that enable classification within each competence group:

Group of medical competences

Medical competences: combination of qualifications, experience, skills and abilities that enable the service provider or the delegated participant in the service delivery process to carry out traditionally interpreted diagnosis and therapy based medical tasks.

E.g. basis: specialist (including GPs), qualified nurse, dietitian, physiotherapist, conductor, physical therapist, regional nurse, practice nurse, GP assistant, home nurse, pharmacist, physiotherapy specialist, school nurse, clinical psychologist, psychotherapist, etc. + qualification.

Education
Basic: BSc, MSc, Specialization
Experienced: previous + at least one of the following
    Licence
    Training
    5 year professional experience
    Second (more) specialization
Professional: prevous + at least one of the following
    PhD, DSc
    10 year professional experience

Psycho-mental competences

Psycho-mental competences: combination of qualifications, experience, skills and abilities that enable the service provider or the delegated participant in the service

delivery process to carry out psychological, educational and co-creational tasks that is related to the service recipient and the care delivery value chain.

E.g. basis: psychologist, clinical psychologist, health counsellor, teacher of handicapped children, specialist in psyho-, somato-, surdo- tiflo-pedagogy and mental hygiene + qualification.

Education
Basic: BA, MA
Experienced: previous + at least one of the following
- Specialization
- 5 year professional experience
- Second (more) specialization

Professional: prevous + at least one of the following
- PhD, DSc
- 10 year professional experience

Supportive competences

Supportive competences: combination of qualifications, experience, skills and abilities that enable the service provider or the delegated participant in the service delivery process to carry out social, care-related and management tasks that is associated with the service recipient and the care delivery value chain.

E.g. basis: administrative staff, social worker, health counsellor, public health controller, patient transport, etc. + qualification.

Education
Basic: Specialization – Accredited education
Experienced: previous +
- 3 year professional experience

Professional: prevous + at least one of the following
- PhD, DSc
- 10 year professional experience

Set of competences to operate infrastructure, devices and equipment

All the needs for infrastructure, device and equipment that correspond with the special features of the relevant service.

Basic infrastructure for the service
General: Basic + that allows all kind of prevention and health promotion
Focused: Allows focused intervention in the value chain
Specialized: Allows highly specific interventions

Set of administrative and operational competences

All the management, operational and administrative needs and processes that provide operative background support to professional services delivery on the relevant level [Sümegi2015].

Basic serving the individual practice unit General: more practice units are coordinated Fully integrated care

Patient competence matrix

Health value creation is a co-creational process between the health care provider and the patient. It is vital that the patient is also an active participant and shaper of his/her health improvement. This process implies increased patient engagement with the value generation process which is based on the authorization granted by the service provider. It is the outcome of the process that the patient bears greater responsibility for him/herself. This patient-centred approach is implemented through health awareness and own competences of individuals [Csépe2015].

The aim of patient competence measurement is the following:

- Can it be expected that the patient understands information about his/her health provided in a defined, e.g. written, format?
- Can it be expected that the patient is able to come to a decision on his/her own?
- Can it be expected that the patient is able to take part in the care process actively, cooperatively and properly motivated?

As regards the aim and practical implementation of individual health planning, quantitative indicators and tests are not appropriate tools to measure patient competence; criteria-oriented scales that are completed by professionals are accurate and reliable tools of competence measurement.

Topics of criteria-oriented scales to be complemented by professionals, question guide, definition and groups of competences are summarized below.

Patient competence groups	Source	Indicator	Question
Perception, understanding			
active, focused attention		demographics: education	yes/no
written communication compreher	Assessment of Adult Skills and Competences (PIAAC): OECD Skills Outlook 2013: First Results from the Survey of Adult Skills, OECD Publishing, p. 59	demographics: education	yes/no
verbal communication comprehen	Key competences for life long learning according to the European Reference Framework (European Council): ofi.hu/tudastar/nemzetkozi-kitekintes/egesz-eleten-at-tarto#7	demographics: education	yes/no
understanding relationships between cause and effects		demographics: education	yes/no
ability to acquire new knowledge		demographics: education	yes/no
communication skills		demographics: education	yes/no
skills to use information		demographics: education	yes/no
skills to share information		demographics: education	yes/no
Health consciousness, health behaviour			low/average/high
Responsibility for own health		interview with the health counsellor	low/average/high
health conscious behaviour		interview with the health counsellor	low/average/high
stress prevention and treatment		interview with the health counsellor	low/average/high
extent of health consciousness	Definition of the European Commission: kazaianita.wordpress.com/2014/07/08/egeszsegtudatossag-egeszseg-health-literacy	interview with the health counsellor	low/average/high
competent help is asked		interview with the health counsellor	low/average/high
self-motivation, ability to change		interview with the health counsellor	low/average/high
Self-monitoring		interview with the health counsellor	low/average/high
active involvement	Martin et. al. (2011): Patient Activation and Advocacy: Which Literacy Skill Matters the Most? Journal of Health Communication. 16:177-190	interview with the health counsellor	low/average/high
Social-societal		interview with the health counsellor	low/average/high
collaborative skills		interview with the health counsellor	low/average/high
reliability		interview with the health counsellor	low/average/high
assertiveness, assertive capacity	Martin et. al. (2011): Patient Activation and Advocacy: Which Literacy Skill Matters the Most? Journal of Health Communication. 16:177-190	interview with the health counsellor	low/average/high
Coping		interview with the health counsellor	low/average/high
handling problems and difficulties		interview with the health counsellor	low/average/high
problem-recognition and problem-solving skills		interview with the health counsellor	low/average/high
decision-making capacity		interview with the health counsellor	low/average/high
applying IT knowledge and eHealth	PIAAC definition: OECD Skills Outlook 2013: First Results from the Survey of Adult Skills, OECD Publishing, p. 59	interview with the health counsellor	low/average/high

Patient cometencies

Appendix 4: Individual health planning modules

Patient mental support module

Psychological support provided to a healthy person, a patient, and facilitation of his/her mental health accompanied by positive feelings leads to a healthy balance of internal processes, and healthy behaviour thereafter. It is immensely important to support the mental health of healthy persons as well as patients with diseases in order to enhance psychological well-being and to maintain or restore inner stability.

Mental health facilitation forms the basis for individuals—amidst difficulties, troubles, pressures, somatic diseases and threats—to find their place in the society, and to be able to properly deal with difficulties and changes they are exposed to.

A professional counsellor can reveal the existing mental state of an individual using a health planning software program, and during a counselling session he/she can learn what sort of help the patient expects to receive. The task of the counsellor is to offer mental and psychological help to the patient along the whole service pathway. If the professional support the individual needs is beyond the competence of the counsellor, he/she can involve a psychologist employed by the practice group who treats the patient within his/her competence, or, if it is needed, refers the patient to a clinical psychologist or a psychiatrist.

Goals

I. Secondary prevention: in the case of certain somatic diseases to identify individuals who belong to risk groups and to recognize early-stage health-related problems.

II. To ensure psychological support to patients in primary health care along the whole service pathway, from diagnosis through care till rehabilitation.

III. In GP practice groups, with the help of a psychologist to screen patients with psychiatric disease who cannot be treated efficiently in primary health care, hence, they need additional intervention from a clinical psychiatrist.

IV. To relieve primary health care of patients who can only be treated efficiently at this level after they have undergone appropriate psychological or psychiatric treatment.

Expected outcome of the support

Support and counselling provided on the service pathway helps patients understand what role mental, life style and health behavioural factors play in the development and progress of their disease, and also patients can become aware of the importance of their responsibility. Thereby, their recovery can be quicker and more efficient, and the costs of the health care system can be reduced substantially.

Mental support helps individuals stimulate their inner strength, sources and coping capacity for a faster and more efficient recovery.

Encouragement and mental counselling is provided by a specialist with corresponding competences, and thus collaboration and adherence are facilitated, customer satisfaction is improved and confidence in the health care system and its actors is enhanced substantially.

Individual's capacity and state of health improves or remains on the expected level, and as a result, his/her capacity to work is facilitated.

Responsible person

Individual, patient

Supportive relatives or friends

Health counsellor

GP

Psychologists

Wider environment, such as colleagues, church, state

The process of support provision

1. Healthy individuals or patients are asked to fill in a general status survey, on their own or with the help of a health counsellor, which includes psychological scales, short versions of the BECK depression and BECK anxiety inventory, and the Paykel life events scale.
2. Recommendation is made on the outcomes of inventories and scales where patients should be referred.
3. If patients, according to mental health scales revealed symptoms and risks, fall into a risk group, it is the task of the health counsellor to provide customized psychological support to the patient in counselling sessions over the entire service pathway.
4. The role of the GP is limited to a short, 5-minute intervention during which he/she seeks for information and attempts to strengthen the motivation of the individual.
5. If the individual falls into a risk group which is beyond the competence of the health counsellor, in consultation with the GP, the case is referred to the psychologist of the practice group. The psychologist with the use of questionnaires and rating scales (TEMPS-A, IRS, etc.) assesses the condition of the individual, and then provides additional mental and psychological support.
6. The task of the psychologist of the practice group is to define the role of psychological, life style and health behavioural factors in the patient's disease—experience of symptoms, progress of illness—to facilitate the personal responsibility and active engagement, and to strengthen the self-efficiency and coping capacity of the patient.
7. The psychologist, with the help of exploration, anamnesis, questionnaires and rating scales, conducts a psychological assessment, and if necessary, a motivation

interview with the patient, and thereby individual barriers, health-related individual values, the level of personal responsibility, motivation, self-activity and perceived social support are explored.

8. If the patient sustains serious mood disorders, anxiety, psychotic or addictive problems, the psychologist refers the patient to a clinical psychiatrist who will decide if the patient needs drug treatment or psychological clinical care, it is the task of the clinical psychologist to decide about the form of clinical psychiatry.

Social support module

Social support means support provided by the immediate and wider social environment to the individual. In the immediate environment, family and friends can offer support, while in the wider environment it is the workplace, the residential area and also the state itself.

Positive social support plays an important role in the recovery process and adherence to healthy life style. It has long been known that support from family and friends exerts positive emotional effect on people. Furthermore, evidence suggests that not only feelings are affected but also the physical state. Research findings from 2010 suggest that people without social support are 50% more likely to die from the disease than those who receive strong support [Blue2010].
The strength of social relationships and social support can also take on high importance in chronic disease management [Gallant2003]. As the environment can help patients adhere to medical recommendations, the collaboration is also enhanced between patients and physicians. The environment can also help the patient live the recommended lifestyle by accompanying the patient to the physician, to the pharmacy or doing the shopping or cooking. Apart from emotional encouragement, the environment can help the patient adhere to the treatment and keep attention. Besides, attention has to be paid to the responsibility of the patient, that he/she does what he/she has to do, and does not abuse the support he/she receives.

Goals

To support patients' self-management

To facilitate recovery as early as possible

To provide increased attention and care for socially disadvantaged patients

Expected outcome of the support

To maximize health value

To facilitate the recovery process and to decrease its duration

To improve social circumstances

Responsible persons for the process

Individual

GP

Health counsellor

Family

Friends

Social sector

Local governments

State

Civil sector

Workplaces

The process of support provision

1. It is the joint responsibility of the health care system and the social system to assess the social circumstances of the patient, that is, to make an anamnesis. It is equally important that health assessments address both social and mental problems.
2. If such problems are detected, inclusion of individual's environment could be next step. This means involvement of family members, friends or the workplace, all of them can be equally important actors in the process.
3. The local government of the residential area where the individual lives can offer various community-based and health-related programmes, and thereby individuals' faster integration and recovery can be facilitated.
4. It is responsibility of the civil sector, patient organizations and other interest groups to represent patients' interests but additionally the responsibility for organizing community-based programmes and providing social support also rests with them.
5. If the assessment reveals unfavourable social circumstances, it is the task of the social system to provide instruments for individuals to enable them to manage themselves and to maintain the recovery process.

Algorithm of regular physical activities

Regular physical exercises are the most easily available tools of prevention, therapies and rehabilitation. Some forms of motion exercises are available for everybody with minimal financial investment or even without any investment. Activities are decreased, independent from age and sex, mainly by lack of endurance, or by an inappropriate estimation of time and its necessity required to remain healthy. Without leaving their home, or even their bed, individuals can train or strengthen their muscles. Apart from improving the performance of the body, increasing strength and thereby reducing the risks of diseases, individual or group sports activities can be a source of happiness and success that can help prevent depression.

Goals

I. To recommend physical activities, to inform about types and usefulness of physical activities, and to endear activities to the individual.

II. To find the most appropriate motional exercise(s) in line with the condition and socio-economic circumstances of the individual.

III. To introduce regular physical activities into the everyday life of the individual.

IV. To maintain physical activity of the individual through encouragement and regular monitoring.

Expected outcome of the support

The individual can identify the optimal motion exercise(s) for himself/herself.

Regular physical activities are becoming essential part of his/her everyday life.

The individual receives the necessary motivation and advice from a health care worker.

The capacity and the medical condition of the individual improves or remains on the expected level.

Responsible person

Individual

GP and practice nurse

Specialist

Physical therapist

Health counsellor

The process of support provision

1. Subsequent to the general status survey, individuals are categorized according to their condition.
2. Accordingly, they are divided into groups: (1) group of healthy people or low-risk group, (2) group of sick people or patients with symptoms or high-risk group.
3. After that, the physical capacity of the individual is assessed.
4. If the individual is active, then he/she is motivated, encouraged to continue. In the case of sick people, people with symptoms and high-risk individuals, encouragement is complemented with counselling, advice is given about disease-specific physical activities to enable individuals to choose motion exercises of the right type, intensity and duration in line with their medical condition.
5. If the individual has the opportunity, eHealth (e.g. websites, applications, smart phone applications) support is also recommended.
6. If the individual is physically inactive, we attempt to reveal whether he/she wants to change.

7. If yes, (1) counselling is offered on general physical activity to the group of healthy people and low-risk group, and (2) to the group of sick people, patients with symptoms and high-risk individuals counselling is provided about disease-specific physical activities.
8. If the individual does not want to change, we attempt to uncover the underlying reasons and to facilitate physical activity.
9. If the individual becomes motivated and open, he/she will receive the corresponding counselling.
10. If the individual refuses to collaborate, his/her medical condition will be monitored regularly during the visits.
11. The condition of individuals who are active or accepted counselling is also monitored regularly.

The process can be influenced positively by the support provided by professionals or family members, but it is important to emphasize that both short-term and long-term goals are to be achieved by the individual.

Algorithm of healthy nutrition

Goals

I. To provide assistance for the GP and the health counsellor that individuals receive tailored advice on nutrition.

II. To call the attention of the GP and the health counsellor that at a certain point a dietician has to be involved into the treatment of the individual.

III. Based on easy yes/no questions, to enable the GP and the health counsellor to make decision about the treatment of the individual.

IV. To make the nutrition algorithm applicable also to healthy and sick people.

V. To place greater emphasis on eHealth support than before. Using yes/no questions, the algorithm helps the GP select which eHealth tool to recommend to the individual, and additionally the algorithm recommends special tools to the GP.

Expected outcome of the support

Individuals who have not been given counselling on nutrition but would have needed it, will also be offered this type of counselling.

The number of healthy-eating individuals starts to increase.

Due to customized counselling, the rate of overweight and undernourished individuals will decrease.

Responsible person

GP

Health counsellor

Dietitian

Individual

The process of support provision

1. Nutritional status survey
2. Dietetic counselling
3. eHealth support
4. Education of the individual
5. Education of family members
6. Dietetic monitoring
7. Regular status monitoring

Algorithm of eHealth support

Goals

Due to the development of information technology, support tools are available in the physician-patient relationship that

I. are designed to help the patient to become reasonably informed and knowledgeable concerning his/her condition and disease; his/her knowledge can be checked and controlled (e.g. eLearning);

II. thereby collaboration between the patient and the service provider, joint decision-making and health goals achievement are facilitated.

III. As a result of monitoring physiological attributes of patient's condition and tracking health-related goals, patient independence is improving, he/she feels responsible for his/her condition, and long-term motivation and therapy loyalty are improving.

IV. More efficient service management, efficient patient–service provider encounters, simpler and more direct communication can be provided.

V. The entire co-creational sphere can be created on a joint platform, particularly by the creation of the customer sphere and the joint sphere in detail, which increases the opportunity to generate value-in-use health value.

The elaborated support algorithm is designed to help medical profession to select a proper tool from the available eHealth tools which is in line with

1. the condition, the disease(s) of the patient,
2. his/her attitude to health maintenance,

3. available IT techniques, and
4. patient's skills to use them,

and that can support the patient in the process of prevention, therapy, and care, and achieve his/her health-related goals in the long term.

Expected outcome of the support

Improving physician-patient communication and relationship

More efficient monitoring

Improving compliance and adherence

Responsible person

GP

Specialist

Health counsellor

Practice nurse

The process of support provision

1. The question is whether the individual is dealing with health maintenance or not. In either case, if the individual is willing to accept the help and information e-Health tools can be offered as support.
2. Information is collected about the availability of IT and communication tools: landline phone, mobile phone, home Internet, smart phone or any body-worn device. At this point, a validated questionnaire concerning the use of the Internet, the PERQ competence test is used that reveals the patient competence in and attitude to the use of these tools.
3. To learn whether training is needed in the use of the tool. Based on the questionnaire results, it can be defined if the individual needs digital education or not.
4. Based on the available or planned tools, as well as on individual's condition, health-related goals and disease, decision can be made which type of eHealth support and tools can be recommended concerning general and disease-specific information, physical activity, diet, behaviour change, mental health, therapy loyalty and social support.

Module to support loyalty to drug therapy

Efficient collaboration between the physician or another health care provider and the patient is a key element of chronic disease management. An essential element of this collaboration is the therapy loyalty in which individual-centredness is emphasized on the service provider side, and adherence and loyalty to the therapy on the individuals'

side. Therefore, therapy loyalty includes closely interrelated drug and non-drug therapies as well as lifestyle activities. The current module will describe the process that supports therapy loyalty.

Goals

To initiate a process between the individual and the physician or another health care provider in which individual's loyalty to drug therapy is created and strengthened from the very start of disease management process. Subsidiary goals of the process:

I. To facilitate effective collaboration between the individual and the health care provider in the disease management process.

II. To take the individual needs of the patient into consideration, and to tailor his/her therapy.

III. To encourage the individual to become actively involved in the health development process, and to take responsibility.

IV. To ensure continuity and integration of support that is developed in line with individual needs.

Expected outcome of the support

The physician adapts the drug therapy to the needs, circumstances and opportunities of the individual, thereby the therapy loyalty can be maintained and increased.

The awareness of the individual concerning his/her medical condition develops and improves.

Accordingly, adherence to medication and self-management capacity to prevent deterioration in medical condition is improving.

Individual' life quality improves.

Therapy effectiveness is enhanced.

The use of health care resources is optimized (e.g. hospital admission is avoided, number of physician-patient encounters is decreased).

Responsible persons

Individual

GP and practice nurse

Specialist

Pharmacist

Health counsellor

The process of support provision

1. Joint decision-making between the physician and the individual is the first and essential step in the process to support loyalty to drug therapy. In this process,

individual needs (e.g. working conditions, schedule, psychological, social and economic background) are assessed, on the basis of which tailored medication can be developed, which can be the basis of efficient physician-patient collaboration. Accordingly, the process becomes individual-focused.

2. After having chosen the customized therapy, the second major step is to educate and inform the individual about medication (e.g. how to take medicine, side effects, contraindications), what to do when medical condition deteriorates, and to train the individual how to use the corresponding tools to fight the disease.
3. The next step is to request feedback from the patient, to check if information received is understood and digested.
4. At this stage appears the first decision-making point in the process: whether the individual has understood the received information, and whether he/she knows how to use the tools. If the answer is no, the individual returns to the patient training phase; and if the answer is yes, the process continues.
5. When in the framework of joint decision-making, therapy has been customized, the patient has been trained and feedback has been received about the understanding of the information given, self-management elements of the drug therapy will be recorded in the action plan part of the individual health plan.
6. After that, the patient takes the prescription to a pharmacy. Here comes the second decision-making point of the process: has the patient visited the pharmacy, and has he/she bought the prescription drug?
7. If the answer is yes, drug therapy appears in the process as a support element, by which the continuity and integration of therapy loyalty is facilitated.
8. After that, the drug therapy begins supported by various eHealth tools.
9. At regular intervals, depending on the nature of the therapy and the disease, individual's loyalty to drug therapy is assesses and monitored. To this purpose, there are several methods, such as counting pills, persistence, that is, assessing the continuity of drug intake (MPR, medication possession ratio), and questionnaires (e.g. MMAS, Morisky Medication Adherence Scale) among others.
10. At this phase of the process comes the third decision-making point: has the individual been loyal to the self-management component of the drug therapy included in the individual health plan?
11. If the answer is yes, the process supporting loyalty to drug therapy continues, and phases for monitoring are being built in.
12. If the answer is no, reasons of non-adherence, which can be intentional and unintentional, are explored. In the former case, the individual intends not to buy the prescription drug, or not to take the prescribed medicine(s) appropriately. In the latter case, the reason lies in forgetfulness or lack of attention.

13. Having explored the reasons of non-adherence, tools are selected to support the improvement and modification; tools can be:
    a) Behaviour therapy, motivation (which can be connected with: a psychological support module, social module)
    b) Phone-based tracking
    c) Information and education provided for the patient
    d) eHealth support, reminders (that can be connected with: eHealth support module)
    e) Adjusting medication
    f) To encourage non-medication therapy (which can be connected with: giving-up-smoking, diet or physical activity modules)
14. When they have been selected, they are recorded in the action plan part of the individual health plan. The individual follows, implements and builds them into his/her everyday life.
15. At certain intervals, individual's medical condition is monitored. In this case, the fourth decision-making point appears: is there a need for change in the therapy?
16. If the answer is yes, the process joins the joint decision-making sub-process, and continues thereafter.
17. If the answer is no, the process can take two directions. In the first case, prescription is written out again, and the process arrives to the first decision-making point. In the second case, individual's loyalty to drug therapy will be assessed.

Key elements of the process are the following: joint decision-making, patient education and information, request for patient feedback, recording what has been agreed upon in the individual health plan, monitoring and assessing loyalty to drug therapy, uncovering reasons of accidental non-adherence, selecting and recording effective support solutions in the individual health plan, and continuous monitoring of individual's medical condition.

Appendix 5: Structure of community health care services

Methodological, supportive and developmental institutions of local health care services

System-level management of local health care services can be best performed on a three-level governance and supportive system in which national health care services are managed in a uniform and coordinated way. Considering established decision-making structures, the legal background of which defines national, county and district levels, and taking account of the operational efficiency, the structure should be devised correspondingly to the national, county and district levels. This structure is based on the efficient use of the required competences, that is, various competences are distinguished, such as analyst, methodology developer and local executive, public health, health counsellor and health developer. The aim is to provide the necessary knowledge, expertise and skills to perform the required tasks efficiently at national, county and district level. Certain tasks may appear at every level, such as quality assurance, however, various levels imply various quality assurance tasks and processes.

Correspondingly, three levels of division of labour can be distinguished:

National level

In order to ensure integration at national level, professional groups in local health care are backed by uniform methodologies and governance. Key tasks to be developed in accordance with health development and health maintenance approach:

- Centre for health development methodology and competences;
- Centre for methodology of professional health management guidelines and competences;
- Centre for competences, health counselling, individual health planning, methodology development and control;
- Centre for community health planning competences, quality assurance and methodology development;
- Professional quality assurance of local health care services;
- Methodology and analytical centre for local service journey management and health care services;
- Monitoring, information analysis and dissemination, decision-making required by health protection, health development and disease prevention services.

Regions, composed of one or more counties, perform their tasks with the support of the national background.

Regional tasks can be described by the following key elements:

- Analysis, data interpretation, indicator handling—tasks the related knowledge of which is placed in a knowledge centre;
- Health services management tasks that provide a network system among services of different levels and from different service providers, and thereby play a crucial role in making the necessary services capacities available in the required amount;

- Collaborative coordination that plays a key role in ensuring uniform management at district and county level, as well as across counties regarding health care services, and thereby, together with service managers, they play a significant role in increasing efficiency.
- Quality assurance the aim of which is to reduce health inequalities, to monitor and follow up process management, to regularly monitor users' satisfaction, and to suggest corresponding improvements.

Local tasks adjusted to the community level of one or more districts

Regarding the structure of local health care services, their task is to support and manage structural changes together with attitude shift. Accordingly, the scope of their tasks is very broad:

- To be involved in community-based health planning;
- To support and facilitate structural changes of primary health care;
- To improve and distribute the methodology of health counselling;
- To provide support to develop and perform preventive actions at praxis group level;
- To support and facilitate care service development and delivery at praxis group level;
- To incorporate mental health care into the health care system, and to provide access to this kind of services;
- To develop primary and secondary preventive programmes to suit social needs;
- To present the approach of 'health in local decision-making', relationship management;
- To create operational health management processes locally;
- Quality assurance of local services aiming to satisfy professional, process-related and effectiveness criteria.

An essential structural component is that community-based management and planning services being part of local health care services are provided systematically within an organizational structure, and thus, decision-making delegated to community level is coordinated with strategic development directions.

Development of local health care services

The current model of primary health care will not be able to satisfy the increasing needs and demands in the future. With the aim of relieving the burdens of inpatient health care, and giving more emphasis on primary health care can lead to a situation in which primary service providers are heavily overloaded. Service quality and efficiency may also be affected adversely if financial resources allocation and information flow are inappropriate.

It is essential to expand community-based health care services, to improve quality, to restructure primary care funding—in line with development goals—to apply eHealth technologies and to strengthen services coordination in order to develop the system of

community-based health care. Providing support for the management of primary services is also an important field.

Expansion of community-based health care services

Expansion of primary health care services include:

- Strengthening the role of primary care in prevention, public health care and health development;
- Providing certain specialist services in the framework of primary care;
- Building connection between primary care and community-based services;
- Involving patients, individuals into treatments, providing support for them in managing their medical condition.

Apart from making the health care system more efficient by removing the burden of inpatient care, these developments were also instrumental in adjusting services to needs and demands, as well as in preventing and treating in chronic diseases.

Multidisciplinary teams including general and specialist expertise, covering various professions and specialties, allow for expansion of primary care services and adaptation of services to individual needs and demands. Particular emphasis should be placed on education and training to provide workforce for primary health care services, as well as to define the appropriate expertise composition of the groups including various professions and specialties.

Strengthening the community nature of primary care includes the integration of services provided by primary care, mental health care, home care and social care; furthermore, inviting customers to broader societal networks, and employing health care trainers who are not yet part of the formal health care services. Another reason to explain the necessity is that many problems of patients are related to social isolation and to factors that are not related directly to health care. It is important that patients are informed about such services of the primary health care system, and are referred to the relevant specialist. It is important to emphasize the role of informal caregivers, especially in the case of old patients and patients with chronic diseases, or perhaps with multimorbidity; it is recommended that the relationship between patients, service providers and informal caregivers are strengthened, and integrated partnerships are created.

Patients should be encouraged to identify their treatment goals, and to manage their condition and treatment where and to what extent it is possible. Emphasis should be placed on service-related goals and aspects patients regard as important. Correspondingly, patients should be allowed to participate in the decision-making process about changes made in their therapy and lifestyle; and primary health care should be supportive and encouraging, and should provide consultation.

Quality improvement of community-based health care services

Quality improvement of community-based health care requires comparable indicators to measure and monitor service performances continuously, and additionally, to use financial instruments aiming to enhance the quality of services. It would be easier to compare the performances of service providers if primary health care providers released real-time information about the quality and the outcomes of their services. Apart from medical and biological indicators, it has become essential to introduce

indicators about health-related goals, and in broader sense, about the life and lifestyle of customers. An essential component of the investigation into the efficiency of integrated services is to use health experience type of quality indicators, and—as the analogy between consumer market forces suggests—it can be expected that correlation will be found between health experience, therapeutic engagement and health co-creation.

Development of service coordination

Most European countries made efforts to improve services coordination which still remains one of the major problems of health care systems. International cases suggest that instead of individual practices group practices or multidisciplinary groups of service providers should be encouraged. These operation models are instrumental in clearer separation of roles, improved patient information, enhanced collaboration between service providers, and thereby coordination. A highly important aspect is that if outpatient care services are becoming far too centralized, that is, if they reach a higher service level automatically, access will be difficult for some of the patients, and thereby health value will suffer considerable loss.

The integrative efficiency of primary care can be substantially increased by a case manager employed by group practices, the case manager is responsible for the coordination of patients in the health care. It is preferred that instead of an administrator, the patient contacts a senior physician or a nurse who can decide about what to do at the earliest stage of the treatment process.

Individual service plans prepared with the involvement of health care specialists who are responsible for the treatment of the patient can considerably contribute to a coordinated health care among various institutions, and also among health care, mental care and social care.

Local management of community-based health care services

During the trial I created a test market and built up a network of community-based health care services in 20 places in various Budapest districts, in the metropolitan area, in large cities and larger administrative districts. In every area I invited GPs and qualified workers, who worked together, to help to test the field operation. The trial took place between February and November 2015, 20–78 GPs were involved per area, community-based health care services were managed by community-based health care offices, each consisted of 5 members, and during the development programme these teams were continuously trained, coached and supervised in health care delivery.

Name of community	District1	District2	District3
Budapest 1	Budapest IX		
Budapest 2	Budapest XI		
Budapest 3	Budapest XIII		
Csornai	Csornai	Kapuvári	Téti
Debreceni	Debreceni		
Hevesi	Füzesabonyi	Hevesi	
Hódmezővásárhelyi	Hódmezővásárhelyi	Makói	
Kazincbarcikai	Edelényi	Kazincbarcikai	
Kiskőrösi	Kalocsai	Kiskőrösi	Kunszentmiklósi
Pápai	Pápai	Zirci	
Pásztói	Balassagyarmati	Pásztói	Rétsági
Pécsi	Pécsi		
Siófoki	Fonyódi	Siófoki	Tabi
Szarvasi	Gyomaendrődi	Orosházi	Szarvasi
Szegedi	Szegedi		
Szombathelyi	Kőszegi	Szombathelyi	
Tamási	Dombóvári	Paksi	Tamási
Tiszafüredi	Karcagi	Kunhegyesi	Tiszafüredi
Vásárosnaményi	Fehérgyarmati	Vásárosnaményi	
Zalaegerszegi	Lenti	Zalaegerszegi	

Community-based health care offices and the administrative districts they were involved.

Experiences and outcomes suggest that the following key aspects have to be considered when community-based health care is delivered locally:

- To provide equal access;
- To reduce health inequalities,
- To create a community structure;
- To define the task to be performed;
- To set goals to be achieved and to follow how they are being achieved;
- To define the concept where and how to create organizational units that have already been operating;
- To define conditions of methodological support;
- To deliver efficiency and effectiveness;
- To implement according to size.

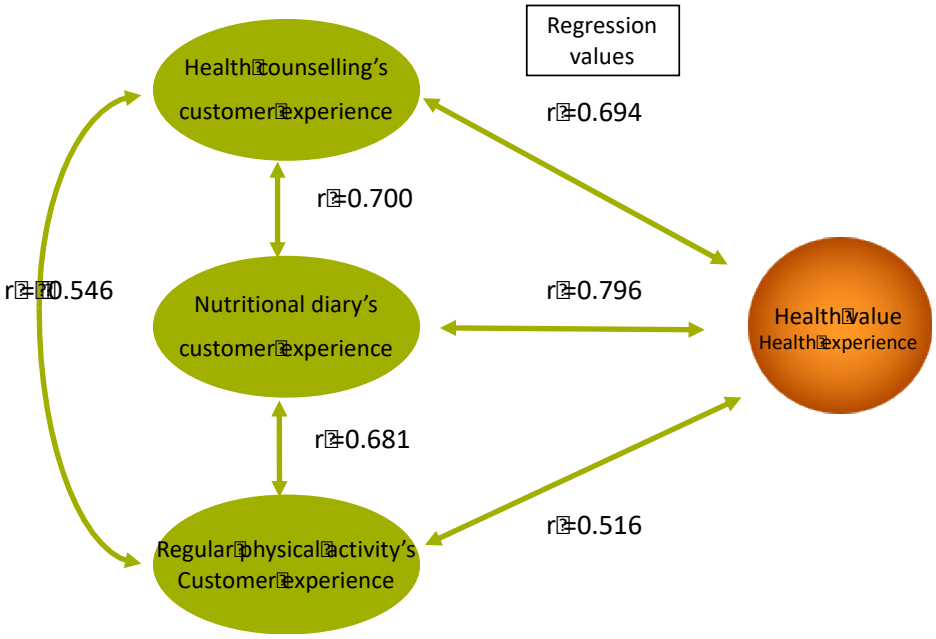
The tasks of community-based health management are various in terms of level: planning, support, quality control, quality development, day-to-day organization and management. To be able to carry out these tasks efficiently, it is necessary to define the optimal community size and structure. In accordance with the level of organizational and service-related tasks of health development offices, districts seemed to be the relevant level for the establishment of offices. The management and supportive functions of community-based health care, in compliance with the requirements of effectiveness and cost-efficiency, were defined on the basis of the size of the population, and covered several administrative districts. Task accomplishment required that two approaches are harmonized, as everyday tasks and services of public health and health development also have to be optimized. This is important because resources required to accomplish tasks have to be in line with the size of the population. Equal access requires a uniform structure, and community-based health care should be managed uniformly in terms of central planning, support and quality assurance to which a network of managers and service providers is attached as a satellite.

The planning and supportive tasks of the centre can be fulfilled efficiently at local level through the system of ‘satellite service provider units’ that provides supports and is incorporated into the local network of relationships. A loose connection is established along efficiently structured competences, and this structure can provide what the community and the service provider system needs at all level to be able to operate efficiently. It is important to emphasize that this structure can be applied for a district with large population size, and also for a set of districts with small population size. In the case of districts with larger population size, the size of the central structure can remain, there is no need to expand because the emerging tasks do not need more resources However, the number and the staff of the ‘satellite service provider units’ can be increased. This way, an equally strong system can be established applying the same competences and providing equal access. The above structure describes the organization of a local, community-based health care unit (office) in which tasks and competences appear on the appropriate level.

Appendix 6: Method of the Shapley-value regression analysis

An attempt was made to define the effect of the exchanges in the entire co-creational sphere by measuring transactions, both quantitatively and qualitatively, and particularly the health experience (customer experience), and additionally by carrying out correlation analyses.

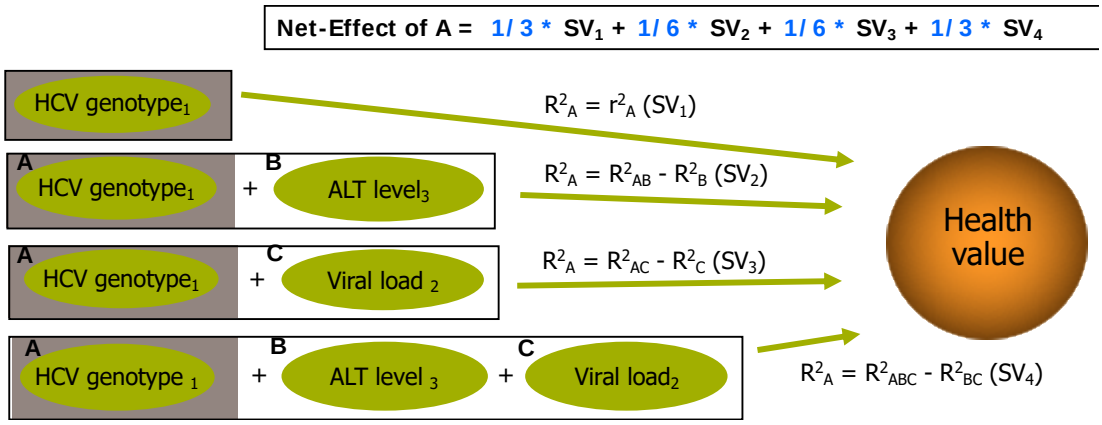
I apply the Shapley-value regression analysis to investigate what effects exchanges can exert on health value changes in the complex, network-type transaction sphere; this analysis of all regression analyses assesses the contribution of each collaborative actor to the achievement of the stated goal the most accurately. The technique was originally developed by Lloyd Shapley applying cooperative game theory in 1953, and since then it has been widely used in market research, e.g. brand value driver analysis, modelling impacts of marketing mix, industry purchasing model, optimization of product development [Lieberman2015].



Example for impact assessment of the community network transactions.

According to the methodology of the original game theory analysis, the Shapley-value is the expected average marginal contribution of an actor, taking every possible combination into consideration. Market research findings revealed that this analytical methodology is a reliable technique to define value contribution of interrelated impacts.

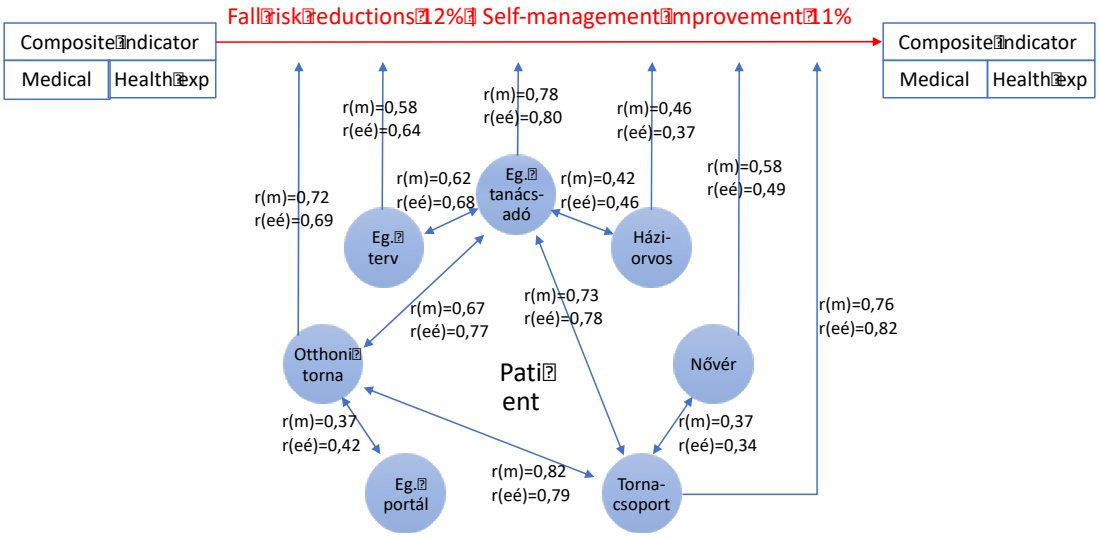
The Shapley-value regression analysis—as the example below shows—provides estimates of the individual contribution of each variable taking every possible combination into consideration.



Process of the Shapley-value calculation on a medical health value example

Each community-based health sphere as individual co-creational spheres associated with certain health-related tasks can be followed by regular measurements and impact assesment, and so can their sub-spheres: customer sphere, joint sphere and provider sphere. From the perspective of a service provider, or a group of collaborative service providers, competences and their implications are either direct, that can be controlled, or indirect, that are controlled by customers and potential customers, as well as influencer and service providers who can exert influence on customers but are not involved in the collaboration. Accordingly, from the standpoint of service providers competences and exchanges can be divided into directly influencing and indirectly influencing ones.

The model provides an opportunity to deal with each of them in a uniform system, and analyze their contribution to health value generation. Thus, available resources will be allocated according to the extent of individual health-value contribution of exchanges accomplished by each competence. This facilitates the efficiency of the whole, individual-centred health co-creation sphere both from quality assurance and innovation standpoint.



Introduction of the network effects of the community-based health experience model in the example of the trial process ‘Don’t get broken again!’

More detailed correlation tests and targeted tests can unambiguously demonstrate which competences, based on their potential, can contribute most positively to value generation, and which competences need to be changed or improved in the process of value-in-use value creation process of the competence. It will be apparent that within the network, which competences are weak actors or perform weakly in the collaboration; and comparative surveys into community-based spheres can define development needs accurately; furthermore, best practices can easily be selected from health-value creation sub-processes.

Forecasts can be made on a multi-annual data series to estimate the transactional needs at the level of local competences for a defined period, and thus guiding values can be produced to capacity planning, competence development and training.

Appendix 7: Online questionnaire for GPs on health counselling

- Have you received/read our letter addressed to GPs about the purpose and benefits of health counselling and the job of health counsellors?

  yes/no

- Please tell us what initial impressions you got about the health counsellor you work with in the project?

  open question

- If our colleague has already started to work, what did you or your practice nurse say to convince individuals to collaborate with our health counsellor colleague?

  open question

- In your view, what are the essential skills and attributes a health counsellor should have?

  open question

- Have you received feedback from individuals about the work they had with our health counsellor? If yes, how do you assess it?

  open question

- All in all, how do you rate the job of our health counsellor on a 7-point scale (where 1 = very poor, 7 = very good)?

  1 2 3 4 5 6 7

- Do you have any recommendations concerning the job? Would you share them with me?

  open question

Oszteporózis alteszt - Esésmegelőző tornagyakorlatok otthonra

Bemelegítés: (készítsünk elő egy kb. 45 cm magasságú háttámlás, stabil széket)

✓ **I**nstrukció**: (**a későbbiekben **I** betűvel jelöljük), a gyakorlat végzése során figyeljünk oda a pontos kivitelezésre, ebben nyújt hasznos információt a mellékelt magyarázat.

- Álljunk a szék háta mögé, ha kell, használjuk kezünket a kapaszkodáshoz, és felváltva kezdjünk el ritmikusan helyben járni. Egy – két percig végezzük a mozgást.
- Ha biztonságosan, kapaszkodás nélkül végrehajtottuk a gyakorlatot, kezünket is használhatjuk a mozgáshoz, mégpedig előre- hátra lendítve törzsünk mellett a képen látható módon.

- Maradunk a szék háta mögött, két vállunkkal hátra nyújtózunk, ezáltal a két lapockánkat hátul közelítjük egymáshoz. A gyakorlatot összekötjük *légző gyakorlattal* → váll hátranyújtózása alatt orrunkon veszünk egy nagy levegőt, majd a vállak visszaengedésekor szánkon keresztül kifújjuk.

Ajánlott ismétlésszám: 6*

Ülve végzendő gyakorlatok:

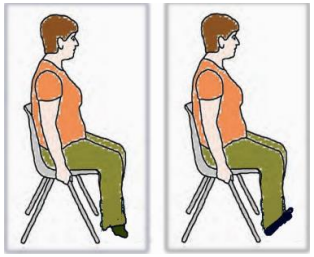
I.: Az előbb említett magasságú székre üljünk le, hátunkat, amennyire tudjuk, tartsuk egyenesen, és ***ne*** támaszkodjunk a szék támlájának. Két lábfejünk párhuzamosan előrefelé tekintsen, valamint teljes talpon érintkezzen a talajjal. A gyakorlatok végrehajtása alatt ügyeljünk a megfelelő ülőhelyzet meglétére.

Ülő helyzetben végrehajtandó felső végtag gyakorlatok:

- Két kezünket megtámasztjuk a combunkon (***testtartásunk egyenes***), két vállunkat hátrahúzzuk (lapockazárás).
  Ajánlott ismétlésszám: 10*
- Vállra tesszük a két kezünket, és ebben a helyzetben a két könyökünket mellkas előtt összeérintjük, majd a két könyökünket hátrahúzzuk, lapockazárásáig.
  Ajánlott ismétlésszám: 10*
- A két karunkat mellkas előtt előrefelé kinyújtjuk, majd onnan egyszerre hátrahúzzuk a két karunkat könyökhajlítással törzsünk mellett. Ebben a gyakorlatban is lapockazárásra törekszünk a kar hátrahúzásakor.
- **Ajánlott ismétlésszám: 8***
- Összekulcsoljuk mellkasunk előtt a két kezünket, és így összekulcsolt kézzel karunkat felfelé, fül mellé nyújtjuk.
- **Ajánlott ismétlésszám: 5***
  I.: Az egyenes testtartásra törekszünk, ne dőljünk el hátra a gyakorlat végzése során.

Ülő helyzetben végrehajtandó alsó végtag gyakorlatok:

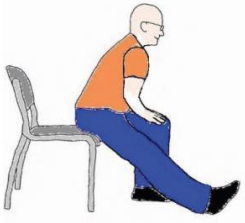
- ***Figyeljünk az egyenes ülésre!*** Lábfej átmozgatása → lábujjhegyre gördítjük a lábfejünket, majd vissza középre, és sarokra átgördítjük lábfejünket.
  Ajánlott ismétlésszám: 10*- 10*



- Az egyik térdünket előre kinyújtjuk, - azt megtartjuk 1-2 másodpercig a levegőben, majd visszatesszük lábfejünket a talajra, majd elvégezzük a másik oldalon is a térdnyújtást.
- **Ajánlott ismétlésszám: 5*- 5***
  I.: Az ülésre figyeljünk! A két kezünkkel kapaszkodhatunk a szék oldalába, a törzs egyenes, ne „görnyedjünk” össze.

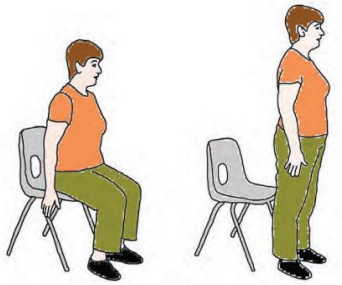
- Az egyik lábfejünket kicsúsztatjuk előre a talajon, a képen látható módon. Másik lábunk hajlított helyzetben marad, és támaszkodik a talajon.
  I.: Térdünket ebben a feladatban is kinyújtjuk, ***de*** lábfejünket **most nem emeljük** el a talajról, hanem csak **kicsúsztatjuk,** és a térdnyújtás végén sarokra állítjuk a lábfejünket. Majd végezzük el a feladatot a másik oldalon is.
  Ajánlott ismétlésszám: 5*-5*

- A két kezünket rátesszük a hajlított helyzetben lévő combunkra, az **ellenoldali** lábunkat kinyújtjuk előre, az előbbi gyakorlat alapján (lábfej kicsúsztatása előre, sarokra gördítés – ezt a helyzetet tartjuk), és a támaszkodó kezek **irányába egyenes törzzsel előredöntést végzünk** a képen látható módon.
  I.: A törzsünk egyenes marad mindvégig, az előredöntés során is.
  Ajánlott ismétlésszám: 4*- 4*



Álló gyakorlatok:

- Felállás és leülés gyakorlása, a székünkről álljunk fel, majd szép lassan visszaengedve törzsünket üljünk vissza a székre. (Kezdetben, ha szükséges, kezünkkel megtámaszkodva kissé segíthetjük a felállást és leülést.)
  Ajánlott ismétlésszám: 5*



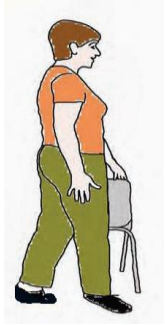
- **I.: A gyakorlat kivitelezése előtt biztos kapaszkodási lehetőséget keressünk otthonunkban.** Álló helyzetben helyezkedünk el a „szék” vagy a keresett stabil kapaszkodási felületnél. Kapaszkodjunk meg biztonságosan a támasztékba, majd a két lábfejünket *lábujjhegyre* állítjuk szép lassan, majd vissza teljes talptámaszra.
  Majd a gyakorlatot elvégezzük úgy is, hogy a két lábfejünket *sarokra* gördítjük, és onnan vissza talptámaszba. Sarokra álláskor figyeljünk arra, hogy medencénket, derekunkat ne toljuk ki hátrafelé, hanem egyenesen álljunk a gyakorlat kivitelezése során.
  Ajánlott ismétlésszám: 8*- 8 *

I.: Széket csak akkor használjunk, ha **<u>stabil</u>**, elbírja a kapaszkodás során testünk súlyát.

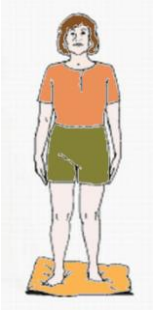
- Továbbra is álló helyzetben vagyunk a „szék” vagy a keresett stabil kapaszkodási felületnél. Kapaszkodjunk meg biztonságosan a támasztékba, és külön az egyik lábunkat emeljük ki oldalra nyújtott helyzetben, majd vissza középre→ **ezt 8* megismételjük az egyik oldalon, és utána elvégezzük a feladatot a másik oldalon is 8*. I.:** A törzs maradjon egyenes, ne dőljünk oldalra el a törzsünkkel.

- Továbbra is álló helyzetben vagyunk a „szék” vagy a keresett stabil kapaszkodási felületnél. Kapaszkodjunk meg biztonságosan a támasztékba, és külön az egyik lábunkat térdünknél hátrahajlítjuk, a hátrahajlítás során lábunkat ebben a helyzetben 1-2 másodpercig megtartjuk, majd visszaengedjük a talajra, és elvégezzük a másik oldalon is a térdhajlítást hátra.
  Ajánlott ismétlésszám: 8* - 8*

- A kapaszkodási felülethez viszonyítva forduljunk el oldalra, és jelen gyakorlatban oldalt fogunk állni a biztos kapaszkodási felületnek. A támasztékhoz közelebb eső kezünkkel kapaszkodjunk meg abban. Majd a támaszkodással ellenoldali lábunkkal **előrefelé kilépünk**, majd vissza középre. **A gyakorlatot elvégezzük 5***, majd **átfordulunk** a másik oldalra és elvégezzük a kilépéseket.



- Utolsó gyakorlat: veszünk egy lapos kispárnát vagy egy laposabb szivacsot, és letesszük a földre, rálépünk mind a két lábfejünkkel, és megpróbáljuk megtartani a törzsünket egyenesen, először kapaszkodás mellett, majd ha megy, biztonságosan csökkentjük a kapaszkodást.



A gyakorlatok elvégzésének időpontjai (utánkövető táblázat)

Dátum: *példa: 2015.02.20. péntek*	

Appendix 9: GPs questionnaire on therapeutic exercises

Survey into therapeutic exercises in a group setting among GPs involved in the trial for osteoporosis. Online questionnaire.

1. How did patients feel about the counselling with the physical therapist and the opportunity to participate in group exercise?
    1. Supportive
    2. Neutral
    3. Negative
2. To what extent was it difficult to convince individuals to participate in group exercise?
    1. Very difficult
    2. Somewhat difficult
    3. Easy
    4. Very easy
3. Group exercise was provided near where individuals live. Did it make easy for them to participate in the classes?
    1. It made it easy for all of them.
    2. It made it easy for most of them.
    3. It made it easy for some of them.
4. To what extent was your and your colleagues' job made easy that a professional physical therapist was assigned to deal with patients?
    1. It was made very easy
    2. It was made mainly easy
    3. It was made somewhat easy
    4. It was not made easy at all
5. Based on feedback, to what extent did patients understand the purpose of the group exercise?
    1. They fully understood it
    2. Most of them understood it
    3. Most of them did not understand it
6. Based on feedback, how did patients feel about the benefits group exercise delivered to them?
    1. Very beneficial
    2. Rather beneficial
    3. Somewhat beneficial
    4. Not beneficial at all
    5. No helpful feedback was given
7. How many participants of the group exercise did/do the motion and other exercises they had/have learned during the classes regularly at home?
    1. All of them do the exercise
    2. Most of them do the exercises

3. Some of them do the exercises
4. No helpful feedback was given

8. How does group exercise as a patient training technique support your professional job?
    1. Entirely
    2. Mostly yes
    3. Mostly not
    4. Not at all
9. Does patients' participation in group exercise increase their commitment to protect their health?
    1. Entirely
    2. Mostly yes
    3. Mostly not
    4. Not at all
10. Based on your experience, do you intend to recommend group exercise to more of your patients?
    1. Yes
    2. No
    3. I do not know yet

Appendix 10: Study questionnaires

Customer experience – ConX questionnaire

Köszönjük, hogy időt szakít kérdőívünk kitöltésére!
Kérjük, valamennyi kérdésnél jelölje be az Ön véleményéhez legközelebb álló választ! Válaszának bejelölése után a „Következő" (>>>>) gombra kattintva léphet tovább a következő kérdésre.

Az elmúlt két hétben az alábbi események szerepelhettek az Egyéni Egészségtervében.

Kérjük, jelölje be azokat, amelyeken részt vett, illetve amelyeket megvalósított az elmúlt két hétben!

	igen	nem
Találkozó háziorvossal	☐	☐
Találkozó praxisnővérrel	☐	☐
Találkozó egészség-tanácsadóval	☐	☐
Diétás tanácsadás	☐	☐
A webbeteg.hu használata	☐	☐
Egyéni Egészségterv online program	☐	☐
Esésmegelőzés torna	☐	☐
Gyógytorna	☐	☐
Találkozó reumatológussal	☐	☐
Csontsűrűség-vizsgálat	☐	☐

Az Egyéni Egészségtervében szereplő és megvalósult események lehetnek emlékezetesek vagy kevésbé emlékezetesek (Emlékezetesség), és pozitív vagy negatív benyomást is kelthettek Önben (Benyomás).

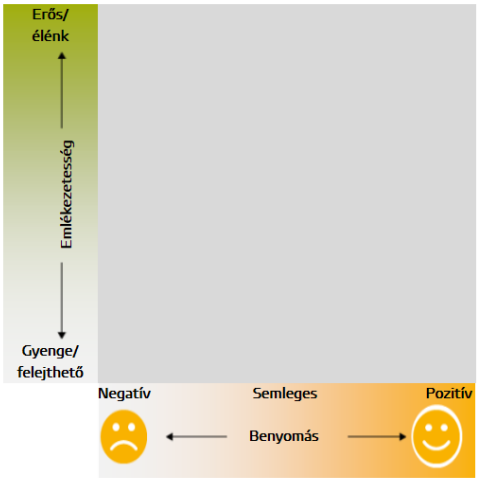
Arra kérjük, hogy értékelje az eseményeket emlékezetesség és benyomás szempontjából! Értékelését úgy teheti meg, ha az egyes események ikonját a mező azon területére húzza, amely leginkább tükrözi érzéseit.

- Ha az esemény nagyon emlékezetes volt (erős és élénk emlék), húzza az esemény ikonját a mező felső részére, oda, ahol az legjobban kifejezi az esemény emlékezetességét! Ha nem volt emlékezetes (gyenge vagy felejthető emlék), húzza az esemény ikonját a mező alsó részére!
- Hasonlóképpen, ha az esemény pozitív benyomást keltett Önben, húzza az esemény ikonját a mező jobb felére! Ha az esemény negatív benyomást keltett Önben, húzza a mező bal felére!

Arra kérjük, értékelje Egyéni Egészségtervében szereplő és megvalósult eseményeket!

Minden esemény ikonját húzza a mező azon pontjára, ami a legjobban kifejezi az esemény emlékezetességét (fent vagy lent) és az esemény által keltett benyomást (jobbra vagy balra)!

Kérjük, az összes esemény ikonját húzza a mező területére!



Találkozó háziorvossal

Az Ön számára leginkább pozitív és emlékezetes esemény: Találkozó háziorvossal

Miért pont ide helyezte az eseményt? Mi volt az élménye az eseményen?

Az Ön számára leginkább negatív, de emlékezetes esemény: Esésmegelőzés torna

Miért pont ide helyezte az eseményt? Mi volt az élménye az eseményen?

Köszönjük válaszait, jó egészséget kívánunk!

Health experience questionnaire

Köszönjük, hogy időt szakít kérdőívünk kitöltésére! Kérjük, valamennyi kérdésnél jelölje be az Ön véleményéhez legközelebb álló választ! Válaszának bejelölése után a „Következő" (>>>>) gombra kattintva léphet tovább a következő kérdésre.

Milyen az Ön egészsége általában?

- nagyon jó
- jó
- kielégítő
- rossz
- nagyon rossz
- nem tudom

Véleménye szerint Ön mennyit tehet az egészségéért?

- nagyon sokat tehetek
- sokat tehetek
- keveset tehetek
- semmit sem tehetek
- nem tudom

Milyen gyakran mondja el másoknak, mennyire jó a háziorvosa?

- soha
- nagyon ritkán
- időnként
- gyakran
- nagyon gyakran

Milyen gyakran mondja el másoknak a háziorvosánál tapasztalt problémáit?

- soha
- nagyon ritkán
- időnként
- gyakran
- nagyon gyakran

Amennyiben egy barátja vagy ismerőse kérdezné Önt, milyen valószínűséggel javasolná a háziorvosát?

- egyáltalán nem javasolnám
- inkább nem javasolnám
- talán javasolnám, talán nem javasolnám
- inkább javasolnám
- biztosan javasolnám

Milyen mértékben ért egyet az alábbi állításokkal?

	egyáltalán nem értek egyet	inkább nem értek egyet	többé-kevésbé egyetértek	inkább egyetértek	teljes mértékben egyetértek
A háziorvosom pont megfelel nekem.	○	○	○	○	○
A háziorvosom értékes ügyfélként kezel engem.	○	○	○	○	○
A háziorvosom régóta az orvosom.	○	○	○	○	○
Könnyen együttműködöm a háziorvosommal.	○	○	○	○	○
Megbízom a háziorvosomban.	○	○	○	○	○

Az egészségügyben kit tekint az Ön elsődleges partnerének?

- háziorvost
- szakorvost
- ismerős orvost
- ismerős szakembert
- gyógyszerészt
- egyéb egészségügyi szakembert, éspedig: _____

Az egészségmegőrzésével kapcsolatos tanácsokért milyen valószínűséggel fordulna háziorvosához?

- egyáltalán nem valószínű
- inkább nem valószínű
- többé-kevésbé valószínű
- inkább valószínű
- nagyon valószínű

Milyen mértékben ért egyet az alábbi állításokkal?

	egyáltalán nem értek egyet	inkább nem értek egyet	többé-kevésbé egyetértek	inkább egyetértek	teljes mértékben egyetértek
A háziorvosom egyénként kezel engem, nem egy betegként a sok közül.	○	○	○	○	○
Szomorú lennék, ha más lenne ezentúl a háziorvosom.	○	○	○	○	○
Jól érzem magam, hogy ő a háziorvosom.	○	○	○	○	○
Figyelemmel kísérem a háziorvosom sorsát.	○	○	○	○	○

Mennyire érzi magát tájékozottnak az egészségi állapotával kapcsolatban?

Kérjük, válaszát 1-től 10-ig tartó skálán árnyalja, ahol az 1 = egyáltalán nem; míg a 10 = teljes mértékben!

- 1 - egyáltalán nem érzem magam tájékozottnak
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 - teljes mértékben tájékozottnak érzem magam

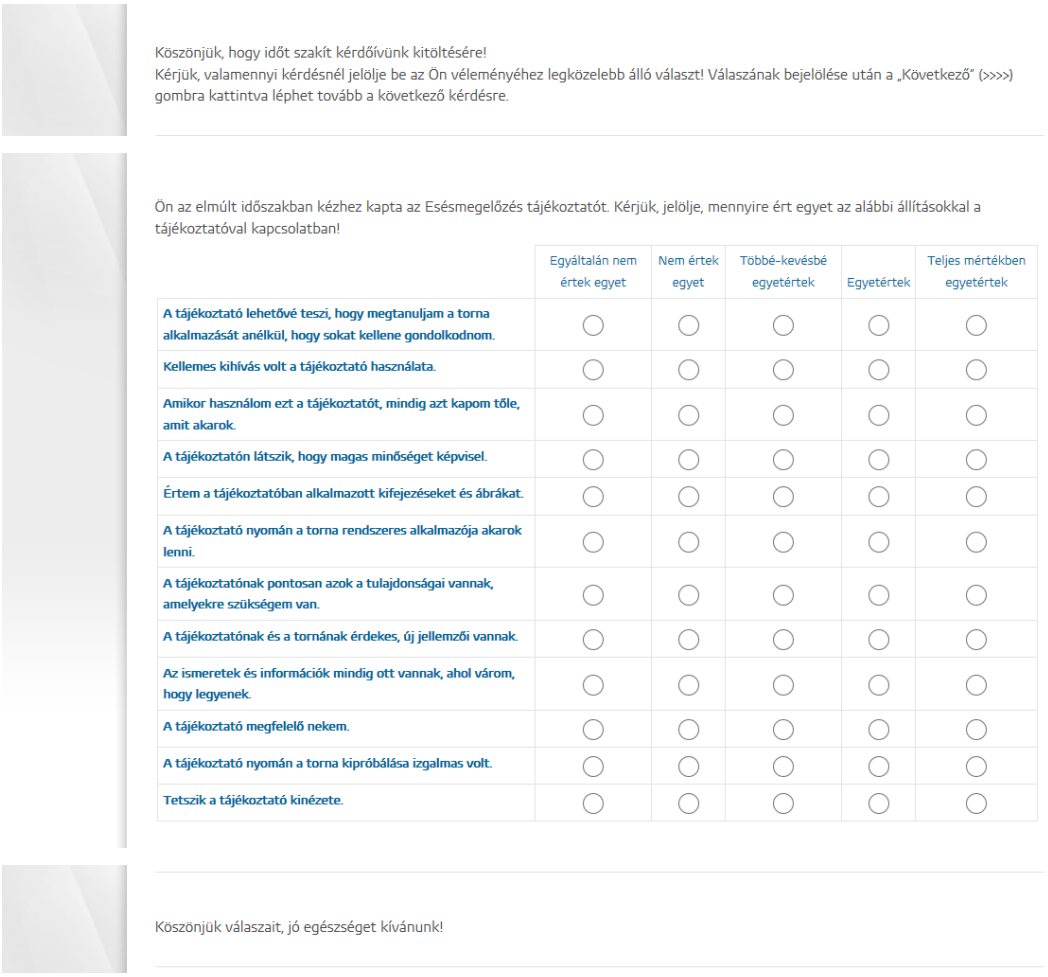
Mennyire ért egyet azzal, hogy kézben tudja tartani csontritkulását?

Kérjük, válaszát 1-től 10-ig tartó skálán árnyalja, ahol az 1 = egyáltalán nem; 10 = teljes mértékben!

- 1 - egyáltalán nem
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 - teljes mértékben

Köszönjük válaszait, jó egészséget kívánunk!

User experience – UX questionnaire



Köszönjük, hogy időt szakít kérdőívünk kitöltésére!
Kérjük, valamennyi kérdésnél jelölje be az Ön véleményéhez legközelebb álló választ! Válaszának bejelölése után a „Következő" (>>>>) gombra kattintva léphet tovább a következő kérdésre.

Ön az elmúlt időszakban kézhez kapta az Esésmegelőzés tájékoztatót. Kérjük, jelölje, mennyire ért egyet az alábbi állításokkal a tájékoztatóval kapcsolatban!

	Egyáltalán nem értek egyet	Nem értek egyet	Többé-kevésbé egyetértek	Egyetértek	Teljes mértékben egyetértek
A tájékoztató lehetővé teszi, hogy megtanuljam a torna alkalmazását anélkül, hogy sokat kellene gondolkodnom.	○	○	○	○	○
Kellemes kihívás volt a tájékoztató használata.	○	○	○	○	○
Amikor használom ezt a tájékoztatót, mindig azt kapom tőle, amit akarok.	○	○	○	○	○
A tájékoztatón látszik, hogy magas minőséget képvisel.	○	○	○	○	○
Értem a tájékoztatóban alkalmazott kifejezéseket és ábrákat.	○	○	○	○	○
A tájékoztató nyomán a torna rendszeres alkalmazója akarok lenni.	○	○	○	○	○
A tájékoztatónak pontosan azok a tulajdonságai vannak, amelyekre szükségem van.	○	○	○	○	○
A tájékoztatónak és a tornának érdekes, új jellemzői vannak.	○	○	○	○	○
Az ismeretek és információk mindig ott vannak, ahol várom, hogy legyenek.	○	○	○	○	○
A tájékoztató megfelelő nekem.	○	○	○	○	○
A tájékoztató nyomán a torna kipróbálása izgalmas volt.	○	○	○	○	○
Tetszik a tájékoztató kinézete.	○	○	○	○	○

Köszönjük válaszait, jó egészséget kívánunk!

Curative experience questionnaire

Please, evaluate each statement according to your own experience, where
1=totally disagree, 2=disagree, 3=both agree and disagree, 4=agree, 5=totally agree

My patients

– recommend me to their acquaintances.	1	2	3	4	5
– live as active as non-ill people.	1	2	3	4	5
– can live without limitations.	1	2	3	4	5
– have good therapy adherence.	1	2	3	4	5
– can stay active as long as possible.	1	2	3	4	5
– come regularly back, so they are well controlled.	1	2	3	4	5

Fall risk questionnaire

Tesztalany:		
Dátum:		
Felvételi dátuma:		
Kitöltő személy: háziorvos, praxisnővér, egészség-tanácsadó		
Karikázza be a megfelelő számokat, majd ismételje meg a felmérést 6 havonta, illetve minden elesést követően! *Ha a pontszám magasabb, mint 7, beavatkozás és gyógyszerelés szükséges.*		
ESÉSI anamnézis		**3-5 hónap múlva**
Mozgáskészség: fennjáró, ágybanfekvő, járókeretet használó, kerekesszéket használó	*A megfelelő választ, válaszokat húzd alá!*	
Esések száma havonta 1- vagy 2	2	
Több, mint 2 esése van havonta	8	
Eséssel kapcsolatos törése (dátummal)	5	
Ortosztatikus hipotónia	2	
Syncope/szédülés	1	
Érzékszervi károsodás:halláscsökkenés (1), csökkentlátás (1) afázia(1)	0-3/3	
Bizonytalan vagy csoszogó járás	2	
Zavartság/delírium/dezorientáció/károsodott gondolkodás	2	
Agitáltság/megnövekedett szorongás	2	
Krónikus fájdalom szindróma	3	
Gyógyszerek: kardiális(1), antihipertenzív(1), diuretikum(1), antipszichotikum vagy metoclopramid(2), altató(2), antidepresszáns vagy antihisztamin H1 vagy H2 blokkoló(2), szorongásoldók, kivéve buspiron(2),NSAID(1), narkotikus analgetikumok enyhe(1) mérsékelt(2), antikonvulzívumok(1), izomrelaxánsok(1)	0-16/16	
Diagnózis: inkontinencia: széklet (2), vizelet (2) anémia (2)	0-6/6	
Kardiális betegségek: ritmuszavar (1), szívelégtelenség(1)	0-2/2	
Neurológiai/pszichiátriai betegségek: demencia(1), parkinsonizmus(1), epilepszia(1), stroke(1)	0-4/4	
Mozgásszervi betegségek: artritisz(1), gipszsínkötés(1), protézis(1)	0-3/3	
Összpontszám:		
Rizikó kategóriák: Kis: 0-3 pont Közepes. 4-7 pont Magas: 8 pont tól		

FRAX calculation

ÚJ BETEG	☐ Korábban soha nem részesült aktív csontritkulás elleni kezelésben
KEZELT BETEG	☐ Legalább 1 éve folyamatosan aktív csontritkulás elleni kezelésben részesül

FRAX kérdőív

Kor: ____ / **Születési dátum:** _____ [év] ____ [hónap] ____ [nap]

Nem: ☐ nő **Testtömeg:** ____ kg **Testmagasság:** ____ cm

Korábbi csonttörés: ☐ igen / ☐ nem

Szülőnél csípőtáji törés: ☐ igen / ☐ nem

Jelenleg dohányzik: ☐ igen / ☐ nem

Glukokortikoid terápia: ☐ igen / ☐ nem

Rheumatoid arthritis: ☐ igen / ☐ nem

Másodlagos osteoporosis: ☐ igen / ☐ nem

Alkohol ≥3 egység naponta ☐ igen / ☐ nem

Combnyak BMD: _____ g/cm² / **DXA típus:** ☐ GE-Lunar ☐ Hologic ☐ Norland

vagy

Combnyak T-score: _____

Magyarázatok:

Korábbi csonttörés	Korábbi csonttörés: felnőttkorban történt csonttörés, mely vagy spontán történt, vagy olyan fokú traumából, mely egészséges egyéneken nem okozott volna törést.
Szülőnél csípőtáji törés	Történt-e csípőtáji törés a beteg szüleinél?
Glukokortikoid terápia	Jelölje az „Igen" választ, ha a beteg jelenleg szisztémás glukokortikoid terápiában részesül, vagy ha korábban glukokortikoid terápiában részesült 3 hónapnál hosszabb ideig legalább napi 5 mg prednizolon (vagy azzal ekvivalens) dózisban.
Rheumatoid arthritis	Jelölje az „Igen" választ, ha a beteget rheumatoid arthritisszel diagnosztizálták.
Másodlagos osteoporosis	Jelölje az „Igen" választ, ha a betegnél az osteoporosissal szorosan összefüggő betegség áll fenn. Ilyen pl. az I-es típusú (inzulin dependens) diabetes; osteogenesis imperfecta felnőttekben; hosszabb ideje fennálló, kezeletlen hyperthyreoidismus, hypogonadismus vagy koral menopauza (45 éves kor előtt); krónikus alultápláltság vagy felszívódási zavar; krónikus májbetegség.
Alkohol ≥3 egység naponta	Jelölje az „Igen" választ, ha a beteg 3 vagy több egység alkoholt fogyaszt naponta. Egy egység kb. 8-10 g alkoholt jelent, ami megfelel egy pohár (3 dl) sörnek, 3 cl tömény italnak, vagy kb. 1 dl bornak.
Combnyak BMD	Írja be a combnyakon mért csontsűrűséget (g/cm²-ben), majd jelölje a méréshez használt DXA műszer típusát.

Examination test sheet

Név:

Vizsgálat dátuma:

Timed Up and Go teszt:

Mozgásprogram elején:

1. kísérlet	2. kísérlet	3. kísérlet	átlag

Mozgásprogram végén:

1. kísérlet	2. kísérlet	3. kísérlet	átlag

Functional Reach teszt:

Mozgásprogram elején:

1. kísérlet	2. kísérlet	3. kísérlet	átlag

Mozgásprogram végén:

1. kísérlet	2. kísérlet	3. kísérlet	átlag

Módosított Romberg teszt: (tandem-állás)

Mozgásprogram elején:

1. kísérlet	2. kísérlet	3. kísérlet	átlag

Mozgásprogram végén:

1. kísérlet	2. kísérlet	3. kísérlet	átlag

Használ-e járási segédeszközt, ha igen mit?

Testsúly: **Testmagasság:** **BMI érték:**

Elesések száma: az elmúlt három hónapban: ____ következő három hónapban:___

Appendix 11: Excerpt of the study protocol

KIVONAT A TUKEB BEADVÁNYHOZ KÉSZÜLT VIZSGÁLATI TERVBŐL

Vizsgálat címe: Lakóhelyközeli Egészségszolgáltatás Megvalósítási Teszt a kiemelt kormányzati programként meghatározott TÁMOP-6.2.5.-B-13/1-2004-0001 "Szervezethatékonyság fejlesztése az egészségügyi ellátórendszerben - Területi együttműködések kialakítása" program keretén belül

Vizsgálatvezető: Dr. Horváth Ildikó, Országos Korányi Tbc és Pulmonológiai Intézet

Megbízó neve és elérhetősége: Állami Egészségügyi Ellátó Központ, Budapest, Diós árok 3.

1. **Rövid összefoglaló**

   A programban kidolgozásra került az alapellátás megerősítésének módszertana, a Lakóhelyközeli Egészségszolgáltatás, amely a betegségek kezelése helyett a megelőzésre és a gondozásra helyezi a nagyobb hangsúlyt. Egy egyén (páciens) számára olyan szolgáltatásokat nyújt, amely egyéni egészségterven alapul, és szolgáltatási terveket fogalmaz meg. Ezek egyéni szinten szakmai projekttervként működnek, amihez az egyén háziorvosa szakmai szolgáltatói csapatot delegál. A feladatok elosztása kompetencialapon történik a szubszidiaritás elvét követve, minden esetben a klinikai szakmai irányelvekre alapuló egészségszervezési szakmai irányelvek által meghatározott lehetséges kezelés folyamatok személyre szabásával

   Jelen vizsgálat célja adatokat gyűjteni a működés tesztfázisában annak érdekében, hogy az új rendszer modellezésével bemutassuk egészségértékbeli nyereségeit, valamint a költségek átcsoportosításának lehetőségeit.

2. **Háttér**

Az új alapellátási modell, a Lakóhelyközeli Egészségszolgáltatások rendszere a közösségi szinten releváns egészségügyi és határterületi szolgáltatók funkcionális (horizontális, vertikális és interszektoriális) integrációjára épül, amelynek gerincét az egészségügyi járóbeteg-ellátás jelenleg is működő intézményei (egészségügyi alapellátás – háziorvosi, házi gyermekorvosi, fogászati, ügyeleti és védőnői ellátások, otthoni szakápolás; járóbeteg szakellátás, gondozóintézeti ellátások, gyógyszerellátás, egészségfejlesztési ellátások) adják, különös tekintettel a háziorvosi ellátásra és a járóbeteg szakellátásra. Ehhez illeszkednek azok az új egészségügyi ellátási formák, amelyek korábban nem működtek, esetlegesek vagy alulfejlettek voltak (elsősorban az egészség-megelőzés és a prevenció területén, de ide tartozik a virtuális térben megvalósuló szolgáltatások fejlesztése is, valamint minden innovatív, hiánypótló szolgáltatásfejlesztési program), továbbá az egészségügyi ellátásokkal egységet képező határterületi szolgáltatások is (pl. szociális ellátás).

A funkcionális integráció lépésről lépésre valósítható meg. Alapvetően a közösségi kezdeményezésekre támaszkodik, melynek jogszabályi lehetőséget és finanszírozási

ösztönzést szükséges biztosítani. Ezentúl nagy szükség van az önszerveződés folyamatának támogatására annak érdekében, hogy valóban a közösségi igényeknek megfelelő szolgáltatások kerüljenek kialakításra. Az integráció végterméke a szakmai közösségek hatékonyan működő formája, amely a közösségi szintű egészség ápolásáért felelős integrált szolgáltatási egység.

A kis közösségek egészség-szolgáltatási alapegységeit támogató egységek a közösségi egészségszervezési központok: ezen központok a következő szolgáltatásokat nyújtják az egészségápolási egységeknek:

- közösségi szükségleteknek és hatékonyságnövelésnek megfelelő fejlesztési irányok meghatározása
- operatív működési támogatás
- az ellátások folytonosságának biztosítása érdekében a betegutak monitorozása, az ellátások szervezése
- népegészségügyi kompetencián és egészségkommunikációs ismereteken alapuló egészségfejlesztés
- részletes közösségi egészségtervezés
- indikátor alapú eredményesség elemzés és értelmezés
- egészségszervezés, interszektoriális integrációs tevékenységek összehangolása
- minőségbiztosítás

3. A vizsgálat célja

Az egészségterven alapuló szolgáltatások hatását vizsgáljuk hét pácienscsoportban.

1. **Egészségesek egészégterve témában az egészségélmény változását.**
2. **Diabétesz és diabétesz gyanú témában a testtömeg, HbA1C, és egészségélmény változását.**
3. **Osteoporozis témában esésmegelőzés hatását az esések számára, valamint az egészségélmény változását.**
4. **Gyermekek kardiovaszkuláris rizikószűrés témában az adatgyűjtés teljességét és a szülő egészségélményének változását.**
5. **COPD témában a CAT érték változását, a dohányzás rövid távon mért abbahagyását és az egészségélmény változását.**
6. **Onkológiai éberség témában emlőrák esetében az emlő önvizsgálat oktatása nyomán megvalósuló önvizsgálatot és az egészségélmény változását;**
   colorectális tumor esetében a gyanú felismerését követő onkológiai centrumba küldések számát és az egészségélmény változását
7. **Stroke esetében a rehabilitáció igénybe vételének hatását a beteg állapotára**

4. **A vizsgálat elrendezése**
   a) **Önkontrollos vizsgálat a bevonás, 3 hónap és 5 hónap elteltével végzett mérésekkel za 1. – 5. témákban**
   b) **Aktív és kontroll összehasonlítása**
5. **Vizsgálati centrumok**
   900 háziorvos országosan önkéntes jelentkezés alapján
6. **Vizsgálati alanyok**

6.1. Bevont betegek száma 50.000

6.2. Betegbevonás módja, betegtájékoztatás és beleegyezés

A háziorvos von be pácienseket a saját praxisából

a) egy témában az aktív karban az 1.- 6. témában

b) egy másik témában a kontroll karban az 1. – 6. témában

c) 7. témában cask aktív karos bevonás történik

7. **A vizsgálat időtartama**
   2015. április 1. -2015.szeptember 3.
8. **Vizsgálat módszertana és menete**

8.1. COPD

Cél: A kifejlesztésre került COPD egészségszervezési szakmai irányelv alkalmazásának hatásvizsgálata a benne szereplő kulcskezelések személyre szabásával.

Menete: A bevont betegeknek egészégtervet készít a háziorvos, amihez kezelési tervet rendel a beteg szükséglete, a tesztben helyileg rendelkezésre álló szolgáltatás – mozgásprogram vagy pszichoterápiás csoport – és a beteg együttműködése szerint. Ezt követően a kezelési terv megvalósulását és az indikátorokat követjük 3 és 5 hónap elteltével történő ellenőrző mérésekkel.

Beavatkozás: Egészségterv készítése, ehhez kapcsolódóan kezelési terv készítése, csoportos mozgásprogram vagy dohányzás leszokást támogató pszichoterápiás csoport, dohányzás leszokás telefonos program.

Csoportos mozgásprogram alteszt

Dohányzás leszokást támogató pszichoterápiás csoport alteszt/Dohányzás leszokás támogatás telefonon keresztül alteszt

Bevont egyének száma (csoportos mozgás alteszt): teszt csoport: 1,600, Kontroll csoport: 1,600

Bevont egyének száma (dohányzás leszokást támogató pszichoterápiás csoport alteszt/Dohányzás leszokás támogatás telefonon keresztül alteszt): teszt csoport: 1,600, Kontroll csoport: 1,600

Bevonási kritériumok:

- *COPD-vel diagnosztizált egyének (lakóhely szerint a praxisközösségekhez tartozó páciensek)*

- *COPD-vel diagnosztizált egyének, akik dohányosok (lakóhely szerint a praxisközösségekhez tartozó páciensek)*

Kizárási kritériumok:

- IV-es fokozatú COPD-s egyének

Workflow:

Tevékenység	Adatfelvétel módja	Tesztcsoport	Kontroll csoport
Vizit 1/Bevonás/0 hónap			
Gyógyító élmény kérdőív	2	x	
CAT	2	x	
Beleegyező nyilatkozat	2, 3	x	x
Egészségélmény kérdőív	1	x	x
Vizit 1 és Vizit 2 között			
Csoportfoglalkozáson való részvétel - online jelenléti ív	4, 5	x	
Dohányzás leszokást rögzítő napló	1	x	
mozgás napló	1	x	
Esemény percepcióját mérő kérdőív	1	x	
User experience kérdőív (inhalátor)	1	x	
Vizit 2/3 hónap			
Gyógyító élmény kérdőív	2	x	
CAT	2	x	
Egészségélmény kérdőív	1	x	x
Vizit 3/5 hónap			
Gyógyító élmény kérdőív	2	x	
CAT	2	x	

önkitöltős kérdőív az egyén által	1
háziorvos	2
praxisnővér	3
tüdőgondozó	4
gyógytornász	5

8.2. Diabetes

Cél: A kifejlesztésre került egészségtervező program alkalmazásának hatásvizsgálata.

Menete: A bevont betegeknek egészégtervet készít a háziorvos, benne cselekvési tervvel. Ezt követően a cselekevési terv megvalósulását és az indikátorokat követjük 3 és 5 hónap elteltével történő ellenőrző mérésekkel.

Beavatkozás: Egészségterv készítése, ehhez kapcsolódóan cselekvési terv készítése. Ennek részeként a www.kaloriabázis.hu oldal alkalmazásával az önmonitorozás támogatása.

Egészséges, de glükóz intoleranciára hajlamos egyének kiszűrése és orális diabetikummal kezelt egyének kockázatának csökkentése önmanagement program bevezetésével és magasfokú beteg edukáció alkalmazásával

Bevont egyének száma teszt csoport: 3,300, Kontroll csoport: 3,300

Beválasztási kritériumok:

- 2-es típusú cukorbetegek, 18-65 év között
- egészséges egyének, 18-65 év között
- Kezelt, egyensúlyban levő T2 diabetes mellitus (gyógyszermódosítás nem volt az elmúlt 3 hónapban)
- Éhomi vércukor: 3.9-7.2 mmol/l körüli, étkezés után <10 mmol/l körüli, HgA1c: <7 % között (fontos a kielégítő szénhidrátháztartás, hiszen a vizsgálat alatt a gyógyszeres terápián nem kívánunk változtatni, inzulint nem indíthatunk)
- Diétás vagy orális antidiabetikumon lévő betegek (metformin; metformin+sulfanilurea, DDP4-gátlók, stb.)
- BMI 25-30 kg/m2 között
- A beteg rendelkezik számítógépes elérhetőséggel, számítógépes alapismeretekkel, készség szinten kezeli az Internetet

Kizárási kritériumok:

- Inzulinos (analóg vagy humán) 2-es típusú cukorbeteg
- 1-es típusú cukorbeteg, terhességi diabetes, egyéb okú diabetes (pl. pancreatogén, gyógyszer indukálta, endokrin betegséggel összefüggő, MODY, stb.)
- rossz complience (nem jár kontrollra, nem vezeti a vércukornaplóját, stb.), elégtelen szénhidrátháztartás (éhomi vércukor > 7.2 mmol/l, étkezés után > 10 mmol/l, HbA1c > 7 %)
- kórelőzményükben ISZB, angina pectoris, súlyos ritmuszavar (pl. pitvari fibrillatio) (nincs nyugalmi falmozgászavar, EF>50 %)
- kórelőzményében szerepel AMI, CABG, stent, bypass
- diabeteses proliferatív retinopathia (egy éves szemészeti lelet)
- súlyos diabeteses nephropathia vagy egyéb okú súlyos veseelégtelenség (GFR>45)
- terhes, szoptat
- májelégtelenség (GOT, GPT normális)
- ismert pajzsmirigy betegség (sTSH normális)
- egyéb endokrin betegsége van (pl. acromegalia, Cushing-szindróma, phaeochromocytoma, hyperthyreosis)
- súlyos genetikai betegsége van(pl. Down-sy, Klinefelter-sy, stb.)
- Antikoagulánst (kumarin, LMWH, Xarelto/Pradaxa) szed
- Immunmoduláns, immunszuppresszáns gyógyszert szed
- (aktív) daganatos betegsége van
- autoimmun betegsége van
- súlyos, előrehaladott COPD-je (FEV1>50%) van
- súlyos diabeteses polyneuropathia, súlyos avtg-i érszűkület van(pl. amputált láb, súlyos alsóvégtagi fekélyesség, stb.)

Workflow

Tevékenység	Adatfelvétel módja	Tesztcsoport	Kontroll csoport
Vizit 1/Bevonás/0 hónap			
Gyógyító élmény kérdőív	2	x	
Beleegyező nyilatkozat	2, 3	x	x
Egészségélmény kérdőív	1	x	x
Egyéni egészségterv Findrisc kérdőívvel	1	x	
Laboradatok rögzítése	2	x	
Vizit 1 és Vizit 2 között			
Esemény percepcióját mérő kérdőív	1	x	
User experience kérdőív	1	x	
Vizit 2/3 hónap			
Gyógyító élmény kérdőív	2	x	
Laboradatok rögzítése	2	x	
Egészségélmény kérdőív	1	x	x
Vizit 3/5 hónap			
Gyógyító élmény kérdőív	2	x	
Laboradatok rögzítése	2	x	

önkitöltős kérdőív az egyén által	1
háziorvos	2
praxisnővér	3

8.3. Egészségesek egészségtervének elkészítése

Cél: A kifejlesztésre került egészségtervező online szoftver alkalmazásának hatásvizsgálata.

Menete: A bevont egyén egészégtervet készít egyedül és/vagy a háziorvosa támogatásával, benne cselekvési tervvel. Ezt követően a cselekevési terv megvalósulását és az indikátorokat követjük ellenőrző mérésekkel.

Beavatkozás: Egészségterv készítése, ehhez kapcsolódóan cselekvési terv készítése. Az egyént az OEFI által rendelkezésre bocsátott és az egészségtevező szoftveren keresztül elérhető egészségfejlesztési dokumentumokkal támogatjuk.

Egészséges egyénekkel állapotfelmérő kérdőív és egyéni egészségtervek kitöltetése. Egészséges egyénekkel pszichoszociális kérdőív kitöltetése. A kitöltés támogatása. Személyes találkozó keretében a kitöltés után követése tanácsadással/coachinggal.

Bevont egyének száma teszt csoport: 10,000, Kontroll csoport: nincs

Beválasztási kritériumok:

- a magukat egészségeseknek való egyének

Kizárási kritériumok: nincs

Workflow

Tevékenység	Adatfelvétel módja	Tesztcsoport
Vizit 1/Bevonás/0 hónap		
Gyógyító élmény kérdőív	2	x
Beleegyező nyilatkozat	2, 3	x
Egészségélmény kérdőív	1	x
Egyéni egészségterv	1	x
Pszichoszociális kérdőív	4	x
Vizit 1 és Vizit 2 között (bevonás után 1 héttel)		
User experience kérdőív	1	x
Vizit 2/3 hónap		
Gyógyító élmény kérdőív	2	x
Egészségélmény kérdőív	1	x
User experience kérdőív	1	x

önkitöltős kérdőív az egyén által	1
háziorvos	2
praxisnővér	3
pszichológus	4

8.4. Kardiovaszkuláris rizikószűrés iskoláskorban

Cél: A kifejlesztésre került egészségtervező program alkalmazásának hatásvizsgálata.

Menete: A bevont gyermekek számára állapotfelémérést készít a háziorvos az egészégtervet részeként. A gyermek és a szülő a családi kórtörténetet kiegészíti az egészségtervben. Ezt követően a háziorvos elvégzi a kardiovaszkuláris kockázatbecslést, felméri a szülő együttműködési hajlandóságát és cselekevési tervet készít a gyermek részére. A kockázatbecsléshez rendelkezésre álló adatok és információk teljességét vizsgáljuk.

Beavatkozás: Kardiovaszkuláris kockázatfelmérés és cselekvési terv elkészítése.

Alapvető cél egy jól használható adatbázis létrehozása a szülő aktív bevonásával, amely a teljes családra vonatkozó és fellelhető anamnesztikus adatokra építve felméri a páciensre vonatkozó kockázatokat, majd végigkíséri életét és elérendő célt határoz meg egy cselekvési terv alapján.

Alapot teremt a gyermekkori prevenciós tevékenységek lakóhelyközeli megvalósítására minden település típus esetén.

Fontos a háziorvosi alapellátás keretében végzett egészségi állapotfelmérés, kötelező életkorhoz kötött szűrővizsgálatok módszertani fejlesztése a szülők és gyermekek együttes aktív közreműködésével.

Nem cél az elkészült egészségterv betartásának követése

Bevont egyének száma teszt csoport: 3,300, Kontroll csoport: 3,300

Beválasztási kritériumok:

- Iskoláskorú gyerekek és szüleik

Kizárási kritériumok: nincs

Workflow

Tevékenység	Adatfelvétel módja	Tesztcsoport	Kontroll csoport
Vizit 1/Bevonás/0 hónap			
Gyógyító élmény kérdőív	2	x	
Szülői beleegyező nyilatkozat	2, 3	x	x
Egészségélmény kérdőív	4	x	x
Anamnézis, életmód és állapot kérdőív	2	x	
Vizit 2/2-6 hét elteltével			
Bevonhatóság kérdőív	2, 4, 5	x	
Egyéni kockázati egészségterv készítése	2	x	
Egészségélmény kérdőív	4	x	x

önkitöltős kérdőív az egyén által	1
háziorvos	2
praxisnővér	3
szülő	4
gyerek	5

8.5. Onkológiai éberség

Cél: Az emlőrák és a colorectalis tumorok minél korábbi felismeréséhez rendelkezésre álló egy-egy eszköz gyakorlati alkalmazásának vizsgálata.

Menete: Emlőrák esetében emlő önvizsgálat oktatása a praxisban, colorectalis tumor esetében tumorgyanú tünete esetében azonnal onkológiai centrumba küldés.

Beavatkozás: Emlőrák esetében emlő önvizsgálat oktatása, colorectalis tumor esetében a háziorvosnak adott tumorgyanú tünetlista szerint onkológiai centrumba küldés.

A teszt célja, hogy növeljük az onkológiai éberséget a colorectalis és emlőrák rizikóval rendelkező betegségcsoportokban. A tesztben figyelemfelhívásra, páciens edukációra és az érintett korcsoportok szűrési hajlandóságának mérésére kerül sor. A teszt várható eredményterméke a felismerés és a diagnózis közötti idő lerövidítése illetve a praxison belüli szűrési részvétel elősegítése.

A tesztnek nem célja diagnózis felállítása illetve a rizikóval nem rendelkező egyének vizsgálata.

Bevont egyének száma teszt csoport: 4,000, Kontroll csoport: 4,000

Beválasztási kritériumok:

- emlőrákkal kapcsolatban a 25 év feletti nők
- colorectális daganattal kapcsolatban a háziorvosnál megjelent egyének

Kizárási kritériumok: nincs

Workflow

Tevékenység	Adatfelvétel módja	Tesztcsoport	Kontroll csoport
Vizit 1/Bevonás/0 hónap			
Gyógyító élmény kérdőív	2	x	
Beleegyező nyilatkozat	2, 3	x	x
Egészségélmény kérdőív	1	x	x
Emlőrák - önvizsgálat tanítás rögzítése(történt/nem történt)	2, 3	x	
Colorectális daganat: a Szent István Kórház által készített tünetlista követésének rögzítése (történt/nem történt)	2, 3	x	
Vizit 2/3 hónap			
Gyógyító élmény kérdőív	2	x	
Egészségélmény kérdőív	1	x	x

önkitöltős kérdőív az egyén által	1
háziorvos	2
praxisnővér	3

8.6. Osteoporosis

Cél: A kifejlesztésre került egészségtervező program alkalmazásának hatásvizsgálata.

Menete: A bevont betegeknek egészégtervet készít a háziorvos, benne cselekvési tervvel. Ezt követően a cselekevési terv megvalósulását és az indikátorokat követjük 3 és 5 hónap elteltével történő ellenőrző mérésekkel.

Beavatkozás: Egészségterv készítése, ehhez kapcsolódóan cselekvési terv készítése. Ennek részeként esésmegelőzés torna megtanítása és az önmonitorozás támogatása.

„NE TÖRJ ÚJRA! Az osteoporosis talaján kialakuló törések prevenciója

A vizsgálat célja, hogy az osteoporosis diagnosztikája és terápiája témában megszületett szakmai protokollon alapuló és az adott egészségszervezési szakmai irányelvben megfogalmazott lépések egy **meghatározott szakaszának** a gyakorlatban lekövessük.

A vizsgálat során **2.500 egészségterv** részben önálló illetve **támogatás**sal történő elkészítést és az erre a célra kifejlesztett online felületen történő rögzítését tervezzük. A vizsgálatban, az egészségtervek mellett az egyéni aktivitást rögzítő **egészségnapló** is alkalmazásra kerül, ami szintén online felületen lesz rögzítve az egyén által, szükség esetén a családtagok támogatásával.. Az abban rögzítendő egyéni aktivitások a napi mozgásra, étkezésre és életvitel területekre irányulnak, akár egyéni akár csoportos formában valósulnak meg.

Dokumentáljuk a teszt csoportokban alkalmazott **gyógyszerelés**t, a teszt időszakban felkeresett szakellátásokat és az ott elvégzett **beavatkozás**okat.

Csoportos és megfelelő kritériumok fennállása esetén **egyéni gyógytorna** foglalkozásokat indítunk minél több egyén részére, heti gyakorisággal.

Mérjük az egyének **mobilitás**át és az **esések** előfordulását a teszt időszak elején és végén. A teszt időszak rövidsége ellenére e két mutató tekintetében kimutatható javulást várunk a megfelelő aktivitást mutató egyéneknél.

Bevont egyének száma teszt csoport: 3,300, Kontroll csoport: 3,300

Beválasztási kritériumok:

- 65 év feletti nők, és férfiak,
- ismert osteoporosis diagnózissal, akiknél még nem volt törés
- ismert osteoporosis diagnózissal, akiknek már ezzel összefüggésbe hozható típusos törése volt
- akiknek az elmúlt egy évben, kis erőbehatásra lezajlott törése volt (osteoporosis kockázat)

Kizárási kritériumok: Nincs

Workflow

Tevékenység	Adatfelvétel módja	Tesztcsoport	Kontroll csoport
Vizit 1/Bevonás/0 hónap			
Gyógyító élmény kérdőív	2	x	
Beleegyező nyilatkozat	2, 3	x	x
Egészségélmény kérdőív	1	x	x
Állapot felmérő kérdőív	2, 3	x	
Egyéni egészségterv plusz speciális kérdésekkel	2, 1	x	
Gondozási, kezelési terv	2	x	
A tesztelés során alkalmazott szakmai kalkulátorok, felmérő-tesztek, próbák	2	x	
Vizit 1 és Vizit 2 között			
User experience kérdőív (1 hét elteltével)	1	x	
Esemény percepcióját mérő kérdőív	1	x	
Egészségnapló – a gondozási tervben meghatározott szolgáltatások működtetése, egyéni aktivitás rögzítése	1	x	
Vizit 2/3 hónap			
Állapot felmérő kérdőív	2	x	
Gyógyító élmény kérdőív	2	x	
Egészségélmény kérdőív	1	x	x
Vizit 3/5 hónap			
Állapot felmérő kérdőív	2	x	
Gyógyító élmény kérdőív	2	x	

önkitöltős kérdőív az egyén által	1
háziorvos	2
praxisnővér	3

8.7. Stroke rehabilitáció

Cél: Esetleírások feldolgozásával és a betegek aktuális funkcionális állapotának felmérésével vizsgálni a különböző jellemző rehabilitációs szolgáltatási utak hatását a funkciókra.

Menete: A háziorvos a nála lévő betegdokumentáció alapján esetleírást készít, amit lehetőség szerint kiegészít a betegnél lévő információ, pl. intézeti zárójelentés alapján, valamint elvégi az állapotfelmérést.

Beavatkozás: Állapotfelmérés, adatgyűjtés. Ebben az altesztben nincs két kar.

A teszt fő célja a stroke betegek kezelésével kapcsolatos rehabilitációs szükséglet felmérése valamint javaslat tétel a szolgáltatási hiányok megszüntetésére. Továbbá ahol reális, ott célunk mérni a rehabilitáció egyes elemeinek egészségi állapotra gyakorolt hatását is.

A projektnek nem célja rehabilitációs szolgáltatást szervezni az elkészült egészségszervezési irányelv alapján.

Bevont egyének száma teszt csoport: 5,800, Kontroll csoport: nincs

Beválasztási kritériumok:

- lakóhely szerint a praxisközösséghez tartozó poszt akut stroke betegek

Kizárási kritériumok: nincs

Workflow

Tevékenység	Adatfelvétel módja	Tesztcsoport
Vizit 1/Bevonás/0 hónap		
Beleegyező nyilatkozat	2, 3	x
Esetnapló: stroke-on átesett betegek historikus követése	2, 3	x
Állapot felmérő kérdőív az elérhető betegekné	2	x

önkitöltős kérdőív az egyén által	1
háziorvos	2
praxisnővér	3

9. Adatok kezelése

9.1. Betegek azonosítása

A betegek TAJ számát rögzítjük és hatjegyű egyedi azonosítót kapnak, amelynek első két jegye a földrajzi területi egységet, a harmadik és negyedik jegye a területi egységen belüli háziorvost, az ötödik és hatodik jegye a háziorvosnál bevont bevont egyén sorszámát jelöli. A hatjegyű azonosító alapján történik a különböző adatbeviteli felületek adatbázisainak kommunikációja és egyesítése

9.2. Adatgyűjtés módja, adatbázis
Az adatokat online elérhető kérdőívekkel és űrlapokkal gyűjtjük. Ezek az egészségtervező szoftver a kezelési tervező szoftver, a projekt webiroda űrlapja és online kérdőív szoftver. Az adatbázis az ÁEEK infrastruktúráján készül.

A teszt lezárását követően az OEP adatbázisából bekérjük az egyéni szintű ellátási adatokat 24 hónapra visszamenően.

9.3. Személyes adatok védelme, személyes adatok kezelése
A személyes adatok védelmét és a személyes adatok kezelését az ÁEEK erre vonatkozó szabályzatai szerint végezzük.

10. Eredmények értékelése

A meghatározott indikátorok alapján értékeljük egyéni szinten
a kezelési , illetve cselekvési tervek megvalósulásának mértékét;
a bevonáskor és három hónap elteltével mért egészségélmény változást;
a bevonáskor, három hónap elteltével és öt hónap elteltével a mért medikális mutatók változását;
valamint
altémánként az aktív és kontroll karok közötti eredménykülönbségeket;
összefüggésvizsgálatokkal az egyes egészségszervezési megoldások hatását;
és ezek mellett dinamikus modellezéssel hatásbecslét végünk.

11. Etikai elvek

11.1. Etikai Bizottság

A TUKEB engedély birtokában indul el a vizsgálat és a Helsinki deklaráció betartásra kerül.

11.2. Beleegyező nyilatkozat

Minden beteg írásos beleegyezést ad, valamint a beteg bármikor, indoklás nélkül visszavonhatja beleegyezését.

11.3. költségtérítés

A bevont egyének nem kapnak költségtérítést.

12. Minőségbiztosítás

A kérdőívek programozása támogatja a minőségellenőrzést, az adatok konzisztenciáját ellenőrizzük és jellemezzük.

13. Publikáció

A projekt eredményeit a záródokumentációban adjuk közre teljes terjedelemben. A szakmai és nyilvános kommunikációról az EMMI Egészségügyért Felelős Államtitkársága dönt.