

Dignity first – priorities in reform of care services (Sweden, 26-27 September 2013)¹

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1. Introduction

Population ageing and shifting morbidity towards chronic diseases challenges public budgets for health and care services in next to all industrialised countries and will continue to do so in the foreseeable future. This statement was already true before the onset of the current and regrettably rather persistent economic crisis, and the development since has only highlighted the need for measures improving the long-term sustainability of the sector.

Traditionally, health care as well as long-term care have been seen to suffer from the so-called Baumol's cost disease, meaning that efficiency improvements are hardly achievable due to the very personal type of service. But in order to be able to attract a sufficiently large share of the workforce, wage increases exceeding efficiency increases have to be granted and provision of these services gets more costly. Identification of potential efficiency reserves therefore is attaining paramount importance and using them to full capacity can be seen as an obligation. This is the point where rather recent developments in medical technology join the picture of financial sustainability. After decades when medical technology used to provide mostly product innovations (which tend to add ever more costly items to the range of medical products), certain technologies including information and communication technologies promise to shift the focus to process innovations (which tend to make existing products cheaper or provide improvements over existing products without adding costs). The mechanisms how efficiency is to be achieved include early detection of symptoms and avoidance of more costly treatments, reduced duplication of services due to shared knowledge, and reallocation of simpler tasks to less educated actors.

At the same time, generations approach retirement age that are expected to pose higher demands with regard to levels and quality of health and care services to public welfare systems, compared to their parents. After public discussions due to poor service quality in some countries, worries over quality of services closely follow worries over the financial long-term sustainability of care. Consequently, policies to boost quality of care were asked for. But raising quality requires identification of the concrete problems, which in turn requires an evidence base. Collecting the underlying data as well as developing a suitable design require large amounts of resources. This is the second point where technology joins the picture: information and communication technologies promise possibilities to achieve these goals with far more efficiency and precision than former generations of social researchers may have expected.

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This summarises essentially what this paper aims to discuss: how can we improve patient centeredness and quality of services in a way that does not pose further challenges to the long-term financial sustainability of the health system, and especially of the long-term care system, and how can we use medical technology in order to achieve this goal. The broad coverage of the term medical technology on the one hand, and the limited length of a single discussion paper on the other hand necessitate focusing on selected sub-topics. In accordance with some elements of the Swedish reform presented at the Peer Review, we chose to focus on medical technology related to home-care, after some general observations on medical technology.

To provide a background, in the following sections of this chapter we want to briefly summarise some challenges but also some opportunities that health and care systems are facing.

The challenges ahead

Apart from the well-known challenges arising from a rising share of older persons in the European population, a number of further challenges are particularly noteworthy in the context of this peer review:

- Users of care services demand more voice and control over their lives. “Baby boomers” expect higher quality of care services than former generations used to do, will expect to remain more autonomous and continue to take part in society, despite their condition. This will require a more densely woven net of supporting services, and even more so if the network of (younger) informal supporters of older persons is going to be thinner, mostly for well-known demographic reasons.
- With 1.6 per cent of GDP, public expenditure on long-term care is still relatively small in the average OECD country, compared to public expenditure on health with 6.8 per cent. But public long-term care expenditure has been growing faster than public health expenditure. Between 2000 and 2010, the annual increase of per capita expenditure was 9 per cent for long-term care and 4 per cent for public expenditure on health, averaged across 25 OECD countries (OECD 2013a) Taking into account only the impact of an ageing population, public expenditure on long-term care across the EU is projected to almost double until 2060 (European Commission 2012). Taking into account that some cost and coverage convergence between countries will take place, and that societal developments make a larger role of formal care quite likely, there seem to be good reasons for the actual development to get ahead of these projections.
- The impact of the current economic crisis on health expenditure is clearly visible, thus stressing the urgent need to make use of all available efficiency resources in the health and care context. National health budgets have adjusted to more austere spending regimes and health expenditure remained flat in 2011, after a sharp fall in 2009 and 2010. Thus the average annual growth rate of almost 5% during 2000 to 2009 has been reduced to about 0.5% in 2010 and 2011. (OECD 2013b) Reduced expenditure growth is welcome in so far as it has been achieved by exploiting efficiency reserves. But part of reduced growth of public expenditure arose from increased private expenditure, which needs to be observed with regard to access of care. Concerning long-term sustainability of financing, it is worrisome that for several countries OECD reports a relative decline in spending on prevention and public health, in spite of rather low spending in some countries even before. Even though the usual reservations regarding definitions and comparability of data apply, several critics would favour higher importance of smart prevention and public health policies as these can have a potential to reduce future health and long-term care expenditures.



The opportunities

Health and long-term care systems need to be adjusted to better accommodate the needs – but also capacities – of modern populations which are characterised by a shifted composition with regard to demography and morbidity. Therefore, specific policies and programmes need to be designed, involving innovative new approaches, taking full advantage of technical solutions making care easier, more efficient, and sometimes even prevent the onset of care needs. Therefore resources need to be re-allocated to areas where the largest long-term benefits for the population can be achieved. Medical technology seems to be an important sector where additional resources can be used to make health and care provision more efficient. This is no contradiction to increased quality of care, as efficiency improvements are assumed to stem often from improved quality, like better targeted care due to better information or avoided hospitalisations due to improved monitoring of risk parameters.

With the reforms enacted over the last years, the Swedish government aims at tackling these issues in a comprehensive and multi-faceted way, interlinking health and long-term care policy with other areas of social welfare:

- An age friendly society is designed in a way facilitating older persons to cope on their own and delaying needs for more extensive care, while securing accessibility to services. It is a question of dignity to involve patients also in identifying and designing necessary developments.
- Recognising that most older people will remain in their place of living when they start to receive more intense social and medical care, municipalities are obliged to provide for adaptation of the home if necessary. This is also an important contribution to reduce the likelihood of falls, because fall-related conditions often trigger the onset or aggravation of care needs.
- A recent law promotes free choice of providers for users of public services, accompanied by regulation facilitating market entry also for commercial providers of care services.
- Considering high employment rates also among women and already high levels of family support for older persons, it is unlikely that the demand for qualified staff in the health and care sector will lessen. Therefore, Sweden continually increases the share of staff with adequate training and allocates more financial resources into research on care.
- At the same time and partly due to specific tax reductions for customers, also the market for household services is growing. This contributes to job creation for people with a lower level of formal skills.

2. European context

EU Context

Long-term care and health are one of the three strands of the **open method of coordination in social protection and inclusion** (Social OMC). The EU objectives for this Social OMC renewed in 2011 corroborate the three main goals of good access, high quality and financial sustainability (Social Protection Committee 2012). This Peer Review clearly links into these objectives as patient centeredness is contributing to both, better access and high quality of long-term care systems.

Europe 2020 is the EU's growth strategy for this decade. In a changing world, the aim is to make the EU a smart, sustainable and inclusive economy. A key objective of the Europe 2020 Strategy is to develop more efficient health, long-term care and social services for the ageing populations and support social innovation and social inclusion of older people. Measures aimed towards this objective will support cost-



efficient health systems, thus containing public spending on health and social services due to population ageing.

The EU's new **Social Investment Package** (SIP) gives guidance to Member States on more efficient and effective social policies in response to the significant challenges they currently face, including the combined challenge of ageing societies and smaller working age populations. The SIP focuses on ensuring that social protection systems respond to people's needs at critical moments throughout their lives and at developing simplified and better targeted social policies.

2012 had been proclaimed as the **European Year for Active Ageing and Solidarity between Generations**, and to support these issues a series of projects were launched, like I-DONT-FALL (which will elicit best practices for tailoring fall management solutions to specific risk factors, root causes and users'/fallers' needs), or SOCIALIZE (which concentrates on technological advancements to help older citizens against the current stereotype that older people reject technology).

In order to make better use of new technologies for the specific needs of an ageing population, the European Union activated a series of initiatives, like the Ambient Assisted Living Joint Programme, the activities on information and communication technologies (ICT) for better Healthcare in Europe, the e-inclusion Programme from 2011, or the activities of DG REGIO on good practice on ICT and Ageing solutions.

The Swedish approach

The Swedish approach to tackle the care needs related to an ageing population are multifaceted:

- The combination of a youth guarantee for good education and employment conditions and step-wise extensions of retirement age foster high employment rates as a backbone to financial sustainability of the welfare system;
- The combination of increased training for formal carers and increased support for family carers broadens the human resources available for care tasks;
- The focus on re-designing the general environment but also people's homes in an age-friendly way raises self-sufficiency of older persons;
- Wherever possible, Swedish policy tries to follow a person-centred approach. This refers to identifying concrete individual needs, involving persons better in decisions, and offering them a choice of services;
- The government tries to prepare the necessary pre-conditions to make full use of the opportunities offered by modern technologies. This includes also better research conditions by providing e.g. disease-specific data bases (registers).

3. International approaches

Last but not least triggered by the performance report of the World Health Organization, words like consumer orientation, patient-centeredness or responsiveness are increasingly part of national reform agendas for health and care systems. This re-orientation along the needs and preferences of the population to be cared for was parallel to and part of the rationale for **decentralisation** in the health sector, while in the long-term care sector the level of centralisation never had been as high as in health care. Meanwhile, however, it became obvious that decentralisation often leads to inefficiencies, fragmented revenues and increased regional inequalities. As a result, decentralisation in provision was complemented by (re-)centralisation, particularly with regard to quality issues and standards of care. The recent economic crisis added momentum to this wave of re-centralisation. Now governments in several countries foster mergers and cooperation of various



kinds in order to reap efficiency advantages. Such efforts were recently directed at so diverse institutions as Finnish municipalities, Greek health insurers, and Hungarian health research institutes (Horstmann 2012).

3.1 Quality²

As quality of services got into the focus of social policy in industrialised countries, the necessity to define and consequently **measure** quality arose. This process started earlier with regard to health services, while long-term care has been lagging behind developments in health care. While only few countries do not yet have some sort of national strategy for measuring the quality of health care provided, quality measures for long-term care are often still in their infancy. Challenges related to developing quality measures for long-term care are related, but not identical to those for health care:

- The main focus of quality in long-term care settings is not so much on improving the overall health status, but rather, where possible, on reducing dependency and disability and otherwise on slowing down the process of deteriorating health. This is so because not only health status but also the autonomy of most persons in need of long-term care is likely to worsen with age.
- As care is an on-going process and by definition of long duration, it is hard to choose the proper starting and ending point for measurement.
- Long-term care is a complex mix of social and medical care services, often involving navigation across care settings and use of various professionals with diverse qualifications. Reflecting inter alia the coexistence of different forms of care settings, there are also different forms of care provision, and practices are less standardised.

In spite of these challenges, some countries are already collecting and reporting national quality indicators on care effectiveness and safety, the choice of indicators often being influenced by what data is available. LTC quality reports use different data sources. The most important are:

- **Standardised assessment results.** Information from standardised assessment is used e.g. in North-America and some European countries to measure needs of long-term care users and then generate indicators of quality of care. Where similar definitions and designs are used, such data can allow cross-country comparisons.
- **Administrative databases.** These are generated from claims or discharge data, inspections, or mandatory reporting of a minimum set of data from providers. Audits and inspections can also contain useful information on structural inputs, staffing, and sometimes also on care effectiveness and safety.
- **Registers.** A few OECD countries have registries for LTC users, with Sweden probably having the largest experience in this field. In 2007, there were 56 national quality registries in health care (Swedish Association of Local Authorities and Regions 2007). Several of the Swedish registries are focussed on long-term care, such as the Senior Alert registry that gathers individual data on falls, pressure sores and malnutrition; the palliative registry and the dementia registry. The Norwegian national registry of statistics for nursing and care services includes indicators on the use of restraints of nursing home residents and is used to inform decisions regarding the planning of services.

² This section relies mostly on OECD (2013a). It could easily be argued, of course, that patient-centeredness should be a subcategory of quality as in OECD (2013a), not the other way round as presented in this discussion paper. The structure used here was chosen to better accommodate the overall focus on "dignity first".



- **Ad-hoc surveys of facilities or individuals.** In some cases, questionnaires include topics related to quality for specific conditions monitored in the study, mostly dementia, end-of-life care and elderly.

Certain sources have specific advantages and disadvantages. Administrative data on claims, for instance, can be rather readily available for the complete population in many countries, but are designed to satisfy other purposes and therefore do not necessarily contain the relevant information to design efficient quality policies. Furthermore, the specific purpose (financing) can make them prone to bias (like gaming, upcoding of DRG-type information) unless counter-measures are implemented. A draw-back of ad-hoc surveys is often that they are neither comprehensive, nor comparable over time, which would facilitate to detect developments.

The analytical frameworks most often used to describe quality in long-term care link quality with structure, process and outcomes of care and thus basically rely on the approach known from other fields like health care. Traditionally, first efforts have centred on measuring inputs such as staff to care-recipient ratios, but recognition that outcomes make a better basis for measurement has grown over time.

One can identify three groups of **policies** and instruments to drive quality in long-term care:

- **External regulatory controls** to safeguard and control quality, typically focussed on inputs via minimum standards and ideally but by far not always enforcing compliance. Regulatory standards are quite common for nursing homes. But details of assessment and inspection processes are typically kept confidential by regulators and are not necessarily diffused publicly. National accreditation bodies can be public or private independent authorities, although most often they are public bodies.
- Standards to normalise **care practices** in desirable ways, and monitoring of indicators to ensure that care outcomes match desired objectives. The care process is increasingly being included into coverage of accreditation requirements. Other countries require the use of quality-management systems at the organisational level as part of minimum standards. It is often up to the organisation to choose which specific system to apply. Even though such systems aim at enhancing care processes and improve care outcomes, it needs to be kept in mind that they require extensive paperwork and bind resources, which can ultimately lead to higher costs.
- **Market-based incentives** directed at providers and at users, including financial incentives and competition between providers by using some kind of performance measurement. Due to attempts in several countries to strengthen competition via choice, public reporting on quality becomes an issue in order to provide a sound information basis for consumers, but also for purchasers of care (like commissioners in England). Depending on the regulation of the respective country, public reporting can be mandatory (e.g. England, Germany, Netherlands) or voluntary (e.g. Finland, Spain) and varies with regard to content. The general trend is to move beyond structural inputs like information on staffing and care environments (beds, services) and focus on patient centeredness (e.g. meal choice, social activity) and clinical effectiveness (e.g. rate of falls). Compared to the health sector, only few countries have already introduced performance-related payment systems to improve quality of long-term care.³ Interesting examples are found e.g. in Sweden, where since the 2009 reform payment for municipalities is linked to quality measures like avoidable

³ For a discussion on financial incentives for users of care, see section on choice.



hospitalisations for chronic conditions, and in Denmark where municipalities have to contribute 20% to hospital costs. The little evidence available e.g. for some US states provided mixed results so far.

Typically, OECD countries first introduced legislation to encourage safety and care effectiveness, and strengthened regulatory oversight of clinical quality of care. Only recently they have sought to empower users to choose providers and services based on some measure of care quality. But to date information on only few experiments and even less evaluations of such experiments are available, so that it is not yet clear which approach is the most appropriate one to improve and secure quality in long-term care.

3.2 Use of modern technology in home care

Classifications of technology

Before we start out to discuss which impact modern technology can have on care processes and how different stakeholders may be affected, it is useful to remember where the essence of technological progress lies. Technical progress does not consist solely of the invention of a new product or procedure, but consists typically of three elements: First the invention (the creation of a new idea, product or process); second the innovation (the first successful application of this new idea), and third diffusion, which includes application or use of the new product by a broader group of customers. Developments which get stuck at the first (invention) or second (innovation) step, by definition will lack the power to contribute to a new landscape of service provision.

Medical-technical progress aims at improving or replacing health or care products, thus improving the ratio between inputs and outcomes. Therefore, it is not given from the beginning that every medical innovation – even when having reached a certain degree of diffusion - necessarily can be classified as medical-technical progress, as Table 1 illustrates. Achieving improved (fields 1, 2, 3) or at least not lower (field 4) health outcomes compared to usual care standards constitutes a necessary precondition for the classification as technical progress. But this precondition needs to be accompanied by reduced resource requirements for the production of these goods or services. In cases as in field 3 or 7 a quantitative analysis will be necessary to clarify whether improvements in health are large enough to justify the additional expenses (field 3) or losses in health are small enough to justify saved resources (field 7). In more technical terms, if marginal utility exceeds marginal costs, the innovation represents progress. Innovations that leave the amount of resource consumption and the level of outcome unchanged (field 5) do not represent progress, but can be viewed as enlarging the choice between variants of available supply. This kind of innovation gained more importance during recent years (e.g. in the context of life style related medications and beauty surgery), and in light of the classification applied here discussions on the justification of public financing of such products are understandable.

This classification of innovations is not without problems as it relates to classical questions in health economics: How can we measure output/outcome, and how should we treat multiple or more complex outputs/outcomes? Is there indeed a direct relation between inputs and outcomes, or is it blurred by other (e.g. socio-economic or behavioural) factors? We nevertheless think that this classification is helpful to analyse the relation between technology and care.



Table 1: Which innovations can lead to technical progress?

	Reduced input (labour, capital)	Unchanged input (labour, capital)	Increased input (labour, capital)
Improved outcome	1 progress	2 progress	3 Analysis needed
Unchanged outcome	4 progress	5 Increased choice / broader supply	6 No progress
Worse Outcome	7 Analysis needed	8 No progress	9 No progress

Source: adapted from Sachverständigenrat (1997).

Another useful classification of available technological solutions distinguishes between **devices and aids** on the one hand and information and communication technology (ICT) on the other (Rossi Mori 2012). A wide range of devices and aids is already available and can be used to replace, maintain or improve a person's functional abilities, assist the delivery of services or facilitate communication with distant relatives, other patients or formal carers. Devices usually have functions tied to a particular problem in a well-defined context; their impact is therefore necessarily limited. Even though they may serve different purposes, they typically have a number of things in common: They are miniaturised, portable, often connected to a PC or a mobile phone; they are (already) relatively user-friendly, considering also the likely use by informal carers; they can be produced on a large scale, thus allowing for lower prices.

Information technologies on the other hand are inherently flexible and pervasive, able to manage acquisition, storage and sharing of data, information and knowledge for different purposes in the delivery of care. This feature facilitates the coordination of providers, but also managers of care, and integration of services no matter whether in the health or in the social sector. ICT can link the different actors (patient, informal and formal carers, managers), and process data from a growing number of devices. Once it has reached a critical mass of solutions, ICT promises the potential to trigger synergy among them, with an ever-increasing systemic effect, giving a new value also to (smart) equipment and devices.

But the introduction of 'systemic' ICT solutions involves large-scale organisational transformations and high-level strategic decisions as well as the power to convince all necessary stakeholders to participate. This is necessary because the greatest impact is believed to come from the coordination of actors across and within the various facilities.

In the following, we want to discuss applications of and chances related to the diffusion of ICT related to home care. We chose sub-areas considering where promising applications are already available and where relevance in terms of numbers of affected persons is high and forecast to rise.

Use of ICT to promote independent living

The CARICT project focused on the question which impact ICT can have on persons in need of care, but also on formal and informal carers (Carretero et al. 2012). The project identified 12 examples of good practice in Europe and North America, for which also sufficiently good and detailed information is available. The examples span a wide range of ICT applications, including e.g. "Just checking", an electronic monitoring system providing objective, reliable and continuous information about



the movements of people who are unable to give an account themselves (England), "Cuidadoras en Red", a social network for family carers, social-care workers and private care workers in the Malaga region (Spain), or IPPI, a TV and telephone based communication tool for older persons in Sweden. Most examples have a focus on information and learning, many on personal support and integration. Less than half were classified as supporting independent living and even less as contributing to care coordination.

Cross-analysis of the 12 initiatives showed that ICT-based services can have a positive impact on:

- The quality of life of the informal carers, helping them to reconcile care and work, and improve their social lives and health conditions.
- The quality of life of care recipients, improving their health-related quality of life and their social lives.
- The quality of care provided by informal carers and paid assistants, raising their knowledge of caring, and their related skills and competences.
- The cost of care for the end-users, generating savings compared with ordinary services. This was found especially for rural areas where face-to-face participation in support groups or educational activities would require considerable travelling time.
- The acceptability and accessibility of ICT, as users are more willing to use ICT, get more satisfaction from doing so, acquire digital competences and use ICT materials more often.

The CARICT team derived the following key success factors related to the development and implementation of ICT-based services for informal care:

- The involvement of end-users, persons in need of care as well as formal and informal carers, as active players in the design of services, complemented by training in digital and care services competences. This involvement was relevant not just in the early stages of service development but also in the continuous improvement and renewal of services.
- The progressive integration of an ICT-based service for informal carers in the formal long-term care system. This contributes to the creation of a new value chain of provision of care services, because it empowers formal and informal carers and older persons as active and collaborative actors in long-term care;
- The cooperation among a broader set of stakeholders, including also innovation and service developers (like universities, entrepreneurs) and non-profit organisations (carer and patient organisations, volunteer organisations). The engagement of non-profit organisations and of volunteers was identified as especially relevant for the success of several initiatives. Long-term care in many countries relies on the work of volunteers, often coordinated by NGOs or local care services. 'Expert' volunteers such as young people were engaged to train older people in IT skills; or worked in telecare as 'god-parents', making regular calls to particular old people. Volunteers thus brought skills and time, but required training.
- The formation of new value chains to provide care, where different kinds of stakeholders act as intermediaries in the delivery chain of ICT-based services for informal carers.
- The exploitation of existing ICT and digital inclusion infrastructure, which includes general ICT infrastructures as well as such specifically relating to health and care.
- The development of policies to help decision makers and providers with different functions at multiple levels. A strong regional or national policy leadership to put



in place long-term strategic change programmes that incentivise local care organisations, NGOs and private firms was shown to be effective. Public funding was important for the setting-up of these services and at different points of their development and implementation process. Coordination of public funding to cover the various stages of development, and help leverage private funding into the process was seen as particularly important. Also funding R&D to customise services for special target populations and evaluations highlighting systemic savings associated with these services were found to be influential.

Use of modern technology in home care: the example of dementia⁴

Alzheimer's disease (AD) is the most common cause of dementia. In 2006, the worldwide prevalence of Alzheimer's disease was 26.6 million. It is estimated that by 2050, the prevalence will quadruple, and 1 in 85 persons worldwide will be living with the disease. Further estimates state that about 43% of prevalent cases need a high level of care, equivalent to that of a nursing home. (Brookmeyer et al. 2007)

As the disease progresses, people with AD will need increasingly more support, until they eventually will need help with all their daily activities. Keeping the AD patient at home requires providing strong support for the informal carers. Technology offers to help with this support in various ways. Tools for monitoring patients and thus reducing the informal carer's stress level being particularly noteworthy, as are educational tools for informal carers to improve the everyday interactions with patients. Few clinical tests, however, have been performed on the direct impact of technologies on caregivers, and existing evidence often stems from evaluations with insignificant sample sizes. Therefore there are not enough results to provide a basis for generalising the impact of using the technologies, even though positive effects on the psycho-affective state of the caregiver are likely.

Additionally, there are different types of technologies directed at the patient himself/herself, not the care-giver. Two directions of development can be distinguished: tools that were developed for a more general group of patients and then are adjusted for the special needs of dementia patients, and tools developed for dementia patients which then are being generalised for a broader clientele. But in both cases, one of the main difficulties stems from the inadaptability of certain technologies to the progression of the troubles affecting patients with AD.

Mazzeo et al. (2012) discuss a series of the available technological solutions and how well they fit into long-term care for dement patients. They summarise their findings as can be seen in Table 2.

⁴ This section builds mostly on Mazzeo et al. (2012), who also provide similar descriptions for diabetes and obesity.



Table 2: Use of technologies in the initial, mild and severe stages of dementia

Context	Technology	Initial	Mild	Severe
Taking medicine	Assistance through images	*	**	–
Taking medicine	Verbal instructions transmitted through a vocal system	*	**	–
Taking medicine	Local remind/alert equipment	*	–	–
Social contacts		**	***	**
Tele-monitoring		*	**	*
Cognitive stimulation		**	–	–
Musical therapy		*	**	**
Domestic robots		*	**	–
Geolocation	GPS	*	**	***
Fall recognition		**	***	***
Measures of behaviour		*	**	***
Smart home (bathroom)	Thermostatic mixing/shut-off valves	*	**	*
	Flood detectors	–	*	***
	Duress alarm	*	**	*
	Automated home system (e.g. lighting)	*	**	*
Smart home (kitchen)	Gas stove isolation	*	**	–
	Induction cooktop	*	**	–
	Wireless smoke detectors	–	**	***
	Automated home system	*	**	*
Smart home (bedroom)	Emergency call assistance button	*	**	**
	Automated home system	*	**	**
	Good night button	–	*	***
	Chair and bed occupancy sensors	–	*	***
Smart home (outdoor areas)	Automatic gates	*	*	–
Smart home (automated housing)	Sensor lighting	*	–	–
	Watering system	*	–	–

Null = not relevant; * = negligible; ** = low; *** = high

Source: Authors' cumulative assessment.

Source: Mazzeo et al. (2012).

Use of information and communication technology complementing health care: the case of telemedicine

The term telemedicine can be understood as medicine practised at a distance, but until today no uniform definition has been established. Corresponding to this wide definition a wide range of telemedicine applications have been developed, often to support the management of chronic diseases. The main roles of telemedicine in support of integrated care for chronic diseases have been to educate patients (improve self-management), to facilitate information transfer (e.g. telemonitoring), to facilitate contacts to health professionals and to improve electronic records. (Wootton 2012)

Estimates on the market size for telemedicine vary widely, depending on the precise definition of telemedicine in mind. While estimates do not agree on a single number, one area where estimates do agree is that the telemedicine market is growing rapidly. BCC Research values the global telemedicine market at \$11.6 billion in 2011 and expects it to increase to \$27.3 billion in 2016, which corresponds to an annual growth rate of 18.6% on average. For 2011, the



telehospitals and clinics segment was estimated to account for \$8 billion and the telehome segment to account for \$3.5 billion. But due to higher increases in telehome this segment of telemedicine is expected to increase its share in this growing industry.

A recent overview on "Twenty years of telemedicine in chronic disease management" (Wootton 2012) highlighted the large amount of experimentation with telemedicine over the last years. Related to five chronic diseases (asthma, COPD, diabetes, heart failure and hypertension) and telemedicine, there were 1,324 publications between 1990 and 2011 and the number of publications has increased approximately five-fold during the period 2003-2011. There is large variation between studies with regard to methods and quality of studies, so the analysis focussed on selected studies of higher quality. A wide range of outcome measures has been used, sometimes also including outcomes relevant for health resource consumption, like hospitalisation or visits in emergency departments. The analysis found a vast majority of studies (73%) reporting favourable (positive or weakly positive) effects, using the outcome measures as chosen by the original study authors. In 26% of included studies the outcome for the intervention group was not significantly different from that of the control group, and only in 1% the intervention was found to be worse than the control. There was no significant difference in results between diseases.

Even though the overall result of 73% of studies reporting favourable outcomes looks impressive at first glance, a closer look raises some suspicion. The Wootton (2012) analysis, like many disease-specific systematic reviews and meta-analyses⁵, hints at often low quality of studies and high likelihood of publication bias⁶. Also the size of the achievable benefits needs to be seen critically: e.g. Pal et al. (2013) observe that the extent of observed reductions of blood sugar in telemedical trials with diabetes patients is only relevant if it is achievable with very low necessary inputs and can be expected to last in the longer run. Furthermore, most authors agree that even though there is considerable literature establishing the presence of medical improvements that can be supported by telemedicine, there is hardly any sound evidence available on overall efficiency gains due to telemedicine. Available studies often focus on (avoided) medical costs alone, without taking the costs of the telemedical intervention into account. Recently more publications got available which sometimes also focus on a broader definition of cost effects (Hendersen et al. 2013, Stoddart et al. 2013). In such analyses it is shown that even if telemedicine succeeds in lowering health care spending, the costs for the telemedical intervention typically consume these savings. At current prices, no overall savings can be demonstrated.

The large heterogeneity in results on medical outcomes, however, partly is attributable to the variance in study design and patient enrolment. Several studies stress the importance of further research to identify patient groups most likely to benefit from telemedical applications. Focussed on such patient groups, telemedicine can be assumed to face larger chances to satisfy economic efficiency criteria.

Telemedical applications often are just one element of a disease management or integrated care programme. This element, however, often is not properly recognised in published studies. Study designs often do not (or cannot) separate the effect of other elements of the programme and the effect of telemedicine. In

⁵ E.g. Inglis et al. (2011), Klersy et al. (2011), Pal et al. (2013), McLean et al. (2011).

⁶ E.g. Inglis et al. (2011) state that there was strong evidence of publication bias and that it is likely that many small studies are never published.



the discussion of the results, achieved impacts on health then often are contributed to telemedicine alone, without recognising the contribution of other elements. (Pal et al. 2013)

3.3 Choice

In many European countries, a move towards offering more individual choice for patients and care recipients can be observed. The idea is that choice has the power to help fulfil at least two goals: First, having more flexibility in terms of *which, how* and *how much* services one receives may increase one's self-determination. However, as argued by Wilberforce et al. (2011) in the context of individual budgets, in exercising this choice an information barrier may be experienced by the potential consumers. This may be particularly true for older persons in need of long-term care who usually lack information and experience difficulties in processing it. In this context, choice is often not exercised by the care recipient but by the carers, implying that the care recipient's preferences and concerns are weakened. Thus in addition to offering technical possibilities for choice, also corresponding information needs to be provided in a transparent and easily accessible way. Second and closely related to better adjusting supply and individual care preferences, it is hoped that competition between providers will improve overall levels of quality of care and efficiency of service provision.

Choice can be – and in certain countries, is – offered on diverse levels. In the following paragraphs, we discuss three of them: choice of insurance provider, choice between public and private service providers, and choice between benefits in cash and in kind.

Choice of basic health insurance provider is an option rather in Bismarck-type countries than in countries with national health systems. In the latter type, the place of living typically defines which authority is the basic funder and organiser of publicly financed health and care services. In Europe, only two countries with insurance systems do not offer choice of insurance provider, Austria and France. In all other countries with insurance systems, persons can choose among several providers of insurance and therefore have some influence on issues like the scope of coverage or scale of co-payments, albeit within legally defined limits. Over the past years, several countries increased the possibilities for choice in this sphere, or even forced parts of the population to choose (active or passive) one particular provider of insurance.

In the area of long-term care, insurance plays a significantly smaller, and governmental authorities play a significantly larger role than in health care. To our knowledge only in two EU countries, Germany and the Netherlands, long-term care is financed mostly via insurance rather than state systems. So choice of insurance provider in most other countries is applicable to health insurance only.

In several countries, the introduction of competition between **public and private providers** is seen as a major approach towards insuring quality in long-term care. Having a choice between alternative providers may help strengthen the care recipient's position in the care process. Such a freedom of choice can also help address quality aspects that are difficult to quantify for regulators or evaluators but easy to experience for users, such as the personal interaction between care recipients and carers (Lundsgaard 2005). A trend towards more private provision can be observed in both areas, health care and long-term care. For instance, Germany and Belgium have been experiencing rising shares of private provision of hospital services.

Also in countries like Denmark, Finland or Slovenia, which had been characterised by predominantly public provision of care services, the market for long-term care



services has been opened for private providers, even though private market shares are still low.

Reduced shares of public and increasing shares of private provision can be measured rather easily, but on their own are not necessarily a sufficient indicator for an improved "menu of care" to choose from. In order to form a more complete picture on available possibilities for choice, we additionally would require information on indicators like the number of options to choose from, average waiting times, or affordability of available options for the general public. Unfortunately, however, all these indicators form aspects where information is not yet available in an internationally comparable form. (Kraus et al. 2010)

There are further pre-requisites that are necessary for patients in order to use their rights to choose the provider best serving their needs: Patients need to know about available options, and information should be reliable, understandable and easily accessible. A different matter is that choice options can get worthless if all alternatives to choose from offer like services under like conditions. Differences between providers with regard to their supply therefore would be welcome, while it is necessary to ensure that all providers offer services of sufficient quality.

Policy in several countries aimed at an increasing share of private provision for diverse reasons, improving quality just being one of them. Further hopes are that an increasing share of private provision will also reduce inefficiencies and help to contain expenditures and reduce public deficits. The need to balance their budgets is perhaps even higher for private enterprises than for public providers, thus putting more emphasis on reaping efficiency gains. Policy therefore needs to ensure that the goal of equity in access to services is not compromised, and that unwelcome effects like supplier-induced demand are kept at bay.

In the area of long-term care, one of the rather clear international trends of the past years is that recent reforms tend to favour **benefits in cash** over **benefits in kind** (see e.g. Pavolini, Ranci 2008) This may be partly due to governments expecting that budgets are easier to control that way in times of fiscal austerity. This holds e.g. when entitlements for benefits are linked to monetary levels rather than monetary equivalents necessary to finance certain levels of care. E.g. in Germany and Austria, where entitlements for cash benefits have been fixed in that way, cash benefits have been adjusted to inflation levels only very infrequently over the last decades, resulting in a loss of purchasing power over time. On the other hand, if not very carefully designed, cash benefits can include incentives for "too generous" application or even fraud, as is discussed currently in the Netherlands in the context of the planned reform of the individual budget (Donders, Maarse 2012).

Also from the care recipient's perspective cash benefits offer certain advantages. They promote individual choice by allowing to choose between different settings of care (e.g. to buy either formal care services or to support informal carers). The potential advantages of benefits in cash, i.e. choice, control and flexibility, can obviously only be fully realised if benefits in cash are sufficiently high. While the impact of benefits in-kind on patient satisfaction has been analysed and tends to be positive, little is known about the impact on clinical outcomes and on provider's quality strategy (OECD 2013a).

It is still a majority of countries that rely more on in-kind provision of services, rather than on provision of cash benefits. In a recent review on long-term care systems in EU member states it was found that in twelve of 21 EU countries covered, places in nursing homes were available only as a benefit in kind with no additional cash-benefit, while in thirteen of 21 EU countries nursing care at home was available as in-kind benefit only. (Riedel, Kraus 2011)



4. Experiences from related Peer Reviews

The topics discussed at this Peer Review are closely related to earlier Peer Reviews. One of the results from Stockholm (2011) was that preventive measures are urgently needed in order to reduce the incidence of diseases. There are currently only a few prevention implementation studies to guide selection of the most efficient ways of reducing risk factors. The cost-efficiency dimension of existing projects (especially local and community-based) and also technologies that meet long-term care needs should be brought forward to support decision-making. It was highlighted that besides formal carers, important resources have been and will continue to be informal carers, but very much also voluntary carers and patients themselves.

While the current Peer Review focusses on care at home, the Peer Review in Germany (2010) was devoted to quality in residential facilities. General consensus emerged that monitoring of quality is necessary, but it was also seen that more sophisticated external inspection systems need to be complemented by effective internal quality management; to avoid a large gap between results of inspections and actual quality in daily work. In this context attention was drawn, *inter alia*, to pre-requisites of the introduction of quality management systems. As care staff is not used to them, the introduction of such systems requires participative leadership and human resource management. Both management and staff need training on quality management and related issues, often going beyond legally prescribed training.

The German Peer Review raised concerns regarding the sustainability of parallel national and regional inspection systems, sometimes complemented by a third system, the providers' own internal quality management. The general trend is that countries are moving away from an inspection-only approach and adopting a quality management approach that combines inspection with advice and self-assessment reports with an effective internal quality management system.

5. Assessment of the policy in relation to the priorities of the Europe 2020 Strategy

The combined measures as outlined by the Swedish host country paper have the potential to touch all five headline targets of the EUROPE 2020 strategy in a favourable way.

Employment

Measures to facilitate the combination of informal care for persons in need of care with formal employment quite obviously have the potential to extend hours worked on the supply side, by removing respective barriers to take up work altogether or to extend work (e.g. from part-time to full-time). At the same time, some of these measures involve job creation, related to all levels of qualification: tax exemptions for domestic help increase job opportunities for low skilled persons, qualification measures for care staff lead to higher-skilled carers, but require also more teachers in nursing and related areas. Increased application of technologies and development of improved care processes both can lead to newly created jobs in fields which are only tangential to the core health and care sector (like ICT, social research), thus increasing also job opportunities for persons not prone to care work in their original orientation.



R&D / innovation

The link here is similarly direct, via increased use of ICT and other kinds of technology. Presentations and discussions at the Peer Review highlighted, however, that many useful innovations have already been done. But much remains to be done in order to make innovations useful for the LTC context (which includes also safety issues), in a sufficiently user-friendly and simple way, and at sufficiently low cost for broad diffusion.

Climate change / energy

Telemedicine has the potential to reduce energy consumption via travel wherever "the expertise travels to the patient instead of the patient to the expert". As increased use of electronic equipment (and their production) also consume energy, we assume that this contribution is rather modest. Increased decentralisation of care provision might also be linked to less travel.

Education

The health and care sector is one of the very few with positive growth potential. Increased education of the staff, like increasing the proportion of university-trained nurses, therefore contributes to the respective goal.

Poverty / social exclusion

Avoiding the necessity to stop work in order to care for dependent relatives, getting well-paid jobs due to further education in e.g. social work, nursing or LTC-relevant ICT, all can contribute to reduce poverty.

There are several more avenues along which dependency of older persons can be avoided or alleviated, e.g. by reducing falls and their fear of falls and resulting injuries, or by familiarising persons with ICT to enable them to better keep in touch.

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