Joint AIM - EHTEL Study Visits
with a focus on
Disease Management and Personal Health Services in Support of Chronically Ill Patients and Persons at Risk

Following current health needs, a paradigm shift "from acute care to prevention and proactive management of chronic conditions" is needed and some examples of early adopters of this trend may already be observed. To adjust health and social care to this paradigm, eHealth and telemedicine play a crucial role.

To better understand the (potential) contribution of eHealth telemedicine to an efficient organisation of health systems and services, to improve health care overall, to explore critical success factors and risks, to learn from the lessons of others and share experience about integrating telemedicine services into daily clinical practice, EHTEL and AIM have decided to join forces and to invite their respective constituencies to bi-annual telemedicine study tours from 2011 onward.

This study visit to Denmark is the first in this series of bi-annual telemedicine study tours.

Study Visit On

"Disease management supported by telemedicine: a use case"
Odense, Denmark
16 - 17 March 2011

Report drafted by Diane Whitehouse, The Castlegate Consultancy

Final version as 8 August 2011

Content

1   Introduction

This Report

⇨   Outlines briefly the background to the concern with chronic disease management and the role that telemedicine can play in this process.

⇨   Describes broadly the use case for chronic disease management and telemedicine with reference to Denmark and, more specifically, to the region of Southern Denmark.

⇨   Suggests some possible ways forward in terms of chronic disease management supported by telemedicine for Association Internationale de la Mutualité (AIM) and its partners, such as the European Health Telematics Association (EHTEL).

The content of the report is based on study visit to Odense University Hospital in southern Denmark, co-organised by AIM and EHTEL which focused on the **use case of disease management supported by telemedicine**[1].

2   Study visit to Odense University Hospital, Denmark

AIM and EHTEL organised a short study visit that took place on March 16 and 17, 2011 at Odense University Hospital in the region of southern Denmark, Denmark. The focus of the visit was on the way in which the hospital and the region are seeking to handle the management of chronic conditions through the use of telemedicine. The visitors comprised around twenty members of the two organisations. They included clinicians, payers, and members of eHealth-related not-for-profit associations.

The bulk of this report does not describe the study visit itself. (See Annex 1 for a list of the presentations made during the visit.) Instead, it focuses on the description of the use case.

3   Background to the concern with chronic disease management

Many of the challenges facing Europe today, and over the next thirty-year period, are common to all the European Union's Member States. These are clearly articulated in such policy documents as the EU2020 initiative[2], the Digital Agenda for Europe[3], and the Innovation Union[4]. These shared themes will undoubtedly be taken up again in the near future in a revision of the Framework Programmes, the Competitiveness and Innovation Programme Information and Communications Technology Policy Support Programme (CIP ICT PSP), and other forms of funding for European initiatives[5].

---

[1] In this context, the description of Southern Denmark is not as detailed a use case as would be expected from the texts of e.g., Alistair Cockburn.: A. Cockburn (2001). Writing Effective Use Cases. Boston, MA, USA: Addison-Wesley Longman Publishing Co., Inc. Rather, it is a generic background description of the socio-economic conditions and organisational choices that prevail in the region's management of chronic disease management and the way in which it uses various forms of telemedicine to support that management.

[2] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF

[3] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0245:FIN:EN:PDF

[4] http://ec.europa.eu/research/innovation-union/index_en.cfm

[5] Potential orientations could be towards more regionally-oriented funding, structural funds, or investment by the European Investment Bank/European Investment Fund.

The future focus is likely to be not simply on chronic disease management and the re-direction of healthcare, in particular, the relationship with active and healthy ageing, but also on large-scale technical and technological initiatives aimed at infrastructure provision and broadband.

Several European countries, but Denmark especially, have concentrated on the importance of handling chronic conditions in an effective and efficient manner (Nolte and Mckee, 2008). Many more European Member States are now becoming interested in what appropriate chronic disease management has to offer their populations.

4   The general context, Denmark and the telemedicine-related business case

Denmark is a country of some 5.56 million citizens[6], of which around 10 per cent are immigrants. Its geographic area is 43,000 square kilometres. In terms of technology, it has Europe's highest broadband penetration (35% in 2010) and its population has extensive access to the internet. Denmark's population density increases to the east of the country; physically, the western geographic area is composed mainly of islands which have a less dense inhabitation.

In health terms, Denmark has five separate regions which are responsible for healthcare whereas its 98 municipalities are responsible for homecare. The healthcare budget is largely paid for through the tax system, and there are co-payments for some elements like dentistry and medicines[7].

Denmark's financing of health

Denmark is based on a taxation system in which each citizen receives healthcare free at the point of care. Since January 2011, Denmark has had three disease-related group tariffs that have been introduced for ambulatory patients in their own homes. These tariffs, which are applied locally, refer to the acquisition of pace-makers, chronic obstructive pulmonary disease (COPD)-related support[8], and anti-coagulation-related drugs.

4.1   The general Danish context - the social, clinical and care settings

The Chief Medical Officer at Odense University Hospital has described the societal challenges facing Denmark, and specifically his hospital, in the following way: future trends in morbidity and disability rates are crucial determinants of a society's ability to meet the challenges of population ageing. Today's societal shift is towards longer life expectancy and a birth-rate that is either falling or remains low. This leads to a change in the composition of the population, with an increasing number of older persons relative to both the number of children and young people and the number of people of working age.

As the eHealth strategies report on Denmark notes, **the country is organised in three levels, politically and administratively: these are the state, the regions and municipalities** (Doupi et al, 2010,

---

[6] The latest figures available from Statistics Denmark are for April 2011: http://www.dst.dk

[7] On Wikipedia, it is reported that the regions are not entitled to levy their own taxes. The regions rely entirely on central state funding (around 70%) and funding coming from the municipalities (around 30%). A central government "health contribution" tax (sundhedsbidrag) at 8.00% on the preliminary and final income statement forms has replaced the former county tax (amtsskat). Ultimately, 90% of the budgets of the regions are allocated to the national health service.

[8] It is assumed that this support can include telemedicine.

p10 [9]). Since 2007, Denmark has been involved in structural reform: this has succeeded in consolidating Denmark's 15 counties into five "regions" and has reduced the number of municipalities to one-third (from 271 to 98), many with more than 30,000 inhabitants. "The purpose of the structural reform is strengthening and rationalising the work of the public sector." (Doupi et al, 2010, p10) However, the overall governing principle is that "**the public tasks which are close to the citizens' everyday life** such as day-care, care for the elderly, schools and social support also **are to be placed in the administrative level close to the citizen**[10]. Denmark has a strong tradition of delegating a number of important tasks to the municipalities at the local level." (Ibid, p10)

Denmark's healthcare sector also has the same three political and administrative levels. **"Healthcare service is organised in such a way that responsibility for services provided lies with the lowest possible administrative level. Services can thus be provided as close to the users as possible.** .... The regions are responsible for primary and secondary care and the municipalities are responsible for different types of care which are not related to hospital inpatient care including e.g. prevention and rehabilitation." (Ibid, p10) The legal and regulatory context and the incremental reorganisation of the healthcare system were particularly evident during the study visit to the Odense University Hospital.

As the eHealth strategies report also notes: "The Danish eHealth system has two characteristics, which make the country a frontrunner in the field compared to other [European Union] EU member states: First, IT applications in the field of health are already deeply rooted at a local or regional level." The relative maturity of the systems appears to lead to a certain amount of trust in health technology. "Second, Denmark has a long history of financing and developing new IT applications in governance and health" (these examples date back fifteen years to 1996). (Ibid, p39) For more details on the Danish healthcare system, its general financing and its use of ICT, see publications by the Danish Ministry of Health e.g., the Ministeriet for Sundhed og Forebyggelse (2008).

Historically, Denmark has always had a national focus on the importance of sociotechnical approaches to the introduction of ICT, work design and change management: the current situation in Odense University Hospital fits with Denmark's developments in this field (Bjerknes and Bratteteig, 1987; Bødker et al, 1987; Mumford, 2006).

4.2 Telemedicine in Denmark

Telemedicine – particularly tele-homecare – has a **very high profile in Denmark**. The focus is on "patients who need constant contact to healthcare services because of long-term or chronic illnesses or because they live in rural areas." (Doupi et al, 2010, p29) The Danish National Board of Health has also issued legal guidelines regarding the use of telemedicine services.

The programme has the overall goal of "dealing with the shortage of staff through the use of telemedical services, without loss in the quality of provided care". Its focus is on "**the development of video conferences, home monitoring and image transfer techniques**" (Ibid, p30). It is precisely these types of applications and techniques that were demonstrated in Odense University Hospital.

New types of telemedicine solutions in Denmark are under continual development. They relate especially to communication among health professionals and tele-homecare. The Danes have concentrated on videoconferences and specialist consultation during the video transmission of opera-

---

[9] http://www.ehealth-strategies.eu/database/denmark.html

[10] All forms of emphasis added.

tions and the transfer of results between hospitals (such as X-rays and mammogram screening diagnoses). The country's political priorities lie in three domains: the management of chronic conditions, the development of labour-saving devices and procedures for health professionals, and improvements in the provision of healthcare to outlying geographic areas such as its various islands.

Several large initiatives are underway. These include a videoconferencing service, a COPD-related programme, and a trial relating to diabetic foot ulcers.

"One of the projects, already rolled-out at the Odense University Hospital, involves using a video conferencing service to allow foreign patients who do not speak Danish to communicate with hospital staff. The service uses a video conferencing system, linked to a call centre with multi-lingual operators, who can translate a person's needs or problems immediately to help them receive a better" ... "The first interpretation centre was opened at the beginning of June 2009." (Ibid, p30) Regional implementation of the system is already underway in Southern Denmark. National roll-out throughout Denmark is to be completed by 2012.

Another telehealth initiative began in September 2009. **This application monitors 800,000 unstable COPD patients from their homes**. Patients receive a package of videoconferencing equipment and monitoring devices. Nurses do their rounds using a videoconference system from which they record patients' vital signs. The solution is expected to be rolled out nationally throughout Denmark from 2012 onwards.

A trial that focuses on diabetic foot ulcers has also been set up. It is possible for a medical expert to assess a foot ulcer based on a video of the affected area taken by a home nurse. On the basis of this picture the nurse is instructed in appropriate care for the wound. Thus, specialised competences are used in a cost effective way. If the test functions well, larger expansion of the application is also anticipated.

4.3 Further detail on support for telemedicine in Denmark

MedCom is managing the national programme for increased use of telemedicine during the eHealth strategy period of 2008-2012.

MedCom is a co-operative venture between authorities, organisations and private firms linked to the Danish healthcare sector. It was first set up in 1994 and became a permanent entity in 1997. It receives operational funding from four different sources: the Ministry of Interior and Health, the National Board of Health, the Danish Regions, and Local Government Denmark. It involves "always working in between," said its Chief Consultant.

Denmark – and MedCom – are perhaps **best known for their focus on electronic patient records and ePrescribing**. Telemedicine is one of MedCom's six initiatives.

MedCom considers the Odense University Hospital to be a particularly important cooperation partner not only for itself – but also for Denmark as a whole – in terms of bringing forward the Danish national solution on telemedicine; indeed, MedCom is based in Odense[11]. "This hospital is taking the lead." [12]

---

[11] http://www.medcom.dk/wm109991 and
http://ec.europa.eu/information_society/activities/health/docs/events/opendays2006/ehealth-impact-7-7.pdf

[12] Quotes of this sort generally refer to comments made by one of the presenters who spoke during the study visit.

The Danish Centre for Health Telematics[13] has been integrated into MedCom. It has sponsored multiple programmes with the intention of building a useful telemedicine infrastructure. Examples of national programmes which were run by the Centre for Health Telematics included initiatives on tele-dermatology, tele-alcohol and teleabuse rehabilitation programmes, tele-wounds, cross-border telemedicine, and – last but not least – tele-interpretation.

MedCom very much sees telemedicine as being deeply embedded in a logical approach to integrated care or coordinated care, and closely associated with the appropriate clinical pathways and patient pathways. This infrastructure and approach, "somehow supports the silent changes that are happening with IT".

The city of Odense is in the middle of what is called the Welfare Tech Region[14], an area of 22 municipalities – the largest of which is Odense with its 189,000 inhabitants. The region aims to create an international hub for innovation, development, testing, implementation and use of welfare technologies for social and health care, based on a collaboration between the private and public sectors. In terms of its financing, it receives € 5 million from the European Regional Development Fund, € 2 million from the Region of Southern Denmark, and € 3.6 million from its project partners.

Much of what is sought to be achieved on chronic disease management in SouthernDenmark fits well within Danish national initiatives: e.g., different groups of Danish regions combine their efforts to work on improving the situation vis-à-vis conditions such as COPD. A DKK 3 billion initiative (worth about € 402 million) is being distributed in the framework of a **2009-2015 programme directed towards developing and improving the labour-saving aspects of a wide range of different domains of the Danish public sector services**[15].

5   The Odense University Hospital business case

Odense University Hospital is **one centre out of three of major importance in the Danish hospital and specialist services system**. It is responsible for ten per cent of the Danish health care system. It is a highly specialised hospital whose functions cover all medical specialist areas. There are plans to open a new university hospital in in 2018.

Organisationally, the hospital has a little over 10,000 employees. In reality, it brings together two hospitals (the Odense University Hospital and Svendborg Hospital) which together have a total of 75 different units. With 1,300 beds, the average patient stay in hospital is under three days (2.9 days). The hospital has 100,000 admissions a year and 800,000 outpatient visits annually. Sixty-two thousand patients visit its emergency wards each year, and 3,000 patients receive treatment each day[16].

Danish healthcare in general, and the hospital in particular follow the **patient principle**. The hospital is portrayed as being able to offer to patients at any given time the most competent available treatment within the appropriate national and international standards and recommendations, the allotted economic resources, and with the health professionals adapting themselves to the patients' expectations.

---

[13] http://www.daimi.au.dk/~thomasr/publications/2006/06-PDC-Strings.pdf

[14] http://welfaretechnology.dk/

[15] http://www.abtfonden.dk/Om_Fonden/English.aspx

[16] Further figures relating to the hospital size are available at http://www.ouh.dk/wm340344

The hospital's strategy is to support **clinical practices and workflows through information technology systems and innovative medical technology** (specifically with an integrated electronic patient record, clinical innovation, electronic communications, shared care and communications with patients). "We're closing the gap with the municipalities, shared care, general practitioners and the patient," said the hospital's Chief Medical Officer.

6 Three specific applications

A range of chronic disease management-related applications were presented in the context of the AIM/EHTEL study visit. Not all of them are described here. (See Annex 1 for a list of all the applications presented.)

Instead, three specific applications which are loosely based around chronic disease management have been selected to illustrate the hospital's innovative approach to its philosophy in a well-targeted and easily understandable way. These three applications are at different stages of implementation: for example, at least one (tele-interpretation) is fully deployed throughout the region whereas another (dealing with foot ulcers) is a large-scale pilot.

The precise financial status of the business case for each of the applications is not entirely clear, as a result of the different stages of implementation of the schemes and their technologies. However, there is considerable enthusiasm on the part of the region and the university hospital with regard to the possibilities offered by each. The general reasoning in each case is certainly considered to be sound. Economic analysis of each case is generally introduced from the very beginning of each study.

The three selected applications are: a shared care solution for diabetic foot ulcers, a training through telemedicine for patients with COPD and communication with patients who have language difficulties[17].

6.1 A shared care solution for diabetic foot ulcers

A strategy for regional implementation of a **shared solution for diabetic food ulcers** is currently trialling new ways of cooperating between primary care and hospital specialists. Teams of doctors and nurses work together on the initiative. The quality of care and the implications for the financing of the service are also being explored.

The analysis and assessment methodology of this large-scale pilot was designed by what presenters at the AIM/EHTEL study visit called "sceptical clinicians" who were not persuaded by political rhetoric about the utility of telemedicine, and who wanted to examine it in further depth by using some clinically controlled trials. The initiative was typified by a close working relationship between hospital-based clinicians and home visit nurses.

In the Southern Denmark region, with its population of 1.2 million inhabitants, there are **57,000 people with diabetes**. The Danish Diabetic Association assumes that the number may even be double (due to persons who have undiagnosed diabetes). The incidence of foot ulcers is about **two per cent a year of this total**, i.e., 1,130 diabetic foot ulcers per year. Of course, not all incidents lead to hospitalisation.

---

[17] For a more journalistic piece on some of these examples, see Means, C. (2011) With telemedicine, Denmark puts patients first. Healthcare IT news. May 10, 2011. http://www.healthcareitnews.com/news/telemedicinedenmark-puts-patients-first

Southern Danish nurses make home visits to severe diabetic patients: among their responsibilities is to help with the cleansing of foot ulcers.

The expectation of the pilot is that, if nurses doing home visits to patients can take photos of sufficiently acceptable quality that are transmitted to the specialist clinicians, deterioration in foot ulcers may be spotted earlier. This is likely to result not only in **fewer acute contacts, fewer and shorter hospital stays, and considerably lower transportation costs associated with outpatient visits** but also improved collegiality and teamwork between the doctor and nurse, and a better understanding of their conditions by patients.

A practice nurse involved in piloting the application was enthusiastic about what this initiative meant for nurses: the initiative is seen as resulting in an upgrade of their skills and recognising their expertise. From the perspective of care for the patients, she was convinced that: "It is the fragile patients who will benefit most."

Overall, the expectation is that this experience pilot will result in:

⇨ Quick recognition of any negative evolution in foot ulcers.

⇨ Lowering of the threshold for contact so that more care can be undertaken in the

⇨ patient's home.

⇨ Avoidance of acute hospital stays and surgery.

⇨ Facilitation of early discharge from hospital.

⇨ Testing how wound care can be supported by telemedicine in conjunction with appropriate re-organisation of the treatment system.

⇨ Increased quality of care and increased cost effectiveness.

6.2   Training through telemedicine for patients with COPD

A seven-week hospital rehabilitation programme for people with severe COPD was being piloted in spring 2011 in the region of Southern Denmark. COPD patients attend sessions at the hospital. The programme includes physical training and aims to increase the quality of life and to reduce the number of hospitalisations. For some patients with severe COPD, it is hard to manage their own transportation to the hospital. These difficulties therefore raise a need to create a training programme guided by a physiotherapist which can be offered in the patients' own homes[18].

The current goal is to develop **an individualised, home-based training programme through video-conferencing to patients with severe COPD**. The aim is to improve the patients' level of activity, functional ability and quality of life. The scheme is currently testing training sessions of sixty minutes each of which take place three times weekly for three weeks (nine supervised sessions). Each session consists of cardio and strength training, education in anatomy and physiology, breathing exercises, and the development of coping strategies.

The business case and both the quantitative and qualitative outcomes of the scheme will be closely measured by the hospital and the local authorities. This is therefore an initiative which is well worth monitoring from both the regional and national aspects of Denmark, but also in terms of what the

---

[18] Similar investigations are reported by researchers based in Aalborg, Denmark (cf. Dinesen, Seeman and Gustafsson, 2011).

learning outcomes and practical results might offer to other regions and nations throughout the European Union.

6.3   Communication with patients with language difficulties

Some ten per cent of Denmark's 5.56 million population are immigrants. The city of Odense's population has quadrupled over the past century (from 42,000 in 1911 to 185,000 today). Odense has a high percentage proportion of immigrants.

Interpretation is needed for many reasons when speaking with patients.

Language barriers may result in compromised health outcomes, misunderstandings that lead to severe health failures and complications, lower levels of service use, poor attendance at follow-up, poor patient compliance, a lack of clarity about the diagnosis and treatment plan, longer waiting times, and consultations that may have to be cancelled if no interpreter is available.

In Southern Denmark – as in Denmark as a whole – many **medical consultations used to take place without the appropriate language interpretation**. Untrained persons were being used as interpreters, including young children and other relatives. This impromptu system was replaced by an approach that involved more formal, trained forms of interpretation that were offered face-to-face during the patient appointment. However, face-to-face interpretation is now being replaced by at-a-distance interpretation. This change in approach resulted from an experience of several problems: a lack of qualified interpreters, the length of patient waiting time, the volume of cancelled appointments, increased costs, and the time and costs devoted to extensive travel either to a patient's home or hospital location on the part of the interpreters.

To resolve these challenges to sound patient care, a **national infrastructure for interpretation** in Denmark covering hospitals, general practitioners, other health care providers and municipalities will be implemented within the next two years until 2013. This national videoconference infrastructure facilitates the provision of videoconferenced interpretation services. This system of videoconferenced interpretation will be open to bids from competent organisations with providers from all parts of Denmark competing. A number of organisational options are presently under consideration. The current options include: a central public interpretation agency, the establishment of public facilities with private organisation of interpreters, i.e., public-private partnerships, or a fully privately organised solution.

The current unit cost of face-to-face interpretation is DKK 650 an hour (around € 80). Denmark has to undertake around 150,000 interpretations a year in the health sector alone. As a result of the videoconferencing experience in Southern Denmark, it has been shown that the number of interpretation sessions held per hour can be doubled. On average, the number of sessions that can be offered improves from **one face-toface session an hour to two videoconferenced sessions an hour**. It is calculated that the **future savings to the Danish healthcare system will be DKK 16 million a year (around € 2.1 million annually)**.

7   Initial observations

The Odense University Hospital study visit highlighted a number of economic challenges for regions and cities, and for primary, secondary and tertiary care institutions in Denmark. It focused on patient-centred care and integrated care. It drew attention to the broad business case for homecare. Its

specific focus was on the means of organising and financing chronic disease management and the resulting mix of national and regional financing of health-related technologies – most specifically telemedicine and welfare technology.

A number of specific characteristics that typify the region and the operation of its healthcare system came to the fore. These are listed below:

8 Eight main characteristics of the healthcare system, the region and the hospital

⇨ **An alignment of strategies:** this takes place between the national, regional and local levels and is related to an integration of Denmark's healthcare and social care systems.

⇨ **An integration of care:** there is a relationship built between the primary, secondary and tertiary care levels of healthcare and social care.

⇨ **The leadership role of a local university hospital within its own region and in the country as a whole:** the hospital continues to act as a forerunner in its involvement in exploratory studies with innovative approaches.

⇨ **Multi-disciplinary teams:** these include the involvement of economists from the design phase so that the cost-effectiveness of any technology introduced is identified at an early stage.

⇨ **Good operation and cross-fertilisation of public-private partnerships:** these involve industry of different sizes – large corporations, locally-based small- and medium-sized enterprises, policy-makers/politicians who are "ITsavvy", and the staff of the university hospital itself.

⇨ **Support for entrepreneurship and innovation:** there is dynamic support for local entrepreneurs and active participation in a number of innovative business schemes.

⇨ **Use of simple technologies:** most of the ICT demonstrated was very simple (video-conferencing; taking digital images and transmitting them; use of smart phones).

⇨ **Tele-intepretation** looks as though it is likely to facilitate an infrastructure available not only for the whole of Denmark's healthcare system but also for other applications to be built on top of it. Such technology needs the support of a solid broadband architecture.

9 Discussion and conclusions

The kinds of actions that AIM and its partners might anticipate as a result of this study visit pertain largely to the work of the insurance schemes in general but, more specifically, to the work of the AIM special interest group on chronic disease management.

The main preoccupations of payers in respect of the management of chronic conditions supported by telemedicine appear to be:

⇨ How to improve the quality of care for the patient?
  How to decide on core priorities and what forms of impact are desired in conjunction with the quality of care (e.g., access, safety, cost-effectiveness)?

⇨ Identifying the conditions needed to do this (i.e., the business case).
  What kind of piloting is needed (e.g., access to suitable financing and available schemes)? In the shorter-term, what kind of deployment of ICT is required (with access to what sorts of suitable financing and available schemes)? In the longer term, what kind of innovation and research is needed?

⇨ Identifying other kinds of bodies (stakeholders) which share a fundamental interest in chronic disease management with a view to liaising and building relationships. Examples of such stakeholders could include regionally-oriented not-for-profit organisations, specific regions, hospital management associations, and both large and small industrial companies.

⇨ Identifying other kinds of bodies (stakeholders) which want also to tackle the challenging questions around healthcare organisation and workflow. Examples of such challenges involve the role of the "front line" (the primary care team), the role of the healthcare provider, and the role of the payer.

As a result of these concerns, a number of observations have been formulated. They refer specifically to three separate groups: **payers, more generally, the kinds of organisations with which payers interact and, specifically, the AIM special interest group on chronic disease management.**

These observations share different parameters, resource needs, and time-horizons. Some of their targets can be considered as "low-hanging fruit" i.e., easily implemented solutions or formulations whereas others are more long-term in their orientation.

These observations can be transformed eventually into recommendations whether for payers or for other stakeholders, an example being EHTEL. Indeed, Annex 3 to this report lists the recommendations that were adopted in relation to chronic disease management at the AIM Board Meeting which took place in Brussels on June 17, 2011.

Last but not least, the benefit is shown of concentrating on a targeted form of chronic condition. For example, it could be one of the more commonly studied conditions such as **diabetes**, cardiac conditions and COPD. It could also be a domain that has been explored less intensively in the past, such as the treatment of chronic pain.

9.1 General observations for payers

⇨ Focus on the re-design of primary and secondary care by identifying the relevant questions and actions pertinent to interventions in patient care at a local level.

⇨ Support experimentation with innovative and interesting experiences in primary and secondary care settings.

⇨ Move towards generalisable standards using health technology assessment methods (or similar)[19]

⇨ Support "action research" (or "implementation research") as a method to ensure the added buy-in of healthcare professionals and patients.

⇨ Explore the use of "simple technologies with a visual angle" in support of patients' needs (e.g. videoconferencing; digital television, smart mobile telephones).

⇨ Consider additional support services that could be offered (on top of insurance and direct health advice), e.g., technical support or advice or security and identity-related advice.

---

[19] See, for example, the findings of the MethTelemed study
http://www.mastmodel.info/Downloads/MethoTelemed_final_report_v2_11.pdf
A toolkit is available from the study website: http://www.telemed.no/methotelemed

9.2 General observations for the organisations with which payers might liaise

⇨ Maintain an awareness of a set of widely varying health systems (e.g., from Bismarck to Beveridge – all of which are undergoing organisational change) in countries with widely varying sizes of populations (from 5 million to 50 million).

⇨ Build working relations with organisations involving multiple stakeholders (different types to be specified). Examples include national health authorities, local health authorities, multiple public services e.g., health, care, social support, nursing, community involvement, families and carers, and a wide variety of health professional staff – especially clinicians and nurses.

9.3 Specific observations for the AIM special interest group on chronic disease management

As a result of these more generic observations, the AIM special interest group might consider a targeted set of actions:

⇨ Hold workshop(s) on chronic disease management that can be supported by information and communication technologies (ICT), and do this in conjunction with appropriate partner(s) e.g., EHTEL
=> organise a first consensus workshop and build it into a series of workshops.

⇨ Identify generic standards for chronic disease management, supported by ICT
=> work more closely with health technology assessment associations or agencies.

⇨ Get involved in relevant "action research" or "implementation research"- style programmes
=> e.g., become a partner in the submissions of proposals to the CIP ICT PSP.

⇨ Get involved in creating a body that could develop standards for chronic disease management
=> ask such questions as: What kind of pharmaceuticals, devices, ICT, approaches, behaviours, arrangements and policies are needed? What is the added-value for each kind of stakeholder?

9.4 Specific focus on specific areas of chronic disease management with the support of telemedicine

⇨ Examine the added-value of focusing on a **single** clinical case in-depth. A good example would be the avoidance of surgical intervention in the event of **advanced diabetes** through the use of ICT.

⇨ Other chronic conditions to consider for exploration in the future might involve the treatment of **chronic pain** or the management of particular **psychological or psychiatric conditions**.

⇨ More generally, a key approach might be to examine the **appropriate standards that need to be set** up to ensure effective chronic disease management.

10   Annex1: Study visit presentations

Presentations made at the visit to Odense University Hospital, Odense, Denmark were made in the hospital itself and also at Medisat, a small local business:

⇨   From pilot to daily use - Introduction to OUH and efforts in telemedicine and clinical use of innovative medicine technology: *Dr. Peder Jest, Medical Director, Odense University Hospital*

⇨   National work and national strategy on telemedicine in Denmark - *Chief Consultant, Lars Hulbæk, MedCom, Denmark*

⇨   Demonstration of telemedicine for diabetic foot ulcers - *Dr. med Johnny Frøkjær and Nurse Inger Futtrup*

⇨   Telecare services in Odense municipality - *Jane Jegind, Deputy Mayor, Committee for the Elderly and Disabled*

⇨   Regional strategy for it support of chronic patients - *Head of Unit Tove Lehrman in The Region of Southern Denmark*

⇨   Home monitoring and rehabilitation for COPD patients - *development physiotherapist Lisbeth Minet and Nurse Ph.d student Anne Sorknæs*

⇨   Welfare tech region - *CEO Hennig Seiding*

⇨   Telemedicine interpretation services - Videoconferenced language interpretation: A national infrastructure in Denmark: *Project Manager, Eva Lund*

The visit ended with a brief round table discussion.

11   Annex 2: References list

Bjerknes, G. and Bratteteig, T. (1987). Florence in Wonderland: System development with nurses. In G. Bjerknes, P. Ehn, & M. Kyng (Eds.), Computers and Democracy - A Scandinavian Challenge (pp. 279-295). Aldershot, England: Avebury

Bødker, S., Ehn, P., Kammersgaard, J., Kyng, M., & Sundblad, Y. (1987). A Utopian experience: In G. Bjerknes, P. Ehn, & M. Kyng. (Eds.), Computers and democracy: A Scandinavian challenge (pp. 251–278). Aldershot, UK: Avebury.

Cockburn, A. (2001). Writing Effective Use Cases. Boston, MA, USA: Addison-Wesley Longman Publishing Co., Inc

Dinesen, B., J. Seeman and J. Gustafsson (2011), Development of a program for telerehabilitation of COPD patients across sectors: co-innovation in a network.
International Journal of Integrated Care. 11 (29) March 2011
http://www.ijic.org/index.php/ijic/article/viewFile/582/1235

Doupi, P., E. Renko, S. Giest, J. Dumortier (2010) Country Brief Denmark. eHealth Strategies. Brussels: European Commission
http://ec.europa.eu/information_society/activities/health/docs/policy/ehealth-era-fullreport.pdf

Means, C. (2011) With telemedicine, Denmark puts patients first. Healthcare IT news.
May 10, 2011

http://www.healthcareitnews.com/news/telemedicine-denmark-puts-patients-first

Ministeriet for Sundhed og Forebyggelse (2008) Health Care in Denmark. Copenhagen: Ministeriet for Sundhed og Forebyggelse

http://www.sum.dk/Aktuelt/Publikationer/~/media/Filer%20-%20Publikationer_i_pdf/2008/UK_Healthcare_in_dk/pdf.ashx

Mumford, E. (2006) The story of socio-technical design: reflections on its successes, failures and potential. Information Systems Journal. 16 (4), pp317-342. October 2006.
DOI: 10.1111/j.1365-2575.2006.00221.x

Nolte, E. and M. McKee (2008) Caring for people with chronic conditions. A health system perspective. Maidenhead: Open University Press/McGraw Hill

http://www.euro.who.int/__data/assets/pdf_file/0006/96468/E91878.pdf

12   Annex 3:
   Recommendations approved by the AIM Board of Directors on 17 June 2011 in Brussels

These recommendations were proposed by the participants of the workshop on Chronic Disease Management (CDM) on 15 June 2011, chaired by Dr Jan Van Emelen (MLOZ, B). The AIM Board of Directors approved them on 17 June 2011.

1. Health Insurers Funds (HIF) must play an important role in chronic DM initiatives

2. HIF must support stakeholders and specifically primary care for adopting and implementing simple technologies enabling integrated care.

3. HIF must invest in organisational research to enable CDM

4. HIF must invest in consensus workshops with HC providers to develop Rational approaches in CD.

5. HIF must create a project with other stakeholders to validate a rational approach for a specific chronic condition. In the future this approach can be agreed as standards of CDM.