

# Healthcare innovations and improvements in a financially constrained environment

---

## Strategy Plan and R&D Roadmap WE Care Consortium

**Inger Ekman, Chairperson**, Institute of Health and Care Sciences, GPCC, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

**Reinhard Busse**, Department of Health Care Management, Berlin University of Technology, Germany

**Chris Van Hoof**, imec, Leuven, Belgium

**Ab Klink**, Department of Social Sciences, VU University of Amsterdam, The Netherlands

**Jan A. Kremer**, Radboud University, Nijmegen Medical Centre, The Netherlands

**Marisa Miraldo**, Imperial College Business School London, United Kingdom

**Anders Olauson**, European Patients' Forum (EPF), Luxembourg

**Michal Rosen-Zvi**, Healthcare Informatics Department, IBM Research Lab - Haifa, Israel

**Peter Smith**, Imperial College Business School London, United Kingdom

**Karl Swedberg**, Institute of Health and Care Sciences, GPCC, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

**Jan Törnell**, Institute of Health and Care Sciences, GPCC, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

## Content

<b>Content</b>	<b>2</b>
<b>Strategic analysis</b>	<b>4</b>
<b>Background</b>	<b>4</b>
<b>We Care project</b>	<b>6</b>
<b>Themes</b>	<b>6</b>
Themes close to the individual (Micro level)	7
1. Person-centred care	7
2. Prevention	7
Enabling themes (Macro level)	8
3. Information technology	8
4. Quality measures	9
5. Infrastructure, service delivery and organizational models	10
6. Incentive systems	11
7. Contracting strategies	13
<b>R&amp;D Roadmap</b>	<b>14</b>
<b>Vision</b>	<b>14</b>
<b>Output from WE CARE Conference</b>	<b>14</b>
<b>Consultations</b>	<b>15</b>
European Patients Forum	15
Advisory group	16
<b>Raising awareness and commitment among all stakeholders</b>	<b>16</b>
<b>Exploratory Health System Labs (EHS)</b>	<b>17</b>
Objective	17
Design	17
Expected applicants	18
Multiple different health care systems	18
Multiple disciplines	18
Duration	18
Funding	18
Execution and coordination	18
Added value from EU-level execution	19
<b>References</b>	<b>19</b>

## Executive summary

The cost for healthcare in the EU countries increases much quicker than the GDP and this development is predicted to continue. This might very well lead to an unsustainable and potentially dangerous situation since the fundamental principles of access to care for all citizens are at risk. However, just controlling costs without ability to embrace novel innovations and to, at least, maintain quality of care will result in that only those who can afford personal funding of quality healthcare will get access. This situation is rapidly emerging and it is imperative to act forcefully and decisively now.

The obvious solution is to combine cost containment with improved quality of healthcare. This is possible in other sectors and should be achievable also in healthcare. In fact, there exist many examples where better quality is combined with lower costs also in healthcare.

The EU commission acknowledges the fact that there was not enough attention for this challenge within the EU R&D Agenda and asked for the composition of a new R&D strategy and R&D Roadmap by EU Key players by a Consorted Support Action. In five workshops and one larger interactive pan-European conference well over 100 key players from over twenty countries engaged in a bottom-up process to identify a process and research areas whereby this challenge could be tackled. After careful consideration, seven themes were identified as critical to generate high quality healthcare at an affordable cost; Person-centred care, Prevention, Information Technology, Quality measures, Infrastructure/service delivery/organisational models, Healthcare structure/organisation, Incentive systems and Contracting strategies. Follow-up activities are necessary to further develop the knowledge that countries can use to conquer their challenges.

Thus, for the realisation of the R&D roadmap, several pathways will be explored and pursued. A distinction will be made between what can and need to be done on a National level and where the added value of the EU could support and give impetus. On a European level, examples of the following actions are: 1) A EU COST action will be applied for in order to maintain the network and to give impetus to the realisation of the R&D roadmap and prepare for actions that will lead to the organisation of R&D activities. Also, 2) the National Contact Points of the EU H2020 program will be approached to gain support for the initiative and to assess the potential of the H2020 instruments to support the execution of the R&D Roadmap.

Ultimately, a breakthrough in cost containment can only be realised by large scale testing. It could be realised, for instance by the realisation of “Exploratory Health System labs” in different parts of Europe to capture institutional, cultural-, healthcare practice-, funding- and geographical differences. In each lab all seven themes will be modified in an iterative way to establish the most stable, high-quality and cost-effective eco-system. Trying to work only on one or a few of these themes will inevitably lead to cost increase or tampering with quality in another theme. They all must be addressed simultaneously. It is absolutely vital that all relevant stakeholders support the experimentation and are active in driving the programme. Rigorous evaluations will generate transferable and broadly applicable solutions. Though initialised and executed on a national level, support from and coordination on the EU-level could lead to a more efficient approach and substantial added value to all European countries.

Such approach would be in line with the strong recommendation from the WE Care consortium, supported in the different meetings, and – among others – by the World Economic Forum in Davos that all research themes must be addressed in a concerted action. It also proves an opportunity for Europe to develop into a leader of how to tackle the fiscal challenges ageing brings to the global community.

## Strategic analysis

### Background

In 2006, the European Council agreed on several common values and operating principles that are shared across the healthcare systems of member states (1). These common values include universality, access to good quality care, equity, and solidarity. At that time, the common values did not explicitly address costs or affordability, although they are important issues in any system whose aim is to safeguard these common values. The European Council therefore stated that it is essential to make our healthcare systems financially sustainable in a way that protects these values into the future. However, health expenditure in all EU countries between 2000 and 2009 increased from 8.0% of the GDP to 10.0%, and in the “old” EU-15 countries alone from 8.7% to 10.6% (2).

The global financial crisis since 2008 has changed this situation in two ways. First, the focus shifted towards sustainability of health financing, which appeared on the policy agendas in virtually all European countries as well as internationally. Second, the financial crisis reverted the growth rates in health expenditure, at least initially. Because this was often achieved through short-term measures, such as cutting pharmaceutical prices, salaries, and hospital budgets, this trend is likely to reverse. The latest OECD projections (from 2013) of health expenditure growth until 2060 conclude that public expenditure on health as a percentage of GDP will more than double by 2060 if growth trends continue to be unchanged (“cost-pressure scenario”) (3). The societal and economic impacts of this development are enormous. Jeopardising the affordability and accessibility of quality health care for all EU citizens compromises the values European health systems are based on. The biggest challenge is to embrace the constant development of health care, to improve quality, and at the same time, to contain increasing costs. Such an endeavour should ensure that all EU citizens have equal access to future health care services.

Naturally, the topic has not escaped the attention of both researchers and policymakers. Approaches to address this issue are most often labelled “increasing efficiency” (such as changing payment systems towards capitation or diagnosis-related groups) or increasing “value-for-money” (such as economic analysis or health technology assessment, HTA). We argue that these actions alone will not lead to overall cost containment, although this is a common expectation held by most policymakers.

Reality often reveals that more “value for money” for individual technologies or patients is accompanied by higher aggregate costs of health care provision to European citizens. This increase is primarily caused by the reactive mechanisms in the entire healthcare system and its environment (4). For example, while the DRGs (diagnosis-related groups) increase the efficiency of inpatient care, they also translate into more unused beds and an incentive for hospitals to treat more patients and thereby contribute to an overall increase in expenditures (and threatening quality because of possible inappropriate admissions). Related to this problem is the issue to reduce “waste”, i.e. all not value-adding practices in patient care and administration. Berwick and Hackbarth have estimated that in the USA reducing only 30% of the waste would fully compensate for increases in health expenditures until 2020 (5).

The drivers behind the increase in cost are complex and not well understood. For instance:

- Demographic change (e.g. ageing) and increases in chronic diseases is a major driver of healthcare expenditure, but can by itself explain only a fraction of the increased cost
- Technological innovations play an important role and can lead to substantial cost reduction but can also lead to increased expenditure.
- Economic growth is an important driver of health spending.

- The health sector is highly fragmented both in terms of financing and delivery. Furthermore, it is organised along different sectors, disciplines and (with regard to R&D) diseases. Even though individual participants within the sector might consider the cost implications of their actions, many aspects, for example lack of co-ordination and a complex funding structure, hinder change and prohibit a breakthrough in containing costs.

Containing costs and improving healthcare quality are viewed in most EU-member states as conflicting aims. R&D and innovation within the health area over the past 20 years has led to significant improvements in healthcare in general but have not contributed to curbing costs or keeping healthcare sustainable and affordable. The biggest challenge is to promote the constant development of health care, to improve quality, and at the same time to contain increasing costs. Managing these apparently conflicting aims should facilitate that all EU citizens have equal access to future health care.

Therefore, in general, the challenge for WE CARE is to define a new Strategic plan and R&D roadmap that embeds clear and viable plans as to how science / R&D can facilitate a breakthrough in cost containment while, at the same time, improving the quality of care.

Innovations and improvements in most other sectors outside healthcare (e.g. computers, travelling, telecommunication, banking, entertainment, automotive etc.) often lead to increased efficiency and decreased costs. Healthcare is very complex with many inter-dependencies between different stakeholders, conflicting goals and dissociation between financing, delivery and use. The result is that innovations and improvements will not automatically lead to macro-level cost-containment. The key is to link innovations at the micro level (e.g. prevention or person centred care) to changes at the macro level (e.g. incentive systems and healthcare structure). When this link is successful innovations will lead to cost-containment and at the same time improved care and widespread appropriate implementation of the innovations.

The WE CARE roadmap proposes a new strategic plan that embeds clear and viable plans on what research, in a broad sense, can facilitate a breakthrough in cost containment while, at the same time, improving the quality of care. Due to the complexity of the health care sector, fundamental knowledge of institutional mechanisms, systems, methods and paradigms for change are needed. The challenge is enhanced by the fact that a multi-disciplinary approach is a pre-condition to change. The different scientific fields are too intertwined to allow for a mono-disciplinary approach. Cross-sectorial collaboration is therefore crucial in opening and supporting the innovative potential of non-health care disciplines to the benefit of the health care sector. This will require much better coordination, in terms of less fragmented research funding and in terms of collaboration among important stakeholders. Lastly, much larger research projects will be needed that not only prove cost-effectiveness of a certain intervention in a given setting, but also its cost containment potential on the macro-level.

## We Care project

How will a European high quality health care system – that can be afforded by society and still capture the inevitable societal, medical and technical progress – look like in twenty years? The FP7 funded WE CARE project coordinated the development of a new roadmap for Research and Development (R&D) towards 2035 to achieve a breakthrough in containing increasing health care costs while maintaining quality of care. The project challenged the European scientific community, policy makers and other key players within and outside the health care field to get involved and look into current R&D, recently implemented cost containment strategies, and barriers to implementation.

In a series of workshops this international joint effort has defined research areas with breakthrough potential and has created a new research agenda, in order to safeguard the quality and affordability of healthcare to all EU citizens. Five workshops in 2014 have explored the current and future healthcare climate with numerous international experts and stakeholders and formulated research questions connected to broadly supported concerns. The main focus of the workshops was to identify R&D gaps that would enable cost containment strategies allowing future innovations in healthcare to be captured and thereby securing the quality. The WE CARE workshops have resulted in the below presented themes and this R&D Roadmap. At the Conference in April 2015 the strategy was finalized and the R&D Roadmap containing the results and conclusions of the WE CARE project has been completed.

## Themes

In a series of five workshops themes that could enable high quality healthcare at an affordable cost were identified. This was done in a bottom-up process where key players in Europe were invited to submit ideas before the workshops and actively participate in refining these ideas at the workshops.

When analysing the prioritized outcome from the five workshops seven themes crystallized; Person/Patient involvement; Technology; Prevention; Quality measures; Infrastructure, Service delivery and organizational models; Incentive systems and Contracting strategies. It became clear that these themes could be divided into two categories; Innovative themes close to the individual; Person Involvement and Prevention- and themes of a more macro enabling nature- Technology, Quality measures, Infrastructure, Service delivery and organizational models, Incentive systems and Contracting strategies. In what could be described as a “Eureka moment” the We Care group realized that the themes are heavily inter-dependent (Figure 1).

The full impact and utilization of innovations/improvements close to the individual will not be realized unless they are linked to enabling changes at the macro level. Unless these links are established, potential cost-savings as a consequence of innovations will not be realized and innovations will not be adopted and diffused as a consequence of the lack of proper incentive systems and meaningful quality measures. The multi-sectorial composition of the WE CARE consortium makes it an ideal platform to identify these challenges and propose meaningful R&D questions.

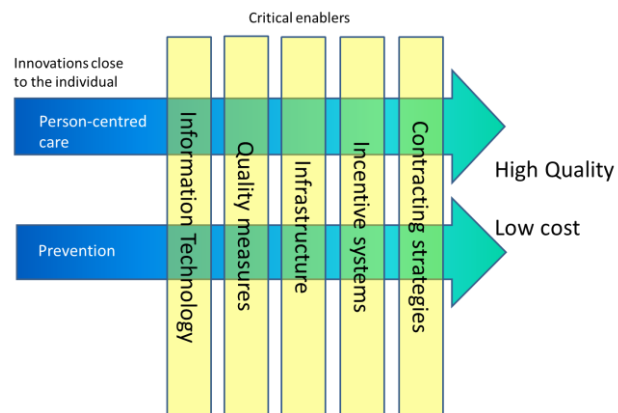


Figure 1 Interdependencies of the seven themes

## Themes close to the individual (Micro level)

### 1. *Person-centred care*

A critical challenge is to meet the complex and costly care and treatment needs of the already large and growing population of people with chronic, non-communicable illnesses. Such illnesses are characterized as a silent pandemic and are the leading cause of mortality accounting for 86% of deaths in Europe. In terms of burden of disease, chronic illnesses are responsible for 77% of the European healthcare costs. To be able to provide high quality affordable care that offers people the best possible quality of life, we need to rethink the relationship between the individual and the mechanisms that provide their care.

Society needs to support people to develop the knowledge, skills and confidence they need to more effectively manage and make informed decisions about their own health and care. Care should be coordinated and tailored to the needs and capacities of the individual and ensure that people always are treated with dignity, compassion and respect. Smaller controlled studies in shared decision making have already shown the opportunity for higher quality care with reduced costs.

Individualized care will be increasingly applied. However, while personalized medicine explains and predicts individual therapeutic outcome based on genetic or other phenotype variations, a person-centred approach to care can explain and predict individual expectations based on who the person is: their context, their history, their individual strengths and weaknesses. Research is needed on how to define and overcome hurdles in the development of individualized care based on not only personalized medicine but in particular person centred care. How can such individualized care be applied in different care structure and layers? Which are the societal advantages of a combined approach of personalized medicine and person-centred care?

#### R&D Questions

- 1.1 Study and modulate the patient's needs, abilities and expectations
- 1.2 Translate this into new care processes on a micro level attuned to the patient's needs, abilities and expectations
- 1.3 Demonstrate and validate these new care processes
- 1.4 Educate patients and professionals to share responsibility and improve care processes based on the outcomes
- 1.5 Facilitate the other R&D roadmap activities by providing a common patient centered approach

### 2. *Prevention*

Healthy living and early disease management are strongly related to prevention of certain events that can reduce the quality of life. The goal is to prevent, halt or slow the progress of disease, if possible, in its earliest stages. Intuitively, this would result in better health and lower cost, along the lines of "It is better and less expensive to build a protective fence than rescuing people who fell off the cliff".

Although it is acknowledged that prevention and early disease management is crucial for the development of future high quality affordable healthcare there are several obstacles at multiple levels to overcome. Research is also needed to prioritize the most effective preventive actions in terms of cost containment and improved health.

At the user level, there is a need for innovative forms of communication between healthcare professionals and patients to promote their active role in the prevention and management of disease. Knowledge on how to stay healthy physically and emotionally and the motivation to apply this knowledge over time is very different for different groups in society. A better understanding of these differences and challenges will help to develop tools and strategies to empower people to manage their health.

With new wearable technologies becoming widely spread and an increasing portion of population that is tech-oriented, there is an opportunity and need to rethink the role of individuals in maintaining their health. Together with the emerging of wearable devices connected to the 'cloud' and powerful cloud computing oriented to prevention and early disease management, increased social interactions are enabled. New connected communities can stimulate the awareness towards healthy living for different target groups even across countries and continent borders.

It seems there is a lack of political constituency for prevention although the topic is gaining attention at EU level. The development of further evidence on the effectiveness of prevention interventions and optimal design of prevention interventions that are not only cost effective but also dynamically efficient is required.

#### R&D Questions

- 2.1 Study the impact of prevention measures on societal value, perceived quality and actual cross care chain costs
- 2.2 Study the cultural aspect of prevention and viability of prevention long term
- 2.3 Develop insights in the viability of prevention measures, attuned to the (potential) condition, the perspective impact on costs and societal value
- 2.4 To develop a tool to integrate the most viable prevention measures in a new care model
- 2.5 To integrate the opportunities for prevention to the other R&D roadmap activities

#### Enabling themes (Macro level)

##### *3. Information technology*

In recent years, the data from patients has become much richer than in the past. Beyond a history of blood tests and physical examinations, it often contains information from various procedures such as imaging and genomic tests. If these "new" data could be combined with more classical measures (e.g. prescriptions, diagnoses, hospital admissions) deep knowledge could be generated. Assuming the challenge of securely sharing this "new" data is resolved, the next hurdle is how to leverage these vast amounts of data to bring about better care at lower cost. Improving how we leverage this data holds even more promise with the growing movement towards the "quantified self" and the large numbers of people who make use of wearable sensors. Not only is this exogenous data becoming available for leveraging, large portions of the population with access to the internet and smart phones are beginning to use applications that consume the data to provide insights that can help improve their health. An international data reservoir could be established and a benchmarking, analytical and cognitive computing system developed. This system could take a 360° approach to improve population prevention and reduce the burden of disease by gathering data securely and seamlessly not only from people with the disease, but also their family members, nurses, dieticians, general practitioners, specialists, care providers and the extended ecosystem.

The world is undergoing a significant change in computing methods. From traditional computing machines to cognitive computing machines, we are entering a new era in which computer systems



can interact with humans, understand language and react in an easy to understand manner. Artificial intelligence, machine learning, and natural language processing have moved from experimental concepts to potential business disruptors—harnessing Internet speed, cloud scale, and adaptive mastery of business processes to drive insights that aid real-time decision making. An example of the practical implications of this new computing approach is the novel IBM Watson platform that provides APIs to cognitive computing capabilities. Future healthcare applications can significantly benefit from these new approaches.

#### R&D Questions

- 3.1 Develop a framework to embed potential of technology to improve the ability of patients
- 3.2 Study the ability of patients to absorb new technology to supporting the patient's own responsibility, enabling care management and prevention (theme 1, 2 and 5)
- 3.3 Study to identify and utilize the benefits of information exchange, data processing and integration to allow for decentralized care and to improve quality (theme 2)
- 3.4 Demonstrate the ability to unlock the existing potential in technology (e.g. developed in FP7 H2020) in supporting the role (e.g. decision support) of stakeholders in the care process
- 3.5 Enable differentiation among new technologies that facilitate the basis for incentives (theme 6) to take up cost saving and quality improving technology

#### 4. *Quality measures*

While healthcare costs have increased (and continue to do so) there are doubts whether quality of care has increased accordingly. There is still the perception that there is poor value for money and resources spent on healthcare still does not result in high quality delivery of care.

Nowadays, despite the sensitivity of the issue, governments are forced to acknowledge a trade-off between the quality and quantity of healthcare services delivered to guarantee effective, affordable and accessible care to all citizens.

The task is to investigate how quality of care can be assessed in order to validate processes, tools, treatments in healthcare systems without undermining accessibility and affordability. In a few words, what are the dimensions and determinants that define quality of care?

In a broadly accepted definition, quality of care is defined as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”. This definition highlights several points such as that quality healthcare should produce results that the individual patients desire. Quality healthcare should also let individuals have their preferences met in terms of treatment options.

Quality healthcare services have to be:

- Effective, and improve health outcomes;
- Safe, and prevent avoidable harm related with care;
- Appropriate, and comply with current professional knowledge as well as meeting agreed standards;
- Involve persons/patients as key partners in the process of care;
- Efficient and equitable, and lead to the best value for money spent and to equal access to available care for equal needs, utilization and equal quality of care for all.

## R&D questions

- 4.1 Study the essence of perceived quality by the patient
- 4.2 Study how to integrate this in a quality measurement approach
- 4.3 To develop a generic quality measuring, evaluation and communication system
- 4.4 Study how to embed this approach in a new care model
- 4.5 Provide a basis for a care decision support system to be developed within R&D roadmap

### ***5. Infrastructure, service delivery and organizational models***

In order to promote health of the population within a financial sustainable health system it is important to identify optimal workforce skill mix and its distributional imbalances as well as optimal ways to organize service delivery, aligned with incentive systems, information systems and good governance practices to support them. These organizational models will ultimately contribute to improved efficiency and effectiveness in service delivery.

Currently health systems are still excessively hospital-centric, with healthcare largely built around an acute, episodic model of care, with overly biomedically-oriented services, with doctors being the key decision makers driven by technological and financial considerations.

There is still an excessive focus on specialist care that not only entails a high opportunity cost, but also and perhaps more importantly, does not facilitate the continuity of care required to address the increased prevalence of chronic conditions. Continuity, responsiveness and multidimensionality in care provision are critically important when managing chronic conditions. Consequently health systems tend to be ill equipped to meet the requirements of those with chronic health problems.

### ***Structure***

There should be further insight on the desirability of the re-orientation of service delivery from secondary to primary care in order to strengthen the role of primary care physicians as the key providers of care. It is often argued for the need for interventions capable of empowering primary care doctors to act as the managers of the health status of their patients by being the core provider of a comprehensive holistic range of services. This would be promoted by allowing primary care physicians more autonomy in service coordination and integration, as well as increased discretion in the control of financial resources and technology.

Primary care physicians are believed to be well positioned to enable within-sectorial and multi-sectorial collaboration enabling a platform for seamless integration of care crucial in the prevention and management of chronic conditions.

Health systems should also further explore the potential role of new types of providers such as community organizations, mutuals and charities in delivering prevention and community care. In line with this we ought to understand whether there is a role for markets in delivering these services and whether innovation can promote the optimal operation of such markets.

### ***User focus***

A second proposition for reform is a movement towards user focused provision of care with patient empowerment, increased choice of providers and the development of integrated care models.

These changes are crucial in addressing the increased burden of disease that is associated with the prevalence of chronic conditions. These conditions are not curable but require continuous management by different health care professionals, patients and caregivers who are pro-active in disease management, and the development of care plans that identify the institutions, professionals and processes that are best placed to intervene at critical points throughout the patient life-time to efficiently manage her health.

Such coordination will require health systems to invest in the development of new forms of communication between healthcare professionals, patients and informal caregivers in order to empower individuals and promote their active role in the prevention and management of disease.

### ***Financing models***

Health systems will also have to rethink their financing models in order to promote integration of care. It is crucial to understand the different incentives faced by the different providers of care within health systems (e.g. hospitals and community), and also institutions outside the health system (e.g. education and social care), to ensure that they are aligned with system objectives.

#### **R&D questions**

5.1 Study the integrated care process with the patient as a starting point (linked to theme 3).

5.2 Define and develop an integrated care model facilitating sustainable accessible health care in EU Member states

Integrating quality measurements (theme 4)

Embedding prevention (theme 2)

Providing options to implement technology (theme 3)

Be supported and stimulated by a dedicated reimbursement system (theme 6)

Aligning centralized and decentralized care infrastructure and services

5.3 Validate and demonstrate the new care model

5.4 To study the impact of the new care model of the care infrastructure

5.5 To study the impact of a transition to the new care model

### ***6. Incentive systems***

The difficulty to transfer innovations into an actual cost-saving approach results in a disincentive for payers to invest in innovations. It stimulates conservatism and underpins the *status quo*. Moreover, it frustrates engaged suppliers and public or private companies committed to the improvement of wellbeing through innovative products.

One of the main culprits for this problem is the existing incentive system in healthcare, i.e. how services, products, people (clients, patients, health professionals), care providers (e.g. hospitals), producers (pharmaceuticals, medical devices) and payers are incentivized, either monetarily or non-monetarily. Often such incentives are not well aligned, leading to incentives that make health system actors perform in a way that may conflict with the broader goals of a given health system. Although many of these incentives are system-dependent and vary greatly internationally, their interplay is often not well understood and some general challenges are visible across countries.

Incentive systems target the supply and demand side of the healthcare market. On the *supply side* these include mostly provider payment methods for health services and pharmaceuticals as well as the introduction of competition. These methods have proved to be instrumental in increasing the efficiency and possibly improving the quality of care. However, still little is known regarding its impact on cost shifting between different care settings (and therefore overall cost-containment and efficiency), the quality and access to care and the impact on aggregate service demand.

Pharmaceutical policies have to a large extent focused on the development of health technology assessment tools for the adoption of value for money drugs within the health system. These policies tend to disregard the adoption and diffusion of new interventions, the abandonment of older technologies, and the broader impact of innovation on the health system.

On the *demand side*, policies have mostly focused on: i) cost sharing incentives; ii) incentives for the uptake of insurance coverage; iii) demand management tools such as treatment guidelines and physician gatekeeping and formularies.

Cost-sharing has often been found to be effective in controlling short run expenditure. However this is at the expense of increased inequalities and consequent deterioration of health outcomes on the long run because patients with less financial resources may forgo necessary care.

Even though demand management tools have been widely implemented across health systems there is still little evidence on its global effectiveness and on the system-wide cost impact of such policies. For example, physician gatekeeping can lead to short run savings but may lead to poorer health status in the long run.

Also at the institutional levels there are incentive systems that are often not well researched and aligned with the macro goals of a health system. Clearly, most can be seen as a rational response and adaption to the existing external incentive system. But also institutional impediments exist that prevent adoption of new technologies and new care arrangements.

Lastly, an important precondition for implementing effective incentive systems is the availability of meaningful, valid, reliable and comparable data as well as measurement of performance and quality. However such data is often lacking and thus needs to be developed in parallel to any change in the existing incentive structures.

## R&D Questions

- 6.1 Study mechanisms that lead to inefficiency, in particular in relation to the reimbursement systems (meso to macro level)
- 6.2 Study reimbursement systems that facilitate change and encourage costs savings and quality improvements (micro to macro level)
- 6.3 Develop a financial paradigm that optimizes, self management, access to care and quality of care, while containing costs by minimizing inefficiencies, improving organization and support structure.
- 6.4 Develop incentives (micro to macro) that facilitate a transition to cost containment and improved quality of care while taking the whole care chain in to perspective
- 6.5 Develop incentives that facilitate a care system with a more flexibility, thus avoiding overtreatment and inefficiencies
- 6.6 Provide for input to contracting strategies
- 6.7 Provide input to facilitate sustainable transition

## 7. Contracting strategies

Purchasing contracts between payers and providers of healthcare to promote the adoption and implementation of innovations and monitor quality, fair access and cost containment is key to cost containment and quality healthcare.

There are several ways payers can contract with providers promoting a good balance between quality/accessibility and cost-containment:

- Capitation: providers get a fixed amount of money based on e.g. a) the characteristics of a population (number of elderly people etc.) or e.g. b) historical trends. The downside of this strategy is that there is no incentive for productivity.
- Fee for service and reduction of the prices: If this price-reduction reflects enhanced productivity the big question is how to avoid that the released capacity is turned into supplier induced demand
- Pay for performance: If the performance of care providers improves, costs are expected to go down. How do we avoid that the freed capacity results in supply induced demand and higher instead of lower costs. The conclusion is that besides outcomes, payers also have to focus on the procedures and on the appropriateness of provisions.
- Quality-contracts: If payers not only focus on prices and outcomes but also on procedures and the content of care, they run the risk that professionals will accuse them of interfering in medical decisions.
- Selective contracting can result in excluding those providers that offer suboptimal quality. But this easily results in scaling down the number of providers and into the building of monopolies in the field of providers. So selective contracting is weakening or undermining the very infrastructure on which it depends.
- Shared saving models intend to reward the innovative providers, but once again unless these providers 'get' more patients they still will have less turn over compared to their 'competitors' or the past.

### R&D Questions

7.1 Study the positive and disruptive mechanisms of contracts

7.2 Study the misalignment in financial involvement of the payer, patient, care system and technology developer

7.3 Pilot contracting strategies that incorporate incentives across the care chain and sectors that stimulate:

Quality (theme 4)

Person and patient centered care (theme 1)

Pick up prevention (theme 2)

Integrate care (theme 5)

Utilize the potential of technology (theme 3)

## R&D Roadmap

### Vision

In 2035 we will have a health care system that promotes equity and embrace innovation leading to higher quality of care at decreased costs. This can be enabled by the development of proper quality measures to guide incentive systems and professional contracting.

The individuals will be supported to take a greater control managing their own health and coping with disease. This will require cultural and structural change in the health care system welcoming personal engagement. This will also be enabled by the active use of technology to capture and share data on own health and disease susceptibility.

The link between innovations close to the individual and properly managed enablers operating within an optimal health care structure will drive appropriate use of the health care resources. Under- or over treatment will be prevented securing high quality care at an affordable cost.

### Output from WE CARE Conference

Over 100 EU key players accepted the invitation to attend the WE Care conference April 14-15, 2015, in Göteborg, Sweden. The participants represented in total 18 EU countries and 4 non-EU countries. During the two day conference the seven themes that had been identified during the five previous workshops were presented and discussed (see above). The format was very interactive with voting systems for immediate feedback from all the participants in the audience, interviews, panel discussions and a live Twitter flow. By using this interactive model and the very broad and senior profile of the participants we were assured that our conclusions from the previous workshops were properly clarified, developed and, to our satisfaction, strongly supported.

The conference was organised along the 7 themes described above. For the realisation of the R&D roadmap, several pathways will be explored and pursued. A distinction will be made between what can and need to be done on a National level and where the added value of the EU could support and give impetus. On a European level, examples of the following actions are: 1) A EU COST action will be applied for in order to maintain the network and to give impetus to the realisation of the R&D roadmap and prepare for actions that will lead to the organisation of R&D activities. Also, 2) the National Contact Points of the EU H2020 program will be approached to gain support for the initiative and to assess the potential of the H2020 instruments to support the execution of the R&D Roadmap.

**One very clear message that was delivered during the conference was that the seven themes must be addressed in concert, not individually (Figure 2). The themes as such may not be completely surprising or novel. What is new is that they must be addressed simultaneously to deliver both high quality healthcare AND manageable healthcare cost.**

It is recognized that such a concerted effort will be expensive and difficult to manage. This is why the WE Care consortium suggests both an activity to raise awareness of this challenge among policy makers and to establish a large program, "Exploratory Health Systems Labs", to experiment and develop the seven themes in an iterative and concerted way (see below).

This program needs an investment of probably around 100 Million Euro – which may sound much but equals only 20 cents per EU citizen or less than 0.01% of the annual expenditure on health care in EU – to explore the challenges and be able to produce actions for solutions. Previous attempts that failed have been the result of limited actions in only one or a couple of these themes. In such attempts, any cost containment in the involved institutions – or in one whole sector – will result in cost expenditure in other institutions or sectors. Thus the need for a large programme to address maybe the most important question for future health care for EU citizens was expressed by an overwhelming majority of the participants at the conference.

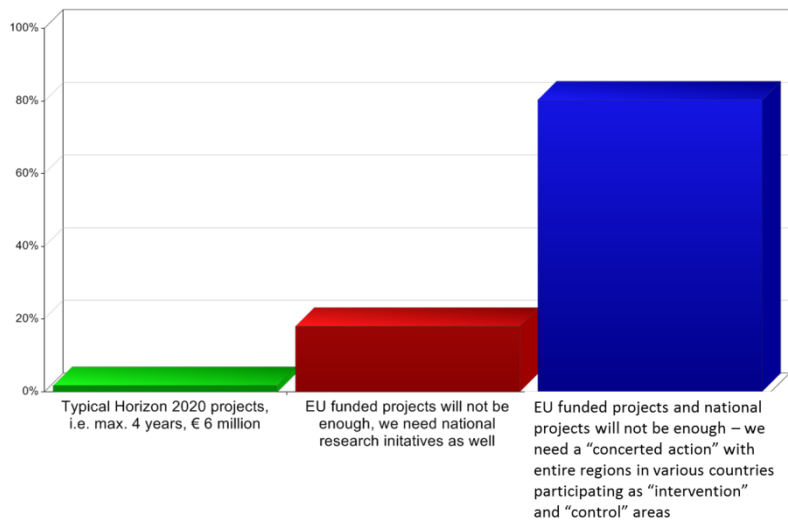


Figure 2 Response from participants at the Conference on what type of research activity is needed

A few preconditions are vital:

- A multi-disciplinary approach to overcome the problems of implementation of innovations i.e. collaboration between medicine, care science, health economics, health policy and technology sciences
- Cross sectorial interaction to overcome the barriers due to the fragmentation in the structure of the healthcare sector
- A collaboration including all relevant stakeholders, like patients and financiers, to approach R&D from a patient pull instead of technology/science push perspective.

## Consultations

### European Patients Forum

European Patients Forum (EPF) conducted a survey among their member organisations to collect feedback on the seven themes identified by the WE Care project. 58 questionnaires were returned and completed by 4 patients, 44 representatives of patient organisations, and 10 others, of which 4 identified themselves as family members, carers or representatives of associations working with family and/or carers. The responses came from 23 different EU countries.

Survey findings show a high level of consensus among respondents when agreeing on the proposed priority areas: Person-centeredness, Technology, Prevention, Quality measures, Infrastructure, Service delivery and organizational models, Incentive systems and Contracting strategies, and their components.

Among the seven R&D priority areas identified to improve healthcare systems in terms of sustainability, quality and accessibility in the We Care project, “**Person centeredness**” was the area that received most of the positive opinions from those who selected it as a priority (58, in total). The

number of those who rated it very much as a priority was much higher than the number of those who consider it only a priority. The statistical analysis showed that variation of answers between the 5 options was very low, with all answers being distributed between “very much” and “much”. With this information, we can conclude that the respondents strongly believe that person centeredness should be a top R&D priority area identified to improve healthcare systems in terms of sustainability, quality and accessibility.

The following three priority areas received mostly positive responses from those who answered (58 for each of them):

**Prevention**, which was only positively to neutrally considered as a priority (no negative responses). The variation of answers was very low and showed the preference of respondents to consider prevention “very much” as a priority.

**Infrastructure, service delivery and organisational models** and **Quality measures** were mostly positively considered, with only one respondent for each priority emphasizing on the negative response (“not much” of a priority). However, further analysis of the data showed that variation of answers was low, most of them being distributed between “very much” and “to a certain extent” as the selected priorities.

The other three priority areas: “**Information technology**”, “**Incentive systems**” and “**Contracting strategies**” were considered mostly as “much” or “to a certain extent” as R&D priority areas identified to improve healthcare systems in terms of sustainability, quality and accessibility. The answers were unevenly distributed between positive and negative answers, with more respondents choosing the positive ones.

If we are to draw a conclusion on the consideration of the 7 priority areas, “Patient-centeredness” should be emphasized for reaching a high level of agreement among respondents of the experts’ choices during the consultation meetings.

### Advisory group

The advisory group support the aim that healthcare cost cannot be contained or decreased if not the quality of the healthcare at least can be maintained. The WE Care analysis that the challenge must be met through addressing multiple themes in a concerted action is supported. At the same time some members of the group acknowledge the challenge of such an ambitious study. It is emphasized that all relevant stakeholders (e.g. healthcare delivery, patients, payors, professionals, policy makers) all support and are a part of such a concerted study.

### Raising awareness and commitment among all stakeholders

The We-Care consortium presents a R&D strategy plan and an R&D roadmap that advice the actors inside the EU, i.e. the EU Commission, Member States, industry and NGOs, to “think big” when setting-up research in this area. While EU-, national-, industry- and NGO-funded projects in any of the seven themes outlined will be useful to increase the necessary knowledge, many of the interdependencies between themes and sectors within the fragmented health systems will require to tackle them in a manner which is both innovative and – at least initially – expensive, i.e. probably around € 100 million. Although a substantial amount in itself, it is a very small but attractive investment compared to the challenge at stake. With an EU healthcare spending of approximately €1.000 billion per year, a 1% saving would lead to a saving of € 10 billion, thus annually 100 times the total amount that would be allocated to this road map. An analysis shows that the health care



system is the most inefficient sector of all analysed (above 40%) but at the same time has the biggest potential for improvement (Figure 2; 6). A 1% saving is likely to be a major underestimate – and localized experiments such as “Gesundes Kinzigtal” in south-western Germany have realised savings of around 5% within a few years.

Since the magnitude of the proposed research program is very large (but small compared to cost for inefficiencies and individual suffering of inadequate healthcare) it will require influencing at the highest level, both in EU and at a national level. This would need to be executed in multiple ways. Scientific reports, raising awareness in national and international press and building on the strong multidisciplinary network already formed in the WE Care consortium. Meetings with key stakeholders will be absolutely critical (e.g. national highest-level policymakers, members of national and EU parliaments, commissioners, senior representatives at the EU commission, Program Committee members, patient organisations, public organisations, etc).

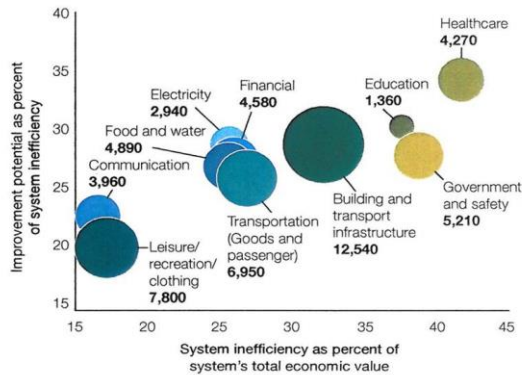


Figure 3 From IBM Institute for Business Value, January 2010.

This raising of awareness and maintaining the strong network established through WE Care could be partly funded from e.g. COST.

## Exploratory Health System Labs (EHS)

### Objective

-To through an iterative process design, optimize and evaluate a new healthcare system delivering high quality care at an affordable cost. This will result from optimizing all relevant parameters (including the seven identified themes above) simultaneously in controlled multifaceted studies.

In particular, answers to the following questions are expected to be available after completion of the EHS programme:

- What is the optimal design, considering cost containment and quality of care, of a health care system taking all the seven dimensions mentioned above into account?
- What geographical/cultural adoptions can be suggested based the geographical/cultural diversity built into the programme?
- What can be the savings for healthcare?
- What can be the gains in healthcare quality?
- What is needed to implement this (these) Healthcare systems across Europe?

### Design

The proposed approach to be used is inspired by design thinking. Central to this practise is to create enclosed, miniature healthcare systems limited to well-defined geographical areas. Within these miniature healthcare systems, which we call “Exploratory Health System Labs; EHS”, new healthcare systems will be designed, explicitly taking all relevant actors as well as their interrelationships into

account, thereby avoiding the trap that perceived benefits in costs or outcomes in one area are outweighed in another.

## **Expected applicants**

### ***Multiple different health care systems***

Five of these health system labs will be set up across Europe and prototype completely new ways of conducting healthcare. The labs should run in parallel to be able to learn from each other and, optimally, the labs should have some features in common while differentiate from each other in other aspects.

The national states have responsibility for healthcare and this has resulted in diversity. These differences are an opportunity to learn and share practice that can be applied as appropriate. It is therefore desirable that the five health system labs are located in member states with different health care systems.

### ***Multiple disciplines***

It is absolutely vital that all relevant stake holders are involved in setting up and driving the health systems labs. This implies that the applications for this grant must involve all relevant stakeholders (e.g. patient groups, health care providers, health care staff, clinical science, policy makers, insurance companies, technology providers, health economy experts, information system experts, etc)

## **Duration**

Typically, a lab would run for five years. During the first three years there is a period of experimentation, iteration and learning to make the new healthcare system function well. To evaluate the outcomes on utilization and costs, patient and professional experience, and ultimately health in a methodologically solid manner, each lab will be evaluated using an area outside the labs, which is comparable in terms of population and health care provision (but without the innovation developed in the lab) as a control for the last two years.

## **Funding**

Each Exploratory Health System Lab will be complex and, although confined to a specific geographical area, a large undertaking. Multiple fundamental changes will have to be implemented and tested. During the first three years an iterative process will be used to changes multiple parameters. During the last two years significant effort will be used to measure and compare the performance (quality and cost) of the EHS to its control site. To run each EHS an annual budget of 4 M€ is estimated (assuming a population of 400,000, this would equal to € 10/ person or 0.5% of expenditure). With 5 EHS running for five years and some budget for co-ordination and cross learning a total budget of approximately 100 M€ is calculated. This is also expected to cover costs for the five control health systems, especially (1) the start-up and investment costs and (2) the evaluation costs in the EHS and the control. It should be noted, however, that – if successful- healthcare in the EHS areas will already be cheaper in years four and five, i.e. set-up costs can be recouped even within the five-year period (cf. the Kinzigtal experience and its 5% saving). To finance the EHS labs, different sources should be used, e.g. EU funding could be used for the evaluation (as benefits stretch far beyond the actual EHS areas) while set-up costs could be contributed from national public sources, industry or NGOs.

## **Execution and coordination**

The five EHS will each be run by a local Steering group consisting of representatives for all relevant stakeholders. The whole project will be co-ordinated by a Master group consisting of the chairs of the five EHS. To facilitate cross learning on a more technical/disciplinary level cross EHS groups will

be formed as appropriate (e.g. a Cross-EHS Information systems group or a Cross-EHS Quality measures group).

An external Reference Group will be appointed to gain input on the overall direction of the programme.

### **Added value from EU-level execution**

The obvious advantage of executing the programme cross 5 partially diverse centres in different EU countries is the opportunity to rapidly learn cross healthcare systems. When properly co-ordinated the speed, quality and effectiveness of running 5 diverse EHS will be superior to running just national projects. The challenge of increasing healthcare costs and the resulting unequal access to healthcare to EU citizens will lead to an unsustainable and potentially dangerous situation in the not distant future. This challenge is universal cross EU- countries and the solution can only be found in a universal collaboration.

## **References**

1. Council Conclusions on Common values and principles in European Union Health Systems. 2006. [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52006XG0622\(01\)](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52006XG0622(01)).
2. WHO Regional Office for Europe. Health for all database. 2014.
3. OECD. Public spending on health and long-term care: a new set of projections. OECD Economic Policy Papers No. 6. Paris: OECD; 2013.
4. Busse R, Van Ginneken E, Normand C. Re-examining the cost pressures on health systems. In: Figueras J, McKee M, eds. Health systems: health, wealth, society and well-being. Maidenhead: Open University Press. ; 2012: 37-60.
5. Berwick DM, Hackbarth AD. Eliminating waste in US health care. *JAMA* 2012; **307**(14): 1513-6.
6. Value. IIfB. The world's 4 trillion dollar challenge, Using a system-of-systems approach to build a smarter planet. Somers, NY: IBM corporation, 2010. ; 2010.