A COMPILATION OF GOOD PRACTICES

Action Group on Replicating and tutoring integrated care for chronic diseases, including remote monitoring at regional level

The good practices in this document were written by the Integrated Care Action Group members in March-April 2013.

The collection of good practices is on-going.
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## Good practice

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[Citizens’ Online Health Account]

**Organisation name:** Region Zealand

**Country:** Denmark  
**Region:** Region Zealand

**Total Region population:** 800,000  
**Good Practice Target population:** Citizens in Region Zealand suffering from chronic diseases

**Topics / chronic diseases addressed:**  
Home measurement, patient empowerment, disease-specific apps, internet portal

**Relevance to B3 Action Plan:**

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**Description:**

To meet the current and future challenges of Danish health care, Region Zealand develops a citizens’ health account for citizens’ own contribution to better health.

The project **Citizens’ Online Health Account** develops an internet portal where citizens register different kinds of health data – measurements that citizens can do at home such as weight, blood pressure, blood glucose, INR-value, physical performance etc. A physical training app is being developed where physical exercises are suggested and citizens’ individual data collected and fed into the system.

**The citizen sets up a health account and:**

- Registers health data to document and see graphics and get immediate, personal feedback automatically, as well as to prepare for visits at the doctor or hospital;
- Plans how to achieve goals, e.g. for physical performance, weight, blood pressure;
- Shares health data with health care professionals across health care infrastructure.

**A possible solution to different challenges**

The internet portal is thought as an empowering, user friendly portal that allows citizens suffering from chronic diseases to become more aware of what they themselves can do to improve treatment and promote quality of life.

At the same time, the Citizens’ Health Account allows health care economists and scholars to see what this online solution can do for people and the health care economy in both short and long term.
The internet portal also allows citizens to find tools and links to specific illnesses. Citizens can find inspiration on how to change one or more things in their lifestyle that can improve health status.

The Danish National Board of Health partly supports The Citizens’ Online Health Account financially.

**Highlights: Innovation, Impact and Outcomes:**

The project is using ICT in an innovative way to empower citizens and patients, thus access to the health account goes through a computer, smartphone or tablet. Specialized disease-specific apps make the tools even more accessible and simple to use.

**Transferability to other organisations /regions:**

The results and lessons learned from this project will be of interest in other regions where innovative use of ICT is considered or already taking place. Many citizens have more resources available than brought forward in their treatment today. Through meaningful tools such as those included in The Online Health Account, citizens who are capable could become empowered to act upon developments in their data so that treatment can be adjusted quickly on the citizens’ own initiative. Results from this project will be useful in other European contexts.

**Further information:**
Contact EU Project Consultant Martin Eklund: marek@zealanddenmark.eu
[The Bridge to Better Health]

Organisation name: Region Zealand

Country: Denmark  Region: Region Zealand

Total Region population: 800,000  Good Practice Target population: Citizens living in Lolland and Guldborgsund Municipalities in Region Zealand.

Topics / chronic diseases addressed:
Equal access to health care; Appropriate care for patients in need of acute treatment; Appropriate care for patients with chronic diseases; Healthy, future generations; Healthy working environments; Cross-sectoral health

Relevance to B3 Action Plan:

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Description:

Region Zealand is the initiator of The Bridge to Better Health, which is developed and implemented in partnership with Lolland and Guldborgsund Municipality, Nykøbing Hospital, the Psychiatry of Region Zealand, the regional primary sector with special emphasis on general practitioners in the area, as well as the local business community and civil society. Research institutions are also involved.

The project area faces socio-economic and public health challenges as well as challenges related to the provision of high quality health services. Socioeconomic challenges include low income, high unemployment rates and low levels of education. Regarding public health, people living in the area have the lowest life expectancy, the highest rates of chronic diseases, and the poorest and most unhealthy lifestyle. In addition to this, the area faces challenges to the healthcare system such as difficulties in health staff recruitment, poor performance of indicators pertaining to quality of health service, increasing health expenditure, increasing acute hospitalization, poor healthcare coordination, and disparities regarding access to health services.

Therefore Region Zealand has established a long-term (10-20 years+), cross-sectoral project which includes activities within both the public and private sector in order to promote integrated and coordinated health care including empowerment of citizens and patients. Besides addressing health disparities the goal is to decrease morbidity rates and improve the overall quality and effectiveness of health services through increased coordination.
Project activities address six focus areas:

1. **Equal access to health care** (e.g. geographical/physical barriers; telemedicine; recruitment of health staff; availability of health services)
2. **Appropriate care for patients in need of acute treatment** (e.g. prevention of inappropriate hospitalization; cross-sectoral health services; linking to other relevant social- and care services)
3. **Appropriate care for patients with chronic diseases** (e.g. implementing best practice; innovative solutions to address people at risk in a local context)
4. **Healthy, future generations** (e.g. child health from birth to school age; cognitive, emotional and social development; health-promoting schools; children and young people at risk)
5. **Healthy working environments** (e.g. labor market adjustments for less educated people and people in poor health)
6. **Cross-sectoral health** (e.g. health as a basis for future policy making and management decisions at various levels)

The Regional Council in Region Zealand sees The Bridge to Better Health as an important initiative, and has allocated further funding for activities in 2013. Additional regional funds including research funds may be allocated. Other activities in the project will be financed by national and international funds, e.g. EU funding.

**Highlights: Innovation, Impact and Outcomes:**

The project will support an environment for health innovation that goes beyond traditional health care. Interventions will have a wide scope and could include interventions such as 1) changing specific workflows in the hospital; 2) establishment of alternative care services; 3) testing of new health technologies that can prevent unnecessary hospitalizations; 4) health promotion programs in educational institutions to ensure a healthy workforce; and 5) activities that increase the coordination between social and health services in the municipalities. The timeframe for each intervention varies from months to several years.

From previous studies we have evidence indicating that patients affected by multimorbidity achieve poorer results in terms of treatment and rehabilitation. We also note a tendency towards social imbalance where less resourceful people (measured by income level, social networks and level of education) are more affected by chronic disease. Through innovative strategies and solutions the project will address these issues.

**Transferability to other organisations /regions:**

Regions in Denmark and across Europe face many of the same challenges to health care delivery which are addressed in this project. Therefore, project findings will apply elsewhere in other contexts. The project will include both patient-oriented and citizen-oriented activities, i.e. interventions aimed at those already sick, as well as interventions targeting citizens in general so that they can stay healthy. Some actions will have a narrow focus such as families with children living in a particular geographical area or patients with specific chronic diseases having home care visits. Other activities will have a more wide scope across age groups and location, adding to applicability in other European contexts.

**Further information:**
Contact EU Project Consultant Martin Eklund: marek@zealanddenmark.eu
[SAM:BO Cooperation on care pathways in the Region of Southern Denmark]

Organisation name: Southern Denmark Health Innovation

Country: Denmark
Region: Region of Southern Denmark

Total Region population: 1.2 million

Good Practice Target population: 100% of citizens receiving services from the local home care.

Topics / chronic diseases addressed:
Care pathways, integrated care, cross-sector cooperation, guidelines, IT Infrastructure

Relevance to B3 Action Plan:

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Description:

SAM:BO is an agreement between the Region, the local authorities in the Region, and the GP’s on how to cooperate on the treatment of the individual citizen/patient. Through this regional cooperation, a consistent citizen/patient care pathway between health sectors is achieved and hence a higher quality, efficiency, and patient satisfaction with the health services is provided.

The overall goal of the agreement is to strengthen the cooperation between GPs, local authorities, and hospitals regarding the individual citizen/patient and his/her progress through the system, and ensure dialogue and coordination between them and with the greatest possible involvement of patients and relatives. SAM: BO contains requirements/expectations for content and timeliness of electronic communication between the municipality and hospital during patients' hospitalization. The overall purpose of information exchange is to optimize hospitalization with a particular focus on discharge, so this is well planned in relation to the municipalities' further care of the patient/citizen.

As an addition to SAM:BO, the Shared Care Portal is being rolled out as a tool in the treatment of the complex chronically ill patients. The Danish National Board of Health has issued “chronic care guidelines” to support a unified process for patients with a chronic disease. Included in these is a generic model that describes how a unified cross-sectorial, crossdisciplinary, and coordinated health effort is crucial. Therefore, a process has begun to underpin this model with electronic communication and shared care records, thus assembling all the stakeholders in the health and social care continuum in a collaborative effort to secure that the right information is available for authorised caregivers anywhere and anytime. This is what the SharedCare supports. The process involves the primary care sector, the regional hospital sector, the municipal social care sector and the patients themselves.
The SAM:BO agreement involves all patients receiving services from the local authorities, including rehabilitation, nursing, domestic help, etc. Further, the SharedCare portal is at this moment in time including patients suffering from CVD, but will be rolled out to include COPD, Diabetes, and cancer as well.

**Highlights: Innovation, Impact and Outcomes:**

*SAM:BO is not only an agreement of coherent care pathways for citizens and patients in the Region, but it is also an integrated system backed by an infrastructure and ICT services, such as the Shared Care Portal, and the standardised integrated messages between the players involved in the treatment of the citizens of the Region.*

The Shared Care Portal is innovative in a way, that it brings innovation directly into healthcare and into the provision of services to patients with a chronic disease. This novel service incorporates new organisational process and services and thus ensures the positive change for citizens with a chronic illness thereby supporting active and healthy ageing for the citizens in the Region of Southern Denmark.

Outcomes: The amount of electronic communication between the different sectors is an indication that the initiative is a success. In one month (March 2013):

- The municipalities of the Region sent 23,570 electronic messages to the hospitals
- The hospitals sent 72,705 electronic messages to the municipalities

Further, a formal mini-HTA (Health Technology Assessment) has been conducted on the discharge conferences, showing why it.

**Transferability to other organisations/regions:**

The principles for communicating electronically between the health sectors in the region has been transferred to the other 4 regions in Denmark. Further, SAM:BO has been transferred to and rolled out to all 5 hospital units in the Region.

The practice could build a solid foundation for integrated care and the cooperation on the treatment of patients, involving all sectors of care delivery.

The practice hence:

- Helps to make the communication between the sectors more efficient
- Improves the care pathway
- Optimises hospitalisation and especially the discharge process, where the responsibility for care shifts from the hospital to the municipality
- Makes all relevant information on the patient and treatment accessible to ALL relevant actors – including the patient him/herself
- Empowers the patient through information on treatment – from all three sectors

**Further information:**

Contact EU Consultant Lotte Beck: lotte.beck@rsyd.
**B3 Action Group `Replicating and tutoring integrated care for chronic diseases`**

[Second Opinion in Back Pain]

**Organisation name:** Techniker Krankenkasse and the German Pain Association DGS

**Country:** Germany  
**Region:** Germany

**Total Region population:** 7.3 million TK insured lives

**Good Practice Target population:** 230 000 patients receiving back surgery p.a.

**Topics / chronic diseases addressed:**
According to a German study (Hildebrandt J and Mense S, Der Schmerz 6: 411-412, 2001), worldwide back pain is the main reason for medical treatment and the lifetime prevalence is 85%, which means almost everyone has back pain at some point in their lives. Point prevalence is 40%, which means at any one time two-fifths of the population is suffering from back pain. The research also shows, 10% of these patients develop chronic pain and 5% of patients are responsible for 50% of the total cost of pain care. It is estimated the annual loss to society is the equivalent of 600,000 working years. More than 48 billion euros are spent every year in Germany for back pain and more than 70% of that is for sick leave and early retirement.

*A health report carried out by the Techniker Krankenkasse (TK) showed 10% of their clients were unable to work due to back pain. More than half of those suffered from lower back pain (TK-Gesundheitsreport 2009).*

**Relevance to B3 Action Plan:**

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**Description:**

**Objective**
The goal is to have a patient back in the workplace after four weeks. An additional four weeks can be added to the programme. The outcome should be a sustained ability to work. If the pain continues, there is a re-evaluation after six months.

Compared to other countries like the US, Sweden, the Netherlands, Israel and Denmark, Germany has the highest rate of early retirement (Hildebrandt J and Mense S, 2005). The international comparison also showed there was only a 35% chance of a patient returning to work if she had been off work for more than three months. This means the longer a person is absent from work the less likely she is to carry out a normal working day in future. This shows it is not the MRI scan or the medication that counts, but the timeline. If there is no early intervention, the situation will continue to get worse.

**Target population**
90% of all back pain patients return to work within 6 weeks. The group of patients that should be invested in makes up only 2% of the 10% who suffer more than 6 weeks. Focus on the patients that are responsible for generating the bulk of the 48 billion euros costs in the German
healthcare system. Those patients with on-going pain cost the most and it is they who should receive integrated pain care.

Therefore chronic pain patients already identified for spinal surgery are referred to a physician for a second opinion. The second opinion can also be patient initiated, if spinal surgery already has been scheduled.

**Methodology, Processes**

- **The whole programme is set up as a network of primary care practitioners working in multidisciplinary centres of excellence.** There is an interdisciplinary diagnostic screening prior to inclusion on the programme, which is designed specifically for each individual patient and includes treatment from a pain specialist, a psychologist, and a physiotherapist.

- **New for Germany, it is not the GP, nor the healthcare specialist who assigns the patient to the treatment programme, but the health insurance company, because they are the only party with a patient's data on sick leave.** Using this data, insurance companies can approach patients and ask them if they want to join the programme. The goal is to prevent the condition becoming chronic. Patients undergo a diagnostic screening by the multi-professional team and if the patient is committed to the programme, they go onto Level 3, which is comprehensive outpatient treatment. There is also a model for a second opinion. This also goes via the same screening team.

- **Only patients who have been absent from work for a minimum of four weeks due to their pain can be included.**

- **The screening procedure has to take place within five days after the patient has been offered the programme and includes one hour each with a psychologist, a pain specialist and a physiotherapist.** If considered suitable, the patient begins a four week multi-modal treatment, which requires a series of one-hour visits to the three specialists three times a week. Most patients have four or five hours of treatment three times a week. This cannot be achieved if a patient is not motivated or not ready to take on this responsibility.

- **Ongoing team conferences discussing what progress is being made and whether a treatment should be changed ensure the patient gets what is needed.** All health professionals involved use the same documents to update their patient's progress and the treatment is regulated according to what the patient reports, not by what physicians believe patients have wrong with them. The documents used are the standardised German pain questionnaire, which is filled out every month for three months, and the pain diary, which should describe pain intensity during any one day.

- **The information is immediately scanned into the computer and is available to all working units.** The team is able to monitor on a daily basis maximum and minimum pain intensity, anxiety and even the onset of depression.

- **Screening of patient within 48 hrs**

- **Screening procedure : medical history , Physical , functional and neurological examination**

- **Team conference : Mandatory Specialities: Pain medicine 1 h Psychology 1 h Physiotherapy 1 h (Additional specialties on demand ) Mandatory instruments : Preliminary Findings German Pain Questionnaire , Fear Avoidance Beliefs Questionnaire , Functional Impairment by Back Pain Questionnaire, Pain diary , Measures implemented , Intermittent reports**

- **Treating back pain in Germany can be a slow process, which includes visits to the GP, a prescription for OTC (over-the-counter) medication and possibly an X-ray or MRI scan.** During this period a lot of time has passed, often without a positive result. Thus it could be assumed that the German healthcare system creates with highest financial efforts the poorest results. There should be a different process. Patients at a high risk should be identified as soon as possible and preventative measures introduced to protect them from becoming chronic pain.
sufferers. There would be a high cost outlay initially, but this would only be for a very small percentage of all those suffering from back pain.

**Cooperation partners:**
- The German Pain Association, DGS and the insurer Techniker Krankenkasse (TK)

**Financial incentives**
- If the patient is successful and is able to work after four weeks of treatment and stays at work for another six months, with not a single day of sick leave, the multi-modal team receives a 500 Euros bonus. If the patient does not return to work after eight weeks there is a malus – a minus of 250 Euros.

**Outcomes:**
- There is a benchmark in each of the 41 centres in Germany to show the effectiveness of this back-to-work programme after four weeks and eight weeks, as well as monitoring the number of screening failures.
- 86% returned to work after 4 to 8 weeks of treatment. It should be noted that after three weeks of working disability in a standard care programme only 35% return to work. According to a study carried out by TK, this means there is a 52% reduction in working disability. So, if the Average Working Disability control is 172 days of sick leave, it now becomes reduced to 86 days. After 6 months there was a further improvement of Quality of Life (QL), because the group of patients had learned techniques to prevent the same debilitating pain occurring again.
- Out of almost 6000 patients who had been invited to participate, 24% were considered “screening failures”. This was due to participants having additional diseases, e.g. cancerous tumours, or they were not motivated.

**Highlights: Innovation, Impact and Outcomes:**
- The Average Working Day Disability cost is 55 €. This is the amount paid by the insurance company for sick leave. If the average number of sick leave days is 172 days multiplied by 55 €, the total comes to 9,460 €. A fifty per cent reduction would bring that total to 4,730 €. Expenses for the care treatment cost 3,700 €. This suggests that integrated care for back pain patients could result in at least 1,000 € saving per patient. It also means those centres with a higher rate of workplace returnees save more money than those with fewer returnees. The insurance companies gain with every patient referred to this programme.

**Transferability to other organisations /regions:**
- The entire process of patient selection and the implementation methodology is available and could be implemented for example by other insurance funds in Germany or in Europe. Timelines are crucial. Early intervention should replace lengthy diagnosis periods. The right patients should be identified early on and there have to be multidisciplinary screenings. This can only be achieved with a team effort and most importantly, we should rely on patient reported outcomes.

**Further information:**
[http://www.sip-platform.eu/156.html](http://www.sip-platform.eu/156.html)

**Contact person:**
Konrad Labuschagne on behalf of the SIP platform konrad.labuschagne@grunenthal.com
[TK Integrated Care Contract for Back Pain]

**Organisation name:** Techniker Krankenkasse

**Country:** Germany  
**Region:** 32 locations in 15 federal states

**Total Region population:** 7.3 million TK insured lives

**Good Practice Target population:** 3000

**Topics / chronic diseases addressed:**
Most absent days are caused by diseases of the musculoskeletal system. Among all employees in Germany more than 15 million absent days are due to back pain. 3.4 million absent days (10% of all absent days) of TK-insured are due to diseases of the spine and back (M40-54). Every 19th absent day of TK-insured is due to back pain (M54).

**Relevance to B3 Action Plan:**

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**Description:**
- The insurance implement integrated care models together with doctors, hospitals and outpatient care facilities to improve the treatment of pain.
- The focus is on secondary and tertiary prevention. Different healthcare programmes or integrated models for the major types of pain (back pain and headache) are available.
- Treatment is offered in networks and there is an integrated care contract for back pain ("Integrierte Versorgung Rückenschmerz").
- There are programmes to strengthen patient participation in the form of a TK-patient’s dialogue and there are options for a second opinion prior to back surgery.

**Objective**
Rehabilitating the patient to return to work within a limited time period. TK has to pay sick leave after six weeks and take over the person’s salary if the person does not return to work.

**Target population**
60% of TK’s pain patients suffer less than one week. 30% have pain up to six weeks. This leaves 10% suffering longer than six weeks. These are the people who are put on special programmes, as it is estimated one-fifth of this group may need care for the rest of their lives.

**Cooperation partners:**
Co-operation partners are the German Society for Pain Therapy and Integrative Managed Care GmbH.

**Methodology, Processes**
- TK case managers are the gatekeepers to the project. Treatment is multi-modal, so doctors, psychiatrists and physiotherapists all work together and re-numeration comprises of financial incentives to achieve sustainable treatment.
• TK case managers or rehabilitation specialists contact the patient to ask whether he wants specialist treatment or a diagnostic screening. This takes place within five days. The team of specialists then meet to decide whether the candidate is appropriate for the TK-programme.

• Patients selected then start a four-week out-patient programme. Just over half of those on the programme have been shown to be fit for work again after the four weeks, which is remarkable, especially as the majority had already been suffering for more than six weeks. If they are not ready to return to work they are sent on an extended therapy programme for five to eight weeks. By this point about 34% are fit for work.

• The success of a therapy can be improved if patients are well-informed and can participate in decision-making. Therefore, TK offers different information tools, e.g. a web-based patient dialogue, medical competence centres (24/7) and a personalised drug utilisation report. The patient dialogue was set up by the University of Freiburg. It ensures anonymity and has become a popular, self-learning instrument. It is based on existing evidence-based guidelines.

**Financial incentives**
If patients are fit for work after four weeks and remain like this for six months without any interruptions, their doctor receives a financial bonus. If a patient is still not fit for work after eight weeks on the programme doctors are penalised 7% of their re-numeration. Interestingly, this is one programme that is very successful and profitable for all concerned.

**Outcomes**
Patient conditions (e.g. pain intensity, pain disability, and fear for work and for physical activity) improved. Participants return on average 72 days earlier to their workplace. Savings in sick pay, hospital stays and drugs is realized.

**Funding sources / how to sustain the initiative:**
Following the introduction in 2009 of the central health fund in Germany, insurance companies have less financial room to invest in innovative managed care concepts and health care research. Future concepts and research in pain therapy will rely largely on the ability of the cooperating partners to find ways to generate the necessary resources.

**Highlights: Innovation, Impact and Outcomes:**

**Outcomes**
Patient conditions (e.g. pain intensity, pain disability, and fear for work and for physical activity) improved. Participants return on average 72 days earlier to their workplace. Savings in sick pay, hospital stays and drugs is realized.

**Transferability to other organisations /regions:**
The entire process of patient selection and the implementation methodology is available and could be implemented for example by other insurance funds in Germany or in Europe.

**Further information:**
[http://www.sip-platform.eu/plenary-5-may.html](http://www.sip-platform.eu/plenary-5-may.html)

**Contact person :**
Konrad Labuschagne on behalf of the SIP platform
konrad.labuschagne@grunenthal.com
[Personalised Guidance Service for ITC Project “Alter leben”]

Organisation name: Saxon Housing Cooperatives

Country: Germany  
Region: Saxony

Total Region population: 4.134.000  
Good Practice Target population: 30000 Users

Topics / chronic diseases addressed:
Getting old with a good Mode of Life, Self-determined Living with a combined Solution of Technical Improvement an Services

Relevance to B3 Action Plan:

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Description:

ICT can help the older individuals to improve quality of life, stay healthier and live independently for longer. Innovative solutions are emerging to help counteract problems related to memory, vision, hearing, mobility, loss of independence which are more prevalent with age. ICT also enables older persons to remain active at work or in their community. Their accumulated experience and skills is a great asset, especially in the knowledge society.

The project „Living the Age“ is a cooperation project of housing cooperatives, research institutions and companies. Its declared target is to adapt housing units of sax cooperatives to the changing needs of their aging inhabitants. It is the objective of the project to design pilot forms of self-determined housing supported by technical measures, systems of technical assistance as well as personally linked services and to implement all this within housing cooperatives. In the sense of a balanced use of techniques and services a move to an elderly home or a similar care institution should be postponed or completely avoided.

The essential part of „living the age“ could be solved with the approach of the „Aging Dwelling“ – a growing concept, which is in line with the aging process of the inhabitants - due to its modular structure- it secures a high degree of adaptability to the changing requirements of living and the ability for the achievements of human beings. The concept is based on a combined approach of economically acceptable measures within the dwelling in order to reduce housing barriers. Furthermore it is important to include technical support systems for the assistance of daily life as well as combined services for the tenants. Micro system technical solutions are developed as AAL –solutions and combined with individual service provision, which compensate specific functional restrictions of elderly (such as weakness of seeing and hearing) and cognitive limitations as well as organic diseases (e.g. diabetes, circulation problems, strokes). The assisting systems shall support the users within their daily activities in the best possible and hardly noticeable way – by taking over certain control and steering efforts. „Simultaneous Aging“ means that the elderly adequate performance should be part of the concept approach, the socio – technical system combines technical as well as social components of the total scheme of „self-determined housing in the age“ with the objective of a complementary optimization. With a universal design products have a better
value of usage, which enable a positive effect on future demand as well as a better socio-cultural justice.

Innovation, Impact and Outcomes:

The project „Living the Age“ differentiates AAL–technologies and systems in the field of health, security, comfort and leisure, linked with housing. These functional categories were coordinated with users’ expectations and needs in order to follow a process–linked reflection and to implement users’ acceptance. This can significantly promote conditions for their high willingness to apply the solutions for their daily life in future. For a high degree of users’ acceptance the information and inclusion of future users is very important from the very beginning. Therefore this is taken into account during the whole process of „Service Creation“.

Future fields of topics are estimated in the enlargement of the network of service organisations like transport companies, companies for the organisation of leisure time, the medical complex and others. Based on the scientific capacity to add other things furthermore, research and development topics are becoming obvious, which confirm the collected experiences of the project. In this context the development of offers for advanced training and additional qualifications in the field of elderly adequate assisting systems proves to be necessary. At the same time also the possibility of a self - determined life in the housing environment is of great importance. Here it is necessary to generate adequate mobility systems to enable a secure movement.

Transferability to other organisations /regions:

In the project the technique has been positively evaluated, when it is adapted to the essential needs of people, especially of elderly. This is illustrated through the estimated remaining of users in their dwelling, if supporting technical solutions are installed. Approximately 61 percent of the interviewed persons, which means a clear majority, expressed the opinion, that a general technical support would motivate them to stay in their dwellings furthermore. Other important factors can be seen in the supported security through technical solutions. It is quite obvious, that there is a general positive consideration of using technique in daily housing life. As it can be recognized in the result of the survey, there is a solid basis for commitment, which is expressed by a general readiness and acceptance of AAL-solutions, combined with services. The financial possibilities of the target groups have to be taken into consideration. It can be noted, that approximately one third of the interviewed persons would participate to it financially, if a co-financing of the project through other partners could be realized.

Further information:
Website: http://alter-leben.vswg.de/
[Personalised Guidance Service for Teleservices]
Chronic Care Management for diabetes patients

Organisation name: Tele-diabetological Competence Centre in Saxony

Country: Germany
Region: Saxony
Total Region population: 4.134.000
Good Practice Target population: 20000 Users

Topics / chronic diseases addressed:
Improvement of a Chronic Care Management for diabetes patients

Relevance to B3 Action Plan:

|   | Organisational models | Change Management | Workforce Development, Education & Training | Risk Stratification | 5 | Care Pathway Implementation | 6 | Patient / user empowerment, | X | ICT / Teleservices | 7 | Finance, Funding |
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Description:

The future innovation can be found in the development of innovative patient centered chronic care management programs. Telemedicine can be an ideal tool to increase the quality of care, delivery in chronic care management programs, but also improve care delivery, especially for older people and those with multiple chronic diseases. In Saxony we developed a telediabetological competence centre. The overall objective was to use telemedicine a tool for better care delivery and to improve the empowerment of their patient for better self-management leading to improved decision making for patient. The comprehensive concept includes a number of different healthcare related stakeholders, medical experts as well none medical support organizations. The medical objectives are:

1. At the moment of information regarding glucose value and injection insulin units are transmitted in an electronic health record. The patient own this record, but as part of the chronic care management program can enable access to the date for physician, family, friends and other related partners.

2. A machine-based algorithm continuously analyses the incoming data and builds risk stratification onto the individual patient data. The patient will receive an immediate feedback on his Smartphone or electric health record about the quality of diabetes care to support his own self-management.

3. The treating physician will receive an alert specific indication for the red and the yellow patients initiating specific treatment actions (immediate contact necessary to evaluate data: red; contact by a diabetes educator: yellow).

4. Prevention managers also have access to the data and perform a structure intervention program focusing on health lifestyle with the diabetes patient by using telemedicine based delivery channels (telephone, SMS, online courses etc.). The medical data are taken for educational purposes only. If possible a telemedicine based pedometer will be added to monitor and support patient’s daily physical activity.
5. Automated analysis of the medical data will allow performing a quality management for the chronic care management program. This data will be fed back to the physician and the payer allowing enabling a pay for performance model.

6. A direct link to the medical data in conjunction with pharmacies and distributors will allow analyzing the individual use of insulin a test stripes and other associate material. If 90% of the material is used, an order will be placed for the distributor to supply the patient with the next necessary material.

The implementation of this telediabetological competence centre will allow a know-how expertise transfer from the competence centre into the non-specialize GP private practice. This improves accessibility to high quality of diabetes care will reduce inequalities of health, especially also in rural populations. The competence centre is an innovations good practice combining a number of innovations elements from telemedicine with innovations in modern chronic care management and individualized lifestyle counselling for the patient. Overall the telediabetological competence centre enables by the help of technological solutions to improve the quality of chronic care of aging diabetes patient.

**Innovation, Impact and Outcomes:**

Enabling improved chronic care management by the competence centre will foster large-scale policy development and model implementation. Due to the timely accessibility of patient data and the direct feedback of a stratification of care quality back to patient, the physician and payer structures and the identification of good practice models will be directly possible. This will help to mirror and implement similar telediabetological competence centers within Europe. The next level of action in the development of the telediabetological competence centre will be to improve the automated analysis of patient data with respect to the social network of all existing patients managed by the competence centre. Here the medical data, together with the lifestyle intervention information, can be used to identify successful examples of improved individual self-management. This information can be taken to recommend good practice examples to similar patient being in the same level of risk. Enabling this direct interconnection, all patients managed by the competence centre will be the peer group for an individual patient whereas the individual is part of the peers.

**Transferability to other organisations /regions:**

The telediabetological competence centre in Saxony is a clear innovation combining innovative aspects from different level of medicine. The competence centers enable the delivery of improved quality of chronic care management by sharing information, peer support and chronic care management within the centre management. This model combines modern technology with modern aspects of disease and prevention management in real world clinical practice. The telediabetological competence centre has already been successfully tested in the neighbouring region of Brandenburg. The University Hospital of Dresden (Prof. Dr. med. habil. Peter Schwarz) has developed an innovative approach to cope with the chronic disease diabetes.

Further information:


Prof. Dr. med. habil. Peter Schwarz, e-mail to: peter.schwarz@uniklinikum-dresden.de
**[The HEALTH VILLAGE]**

**Organisation name:** Campus Salute Onlus  
**Country:** Italy  
**Region:** Campania  
**Total Region population:** 6,000,000  
**Good Practice Target population:** 2000

**Topics / chronic diseases addressed:**  
Dissemination; cardiovascular, oncology, thyroid, frailty

**Relevance to B3 Action Plan:**

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**Description:**

Provide a description of your good practice. You should consider including the following:

- **Aspect of health and social care integration your good practice covers**  
The Health Village is an itinerant Camp Hospital that is setup in the occasion of special  
events. The health Village exploits prevention and self-management of chronic  
conditions, such as breast cancer, obesity, dyslipidaemia, hypertension and  
cardiovascular disease, osteoporosis,

- **General and specific objectives of initiative**  
The major objective of the Health Village is to bring specialists from Hospitals and  
University Hospitals of the Napoli area to the street, in order to promote, among the  
citizens, familiarity with the idea of prevention. The specific objective is to increase the  
awareness of chronic conditions that are most often observed among the general  
population, for which prevention is effective to reduce the burden and increase quality  
of life. We also aim to include familiarization of citizens with the ambulatories of the  
Hospitals and the University Hospitals that are available to promote prevention.

- **Methodology, processes, involvement of health, social care and other personnel**  
The Camp Hospital is built up in occasion of events that are attended by general public  
such as sport events, fairs, celebration. The infrastructure of the camp are voluntarily  
provided by the Protezione Civile, a government organization that intervenes in the  
ocasion of crisis. They setup the tents and participate to the logistic of the camp, such  
as power supply, people support, assistance. Once the tent are setup, the Hospitals  
and University Hospitals provide the machines needed for the volunteers to evaluate  
citizens health, including RX machines, US, EKG, blood analyzers, orthodontic chairs,  
etc. Citizens enrolment to the visit by the campus doctors is organized by Campus  
della Salute ONLUS volunteers, the volunteers of the non profit organization behind the  
Health Village. Physicians, nurses, residents intervene on the day of the screenings to  
visit citizens
• Target population, in terms of age range, gender, kinds of health or social situation.
  Actual or intended geographical coverage
  The campus is open to all citizens age 18 and over. At the moment, the Health Village is deployed in the city of Napoli, Campania, which has over 1,000,000 people living in its city limits and suburbs. The Campus is offered to the general population.
  If there are other organisations, (e.g. insurer, NGOs, health or care providers) please describe their involvement
  The city hospitals and university hospitals of Napoli and Salerno provide their support on a volunteer base

• Funding source(s) of the initiative
  Sources are of two kinds: economical sources, which are guaranteed by private and public sponsors, and material and personal support, which is guaranteed by all the above mentioned hospitals

• How do you plan to sustain the initiative?
  The initiative is self sustained, through a fund raising campaign that last all the year around

Highlights: Innovation, Impact and Outcomes:
• Outline the key innovative elements of your good practice
  Affordable prevention out of the boundaries of the hospitals.

• Include evidence on the impact and outcomes, if available
  After each edition of the Health Village the number of referrals to the ambulatories of the Hospitals and University Hospitals are monitored. Also, during the Village, the statistic of the diffusion of chronic disease among the population and the awareness of the health status among citizens are registered.

• Have formal or informal evaluations been performed?
  The statistic of each edition of the Health Village are objective of dissemination among the general public using posting on newspaper and local television

• What success criteria are used to determine that your initiative is working well?
  The number of patients that are referred to the ambulatories after having directly participated to the Health Village or knowing somebody that had participated is monitored in the next 3 months within the ambulatories of the Hospitals and University Hospitals that have participated to the initiative

Transferability to other organisations /regions:
Describe how your good practice could be transferred / of interest to other regions / organisations – i.e. what type of problem / challenge might it help them to solve? There is the intention to export the campus to other nearby cities (Salerno in may 22, 2013; Caserta in june 2013)

Further information:
Insert links to web pages, documents, etc
http://www.villaggiodellasaluteonlus.it/
[eCare Network in Bologna]

**Organisation name:** ASSRRERIT – CUP2000  
**Country:** Italy  
**Region:** Emilia Romagna  
**Total Region population:** 4,459,246  
**Good Practice Target population:** frail elderly, social workers, volunteer associations

Relevance to B3 Action Plan:

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**Description:** The eCare Network of Bologna, active since 2005 created by CUP 2000 on behalf of the Bologna Local Health Authority and of the 50 municipalities in its district with the support of the Emilia Romagna Fund for not self sufficient people, has realized a network of citizens, associations, public authorities, professionals able to support frail elderly. Currently, the service includes over 11,000 elderly people over seventy-five, who are followed by a specialized Service Center that delivers tele-monitoring, tele-assistance and tele-company services to prevent the aggravation of social and healthcare frailty and for the early detection of possible worsening signals and avoiding unnecessary hospitalisation, in constant relationship with both municipal social and healthcare services and with the healthcare services delivered by the Local Health Authority of Bologna. The Service Centre of CUP 2000 offers personalized support through a dedicated and specialized call center and a constant monitoring of the health and social conditions and the adherence to prescriptions. The monitoring service has been developed by a team participating by the social services of the nine districts of the city of Bologna and allows the identification of critical events and the prompt involvement of the healthcare services. The eCare network addresses the needs of social relationships of elderly thanks to the valorization of the social and cultural resources available at local and district levels.

**Highlights: Innovation, Impact and Outcomes:**

The service is addressed mainly to frail elderly over 75, who are at risk of social isolation and functional and cognitive decline. The service is free for the enrolled elderly and offers periodical and scheduled phone contacts but also direct call with a toll number 24h/7 service. Here a list of services offered by the eCare network:

- Call Center inbound 24h-7 days
- Creating and maintaining a socio-sanitary dossier
• At least 1 weekly phone call according to the Individual Assistance Plan
• Electronic bookings of medical visits and exams
• A link with GPs and clinicians
• Continuous exchange with the municipal Social Services
• Services of transportations, accompaniments, shopping to list
• Calls to emergency services (policemen, firemen….)
• Conventions with craftsmen to provide home maintenance works
• Small bureaucracy

More than 50 municipalities of the Province of Bologna have been involved, together with volunteer association (about 27), elderly association (about 225), social centres (about 60).
In this very close interaction with the voluntary sector, associations and public administration lies the success of this service, which managed in the years to gather all the key resources in a given area in order to offer opportunities and services to the elderly population, making them easily visible and accessible even by those who, like many older people, usually does not have a high knowledge of what can be enjoyed in support of their condition of loneliness and frailty.

Transferability to other organisations /regions:
The network is also well established in the city of Ferrara. Moreover the experience of eCare network is the base for an upcoming evolution of the service and its experimentation in other regional cities and regions (namely Lombardia, Piemonte, Puglia).

Further information:
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Contact person: caterina.lena@cup2000.it, teresa.gallelli@cup2000.it
B3 Action Group `Replicating and tutoring integrated care for chronic diseases`

[Complications Prevention in Diabetes]

**Organisation name:** AUSL Ferrara _ ASSRRERIT  
**Country:** Italy  
**Region:** Emilia Romagna  
**Total Region population:** 4.459.246 citizens  
**Good Practice Target population:** Persons with Diabetes Mellitus  

**Topics / chronic diseases addressed:**  
diabetes Mellitus, integrated care, chronic disease, integrated care management, chronic care model.

**Relevance to B3 Action Plan:**

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**Description:**

The integrated care management has historically changed for prevention and care of diabetes among population, including in the diagnosis process the 282 General Practitioner (GP) over 288 working in the Ferrara Province. This has transferred a certain amount of clinical responsibility from the ambulatory care service to the GP, according with an agreed protocol for those patients with diabetes mellitus, type II, under stable metabolic conditions and with low complications impact.

In the Ferrara Province patients assisted for diabetes increments of 1000 units every year, while it is estimated that there are 1700 new diagnosis per year, while 650 deceased persons are diabetic.

Presently, the prevalence of diabetes in the Ferrara Province is about 6,8 %, progressively incrementing since 2003. The estimate for 2012 is about 25.000 persons with diabetes, double compared with 12 years ago.

The prevalence distribution by age confirms the direct relationship between diabetes prevalence and age, reaching 12% of assisted persons over 70 years of age. This, together with the fact that Ferrara Province has among the highest aging index in Italy, with 24,9 % of elder over 65 years of age, explains a higher prevalence of diabetes in Ferrara Province compared to the national level. In addition, the tendency to obtain early diagnosis in the Ferrara Province may favor an increment of prevalence.

**Objectives of the Diabetes Service Network**

- To uniform of the organization of the diabetic team
- To define activities models
- To revise the nurse care model
- To update the ICT in Diabetes Services
B3 Action Group `Replicating and tutoring integrated care for chronic diseases`

- To implement therapy education
- To implement specialized care pathways
- To promote management of diabetic patients in the primary care area
- To transform services according with initiative health and chronic care models
- To improve communication and information management among professionals involved by:
  - Consolidating of the provincial databases on diabetic patients;
  - Consolidating reports on process and outcome indicators on care, monitoring care costs at regional level;
  - Improving accessibility and Exchange of data between specialists and general practitioners by using SOLE ICT.

The integrated care management for patients with diabetes Mellitus has radically changed the care model, becoming an advanced reference for chronic care. Anyhow, the epidemic impact of diabetes impedes to crystallize organizational models, given the fact that in few years, in the Ferrara Province the diabetes prevalence will reach 10% (36,000 citizens with diabetes). Thus it is necessary efficient and sustainable care models, in order to avoid that an inappropriate reorganization could increase in patient, lab. Diagnostics and pharmacy consumption, which has in last years considerably reduced.

Further information:
Matias de la Calle

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[Eubiosia Project]

**Organisation name:** ANT Foundation (collaborator of ASSRRERIT in EIP on AHA B3 AG)

**Country:** Emilia Romagna Region, Italy

**Total region population:** 4,459,246

**GP target population:** total of cancer patients (in advanced fase) in the Province of Bologna: 4800; ANT takes care of 1000 patients in collaboration agreement with the Public Health

**Topics/chronic diseases addressed:** Cancer Patients

**Relevance to B3 action plan:**

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**Description:**

- **Aspect of health and social care of your good practice**
  - FREE CANCER HOME CARE – ONCOLOGICAL HOSPITAL AT HOME (OHH-ANT)
  - The collaboration developed between ANT and four different local health authorities (Bologna, Imola, Ferrara and Modena) is based on the principle of subsidiarity, where a subject of the Third Sector (NGO) with a strong base of professional caregivers, provides a service of welfare services to cancer patients
  - the collaboration is based on specific operating protocols that ensure a high level of quality care and an effective coordination between the different entities involved (Hospital, GP, NGO) for the benefit of the patient and the family
  - the choice by the public subject to involve ANT and more generally a dispenser of NGO professional services, also involves the acquisition of a strong ethical component, capable of improving the path of humanization of Public Health
  - OHH-ANT offers medical care: cancer, palliative and specialist care. Assistance carried out by different experts, including physicians, nurses, psychologists, nutritionists, physiotherapists, chemists, welfare worker. They are freelance and their fee is fully covered by ANT Foundation
  - OHH-ANT supplies to the cancer patients all necessary health care, 24 hours a day, 7 days a week, all year round, holidays included
  - Counselling: psychologists for the management of bereavement, family and medical staff support;
  - Home artificial nutrition service; PICC (Peripherally Inserted Central Catheter)
  - OHH-ANT KIDS is a cancer pediatric home care
  - **ANT social services.** The ANT Foundation's involvement in the regional network of Public Health, has also extended the commitment to the "social" assistance. The goal is to provide the patient and his family everything they need, supporting the criticality of the moment. Thus, where the public social services cannot intervene in terms of timing: too slow when compared to the expected life of the patient or
related to family income situation, the ANT Foundation, with its own resources, takes care of some services such as:

- ANT provides cancer patients with the drugs not reimbursable by public health system;
- Door to door service: free transport of the patient from home to hospital and back for instrumental tests cannot be handled at home, free transport for day hospital admissions
- Bedridden bath and personal care
- Cleaning of bedsheets, blankets and clothes including collection and delivery
- Delivery health aids service: orthopaedic beds, infusion pumps, wheelchairs etc.
- Home Project: Toll Free Number for oncological and psychological questions
- Library at home: ANT delivers books, DVDs to the patients

**General and specific objectives of initiative**

ANT’s main goal is to offer free of charge health and social home care to cancer patients, guarantying the most suitable and qualified health care together with complete health service and welfare work both for the patient and for his/her family.

**Methodology, processes, involvement of health, social care and other personnel**

The structural model of ANT provides the Patients with a free-of-charge 24 hours assistance. The full-time staff of physicians, nurses and psychologists of the ANT-OHH is organized in functionally autonomous groups based on the model of a hospital ward.

The acceptance of the Patients in ANT-OHH depends only on the diagnosis of the cancer and the request of the GP. All the professional staff follows basic and continuous training. They supply patients with all necessary health care, 24 hours a day, 7 days a week, all year round, holidays included

A goal of ANT’s care is to make your home as a place of choice for treatment, making withdrawals, transfusion, diagnostic assays, insertion of PICCs too, to avoid to stress the patient with home-hospital transfers and, at the same time, to reduce inappropriate admissions, which are also responsible for increased cost of the public facility to the community.

Home health services carried out by ANT Foundation provide a strong medical component, higher than the nursing one and an important contribution by the psychological staff support for the patient and his family. The psychological support may, on request, also continue after the conclusion of medical and nursing care, for the stages of mourning.

**Target population**

Cancer patients in particular elderly people (average 72 y) and their families

**Geographical coverage**

Emilia Romagna Region: Provinces of Bologna, Ferrara e Modena

**Organisations involvement**

An Important factor for the initiation and success of assistance programs, is the signing of a collaboration agreement with the local Public Health for the implementation of a local health
network. The cooperation between the local Public Health and ANT Foundation is based on shared operational protocols that have evolved over the years through the introduction of new services and an ever better coordination for the benefit of the patients. The local Public Health verifies the respect of these protocols and certifies the quality of care developed by ANT.

- **Funding Source how do you plan to sustain the initiative**
The contribution to cover the total costs incurred by the ANT Foundation by the competent Public Health per day of home care varies from 25 to 28% of the actual cost incurred by ANT. The remaining share of the cost by the ANT Foundation (a ANT’s day of care costs about 20 euro) is covered by donations from citizens, companies, corporate foundations, banking foundations, 5x1000.

A balanced budget between Home Care Service costs and contributions received through territorial solidarity channels (public sector donations, fund raising organized by volunteers, institutional contributions and donations). This is the basis for insuring operational continuity of the Hospital-at Home and the distribution of welfare benefits for the Suffering, totally free of cost.

- **Innovation, Impact and outcomes**
The real innovative element of the project lies in the involvement of a NGO subject that brings, necessarily, economic and ethical benefits for the community. The lower costs generated in the development of oncology free home care provided by ANT do not depend solely on the degree of efficiency of its structure, but also the added value donated by voluntary component.

It is also to underline the dual form of services offered. Health care are not only provided to the cancer patients. They are accompanied by a series of social measures developed by ANT volunteers to reduce suffering, discomfort and sense of isolation of both patients and the families. The domiciliary care allows to take action on these diversified needs of the patient and his family.

- **Transferability to other organisations/regions**
The current capacity of ANT to assist their patients in nine Italian regions, testifies to the replicability of the model described here. Assess the specificity of the context on which you operate and appearance, more relational, building partnerships, ANT will draw on its experience and its know-how to enable the transfer of "Best Practice" also in a European context.
[NETWORKING ACTIONS IN MIRANDOLA BIOMEDICAL DISTRICT]

Organisation name: Fondazione Democenter-Sipe - ASSRRERIT

Country: Italy  Region: Emilia Romagna

Total Region population: -  Good Practice Target population: -

Topics / chronic diseases addressed:
Enterprises network, biomedical district, public-private funding

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Description:

Emilia Romagna is acknowledged as the Region of industrial Districts. The Regional authorities supported the realization of innovative projects through the call “Dai Distretti Produttivi ai Distretti Tecnologici”, which financed projects implemented through collaboration between enterprises. The initiative involved 35 enterprises, triggering investment for EUR 16,7 million.

Democenter-sipe Foundation supported this networking program, where 2 approved projects concerned with biomedical themes:

- ICL - Integrated Compounding Lab – involved B.BraunAvitum Italy (www.bbraun.it) and Lean. ICL Laboratory aimed to realize an integrated and multidisciplinary technology platform for pharmacological compounds’ automatic production. The technology platform would be located in hospital, in particular Modena Hospital, and pharmacological compounds will be used for clinical nutrition, oncology, intensive therapy, ….

- FARE(www.bellco.net/company/company-collaborative-research/9-24-14-en/filtration-and-adsorption-regione-emilia-romagna.aspx) - Filtration and Adsorption Emilia-Romagna - promoted by Bellco (www.bellco.net) and Medica (www.medica.it). The F.A.R.E. Project, dedicated to creating a system for extracorporeal blood clearance capable of overcoming the technological restrictions that today preclude or drastically reduce the clinical practice. The priority objective of this project is the treatment of highly crippling diseases such as: simple or complex acute renal failure, septic shock, rheumatoid arthritis, myeloma and crush syndrome (diseases for which researchers are choosing the road of blood clearance as therapeutic treatment).

Democenter-Sipe Foundation actively supported the dissemination activities of the call by organizing “Distretti Day” (www.democentersipe.it/distrettiday/), an event aimed to spread achieved results.

Thanks to the successful results obtained during the first edition, Emilia Romagna Region launched in 2012 a new call “Dai distretti produttivi ai distretti tecnologici – 2”. The
initiative aims at promoting the evolution of the districts involved through the implementation of novel methodology such as open innovation, knowledge management and design management approaches.

**Democenter-Sipe Foundation** is in charge as actuator of “Biomedical and prosthetic district” where 6 networks working on this theme will be selected.

**Highlights: Innovation, Impact and Outcomes:**

These initiatives represent an opportunities and a best practices in order to create a partnership between enterprises belonging to the biomedical supply chain. These networks aim at performing research projects through the spreading of knowledge, skills and competencies. In particular “Dai Distretti Produttivi ai Distretti Tecnologici” gives the opportunity to create **8 partnerships between biomedical enterprises** in order to develop R&D projects.

These initiatives highlight the relevant role played by technologies transfer centers, as **Democenter-Sipe Foundation**, as facilitators for the creation of collaborative partnerships between enterprises and Universities. These networks will have positive effects on the productive district.

Technologies transfer centers could act as facilitators also for the creation of international networks between enterprises located in different EU countries.

**Transferability to other organisations /regions:**

This kind of initiatives could be transferred to other regions or districts, where enterprises could create network in order to reach new markets. Technologies transfer centers could help to overcome diffidence existing between enterprises working in the same sectors in order to carry on joint projects.

**Further information:**

“I Lunedì dei Distretti” – events related to “Dai distretti produttivi ai distretti produttivi tecnologici – 2” aimed to spread knowledge about Open Innovation, Knowledge Management, Design Management, enterprises’ networks.


Democenter-Sipe Foundation website: [www.democentersipe.it/index.php](http://www.democentersipe.it/index.php)

**Contact person:** Dr. Laura Aldrovandi – [biomed.eu@democentersipe.it](mailto:biomed.eu@democentersipe.it)
[Support patients through e-service solutions]

Organisation name: AUSL Ferrara_ASSRRERIT

Country: Italy
Region: Emilia Romagna

Total Region population: 4.459.246 citizens

Good Practice Target population: Persons affected by chronic respiratory failure as first diagnosis.

Topics / chronic diseases addressed: pneumology, telemedicine, e-services, tele-care, integrated care, chronic disease, ICT solutions.

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Description:

The Ferrara pilot study is targeted to patients affected by chronic respiratory failure requiring long-term oxygen therapy and non-invasive mechanical ventilation who are already followed by pneumologists for periodical clinical controls. The aim is to provide patients suffering from breathing problems with a system that can remotely monitor their health status using saturemeter and several other non-invasive medical devices in order to enable more efficient use of medical aids and a more efficient organization of the healthcare service provided by medical staff. Complementary medical web application will allow clinicians and all the other stakeholders involved, to access patients’ data and report clinical considerations.

The specific objectives are:
The pilot aims to provide patients suffering from breathing problems with a system that can remotely monitor their health status, enabling a more efficient use of medical aids and a more efficient organization of the healthcare service medical staff. The pilot study aims is to assess the mobility reduction of patients and health professionals through the tele-medicine support.

Methods
The methodology implemented is an observational, prospective, monocentric, crossover and before/after study. A study sample will be individuated. Effectiveness of tele-medicine will be observed trough study case/control case design. In addition, the study sample will be observed before/after telemedicine. Patients’ monitoring data will be compared for 8 months before tele-medicine, with the 8 months during which tele-medicine was active.

Study population, sample and case definition
Target users are patients suffering from respiratory No specific technological skill is required.

Inclusion criteria
- Affected by chronic respiratory failure as first diagnosis, specifically:
  - COPD,
- Fibrosis,
  - Treated with long-term oxygen therapy and non-invasive mechanical ventilation;
  - Older than 60 years of age;
  - With life expectancy higher than 12 months;
  - In case of COPD, stadium 2, 3, 4;
  - Accompanied by a care giver;
  - Followed by Primary Care Department, Territorial Service, AUSL Ferrara;
  - Collaborating patients

**Exclusion criteria**
1. Not affected by chronic respiratory failure as first diagnosis
2. Without diagnosis of asthma, dementia, psychiatric pathologies;
3. Patients with OSAS diagnosis (nocturne apnoea)
4. Patients with diagnosis of cancer
5. With life expectancy lower than 12 months
6. Not collaborating patients or already involved in other study

A control group will be individuated. The control group will respond to the same inclusion/exclusion criteria, and will be equivalent in number to the Pilot group. Control group will be monitored by the same pneumologists in AUSL Ferrara. In addition, a pre test/post test will be conducted within the patient group undergoing the Pilot. The patient will be instructed on the functionalities of the technologies, especially regarding the interaction with the communication device.

If necessary, during the lifetime of the Pilot a nurse or technical personnel may visit the patients at home.

**Tools**
The home gateway will be composed by: A touchscreen netbook Acer Iconia W501, a Bluetooth saturimeter, a dedicated ADSL internet connection.

*Touchscreen netbook* The touchscreen netbook allows the system to: Collect data locally from the medical devices, store them as long as they cannot be sent to the HUB, properly and safely send data to the central HUB, show some basic functionalities to the user (for instances a list of measurement correctly sent.

*Medical devices* At the current stage it seems that respiratory problems may be monitored mainly using a saturimeter. Clinicians are also interested in monitoring some patient with a capnograph (to monitor also CO₂).

*Other tools* A monitoring medical questionnaire will be submitted to the patient in order to assess health conditions and wellbeing. Satisfaction questionnaires will be submitted in order to assess patient satisfaction related with the new technology relationship. Currently we are investigating the possibility of using ADSL where already available and, in all other cases a UMTS/GSM connection.

**Study Procedure**
Patients will be involved in the pilot in three phases:
1. *Platform tests and validation:* the scope is to test and validate the platform before deployment on real users. This phase should include 2/3 smart patients who can be later involved also in the real pilot study
2. *First pilot:* the first pilot study will involve 20 users. It will include all the main functionalities and, probably, just simpler medical devices. The pilot can last up to 8 months and has to provide feedbacks for an overall improvement and tuning of the platform.
3. Second pilot: the second pilot will involve 20 users (probably different from the first pilot). It can add, in some case, a different device (capnograph, spirometer). The pilot can last up to 8 months and has to provide the final considerations for the system validation.

Further information:
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http://www.spes-project.eu/
[The ARIA Project]

Organisation name: Arcispedale S.Maria Nuova plus Reggio Emilia Local Health Authority

Country: Italy Region: Emilia Romagna

Total Region population: 4.500.000 Good Practice Target population: patients affected by: neurological, neuromuscular, rib cage diseases causing chronic respiratory failure.

Topics / chronic diseases addressed:
tele-medicine, muscular dystrophy, chronic respiratory failure, neurological diseases, acute early exacerbations detection and treatment, health saving costs.

Relevance to B3 Action Plan:

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Description:

- Very vulnerable patients (neurological, neuromuscular and severe rib cage diseases affected patients with chronic respiratory failure) often need high care setting hospitalization due to frequent severe and life threatening acute respiratory exacerbations. ARIA Projects aims to keep such patients staying at home while they undergo early diagnosis and acute respiratory exacerbations early medical and physiotherapy treatments.
- The ARIA Project shows, from 2008 to today, the feasibility of a home-based tele-monitoring model of care, to avoid, as much as possible, a long time hospitalization of such very fragile patients, improving patients' and relatives' life quality, satisfactory health conditions, life length, and saving health costs.
- The Patients / care-givers were given a pulse oxymeter equipped with a modem to transmit daily nocturnal oxyhemoglobin level and pulse frequency to a remote tele-medicine service, and they were also given a 10 items respiratory questionnaire to calculate a score to transmit every day to the same remote tele-medicine service, via a phone call. This care model is proving that patients and their care-givers, if properly trained and remotely supported by qualified hospital physicians, physiotherapists and general practitioners by means of tele-medicine, can face acute respiratory exacerbations with good clinical outcome, staying at their home.
From 2008 to today the ARIA Project has enrolled and is following 14 pts, affected by chronic respiratory failure due to some kinds of muscular dystrophy (Becker, Duchenne, Welander) and severe muscular (Pompe's Disease) and neurological diseases such as Spinal Cord Amiotrophy as well as a case of severe Kyphoscoliosis. Patients’ age is ranging from 17 to 68 years, 78.5% is chronically mechanically ventilated, 42.8 % has a permanent tracheostomy, 21.5 % of the patients need chronic oxygen support.

Actually the ARIA Project is implemented in the Reggio Emilia Province, in order to prove the feasibility of a such home-based care model in a very vulnerable patients cohort. The Emilia Romagna Region Agency for Health and Social Care may wish to consider extending the project to other provinces in the region.

The ARIA Project is based on the contribution of some actors: three medical doctors specialized in pulmonology working in either a general hospital/research institute or in a rehabilitation hospital who provide their professional skills, a respiratory physiotherapist going to patients' home when necessary, patients' primary care physicians, a tele-medicine service provider and, obviously, patients and their families or other care-givers. The tele-medicine service warns doctors at the hospitals when clinical and pulsoxymeter patient's parameters deteriorate. Doctors contact the patients or their families to understand patient's clinical conditions and then they may warn patient's primary physician who goes to visit patient at home and to start an early medical therapy. If necessary, a respiratory physiotherapist is sent to the patient's home for an early treatment.

Support costs are all borne by NHS. The monthly tele-monitoring service cost is € 70,00 per patient. The mean monthly cost of physiotherapy treatment at home is € 30,00. The cost of the Doctors is not calculated, since they are dependent on or affiliated with the NHS.

Initially the cost of the physiotherapist was supported by the Italian Union fighting against Muscular Distrophy. Subsequently, the Reggio Emilia Local Health Authority has taken responsibility for the full cost of the tele-medicine service as well as of the physiotherapist cost.

Highlights: Innovation, Impact and Outcomes:

- Enrolled patients hospitalization days number fell from 2008 to 2012. Cumulative patients' annual hospitalization days fell from 300 to 22; every pt's yearly cumulative hospitalization days fell from 40 to 2; every pt's yearly cumulative hospitalization due to acute respiratory exacerbations fell from 19,36 to 0; every patient's mean yearly total check-up hospitalization days: from 1 to 1,42.
- The annual cost of the Project has been € 1,200 per patient. Daily cost due to hospitalization in a high-care unit and in a pulmonology ward in our general hospital respectively amounts to € 2,000 and to € 300,00. Saving resources is evident.

Transferability to other organisations /regions:

The ARIA Project has so far been tested on a small cohort of particularly vulnerable patients, but it has demonstrated the feasibility and clinical utility of an organizational home care model based on tele-medicine. Other health organizations may also participate in the project for an evaluation in a larger number of patients.

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B3 Action Group ‘Replicating and tutoring integrated care for chronic diseases’
[“NUOVE RETI SANITARIE” Home-Based Telesurveillance program (HBTeleP) in patients with COPD]

Organisation name: Salvatore Maugeri Foundation

Country: Italy Region: Lombardia

Total Region population: Good Practice Target population: COPD

Topics / chronic diseases addressed: Teleservice, Multidisciplinary management

Relevance to B3 Action Plan:

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Patients of both genders, living in the Lombardy Region, with confirmed diagnosis of COPD older than 18 years and with at least one hospitalization for GOLD III and IV COPD relapse in the previous 6 months could be enrolled in the HBTeleP.

Exclusion criteria included the presence of non-respiratory debilitating illness with inauspicious prognosis, cognitive impairment clinically evident and in-hospital patients.

Access to the HBTeleP could be suggested by the attending pulmonologist or the family physician at the time of hospital discharge or after a visit at the outpatient clinic. Before enrollment, all patients were clinically stable and trained about COPD, including advice on self-measurement of clinical derangement, infection, COPD relapse, dispnoea treatment, drug action plan, desaturation event, dietary restrictions, and signs and symptoms of COPD exacerbation.

At the beginning of the HBTeleP patients underwent in hospital physical examination, ABG spirometry, nocturnal saturimetric tracing, CAT score impact, drugs list and educational sessions while at the end of the HBTeleP, a complete medical history and symptomatic status related to COPD, ABG status, vital signs and concomitant treatments were also collected. QoL was assessed by Sant George questionnaire or by CAT score

Programme taxonomy

HBTeleP was organized as a multidisciplinary care approach functioning through structured telephone support and telemonitoring. An intensive nurse care management program was created and a nurse-tutor (NT) followed-up the enrolled patients for 6 months. NT performed a weekly intervention mainly through structured appointments (from Monday to Friday from 8:30 am to 4:00 pm) collecting information about disease status (BP and body weight measurements) and symptoms (general information). Patients were provided with a portable pulsed saturimetric device and in selected cases a pulsed saturimetric device with solid memory able to transmit a saturimetric trend, and instructed how to transmit the trace via a fixed or mobile tele-phone line to the NT.

Participants in the study were also informed that tele-support, asides from the normal weekly nurse call, could be reached by the patients themselves for urgency and emergency. Unscheduled contacts could also be activated 24 hours/day 365 days/year and performed by a nurse on duty in case of symptoms, signs of possible decompensation or any doubt about therapy. Moreover, pulsed saturimetric data were transferred during each call to the
telemedicine Centre who stored and sent it to the hospital unit. At the end of each phone call, the NT may provide support to the patients, test clinical condition by means of a respi card triage, offer advice regarding diet, lifestyle and medications, suggest changes in therapy within patient-adapted criteria previously defined with the pulmonologist supervising the program, require pulmonologist’s consultation and schedule the next phone appointment. All conversations were recorded; pSat tracings, patient’s clinical data and suggestion were filled in a personal health electronic record by the NT.

Medical doctors (pulmonologist and/or GP) were consulted before referring the patient to the emergency department or to the clinic.

**Education of the staff/operators**

A comprehensive training program was developed and presented to the clinical staff (physicians and registered nurses) of the various hospitals. Education on the following topics: chronic disease management for COPD, medication management, use of the standard COPD care plan, explanation of how to use patient education material and telemonitoring integration, was provided in different sessions. Nurses received additional training as far as filling of the patient’s personal health record, use of the telemedicine equipment and interpretation of patient's vital sign data trend.

**Telemedical Centres**

Three telemedical centers offered the technological support, biomedical devices and a Call Centre for telemonitoring activities, managed the database of collected data and provided clinical and nursing activities during the night and weekends through its health personnel, therefore guaranteeing the 24 hour/day service.

**Patient Population**

Among 625 patients registered in the regional telemedicine database at 31 december 2011 completed 6-months follow-up after the end of the program: out of these 341 concluded the HBTeleP regularly without hospitalizations. During 6 months of follow-up after the end of the program, clinical events (hospital readmissions or death) occurred in 52 patients. Acute COPD relapse was the main cause of hospitalization; The majority of patients were males, aged >65 years (73±8 y), had severe obstruction (13% with FEV1 < 30% prd and 42% under 50% prd) and advanced functional limitation. Multiple comorbidities (≥2) were present in 20% of patients. Combined pharmacotherapy (bronchodilators + inhaled steroids) was prescribed in 68% of the patients. 96% of the patients received at least one phone contact per week according to the clinical protocol. At the end of the programme, all clinical parameters and Life Quality Questionnaire improved significantly. In a previous paper on the same COPD program, a 40% decrease in total number of readmissions was recorded.

The experience of HBTeleP for HF patients in Lombardy shows that: 1) the programme is effective in improving patients’ functional status and QoL, 2) the overall favourable results are more striking in patients who were more compromised at baseline, and 3) a favourable response to the program is associated with a reduction in rehospitalisation.
B3 Action Group ‘Replicating and tutoring integrated care for chronic diseases’

**Multidisciplinary Intervention**

- **Home**
- **Call Center**
- **Hospital**
- **Telemonitoring**
- **Telephone support**
- **Patient**
- **Devices**
["NUOVE RETI SANITARIE” Home-Based Telesurveillance program (HBTeleP) in patients with chronic heart failure]

**Organisation name:** Salvatore Maugeri Foundation

**Country:** Italy  
**Region:** Lombardia

**Total Region population:**  
**Good Practice Target population:** Chronic Heart Failure

**Topics / chronic diseases addressed:** Teleservice, Multidisciplinary management

**Relevance to B3 Action Plan:**

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Patients of both genders, living in the Lombardy Region, with confirmed diagnosis of CHF older than 18 years and with at least one hospitalization for acute HF in the previous 6 months could be enrolled in the HBTeleP. Exclusion criteria included the presence of non-cardiac debilitating illness with inauspicious prognosis, cognitive impairment clinically evident and in-hospital patients. Access to the HBTeleP could be suggested by the attending cardiologist or the family physician at the time of hospital discharge or after a visit at the outpatient clinic.

Before enrollment, all patients were clinically stable and trained about CHF, including advice on self-measurement of weight and blood pressure (BP), dietary restrictions, including sodium and fluid, and signs and symptoms of heart failure exacerbation. At the beginning and the end of the HBTeleP, patients underwent in hospital physical examination, two-dimensional echocardiography and 6-Minute Walking Test (6MWT). A complete medical history and symptomatic status related to CHF, NYHA class, vital signs and concomitant treatments were also collected. QoL was assessed by Minnesota Living with Heart Failure Questionnaire (MLHFQ).

**Programme taxonomy**

HBTeleP was organized as a multidisciplinary care approach functioning through structured telephone support and telemonitoring. An intensive nurse care management program was created and a nurse-tutor (NT) followed-up the enrolled patients for 6 months. NT performed a weekly intervention mainly through structured appointments (from Monday to Friday from 8:30 am to 4:00 pm) collecting information about disease status (BP and body weight measurements) and symptoms (general information). Patients were provided with a portable one-lead electrocardiography (Card-Guard 2206, Israel), and instructed how to transmit the electrocardiogram trace (EKG) via a fixed or mobile tele-phone line to the NT.

Participants in the study were also informed that tele-support, aside from the normal weekly nurse call, could be reached by the patients themselves for urgency and emergency. Unscheduled contacts could also be activated 24 hours/day 365 days/year and performed by a nurse on duty in case of symptoms, signs of possible decompensation or any doubt about therapy. Moreover, EKG was transferred during each call to the telemedicine Centre who stored and sent it to the hospital unit. At the end of each phone call, the NT may provide...
support to the patients, offer advice regarding diet, lifestyle and medications, suggest changes in therapy within patient-adapted criteria previously defined with the cardiologist supervising the program, require cardiologist’s consultation and schedule the next phone appointment. All conversations were recorded; EKG tracings, patient’s clinical data and suggestion were filled in a personal health electronic record by the NT.

Medical doctors (cardiologist and/or GP) were consulted before referring the patient to the emergency department or to the HF clinic.

Education of the staff/operators

A comprehensive training program was developed and presented to the clinical staff (physicians and registered nurses) of the various hospitals. Education on the following topics: chronic disease management for HF, medication management, use of the standard HF care plan, explanation of how to use patient education material and telemonitoring integration, was provided in different sessions. Nurses received additional training as far as filling of the patient’s personal health record, use of the telemedicine equipment and interpretation of patient’s vital sign data trend.

Telemedical Centres

Three telemedical centers offered the technological support, biomedical devices and a Call Centre for telemonitoring activities, managed the database of collected data and provided clinical and nursing activities during the night and weekends through its health personnel, therefore guaranteeing the 24 hour/day service.

Patient Population

Among 1196 patients registered in the regional telemedicine database at December 31st 2008, 773 completed 1-year follow-up after the end of the program: out of these 602 concluded the HBTeleP regularly without hospitalizations. During 365-day of follow-up after the end of the program, clinical events (hospital readmissions or death) occurred in 120 patients. Acute HF was the main cause of hospitalization; The majority of patients were males, aged >65 years (69%), had severe LV systolic dysfunction (70% with a LVEF≤35%) and advanced functional limitation, 86% being in III-IV NYHA functional class. Coronary artery disease was the most common cause of HF, and multiple comorbidities (≥2) were present in 27.5% of patients. Combined pharmacotherapy (diur-blockers) was prescribed in 35% of the patients. 94 patients (15.6 %) had a SOI score ≥ 2 (major or severe) and 37 (6.1 %) were classified at higher risk of death (ROM score ≥ 2).

89.8% of the patients received at least one phone contact per week according to the clinical protocol. At the end of the programme, all clinical parameters and Life Quality Questionnaire improved significantly. In a previous paper on the same CHF program, a 36% decrease in total number of readmissions was recorded.

The experience of HBTeleP for HF patients in Lombardy shows that: 1) the programme is effective in improving patients’ functional status and QoL, 2) the overall favourable results are more striking in patients who were more compromised at baseline, and 3) a favourable response to the program is associated with a reduction in rehospitalisation.


[TELECARDIOLOGY FOR PUBLIC HEALTH CARE OF CARDIOVASCULAR DISEASE (Telecardionline)]

Organisation name: Regional Healthcare Agency of Puglia

Country: Italy Region name: Puglia Region

Region population size: 4,070,000 Target population size: 25% of population

Topics / chronic diseases addressed: TELE-MEDICINE, TELE-CARDIOLOGY, CARDIOVASCULAR DISEASE

Relevance to B3 Action Plan:

| 1 | Organisational models | 5 | Care Pathway Implementation |
| 2 | Change Management | 6 | Patient / user empowerment, |
| 3 | Workforce Development, Education & Training | 7 | ICT / Teleservices |
| 4 | Risk Stratification | 8 | Finance, Funding |

Description:

The Apulia region-wide pre-hospital ECG telecardiology program involved presently half a million patients from all over Apulia (19,362 km², 4 million inhabitants), who called the public regional free emergency medical service (EMS) telephone number “118” between October 2004 and March 2013. The 118 is a public, free service for general, either medical or surgical, emergencies, whose aim is an immediate diagnosis of critical diseases, to avoid emergency department (ED) delay to diagnosis. Final hospitalization is disposed by crews’ physicians and the 118 district center, connected by mobile phone; direct admission to a critical care unit is arranged according to level of care. In the event of normal findings, patients are discharged from the ambulance and not transported at all. In Italy, 118 crews usually include a physician skilled in emergency medicine and/or nurses.

One hundred sixty-five crews of the 118 EMS, 27 first-aid points, 33 summer first-aid points, and 12 medical vehicles involved in this project were equipped with apposite devices for recording and telephone transmission of 12-lead ECG (CardioVox P12 heart-line receiving system; Aerotel, Holon, Israel); the device does not directly show ECG records, so ECG cannot be immediately seen by the 118 crew members (paramedics and physicians), although the ECG may be sent back and visualized on a smart phone. Data recorded by the 118 personnel is transmitted by mobile phone to a single regional telecardiology hub center where a cardiologist available 24/7 promptly reports the ECG (Fig. 2) and briefs on-scene EMS personnel and the EMS district center. Admission to a coronary care unit or to cat-lab for primary coronary angioplasty is arranged after this consultation. The Regional Health Care Department coordinates the regional network for primary coronary angioplasty or pre-hospital thrombolysis where primary coronary angioplasty is not available in a timely fashion.

Telecardiology support and hub center facilities are provided by Cardio-on-line Europe S.r.l., a telemedicine company-certified UNI EN ISO 9001:2008 (quality certification) and UNI
CEI ISO/IEC 27001:2006 (security data certification). The telecardiology hub center serving the entire regional territory, operative 24/7, has two cardiologists promptly available for ECG reporting, 12 computer terminals, 25 telephone lines, 2 call center operators active 24/7, and an emergency power system in case of electrical power outage. All data are electronically stored onto computers using a unique identification number for center and individual, under the provisions of the Italian Privacy and Personal Information Protection Act (D. Lgs. 196/2003). Regional EMS and telecardiology provider made a preliminary agreement on indications for ECG recording: presence of chest pain or epigastric pain, breathlessness, palpitations, dizziness/fainting, or any suspected acute cardiovascular disease.

**Objective:** The programme meant to introduce Teleservice processes to support patients affected by cardiovascular diseases both in case of acute events and management of chronic conditions. This also brought an innovative organizational model able to prevent worsening of patients conditions thanks to better management of patients both in acute phase and in chronic conditions guaranteeing a standardize diagnostic and therapeutic pathways: this avoided inappropriate hospital access, reduced hospital stays, reducing costs of patients’ management.

**Methodology:** In line with Italian legislation, the regional EMS is the only provider of EMS for the entire population of the whole region. All ambulances and medical cars of the 118 depend on the regional EMS and are coordinated by five district centers (Bari, Lecce, Taranto, Foggia, Brindisi). This provides a unique opportunity to standardize protocols and equipment for all crews of the 118. All ambulances and medical cars of the 118 were given the same telecardiology ECG recorder device; all crews of the 118 underwent the same training for the use of CardioVox P12 and were supported by a single telecardiology hub, in line with the same regional operational protocol.

In the management of chronic patients, Care-managers record and submit ECGs by telecardiology support on subjects affected by chronic heart disease. The procedure is thus aimed at monitoring patients affected by chronic cardiovascular disease (chronic heart failure, chronic stable angina). The number of ECGs submitted to the telecardiology hub is continuously growing (presently 800 ECGs reported). Homecare for patients with chronic cardiovascular disease is expected to represent the point of strength of Puglia Region Healthcare System. Implementing a single regional telecardiology hub is crucial to delivering a high-level standardized pre-hospital ECG analysis and to limiting costs. A minimal staff of 20 cardiologists and 20 phone-call operators were required to provide a 24/7 telecardiology service. 24/7 computer assistance is also needed to avoid software system bugs. Workload peaks were observed in winter, during flu spread, and summer, during holiday season. The Apulia 118 network fairly fits with the AHA statement because of several positive conditions: the entire 4 million inhabitants in the 20,000 km² region shares a single EMS and can therefore rely on a single telecardiology hub. This allows standard protocols for pre-hospital ECG and standard management of patients after pre-hospital diagnosis.

**Financing and continuity:** The Service is included in the Regional costs for healthcare delivery and in the Puglia Chronic Care Programme.

**Outcome:** Starting from 600 monthly reported in 2004, the current monthly amount of reported ECGs rose to 9,500-10,000: these figures regularly increase in winter and summer time (flu epidemics, tourist presence). Here follows a detailed report of Cardio-On-Line Europe activity since 2004 (total 541,792 reported ECGs):
Total ECGs reported in 2005 = 16,534; total ECGs reported in the first 2 months of 2013 = 18,343; Reported ECGs by Apulia Districts: Bari 162,831, Lecce 147,955, Taranto 113,959, Brindisi 61,826, Foggia 55,221;

263,332 ECGs on male patients, 278,460 on female;

194,029 reported ECGs on day shift, 153,240 on afternoon shift, 194,253 on night shift;

332,133 reported as normal, 209,659 as non-normal;

Out of 209,659 abnormal ECGs, 145,394 were deemed as showing minor anomalies, 36,991 severe arrhythmias, 21,471 acute ischemia and 5,803 acute myocardial infarction;

Over 177,007 patients with reported chest pain, 27,274 were suggestive for acute ischemia;

Over total 541,792 patients assessed by tele-cardiology support, only 64,265 required immediate hospitalization based on ECG findings.

Transferability to other organisations/region: The experience could be easily extended to other regions even in other countries by providing interested subjects with proper tele-cardiology devices. Telephone connection allows an easy widespread of this tele-cardiology network. The model particularly fits with emergency medical service networks, general practitioners’ activity or strategies aimed at preventing cardiovascular disease.

Further information:

http://www.cardioonlineeurope.com
**FIG. 1.** Apulia and district “118” emergency medical services (EMSs) centers with corresponding logistics: each 118 EMS point was given a telecardiology electrocardiogram (ECG) recorder and all 118 crews (physicians, nurses and paramedics) underwent specific training. All EMS points depend on the same public regional healthcare service. The single telecardiology Hub serving the entire region is located in the capital city (Bari).

**Fig. 2.** CardioVox P12 ECG recorder device: the device does not make it possible to view the ECG, which is transmitted by telephone support to the telecardiology central hub. Here a cardiologist available 24/7 reports the ECG and talks to the on-scene EMS crew and EMS district center, to decide about hospitalization.
[Personal Health Record system and patient/citizens empowerment - TreC - Cartella Clinica del Cittadino ]

Organisation name: Fondazione Bruno Kessler, Azienda Provinciale Servizi Sanitari, Provincia Autonoma di Trento

Country: Italy Region: Provincia Autonoma di Trento

Total Region population: 520,000 Good Practice Target population: all citizens 520,000

Topics / chronic diseases addressed:
- Personal Health Record system, Tele-monitoring platform (youth asthma, type 1 diabetes)

Relevance to B3 Action Plan:

|---|--------------------------|---------------------|----------------------------------------------|------------------------|-------------------------------|--------------------------|------------------------|----------------|

Description:

Providing all citizens with access to a Personal Health Record system is a key element of the empowerment. The general purpose Personal Health Record can also serve as a platform for specific tele-monitoring initiatives.

General objectives

Laypeople are required to take an increasingly active role in the management of their own care. Our objective is to provide them with tools to access to their medical records and to keep track of their clinical history to enable proactive loop between them and medical institutions.

Methodology, processes, involvement of health care and citizens
During 2008-2012 all the partners established steering committee to involve all relevant parties in the design, implementation and preliminary testing of the platform.

A living lab approach allowed to conduct research on small sample of future users and to test the application in a controlled environment. The multidisciplinary research team (computer scientist, sociologists, jurists) explored the different dimension of the issues related to the introduction of the tool, from privacy and security to organizational impact and regulatory aspects.

Our Personal Health Record, TreC, is now a service available to the whole population of the province (11,000 registered users, growing rate: 1000 per month). The service is financed by the Province and run by the local healthcare trust.

Specific objectives
A Personal Health Record platform can provide the basis to build tools for the chronic illness. People with chronic disease need to monitor their condition, have more frequent contacts with their healthcare providers and often rely on some form of family/caregivers support.

From 2012 until 2015 we will be experimenting personal monitoring tool that could be serve as a basis for learning, remote assistance and care, but also to support the family/caregiver network for those condition that require such help. We are conducting small scale trials for people with youth asthma, children with type 1 diabetes, pregnant women with type 1 diabetes, and elderly people with chronic heart failure. On two of these conditions we will conduct clinical trials to evaluate organizational and clinical impact of the use of the telemonitoring solutions.

**Highlights: Innovation, Impact and Outcomes:**

The inclusion since the beginning of all the relevant actors ensured a high level of commitment both in the design/testing and in the scaling up. The living lab approach used allowed to build and put under test the institutional infrastructure that is now running the service.

The extensive research conducted in the first phase of the project allowed to shape the policies of use of the system.

The framework used to finance, design and put to service the infrastructure allowed to test new schemes of public-private partnership. Trec project has been selected as one of the ten best practices in the field of e-health procurement (for more information: http://www.pro-ehealth.eu/downloads/documents/ProeHealth_D5-3_Final_Study_Report_(s).pdf)

**Transferability to other organisations /regions:**

The technical solution will be released under the EUPL licence and thus reused, free of charge, by regional or national healthcare authorities.

Further information:

https://trec.trentinosalute.net/

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ParkinsonNet — Implementation of evidence based care in Parkinson’s disease by regional care networks

In 2004, the quality of physiotherapy care provided to people with Parkinson’s was often insufficient, due to a lack of expertise and a challenging collaboration. ParkinsonNet successfully improved Parkinson care in the Netherlands by:

- Developing regional networks of primary and secondary Parkinson care around general hospitals
- By selecting and training physiotherapists to work according to evidence-based guidelines
- Boost patient volumes per therapist by stimulating selective referral to ParkinsonNet therapists
- Support these networks by online tools to enhance information exchange and communication
- Support collaboration between allied health professionals, neurologists, and empowered patients.

Evaluation

Research has demonstrated that ParkinsonNet markedly improves:
- the quality of care
- prevents disease complications (including a 50% reduction in hip fractures)
- reduces hospitalization
- allows for a substantial cost reduction (€20 million annually in the Netherlands alone)

Multidisciplinary

Because of feasibility purposes, we started off developing networks for physiotherapy only. Current ParkinsonNet networks in the Netherlands are multidisciplinary.

As ParkinsonNet offers a model for delivering high quality of care that contributes to the sustainability of the health care system and quality of life in people with Parkinson’s disease, in the Netherlands it is supported by the Dutch patient association and many professional associations (e.g. physiotherapy, speech and language therapy and neurology / movement disorders).

European guidelines

Physiotherapy is the most widely used allied health intervention in Parkinson’s. Before ParkinsonNet networks were installed in the Netherlands, on average physiotherapists treated as few as three individual people with Parkinson’s a year and the therapists reported that they had only limited Parkinson specific expertise. A survey among nearly 10,000 physiotherapists across Europe, conducted in 2011, has shown that the situation before the introduction of ParkinsonNet unfortunately is still actual for the other countries.

Currently the 1st European Physiotherapy Guideline for Parkinson’s Disease (mid 2013) is developed in a joint collaboration of professional physiotherapy associations of 18 European countries, endorsed by the APPDE (Association of Physiotherapists in Parkinson’s Disease Europe) and the EPDA (European Parkinson’s Disease Association). Completion of this guideline creates the opportunity to extend ParkinsonNet, starting off with physiotherapy, to other European countries.

Possible barriers:

1) ParkinsonNet is based on specialisation, concentration, collaboration and transparency: A limited number of professionals can become a member of the network. Their market share in Parkinson care will increase at the expense of others. All allied health professionals present in a region should be invited for the selection process;

2) Regions with a low population density, or unavailability of allied health professionals: in the Dutch networks, one physiotherapist was selected for 20,000 residents, giving the therapists an increase in patient volume, whilst keeping the average travel time limited. In sparsely populated areas, possibilities for using tele-health and training of exercise trainers needs to be investigated;

3) Insurance: health insurance compensation differs between countries. Feasibility of (parts) of the ParkinsonNet model needs to be assessed;

4) Language: the European guideline will only be available in English. Translation into 11 European languages is essential to its implementation.
B3 Action Group `Replicating and tutoring integrated care for chronic diseases`

Further information:

Publications:
  - Nijkrake et al., The ParkinsonNet concept, Mov disord 2010
  - Munneke et al, A cluster randomized trial, Lancet Neurology 2010
  - Keus et al, The Dutch model, Parkinson’s disease 2012

Website: www.ParkinsonNet.info

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The Walcheren Integrated Care Model

**Duration project Best Practice:**
April 2010-April 2013 (evaluation)
February 2013 - … (dissemination)

**Publication(s):** in progress

**Leading organisation:**
evaluation: institute of Health Policy and Management (Erasmus University Rotterdam)
implementation: Stichting Ketenzorg Midden en Noord Zeeland

**Stakeholders involved**
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Veersche Huisartsen Coöperatie
Stichting Werkt Voor Ouderen
Stichting Zorgstroom
Stichting Voor Regionale Zorgverlening
POSO (ouderenorganisaties)
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**Summary:**

Background Frail elderly persons living at home are at risk for mental, psychological, and physical deterioration. These problems often remain undetected. If care is given, it lacks the quality and continuity required for their multiple and changing problems. The aim of this project is to improve the quality and efficacy of care given to frail elderly living independently by implementing and evaluating a preventive integrated care model for the frail elderly: The Walcheren Integrated Care Model (WICM).

**The intervention: the Walcheren Integrated Care Model**

The Walcheren Integrated Care Model (WICM) is a comprehensive integrated model for the detection and assessment of needs and the assignment and evaluation of care for independently living frail elderly. The model comprises ten elements: a screening tool for the detection of frailty in the elderly, a single entry point, an evidence-based comprehensive need assessment tool, a multidisciplinary individualized service plan, case management, multidisciplinary team consultation and meetings, protocol-led care assignment, a steering group, task specialization and delegation, and a chain computerization system (see figure 1).
The frail elderly aged 75+ years are identified by their general practitioner (GP) by the Groningen Frailty Indicator (GFI), a tool for the detection of frailty. The GFI is a 15-item questionnaire that measures decreases in physical, cognitive, social, and psychological functioning. Scores can range from 0 to 15 [339,40]. A geriatric nurse practitioner that works at the GP practice sends the GFI questionnaire too the homes of the elderly and then contacts them by telephone if they do not respond. When necessary, elderly are helped at home to complete the questionnaire. A geriatric nurse practitioner and GP calculate the GFI score. Elderly with a GFI =4 are identified as frail and assigned to a case manager. The geriatric nurse practitioner is the case manager for elderly with single needs. A secondary line geriatric nursing specialist is assigned as case manager if the needs are multiple or of a complex nature.

The case manager then sets up a meeting with the elderly to assess their needs with the EASYcare instrument. EASYcare is an evidence-based comprehensive need assessment instrument that assesses (instrumental) activities of daily life, cognition, and mood. It also contains a module for converting care requirements relating to welfare, residence, and care into treatment goals [41]. The goals are drawn up in consultation with the elderly and their caregivers. Explicit attention is paid to the necessary support and guidance of the caregivers. The results of the assessment are described by the case manager in an individualized care plan. The case manager also creates a proposal for required care and care objectives.

The proposed plan is then discussed in a multidisciplinary meeting led by the GP. Depending on treatment goals, the meeting is also attended by other health professionals who may be needed. During the meeting, a multidisciplinary care plan will be approved, actions and care paths will be discussed, and agreements will be made about the care to be deployed and the activities of all persons involved. The treatment plans of each professional are included in the care plan. The GP harmonizes the care plan with the elderly and their caregiver and obtains permission for its implementation. A chain computerization system accessible by the health professionals involved will be used for the multidisciplinary care plan. The professionals will automatically receive an email in the event of changes in use of care or a transfer.

The case manager is responsible for admittance to the required services, the planning and coordination of care delivery, and periodical evaluation of the care plan. Thus, the case manager arranges obligatory need assessment, monitors the elderly at least every six months for one year, and supports the multidisciplinary team by arranging meetings and streamlining the necessary exchange of information. The responsibilities and activities of the involved professionals and case manager are formalized in agreed protocols with predefined modes of referral and collaboration. During the process, the GP practice functions as a single entry point. It is the gate through which elderly and professionals can access the expertise and services of all health and social care professionals and organizations. The GP and case manager work in close collaboration to ensure timely and correct care assessment and provision. To be able to fulfil their tasks, the GPs must have completed an executive training in
geriatric care, a course in GP consults and EASYcare training. The case managers must have successfully attended the EASYcare training and a course in case management.

**Methods/design of the evaluation**

The research questions for the evaluation study was: What are the effects of the Walcheren Integrated Care Model on the caregivers, health professionals, the organization of care and the healthcare costs for the frail elderly, and what are the effects on the quality and efficacy of the care given to the frail elderly living independently? The design is quasi-experimental. Effects are measured by conducting a before and after study with control group. The experimental group consisted of 254 elderly of 8 GPs (General Practitioners) who provided care according to the integrated model (The Walcheren Integrated Care Model). The control group consisted of 249 elderly of 6 GPs who were given care as usual. The study included an evaluation of process and outcome measures for the frail elderly, their caregivers and health professionals as well as a cost-effectiveness analysis. The study population consisted of elderly of 75 years or older who live independently and score a 4 or higher on the Groningen Frailty Indicator, their caregivers and health professionals. Data were collected prospectively at three points in time: T0, T1 (3 months after inclusion), and T2 (12 months after inclusion). Similarities between the two groups and changes over time were assessed with t-tests and chi-square tests. For each measure regression analyses were performed with the T2-score as the dependent variable and the T0-score, the research group and demographic variables as independent variables.

**Results**

The WICM proved to enhance the quality of life of frail elderly and their satisfaction with the quality of care, whilst not enhancing their health care use. Caregivers reported to feel less burdened. Health professionals experienced an enhanced integration and coordination of care, a better working environment and they were more satisfied with the continuity and quality of care.

No differences were found between the experimental and control group in regard to the perceived health, social functioning, mental well-being, physical functioning of the frail elderly, the objective burden of caregivers and the job satisfaction of health professionals. Results of the analyses of the objective burden of health professionals and the cost-effectiveness will be available by the end of April.

**Discussion**

Frailty is a progressive state. Physical, mental and social deterioration progresses over time. The lack of results in regard to these outcome measures might be due to the short study period. An evaluation after 2 or 3 years can shed light on the full potential of the model. Also, embedding new working- and help seeking practices takes time. Although the model was implemented, elderly, caregivers and health professionals were still getting accustomed to the new processes. It might be expected that job satisfaction, health care use and objective burden change when the processes are optimally used.
**Dissemination of the model:**

The positive results have led to new funding to disseminate the model in all GP-practices in the region of Walcheren. A handbook has also been made to help other regions implement the model, supported with conferences and on site help.

**Score list**

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<tr>
<td><strong>INNOVATION</strong></td>
<td>The model focuses on the entire chain, from detection to the provision of care, in the fields of prevention, cure, care, welfare and residence, in primary, secondary and tertiary care. The core of the model is:</td>
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<td>• the organisation of care on the basis of preventive detection of frailty with the GFI (Groningen Frailty Indicator)</td>
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<td>• assessing demand with EASYcare (a diagnostic instrument that covers the fields of care, cure, welfare and housing)</td>
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<td>• the reorganisation and delegation of tasks to geriatric nurse practitioners (POH) and secondary care geriatric nursing specialists (VSG)</td>
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<td>• giving district nurses, the POH and the VSG the role of supervisors of the care plans and care co-ordinator</td>
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<td>• consults and home-visits by nursing home doctors and appointing the G.P. as director and partner in prevention</td>
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<td>• G.P. group practices will be given a single-window function</td>
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<td>• the entire process will be encompassed in multidisciplinary protocols, files (web-based) and multidisciplinary discussions and consultation within and between primary, secondary and tertiary care.</td>
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<td>Yes, the model is an integrated care model (see 1 and summary for detailed description of the model)</td>
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<td><strong>SCALABILITY</strong></td>
<td>The Walcheren Integrated Care Model is in accordance with scientific evidence and addresses the design elements that affect the quality of care. It has an umbrella organizational structure involving case management, multidisciplinary teams, protocols, consultations, and patient files. It will be an organized provider network with evidence-based needs assessments [29,32,33]. All elements are embedded in the model.</td>
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<td>However, more types of health professionals participate in the model than other studies have previously investigated. General practitioners, geriatricians, home health care workers, paramedics, social workers, pharmacists, and mental health care professionals all take part in the designed model. In contrast with other models, this model also contains a preventive element: a screening tool to detect frailty in the elderly. Finally, the model is being evaluated on a broader range to obtain a comprehensive evaluation and determine possible trade-offs between effects.</td>
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<td>Yes. The goal of the project is to transfer knowledge about the Walcheren Integral Care Model and the conditions for implementation by means of communication, verbal and written,</td>
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and publications. Care-providers can become acquainted with the model, they can make use of the instruments and protocols and they can attend studies in order to work according to the model. Various strategies will be used in order to promote the transfer of knowledge and implementation:

1) a manual with a description of the Walcheren Integral Care Model, the conditions for putting the model into practice, the instruments used, protocols and function descriptions for the new functions
2) a conference on the experiment
3) presentations at national congresses
4) national and international publications
5) newsletters to care-providers, organisations for the elderly and interested parties;
6) presentation of the results on the web-site, meetings and the newsletters of Genero and the NPO [Network for Public Research Programming]
7) personal discussions with interested parties
8) link with and embedding in studies and courses. The manual and additional information will be made available and used in courses
9) for G.P.s during the geriatric management training: each year the executive G.P.s will provide a course for their colleagues, with input from a nursing home doctor and a clinical geriatrist
10) for the continued training of geriatric nurse practitioners: this will take place twice yearly

Yes. Also, ZonMW has granted a subsidy to implement the model in the rest of Walcheren and parts of Brabant. The health insurer CZ Zorgverzekeraar has issued a special module ‘integrated frail elderly care’ to finance the care and time spent by the professionals to detect the frail elderly and confer with each other.

Yes. All mentioned partners are involved in the implementation and dissemination of the model. The involved professionals and partners are all represented in a steering group that forms the umbrella under which the model is developed and disseminated. The steering group forms a Joint Governing Board that provides the necessary provider network, which is further strengthened with guidelines and protocol-led agreements. All patient representatives support the project, and the health insurer CZ is supporting the project financially. The basis for collaboration is also laid down in the formalization of agreements on the regional policy and involves integrated care for all elderly: the so-called ‘structured care of the elderly module.’ The project follows from these structures and will be able to make use of them.

Yes. Also, embedding the model in other projects is essential over the long term. The experiment does not stand alone. A dementia care-chain and CVA care-chain are also being developed in Walcheren. The steering group will ensure coherence between the various projects. The GPs in this project are also involved with developing the dementia care-chain. Their personal involvement in both projects will guarantee harmonization.

Yes, ZonMW and the health insurer CZ Zorgverzekeraar are supporting the project financially.
Yes, ZonMW and the health insurer CZ Zorgverzekeraar are supporting the project financially.

### RESULTS

Positive results have been found for:
- elderly: quality of life, satisfaction with care
- caregivers: quality of life, satisfaction with care
- professionals: satisfaction with their working environment

We expect the model will also have positive effects on the physical, mental and social health of the elderly and their health care use. Frailty is a progressive state. One year is too short to find effects on these outcomes.

Positive effects have been found for the experienced continuity and coherence of care and the perceived quality of care by professionals.

Results on the objective burden of professionals and the cost-effectiveness will be available at the end of April.

We expect these results to become even more positive. Even though the model is implemented, embedding the new working practices takes time. It can only get better.

Increased quality of care leads to competitive advantages. The new functions and training possibilities give health professionals more room for specialization, the development of their skills and career perspectives.

To disseminate the model more case managers will be assigned.

All elderly of 75 years or older of the participating GP’s have been asked to participate. Approximately 900 elderly in both the experimental and control practices have been contacted. The response rate was 80%. Of these respondents 1/3 was frail. 61% of these frail elderly have participated in the evaluation.

The model is currently disseminated in Walcheren and parts of Brabant.
The aim of the Observatory of Innovative Practices on Complex Chronic Disease Management, known as OPIMEC (its Spanish acronym) is to enable clinicians, policy makers, managers, researchers, educators and members of the general public interested in complex chronic diseases, to generate new knowledge and share experiences across traditional boundaries.

The Andalusia Health Ministry in Spain funds OPIMEC, which is coordinated by Professor Alejandro Jadad of the University of Toronto and a team from the Andalusian School of Public Health led by Professor Andrés Cabrera.

Easy-to-use innovative online social media resources support the platform that powers www.OPIMEC.org. This platform:

- Allows anyone to create and upload documents (Join OPIMEC).
- Includes information about more than 210 practices and links to more than 1600 resources of interest to clinicians, patients and caregivers (add a practice).
- Links 1100 experts from more than 30 countries (list).
- Supports the co-creation of knowledge by online communities, leading to groundbreaking products such as the book “When people live with multiple chronic diseases: a collaborative approach to an emerging global challenge”.
- Convenes meetings (e.g., “Promoting High Quality Services for People living with Chronic Diseases”).
- Promotes recognition of innovations through the publication of regular newsletters.
- Contributes to capacity building efforts through virtual courses (e.g., Improving Care for People with Chronic Diseases or Chronic Pain).
- Facilitates the participation of its individual members and communities in international projects.

You can contact us at info@opimec.org
[PALANTE; Patients Leading and mANAging their healThcare through EHealth]

**Organisation name:** Regional Minister of Health and Social Welfare (Andalusian Health Service)

**Country:** Spain  
**Region:** Andalusia

**Total Region population:** 8,449,985  
**Good Practice Target population:** 7,000

**Topics / chronic diseases addressed:**
Patient empowerment, chronic patients, maximize the potential of ICT technologies, 7 pilots and 2 on-going experiences,

**Relevance to B3 Action Plan:**

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**Description:**

The main goal of PALANTE is to empower patients so they are able to make informed decisions about their health, take an active role in their care and collaborate effectively with their healthcare team thanks to the use of information and communication technologies. The project considers 7 new pilots in different European regions and 2 additional on-going experiences. The pilots have been carefully selected to cover different levels of patient empowerment and chronic disease management. Overall, the project mobilizes 21 partners in 10 different countries and 69,550 potential new users. Pilot teams of public-private partnerships ensure all the key stakeholders are involved in the eHealth provision. Through these pilots the PALANTE project aims to maximize the potential of ICT technologies by validating at a large scale a significant number of pilots so all the mechanisms involved in patient empowerment are addressed.

In Andalusia, the aim of the pilot is to demonstrate the benefits of the services that are focused on patients with diabetes. The Andalusian Public Health System responsible for the provision of healthcare and public health services uses an electronic healthcare management and information system called DIRAYA. The platform provides many features, and given the advanced status of the current infrastructure, the aim of this pilot is to open the information stored in the electronic health record to each patient, in a safe and secure way. Patients’ access to their personal health record will allow them to manage their diseases in a better way. This is of particular interest for people with diabetes, who will benefit from accessing to their health information, having the chance to include information themselves and communicating with their healthcare team using this common platform. The pilot offers the following services:

- Patient’s access to their personal health record
- Patient’s management of their personal health information
B3 Action Group `Replicating and tutoring integrated care for chronic diseases`

- Chronic disease management support services
- Tailored education and lifestyle guidance

The potential number of patients that will benefit is 7,000 people. However it is estimated that there are around 700,000 people with diabetes in Andalusia, meaning that 1% of this population will be included.

The providers are the Andalusian Health Service (includes hospitals and health centres that will be involved in the service provision), and the technology provider INDRA, IT provider that offers also a call center and the maintenance of the portal Tratamiento 2.0.

The PALANTE project is funded by the European Union’s ICT Policy Support Programme as part of the Competitiveness and Innovation Framework Programme. After the evaluation of the service piloted during the PALANTE project, it will be included in the Information System maintenance contract of the Andalusian Healthcare Service. The ehealth portal is a free service and the different type of devices (as glucometers) are yet included into the pharmaceutical assistance and they does not add any additional costs to the patients.

**Highlights: Innovation, Impact and Outcomes:**

As a key innovative elements are the patient’s management of their personal health information (they will have the chance to include information themselves and to communicate with their healthcare team using the proposed solution), chronic disease management support services (the solution will allow improving the adherence to the treatment facilitating the monitoring and evolution of patients and their disease), and tailored education and lifestyle guidance (patient will have a better understanding of the indications about their disease that health professionals do for the optimal evolution of the disease).

The Andalusian pilot is just beginning (March 2013) and it will have duration of 18 months, so the evidences on the impacts and outcomes are not available.

**Transferability to other organisations /regions:**

The pilot could be transferred to other Health Systems which use an electronic healthcare management and information system.

Describe how your good practice could be transferred / of interest to other regions / organisations – i.e. what type of problem / challenge might it help them to solve?

**Further information:**

*Insert links to web pages, documents, etc: [http://www.palante-project.eu/](http://www.palante-project.eu/)*

**Project duration: From 01/02/2012 to 31/01/2015**
[PROMIC]

Organisation name: DEPARTMENT OF HEALTH OF THE BASQUE COUNTRY

Country: SPAIN Region: BASQUE COUNTRY

Total Region population: approx. 2500000 Good Practice Target population: 239

Topics / chronic diseases addressed:
Heart Failure, new roles nurses, self-management, quality of life

Relevance to B3 Action Plan:

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Description:

PROMIC is a project aiming at the assessment of the effectiveness of a Heart Failure Care Management Program, in terms of reduction of rehospitalisation, self-management knowledge and quality of life. PROMIC project intends to improve care by redesigning organizations, introducing new structures and organizational schemes. PROMIC program highlights the 6 components of the Chronic Care Model, Self-Management, Decision Support, Delivery System Design, Community Organization of Healthcare and Clinical Information Systems.

PROMIC is a quasi-experimental, prospective study, with consecutive recruitment and one year of follow up duration. 239 patients were recruited from hospitals of Galdakao, Santa Marina, Txagorritxu and Santiago (HUA), and/or coming from the primary care centers of Comarca Interior and Comarca Araba of the Basque Health provider (Osakidetza).

Heart failure patients needed to be older than 40 and showing stage II to IV (NYHA) heart failure conditions. Institutionalization, inability for self-management, shorter than 3 month duration prospective survival and/or impossibility of telephone contact were considered as exclusion criteria.

Hospitals or primary care centers were divided into control or intervention groups, and patients were classified in such groups depending on their origin.

Patients coming from control health centers were treated with the conventional care methods, while a multidisciplinary team of nurses, general practitioners, cardiologists, internists, pharmacists, social workers and researchers took care of the patients coming from intervention health centers.
The clinical intervention was based on the clinical practice guides (CPG): Recognition of alarm signs and symptoms, Training in self-care, Management of comorbidity, Management of decompensation, Therapeutic compliance and optimization. Patients received on-site and telephonic contacts.

Analysis and statistical methods included:

Heart Failure incidence rate and hospitalization rate ratio
Time to event (Kaplan-Meier and log Rank test)
Program associated risk of the event: Hazard ratio HR (Cox regression)
Relative risk reduction (RRR)
Number needed to treat (NNT)

The sustainability of the initiative depends on its results, but provided these were positive, the program can be continued by the inclusion of more patients (coming from the same sources) and with the warranty of the "new roles for nurses" being part of the strategy of the Department of Health of the Basque Country to tackle the challenge of chronicity.

Highlights: Innovation, Impact and Outcomes:

The key innovative aspect of PROMIC program is the existence of integrative elements in all the levels of the care delivery. Both in specialized care (hospital) and also in the primary care center, professionals are involved in the program in such a way that we speak of PROMIC pharmacist, PROMIC coordinator nurse, PROMIC cardiologist and also PROMIC social worker. The presence of the latter is also a novelty, given that the social worker starts to play a role/participate at the time of the specialized care diagnosis, even before the hospital discharge. Once the patient is discharged, a PROMIC connection nurse is responsible of coordinating the patient in the community environment, serving as a link between the PROMIC general practitioner and the community primary care nurse. The care continuum is never lost in PROMIC program.

Results of PROMIC project in 239 patients indicate that the program is able to reduce the HF related HR (HR: 0.56). The relative risk reduction was significantly different also, meaning that the program was able to induce a 44% reduction in rehospitalization. NNT was of 5, thus, we needed to treat at least 5 patients to avoid one event (HF 3-13).

We can conclude that PROMIC program significantly improves the care continuum in the setting of the patient, while also promoting the integration between care levels. PROMIC enhances the role of the clinical nurses in the management of heart failure patients. Finally, preliminary data obtained from MLFHQ and SBS tests indicate that patients included in the PROMIC program also perceive an improvement of their quality of life and report a better knowledge of their disease, which enables self-management.
Transferability to other organisations /regions:

The good practice described herein can be reproduced in any health system willing to introduce organizational innovation. The potentiation of the roles of nurses and the inclusion of social workers in the health setting promotes integration between care levels and areas, without the necessity of costly investments.

Further information:
Contact person is Dr. Cristina Domingo Rico
**B3 Action Group `Replicating and tutoring integrated care for chronic diseases`**

### [POPULATION INTERVENTION PLANS: PIPs]

**Organisation name:** DEPARTMENT OF HEALTH OF THE BASQUE COUNTRY  
**Country:** SPAIN  
**Region:** BASQUE COUNTRY  
**Total Region population:** approx. 2,500,000  
**Good Practice Target population:** 50,000  

**Topics / chronic diseases addressed:**  
Innovation, adapted interventions, risk stratification  

**Relevance to B3 Action Plan:**

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**Description:**

The Basque Country has been embedded in the Strategy for tackling the challenge of Chronicity since the year 2009. This transformation is designed to bring about a proactive, highly patient-centered system, providing patients with all the necessary support for optimum self-management of their illness and to prevent other ailments. In this sense, proactive is understood as taking action with specifically targeted groups of patients according to their risk factor, preventing the occurrence of disease or a worsening of their state of health, together with other actions and tools empowering patients to adopt a much more active role in managing their illness.

In this context, Population Intervention Plans were drawn up in the clinical field on how best to provide healthcare in a coordinated and efficient manner among all players involved for each target population and establish common objectives in terms of efficiency and health outcomes to all the health providers that configure one microsystem.

Of the 860,000 chronic patients in the Basque Country today, over 50,000 patients have been selected through stratification tool to define customized interventions to their needs. At local level, the organizations who provide care delivery to the same population (microsystem) have defined: (1) Recruitment strategies; (2) Care pathways; (3) Organizational model (agents and roles); (4) Ways of communication and coordination

The commissioning and funding framework, throughout Contract program, bound 3% of their funding to the achievement common and shared objectives of the PIP. An Assessment framework has been defined to follow up the common objectives of the PIP. The aim is to improve health care considering chronic pathology and morbidity.

The PIP defined their criteria based on prevalence of chronic diseases and advancing path existence in the coordination between levels of care. To select the groups of patients we used the stratification tool.
Depending on the layer of the pyramid of Kaiser, we have defined the following PIPs:

- **Case Management**: pluripathology patients
- **Disease Management**: diabetes, heart failure (HF) and Chronic Obstructive Pulmonary Disease (COPD).
- **Self-management**: diabetes, physical activity in diabetics, coronary risk, smoking cessation and influenza vaccination.
- **Prevention and Promotion**: detoxification and counseling for smoking cessation and influenza vaccination.

Progressively, more and more PIPs will be included in the framework program in line with the lines and guidelines defined in the Health Plan and the needs of areas for improvement in the Basque Health System.

**Methods**

The process followed for the development and continuous improvement of Population Intervention Plan is as follows:

- Selecting people to intervene, by using the stratification tool. Each patient is categorized according to their clinical profile: pathologies, age, number of admissions in the last year, RPI (risk prediction index), etc.
- Bottom-Up Experiences with results: is it necessary to have developed different Bottom-Up reviews with similar objectives in various Microsystems. Power needed compared to establish common elements.
- The key elements for the intervention are determined.
- Finally, the Population Intervention Plan is established by defining how to coordinate the various professionals that will intervene.

An evaluation frame has been defined for the follow up of chronic patients showing high and medium complexity.

**Highlights: Innovation, Impact and Outcomes:**

**Innovation**

Establish the payment by health outcomes and set common shared objectives between care providers in the same microsystem (patient – centered).

Moreover, there is an interdependent relationship between innovation and the PIP and innovation and the Framework Program. First, the Framework Program feeds and promotes the generation of ideas and on the other hand, local innovation is a source or basis for the development of Population Intervention Plans.

**Results**

Figures in year 2012 show that 16% of the people identified as a target for case management has been actively intervened (high complexity patients, for which 74 case management nurses have been displayed each managing 100 patients). 26% of the population identified as disease management (medium complexity patients) have been intervened. 2% of the population is currently participating in self-management programs.

**Outcomes**

The citizens of the Basque Country have expressed their satisfaction and positive perception of their health system, with various studies and surveys revealing their satisfaction levels to be generally higher than average values.
Transferability to other organisations /regions:

PIPs can be transferred to any health care system as long as you try to align funding with health outcomes and associated efficiency with a target population. This process implies a change management, for this reason we promote local innovation in order to test the most efficient way of care delivery in each microsystem before macro level decide to include a new PIP in the Contract Program. So, it is necessary to establish a prioritization of projects to extend depending on the needs of the health system.

Further information:
Website: http://cronicidad.blog.euskadi.net/
Contact person is Joana Mora Amengual
[POPULATION STRATIFICATION]

Organisation name: DEPARTMENT OF HEALTH OF THE BASQUE COUNTRY

Country: SPAIN  Region: BASQUE COUNTRY

Total Region population: approx. 2.500.000  Good Practice Target population: approx. 50.000

Topics / chronic diseases addressed:
Innovation, adapted interventions, risk stratification, predictive index, proactivity

Relevance to B3 Action Plan:

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Description:

Risk Stratification is a tool for the predictive classification of the population based on a) identifying future healthcare needs and on b) the degree of complexity and co-morbidity of people. It enables patients to be classified, according to their morbidity, on the basis of the most prevalent pathologies, and to select those patients with similar needs and pathologies, thus facilitating proactive care integrated with specific interventions. More specifically, it makes it possible to:

- plan at local level and define specific interventions for target groups of patients better suited to their needs and risk level;
- estimate the future healthcare requirements of each citizen, depending on their individual characteristics. In this way it will be feasible to identify target populations, made up of groups of patients who might most benefit
- help healthcare professionals in the clinical field to identify and locate those patients to act on proactively; and
- help doctors to adapt care to patient morbidity, by providing them with access to stratification data on each patient through the Unified Medical Record platform.

Stratification was used for service planning purposes and to define the target populations on which to intervene in 2012. Population Intervention Plans (PIPs) were drawn up to find out how to best provide healthcare in a coordinated and efficient manner among all players involved for each target population.

The Stratification project sets out a research program with the objective of establishing the validity of different methods of patient grouping and, from there, to construct prospective statistical models which will provide an estimation of the health resources likely to be needed per each individual throughout the following year.

Simultaneously, these systems are being implanted in the real world. Since 2010 the entire Basque population has been stratified, based on demographic, medical and social variables as well as the previous use of resources. To this end annual data is gathered from...
the Osakidetza and the information system of the Department of Health. Currently work is being carried out to develop mechanisms which will enable this data collection to be made more regularly.

**Methods:**

Patient data are gathered from the Minimal Basic Set of Data from the Hospitals (MBSD), the Electronic Medical Record (EMR), computerized files from emergency room, outpatient clinics, hospital day care and prescription database of the Department of Health.

Patient classification is done according to Age and gender, CIE-9-MC codes of the diagnoses, ATC codes of the prescribed drugs, need of chronic dialysis treatment, number of hospital admissions, ER and outpatient visits and health care and prescriptions costs during the previous 12 months.

To **predict the health and pharmacy cost and hospital admission risk in the following year** a case-mix is done using the ACG Predictive Modeling (ACG-PM). ACG case-mix system classifies diagnoses (ICD9CM) in four different ways:

1. ACGs (Adjusted Clinical Groups) are self-exclusive patient categories, based on co-morbidities. The diagnoses of the last 12 months are classified in 32 Aggregated Diagnostic Groups (ADG) based on probable duration or recurrence of the health problem and expected resource consumption of the treatment. Using the combination of ADG, age and gender, each person is classified yearly in a unique ACG.
2. Expanded Diagnosis Clusters (EDC) classify each diagnosis based on exclusively clinical criteria. They allow the identification of people suffering a specific disease.
3. Hospital dominant conditions detect diagnoses representing a higher than 50% probability of hospitalization the following year.
4. Frailty maker: is a dichotomy variable indicating the presence of a medical problem associated to the current condition.

The **resource consumption risk is presented as an index (RPI, Resource Prediction Index; IPR in Spanish), expressed as a relative weight, and corresponding to the ratio between the expected expenditure of a certain patient and the mean expenditure of the population.**

In 2011 this information was used by Osakidetza (Health Service provider) to select target populations to intervene, to evaluate the preferential offer and also in some strategic projects such as New Nursing Roles and Batera Zainduz.

In the 2012 Framework Contract, the Direction of Insurance and Health Contracting decided to include groups of patients in the most common pathologies in order to carry out appropriate health interventions depending on the level of severity in the whole Basque Country.

**Highlights: Innovation, Impact and Outcomes:**

**Innovation**

Find out new applications of stratification tools at macro, meso and micro level commissioning and funding, health outcomes, and customized interventions.

Introduce proactivity in health interventions as well as customized interventions to patient’s needs.

Establish the payment by health outcomes and set common shared objectives between care providers in target population (patient – centered).
Results

100% of the Basque Country population is stratified according to their resource consumption risk.
Of the 860,000+ chronic patients in the Basque Country today, a fully-identified:
- Case management: 43,000 patients
- Disease management: 173,000 patients
- Self-Management: 636,000 patients

Outcomes

100% of the Basque Country population is stratified according to their resource consumption risk.

Transferability to other organisations /regions:
The methodology used by stratification project can be transferred to other regions, as well as the lessons learned (key aspects to take into account, barriers and facilitators).

Website: http://cronicidad.blog.euskadi.net/
Contact person is Joana Mora Amengual
[Strategy to tackle the challenge of Chronicity]

Organisation name: DEPARTMENT OF HEALTH OF THE BASQUE COUNTRY

Country: SPAIN  Region: BASQUE COUNTRY

Total Region population: approx. 2500000  Good Practice Target population: approx. 2500000

Topics / chronic diseases addressed:
strategic vision, narrative, bottom-up, innovation, transformation, Population Intervention Plans (PIPs)

Relevance to B3 Action Plan:

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<td>Organisational models</td>
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Description:

The end objective of the new Basque Strategy to tackle the challenge of chronicity is to improve the health and quality of life of patients and citizens in the Basque Country, addressing the changes in the health needs of an ageing population with a high prevalence of chronic diseases, and to ensure the long-term sustainability of the public health system. This requires a transformation in the health system designed to bring about a proactive, highly patient-centered system, providing patients with all the necessary support for optimum self-management of their illness and to prevent other ailments. In this sense, proactivity is understood as taking action with specifically targeted groups of patients according to their risk factors, preventing the occurrence of disease or a worsening of their state of health, together with other actions and tools empowering patients to adopt a much more active role in managing their illness. This approach will, in turn, reduce their demands on the health service, thus contributing to the sustainability of the system.

The new healthcare model also implies significant changes to the current structure of the system and its services, some of which are being transferred out of acute care hospitals to more efficient and convenient locations for patients. New forms of healthcare more suited to patients’ needs are also being promoted such as sub-acute care hospitals, telemedicine and home care. Therefore this new approach aims to avoid unnecessary hospital admissions, thereby lowering costs.

- From a model centered on acute medical care… ➢ … to a model adapted to the needs of CHRONIC PATIENTS.
- From a reactive model focused on curing illnesses… ➢ … to a PROACTIVE, model designed to cure, care for and prevent, based on risk factors.
- From a model based on providing care for a passive patient… ➢ … to a model centered on a patient with an ACTIVE ROLE in managing his/her illness.
From a fragmented model, with inefficiencies and a lack of coordination between different levels of healthcare and social services… ➤ … to a model enabling CONTINUITY OF CARE through the integration of healthcare services and social welfare resources.

From resources management primarily focused on acute hospitals… ➤ … to structures giving priority to service delivery in more suitable and efficient places (sub-acute hospitals, telemedicine, etc.)

From a system of payment for an activity performed…. ➤ … to payment for securing better health outcomes

To do so it has to involve all stakeholders at different levels, create a “narrative” beyond “cost containment”, provide a vision and structure which needs to be attractive, as well as a cohesive common understanding on where the main problems are, what are the key issues to tackle and how to do it.

A very relevant aspect to consider is that one can pull off advances in a non-aligned context but system-wide transformative change will only happen when many policy levers are aligned and activated in the same direction.

Alignment is important but also the right balance between top down and bottom up levers and the inclusion of right incentives as well as common objectives in health outcomes.

**Highlights: Innovation, Impact and Outcomes:**

The transformation of the health and social care model implies a change management, for which the critical factors are:

- Distributed leadership: right balance between top down and bottom up levers
- Support from the macro level (Regulation / Creation of conditions for change)
- Governance at the local network and local leadership involving all the public and private social, health and community actors
- Changes in the funding and commissioning model linking part of the funds to health outcomes and promoting coordinated healthcare by sharing objectives and promotion of local innovation.
- Development of Population Intervention Plans (PIPs): coordinated intervention between different levels of health and social care on selected groups of patients, identified by population risk stratification, sharing objectives and responsibilities in outcomes in health
- Promotion local innovation: Over 140 bottom up research projects have been conducted by clinicians, nurses and local managers, addressing different strategic topics

**Transferability to other organisations /regions:**

On a European level there are regions and countries that are tackling the transformation of the model of care provision with a focus on Integrated Local Health Systems- Microsystems. The results back up the experiences of Scotland and Northern Ireland. Both countries have initiated the generalized development of this focus throughout the country. The Basque Country advances alongside them by means of a collaboration agreement.

Further information:
Website: [cronicidad.blog.euskadi.net/](cronicidad.blog.euskadi.net/)
Contact person is Joana Mora Amengual
Organisation name: DEPARTMENT OF HEALTH OF THE BASQUE COUNTRY

Country: SPAIN
Region: BASQUE COUNTRY

Total Region population: approx. 2500000

Good Practice Target population: 58

Topics / chronic diseases addressed: Telemonitoring, Primary care, Effectiveness, Hospital admissions, In-home patients, Chronic diseases, Heart failure, Chronic lung disease, Elderly, COPD

Relevance to B3 Action Plan:

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<th>No.</th>
<th>Topic</th>
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Description:

Home telemonitoring comprises the use of information and communication technology from the patient at home so that clinical parameters and other clinical data can be sent, both digitally or over the telephone, to the health professionals managing the patient care. The regular collection of such medical information allows professionals or clinical support teams conducting comprehensive monitoring of patients with chronic and complex conditions and adjusting treatments, as well as facilitating the early identification of worsening episodes, which if not detected quickly often lead to emergency department attendances and/or hospital admissions.

Our team commissioned a systematic literature review to assess the effectiveness of home telemonitoring in heart failure (HF) and chronic obstructive pulmonary disease (COPD). The main objective of this study is to evaluate the effect of a primary care-based telemonitoring intervention on the number and length of hospital admissions.

Methods

A randomized controlled trial was carried out across 20 health centers in Bilbao (Basque Country, Spain) to assess the impact of home telemonitoring on in-home chronic patients compared with standard care. The study lasted for one year. Fifty-eight in-home patients, diagnosed with heart failure (HF) and/or chronic lung disease (CLD), aged 14 or above and with two or more hospital admissions in the previous year were recruited.

Intervention

Consisted of daily patient self-measurements of respiratory-rate, heart rate, blood pressure, oxygen saturation, weight, body temperature and the completion of a health status questionnaire using PDAs. Alerts were generated when pre-established thresholds were crossed. The control group (CG) received usual care.
Highlights: Innovation, Impact and Outcomes:

Innovation

To date, there is a paucity of research with the focus on interventions in which the management of the telemonitoring systems lays directly into the hands of primary care professionals (at local health centers). Moreover, few studies have considered the monitoring of more than one disease through the same telemonitoring system and, as a result, there are more data available for some diseases than others, the most consistent findings having been obtained for HF. The present study addresses the gaps in the existing literature and highlights the importance of primary care in the management of chronic patients and the recognition of comorbidity as one of the main characteristics of such patients.

In addition to the effect on hospitalizations, we also report the impact of the telemonitoring intervention on the use of other healthcare resources (emergency department attendances, home visits by primary care professionals, appointments at the health center or with specialists, and telephone calls), and on mortality, as well as the association between hospitalizations and alerts generated by the telemonitoring system in the five days prior to the hospital admissions.

Outcome Measures

The primary outcome measure was the number of hospital admissions that occurred at 12 months post-randomization. The impact of telemonitoring on the length of hospital stay, use of other healthcare resources and mortality was also explored.

Results

The intervention group (IG) included 28 patients and the CG 30. Patient baseline characteristics were similar in both groups. Of the 21 intervention patients followed-up for a year, 12 had some admissions (57.1%), compared to 19 of 22 controls (86.4%), being the difference statistically significant (p = 0.033, RR 0.66; 95%CI 0.44 to 0.99). The mean hospital stay was overall 9 days (SD 4.3) in the IG versus 10.7 (SD 11.2) among controls, and for cause-specific admissions 9 (SD 4.5) vs. 11.2 (SD 11.8) days, both without statistical significance (p = 0.891 and 0.927, respectively). Four patients needed to be telemonitored for a year to prevent one admission (NNT). There were more telephone contacts in the IG than in the CG (22.6 -SD 16.1- vs. 8.6 -SD 7.2-, p = 0.001), but fewer home nursing visits (15.3 –SD 11.6- vs. 25.4 -SD 26.3-, respectively), though the difference was not statistically significant (p = 0.3603).

Transferability to other organisations /regions:

This study shows that telemonitoring of in-home patients with HF and/or CLD notably increases the percentage of patients with no hospital admissions and indicates a trend to reduce total and cause-specific hospitalizations and hospital stay. Home telemonitoring can constitute a beneficial alternative mode of healthcare provision for medically unstable elderly patients.

Further information:
Link to publication: http://www.biomedcentral.com/1472-6963/11/56#IDAOGQR1
B3 Action Group `Replicating and tutoring integrated care for chronic diseases`

Contact person is Iñaki Martin-Lesende
[APROP TELEMEDICINE PLATFORM]

Organisation name: Mútua Terrassa

Country: Spain  Region: Catalonia

Total Region population: 80,000  Good Practice Target population: 12,000

Topics / chronic diseases addressed:
Telemedicine, Chronic Disease, Primary Health Care, Patient Empowerment

Relevance to B3 Action Plan:

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Description:

Faced with the challenge of the increase in chronic disease due to the aging of the population with the subsequent increase in health costs that this represents, it is necessary to revise our health care model for these pathologies. Telemedicine constitutes a new framework for the relationship with the patient which allows us to place them at the centre of the health system, giving rise to an active medicine that advances the complications of the disease. All this is achieved by increasing the auto-management of the disease by the patient, telemonitoring their vital signs, and offering them services that provide specific support. This change has special interest if we place it in the primary health care field, where the control of these pathologies is more efficient.

The main objective of the ‘Aprop Platform’ of Telemedicine is to provide a holistic and proactive care of patients with chronic conditions, by improving the health care system accessibility, promoting the patient empowerment and self management and offering tools for professionals to be proactive in managing the disease.

The platform is being implemented in the City of Sant Cugat del Vallès, and it involves all primary care centres of the region and all healthcare professionals working on Mútua Terrassa (doctors, nurses, administrative, pharmaceutical and social workers). In a first stage, selected patients are affected by hypertension, diabetes mellitus, heart failure, COPD and obesity, but in subsequent phases the services will be extended to all patients in the municipality. There is no age limit, and the only requirement for entry is having access to the Internet.
B3 Action Group ‘Replicating and tutoring integrated care for chronic diseases’

Highlights: Innovation, Impact and Outcomes:

The most important innovation that brings Aprop is changing the model of relationship between the patient and the healthcare system, improving accessibility and offering tools to enhance self-management of the disease. In addition, the system enhances the efficiency by incorporating predictive models that will decrease the episodes of decompensation.

In order to create scientific evidence, we designed a clinical trial during the pilot to study the evolution of various clinical parameters, quality of life, satisfaction and the use of the health care system that participating patients do compared with those others not using the platform. The primary outcome is the prevention of hospital admissions, secondary outcomes include visits made to primary health care, glycosylated haemoglobine, arterial pressure, quality of life or pharmaceutical costs.

Transferability to other organisations /regions:

The platform aims to create a new way of providing healthcare enabling self-care management of our health, the platform is designed in such a way that it can adapt to other health systems offering improved efficiency and effectiveness in the attention of the reference population in an integrated way. The more stakeholders along the clinical pathway partake, the higher is the impact of the Platform Aprop.

Further information:
M.Dolors Ruiz Morilla
druiz@mutuaterrassa.cat
CHRONIC CARE PROGRAMME IN CATALONIA

Organisation name: DEPARTMENT OF HEALTH

Country: SPAIN Region: CATALONIA

Total Region population: 7.5 million Good Practice Target population: All population

Topics / chronic diseases addressed: Chronic care

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Description of Good Practice:

- Aspect of health and social care integration your good practice covers
  Integrated care initiative for an increasing number of population with concurrent health and social needs, for example complex chronic patients or advanced chronic patients with social needs or dependency.

- General and specific objectives of initiative
  To construct an Integrated Care model as the best scenario to improve and transform chronic care in Catalonia.

- Methodology, processes, involvement of health, social care and other personnel
  The Chronic Care Programme is operating in 6 work projects:
  - Developing Comprehensive Clinical Processes for the chronic conditions with the greatest impact in all areas.
  - Strengthening health protection, promotion and prevention as instruments for maintaining health and preventing chronic disease.
  - Promoting the self-care and personal responsibility of citizens for their health, risk factors or diseases.
  - Deploying social services and healthcare facilities and adequate comprehensive systems for providing care for chronic and dependent patients.
  - Providing holistic and proactive care of patients with complex chronic disease and advanced chronic disease.
  - Rationalizing the use of medications, especially with people with polypharmacy, improving adherence in chronic patients.

- Target population
  All ages and genders, covering all Catalonia. Integrated Health and Social Care projects in 7-10 territories during 2012, extending to new geographical areas in the next years.
• Other organisations involved
  CatSalut is the main guarantee of this project as a public Commissioner contracting all
  providers operating at local level. CatSalut is the main commissioner to plan and evaluate
  the programme.

• Funding source(s) of the initiative
  It is financed by CatSalut due the main responsibility of it. A new financial and contract
  scheme has been introduced to change and transform health provision. Common and
  transversal objectives and indicators are being introduced.

• How do you plan to sustain the initiative?
  This initiative is incorporated into the Catalonia Health Plan established at the end of 2011
  for the 2011-2015 period. The Health Plan is one of the main important instruments
  elaborated by the Catalonian Government. It has 31 strategic projects, 6 of them related to
  the Chronic Care programme.

Highlights: Innovation, Impact and Outcomes:

• Key innovative elements of this good practice initiative
  - “Integrated Care” vision (within health sector but also with Social Services)
  - New contractual and financial scheme to incentivise Integrated Care
  - A more interactive and inter-operative Health Information System (Common Clinical
    Record / Personal Health Folder which facilitated non-presential care) / Population
    Stratification.

• Evidence of the impact and outcomes
  Better health outcomes and reduction of avoidable emergency admissions and 30-day
  readmissions related with chronic diseases causing high intensive service utilization.

• Formal or informal evaluations
  Current and permanent evaluation is being incorporated. Updated information is introduced
  to obtain results twice a year and edit in a public and accountable tool.

• Success criteria
  - Good health outcomes in the management of main health problems (adequate
    treatment, observed chronic disease prevalence close to expected prevalence,
    good control and appropriate diagnosis)
  - Reduction of high cost avoidable emergency admissions and readmission.

Transferability to other organisations /regions:

Problem/ challenge: Great fragmentation has been present till now, because of different
contractual and financial schemes for different lines (Primary Health Care, Hospital care, Mental
Health, Residential Care), and different electronic clinical record related to different providers.

Two “living labs” regions will be developed with a very intensive process of change to create an
integrated care environment incorporating synergic and concurrent actions with the same
population in the same geographical area.

Further information:
Contact person: Juan Carlos Contel- jccontel@gencat.cat
[EXPERT PATIENT PROGRAMME of CATALONIA]

Organisation: Ministry of Health of Catalonia  
Country: Spain  
Region: Catalonia  
Total Region Population: 7.560.000  
Good Practice Target population: 2.210.000

Topics / chronic diseases addressed:  
Expert Patient / Chronic conditions/ Patient Empowerment

Relevance to B3 Action Plan  
Tick MOST relevant B3 Action Area:

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Description

The Expert Patient Programme of Catalonia™ (EPPC) is a multidisciplinary initiative based on patient-healthcare professional collaboration and team work. In the EPPC it is the Expert Patient (EP) who leads the process and transmits knowledge about his or her disease to other patients who suffer from the same health problem. The healthcare professional becomes an observer, and only intervenes if it becomes necessary. The Expert Patient is a person suffering from a chronic disease who is able to take responsibility for his or her disease and self-care, identifying symptoms, and acquiring the skills to manage the physical, emotional and social aspects of the disease.

Objectives

**General Objective:** To promote change in daily life habits which will improve quality of patient life, with the exchange and transference of knowledge and experiences between the Expert Patient and other patients

**Specific objectives:** 1) Patient involvement, 2) Evaluate degree of patient satisfaction, 3) Improve perceived quality of life of the patients, 4) Improve patients’ understanding of their disease, 5) Improve level of self-care in order to better manage the disease, 6) Improve treatment management, 7) Reduce the number of encounters with Primary care nurses and GPs, 8) Reduce hospital admissions and hospital emergency visits.

Methodology

The EPPC consists of nine 90 minute sessions over 2.5 months, specifically designed for each chronic disease. Sessions are divided in two blocks, a theoretical and a practical one. The number of patients is limited to 10 to 12 per group, and the aim is to guarantee effective and free-flowing communication between the participants.
Target population

At this stage the target population is 2,210,000 citizens and the intended geographical coverage for 2015 is the whole region of Catalonia. At this moment the catchment area includes stratified patients suffering from Chronic Heart Failure, COPD, Diabetes Mellitus type 2, Fibromyalgia, Oral Anticoagulant Therapy, Breaking the tobacco habit, Anxiety and Chagas disease in its chronic stage from 126 Primary Health Teams and 3 Hospital Units within Catalonia and with the involvement of various healthcare providers of the Catalan Health System. **Number of groups: 212. Number of healthcare professionals: 484:** 301 nurses, 160 family doctors and 25 social workers.

**Financing and continuity of the programme**

The programme is included in the Chronic Care strategic area of the Health Plan of Catalonia 2011-2015. This is reflected into a specific objective in the contract between the Public Health Insurance of Catalonia and healthcare providers of the region.

**Highlights: Innovation, Impact and Outcomes**

Innovation: Involvement of patients in the self-management of chronic conditions with the support of multidisciplinary teams, with an innovative learning methodology specifically designed for the programme.

Impact: *Example of result of healthcare service utilisation in groups of patients suffering from COPD.* Total Participants: 140

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<tr>
<th>Visits Primary Care</th>
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<th>% reduction</th>
<th>Emergency visits</th>
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<th>Hospital admissions</th>
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Key change management elements the EEPC has brought:

**For the patients**

1. Awareness of the disease
2. Provision of an active role and co-responsibility
3. Towards the disease they suffer from
4. Exchange of knowledge and experience among patients
5. Use of a patient-friendly, common language
6. Facilitation of the acceptance and understanding of the disease
7. Introduction of the concept of treatment adherence
8. Improvement in self-care and quality of life
9. The ability to differentiate signs and alarm symptoms
10. To learn what to do and which health service to use for each situation
11. Satisfaction improvement of the Expert Patient
12. Satisfaction improvement of the patients participating in the programme

**For the Healthcare Professionals**

1. To identify the skills of the patients
2. To encourage self-reflection and self-evaluation
3. To encourage healthcare professionals improve their relationship with the patient in the following:
   - active listening
   - patient engagement
   - negotiation process
   - facilitate agreement and consensus about the health plan for the patient
4. To improve understanding of the challenges that patients suffering from a chronic disease face, including changes in lifestyle and habits
5. To highlight the need to use appropriate patient-friendly language in order to improve communication between patient and healthcare professional.

**For the health system**

1. Awareness of the disease
2. Provision of an active role and co-responsibility
3. Towards the disease they suffer from
4. Exchange of knowledge and experience among patients
5. Use of a patient-friendly, common language
6. Facilitation of the acceptance and understanding of the disease
7. Introduction of the concept of treatment adherence
8. Improvement in self-care and quality of life
9. The ability to differentiate signs and alarm symptoms
10. To learn what to do and which health service to use for each situation
11. Satisfaction improvement of the Expert Patient
12. Satisfaction improvement of the patients participating in the programme
1. Bring about the transition from a paternalistic approach to healthcare from the professional point of view to a participative process with the patient
2. An informed and co-responsible patient makes better and more efficient use of the healthcare services
3. Knows better what to do and when to ask for the support of a healthcare professional or when to go to a healthcare centre
4. Reduce burden on resources and the use of services such as the number of visits to primary health centres, emergency units or hospital admissions due to worsening of the disease. This would contribute to the sustainability of the Health System
5. Results obtained to date, comparable with other similar International programmes, shows that this is a cost-effective intervention

Further information:  http://www20.gencat.cat/portal/site/salut/
Contact person: Mrs. Assumpció González-Mestre  assumpcio_gonzalez@gencat.cat
HOSPITAL CLINIC INTEGRATED CARE NEXES PROJECT

Organization Name: Hospital Clinic, Barcelona

Region: Barcelona  Total Regional Population: 540,000 (Catchment area)

Good Practice Target Population:
Chronic patients’ with respiratory disorders, mainly Chronic Obstructive Pulmonary Disease (COPD), Chronic Heart Failure (CHF) and type II diabetes: potentially scalable to frail patients / patients with co-morbid conditions.

Topics / chronic diseases addressed:
Integrated Care Services, Information and Communications Technology and Chronic Obstructive Pulmonary Disease, Chronic Heart Failure (CHF) and type II diabetes, frailty, co-morbid conditions.

Description:

In the year 2000 the hospital started to develop new research lines in the area of integrated healthcare delivery, with the goal to diminishing the impact of the seasonal exacerbations of patients’ with chronic conditions. The focus was initially on patients with a specific condition e.g. COPD, heart failure, and the common goal was to keep them stable and away from the hospital setting.

Following successful small scale pilot projects that provided the team with a better understanding on design aspects around integrated healthcare delivery and the sensible use of technology, the Integrated Care Unit in the hospital was founded in 2007. This unit was the cornerstone to the deployment of a larger scale set of services based on the use of normalized programs as their underlying design principle.

The deployment of these services required specific research to understand barriers and facilitators. The NEXES project focused on four main programs; wellness and rehabilitation (W&R), enhanced care (EC), home hospitalization (HH) and remote support to primary care for diagnosis and therapy (Support). The project was targeted at chronic patients’ with co-morbidities in which there was a need to transfer complex patient cases from the hospital to primary care and to the patients’ home with proper integration with community services.
The ultimate goal of the project was to identify proper strategies for future extensive regional deployment and adoption of Integrated Care Services (ICS) supported by Information and Communication Technologies (ICT) (ICS-ICT). To achieve this goal, NEXES proposed well-articulated innovative ICS as a more cost-effective solution, on the hypothesis that they can improve the care experiences and outcomes for patients by coordinating their care better and simultaneously promote cost-effectiveness through preventing the unnecessary use of complex care services.

The use of business process modeling techniques (figure 1) allowed the team to get a more precise understanding of the key steps that are fundamental in the delivery of care. The four ICS covered a wide spectrum of care coordination with a strong focus on prevention and modulation of the disease progress.

NEXES explored in depth the enabling role of ICT in the deployment of ICS (ICS-ICT). A Health Information Sharing (HI-Sharing) approach, the Linkcare® platform, was adopted. Linkcare® provides organizational interoperability and knowledge sharing among stakeholders involved in coordinated care.

Within the project, the deployment also took place in the Trondheim region in Norway and Attica region in Greece. The project was funded by the European commission and the CIP-PSP program (Grant agreement 225025). The four programs investigated in NEXES are now part of the portfolio for the Integrate Care Unit at Hospital Clinic, Barcelona.
Highlights: Innovation, Impact and Outcomes

NEXES has provided the necessary understanding to move from the clinical evidence that was consolidated in previous small scale pilots to a more permanent deploying phase, by understanding the elements that facilitate communication across levels of care and how technology can be used to drive this change.

1. Efficacy or Effectiveness, complementariness and high degree of transferability of the four ICS-ICT were proven.
2. HI-Sharing (Linkcare®) clearly displayed a high degree of fitness to the transformational requirements of the new model of care. Technological changes required for scalability of the HI-Sharing platform were described in detail.
3. Organizational factors appeared as major modulators of NEXES outcomes. Specific strategies to foster organizational changes were described. Ethical and legal barriers were identified and proposals to overcome them were made.
4. Reimbursement based on bundled payments and shared risks between payer(s) and both healthcare and technological providers have been proposed. The novel business model relies on the potential of ICS-ICT to generate efficiencies at health system level thus facilitating investments on ICT innovation with no further increases in total healthcare costs. The impact of the business model on the current health care value chain was analysed and the details of the business plan described.

The project identified complementary clinical strategies for the management of chronic patients with a wide spectrum of severity and co-morbidities. Moreover, except for home hospitalization, the NEXES project demonstrated a high degree of transferability of the ICS-ICT provided and the customizability to the specifics of different health systems. The three elements considered a priority for the deployment and full scalability in 2013 are: i) convergence of existing pre-deployment experiences, ii) agreement on indicators, and, iii) interoperability at systems level (among all providers).

The Health information Sharing (HI-Sharing) platform, Linkcare®, includes the functionalities responsible for management of the individual programs delivered through web services. The 5 components are; i) Accessibility to support centre, ii) User -profiled portals, ii) Interoperability with Electronic Health Records (EHR) from different providers research databases, iv) Remote monitoring using wireless mobile technology, and, v) Clinical Decision Support Systems (CDSS).
Transferability to other organizations / regions:

The project has generated proposals for extensive deployment of ICS-ICT at three different levels: i) site level (focus on consolidation of ICS-ICT), ii) regional/state level (focus on scalability), and, iii) European level (focus on greater uptake).

In the current project INTEGRATE (http://www.integratedcarefoundation.org/project/project-integrate) the issues are addressed at a European level.

Further information: http://www.nexeshealth.eu/

Contact Person: Dr Albert Alonso, aalonso@clinic.ub.es, Dr Josep Roca, jroca@clinic.ub.es

This information has been prepared by Dr Albert Alonso and Michelle Kearns (PhD student Trinity College Dublin)
PERSONALISED GUIDANCE SERVICE FOR PATIENT EMPOWERMENT

CHRONICempower

Organisation name: Biomedical Research Institute INCLIVA

Country: Spain
Region: Comunidad Valenciana

Total Region population: 6.000.000

Good Practice Target population: 100%

population suffering from chronic diseases and conditions

Topics / chronic diseases addressed:
Chronic diseases and conditions, heart failure, COPD, asthma, hypertension, diabetes, obesity, depression, electronic health recordings, patient guided systems

Relevance to B3 Action Plan:

| 1 | Organisational models | 5 | Care Pathway Implementation |
| 2 | Change Management | 6 | Patient / user empowerment, |
| 3 | Workforce Development, Education & Training | 7 | ICT / Teleservices |
| 4 | Risk Stratification | 8 | Finance, Funding |

Description:

CHRONICempower aims to enhance the empowerment of individuals in integrated care of Chronic Diseases and co-morbidities in order to improve health outcomes and patient satisfaction. A new patient care and organizational model is being developed and tested in terms of quality of life, improvement in control of frequent chronic conditions (hypertension, diabetes, obesity, depression), reduction in use of primary care and hospitals as well as events and mortality in the most frequent chronic diseases (heart failure, COPD, asthma) tailored to the frailty level.

The focus is the design and implementation of a Personalized Guidance Service (PGS) for Chronic Diseases and Conditions applicable throughout the whole population. This PGS is based on predictive models and a user-friendly interface for patients, carers and healthcare professionals to enable health shared decision-making, support to medical treatment, improve control and reduce the necessity of hospitalization.

The first phase encompasses the definition of functional specifications and development of the Personal Monitoring System to allow the patients at home to collect and securely transmit data using commercially available portable devices and standard protocols on 7 key vital signs (heart rate/ECG, blood pressure, oxygen saturation, peak flow, impedance, glucose level and weight), and the development of tools for the semantic integration and reuse of patient EHR data in clinical decision support and patient guidance.

The second phase will integrate the elements in a PGS and test it in a pilot program in 5 European regions in order to evaluate its performance and benefits to the patients and to the health system. Considering the new business model the project will bring, all the exploitation perspectives will be analyzed/discussed, and an exploitation and dissemination plan will ensure a useful transfer of knowledge and technology to the industry and governments to benefit the society as a whole.
B3 Action Group “Replicating and tutoring integrated care for chronic diseases”

Highlights: Innovation, Impact and Outcomes

Innovation:
- Personalized Guidance Systems
- Whole populations
- Semantic interoperability among different EHRs
- Computerized Decision Support Systems
- Interfaces for patients, careers and healthcare professionals
- Stratification of patients to care programmes
- Interplay between patients, personal health recordings and health care providers

Impact:
- Improved interaction between patients, their relatives and carers
- Reinforced medical knowledge related to efficient management of co-morbidities
- Increased degree of interoperability and standardisation in the developed tools
- Strengthened European industrial position in eHealth

Outcomes:
- Improvement of health outcomes and patient satisfaction
- Improvement of quality of life among the chronically ill
- Improvement and support caregiver’s decision-making
- Patients more active in managing their health
- Reduction on use of resources and costs

Transferability to other organisations /regions:

Project is shared with other four countries in Europe (Sweden, Italy, Denmark and Estonia) where healthcare providers and authorities, patients and their associations and scientific and industrial community are actively interested.

Further information:
Contact person: Josep Redon (Josep.Redon@uv.es)
B3 Action Group `Replicating and tutoring integrated care for chronic diseases`
**Organisation name:** Joint Improvement Team, Scottish Government  
**Country:** UK  
**Region:** Scotland  
**Total Region population:** 5.2 million  
**Good Practice Target population:** Older People  

**Topics / chronic diseases addressed:**  
Care Pathways, Intermediate Care, knowledge transfer, change management  

**Relevance to B3 Action Plan:**

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**Description:**

The Reshaping Care for Older People programme in Scotland aims to support more older people to live well at home through scaling up delivery of anticipatory and coordinated care and support in the community. However when people with complex multiple long term conditions with a combination of physical, cognitive and functional impairments experience a flare up of their conditions they require urgent access to comprehensive multi-professional and multi-agency assessment. They are often admitted to hospital as an emergency, where they may be susceptible to healthcare associated infection, delirium and challenged to maintain adequate nutrition and tissue viability. These individuals have longer stays, higher mortality, higher rates of readmission and increased risk of institutionalisation.

“Maximising Recovery, Promoting Independence: An Intermediate Care Framework for Scotland” describes a continuum of integrated services to prevent unnecessary admission to acute hospital or long-term residential care, promote faster recovery from illness, support timely discharge from hospital and optimise return to independent living. Intermediate care services can be provided in:

- Individuals' own homes, sheltered and very sheltered housing complexes
- Designated beds in local authority or independent provider care homes
- Designated beds in community hospitals

To support the implementation of the Framework, the Joint Improvement Team (JIT) established a dedicated improvement community on Intermediate Care, nested within the Reshaping Care and Integration Improvement Network.

This improvement community connects operational managers and practitioner champions to share learning, tackle blocks and barriers and provide peer-peer benchmarking, support and challenge to drive improvement and demonstrate impact.
Purpose of Intermediate Care Group (ICG)
To scale up the adoption of Intermediate Care across Scotland and spread good practice as outlined in “Maximising Recovery, Promoting Independence: An Intermediate Care Framework for Scotland”.

Aim
By 2015, all health and care Partnerships will provide a core menu of integrated Intermediate Care that demonstrates improved outcomes for people with long term conditions and their carers at points of transition from home to hospital and back to the community. These services will include urgent 7 day access to safe and effective alternatives to emergency admission, and enabling support and care to return home from hospital, or closer to home, without delay.

Remit of the Group
• To help the JIT to provide developmental and practical support to partnerships in order to scale up Intermediate Care across Scotland
• To identify barriers, share solutions and challenge unwarranted variation in the provision of Intermediate Care
• To develop information and support partnerships to use information to demonstrate progress in the outcomes and experience of Intermediate Care
• To drive good practice in Intermediate Care across Reablement; Hospital at Home; Integrated Community Assessment, Rehabilitation and Support; and within Community Hospitals, Care Homes and Housing developments

Highlights: Innovation, Impact and Outcomes:
The ICG will develop tools to help partnerships test and spread good practice, use information to demonstrate improvement and understand the contribution of Intermediate Care to improving national outcomes and targets including:
• Rate of emergency bed days for over 75s
• Delays to discharge and the rate of bed days lost due to delays
• Rate of attendance at A&E
• Compliance with the 4 hour access standard
• Proportion of last 6 months of life spent at home or in the community
• Balance of care
• Patient and carer experience and personal outcomes

Further information:
Joint Improvement Team: http://www.jitscotland.org.uk/
Contact person: Dr Margaret Whoriskey, Director, Joint Improvement Team - Margaret.Whoriskey@scotland.gsi.gov.uk
[Reshaping Care for Older People: A Programme for Change]

**Organisation name:** Joint Improvement Team, Scottish Government  
**Country:** UK  
**Region:** Scotland  
**Total Region population:** 5.2 million  
**Good Practice Target population:** Older People

**Topics / chronic diseases addressed:**  
Strategy, organisational models, multi-agency improvement programme

**Relevance to B3 Action Plan:**

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**Description:**
In Scotland, approximately £4.5 billion of public funding is spent each year on health and social care for those over 65 years, the number of whom is projected to increase by around two thirds over the next 20 years. Around 60% of this funding is currently spent on care in hospitals or care homes and almost one-third on emergency admissions to hospital. Emergency admissions of older people to hospital absorb £1.4 billion each year and are expected to continue to grow unless action is taken.

*Reshaping Care for Older People: A Programme for Change 2011 – 2021* sets out a series of actions to address these challenges. Significant steps are the development of local joint strategic commissioning plans and the use of a £300 million Change Fund for 2011-2015 to act as a catalyst to rebalance care and support towards anticipatory and preventative services that support older people to be supported at home.

The Joint Improvement Team (JIT) leads a multi-agency improvement programme to support all 32 local partnerships between health, social care, housing, Third sector and independent sector organisations to increase the pace and scale of improving outcomes and designing and delivering sustainable high quality care and support.

The JIT has established an Improvement Network to support partnerships to realise their Reshaping Care ambitions as they implement their Change Plans. The Network purpose is to:

- Support delivery of the £70m Change Fund programme and reshaping care in the context of the £4.5bn currently invested across health, housing and social care on behalf on older people;
- Facilitate full and active partnership engagement and integration in reshaping care for older people, particularly within the housing, independent and third sectors and within health in general;
- Support all 31 partnerships to test and spread local improvements and share learning;
- Increase the pace of change;
- Support the use of measurement and collect and share evidence of the impact of reshaping care and the change fund;
- Work closely with other work streams and improvement agencies to ensure a coherent approach to supporting the implementation of change fund and reshaping care programmes.

**Highlights: Innovation, Impact and Outcomes:**
Success in Reshaping Care and Integration is evidenced through a set of measures:

- Outcome indicators which use data collected and reported at a national level
- Local measures collected and used locally to inform local improvement
- Measures of shift in resource use over time

Results to date show:

- a rising profile for co-production and asset-based approaches
- targeting of anticipatory support for high risk/high resource use individuals
- reduction by 7.6% in the rate of emergency bed days for people aged 75 and over between 2009/10 and 11/12, on trajectory to meet the target to reduce the rate by at least 12 % by 2014/15
- Estimated saving of around 550 beds acute beds compared to level projected on the basis of demographic change alone.
- Around 6,500 fewer residents in care homes than projected
- Over 2,000 more people in receipt of intensive support at home than would have been expected.

**Transferability to other organisations /regions:**

Furthermore, a full range of supporting documentation and materials which may be of interest to B3 members can be found via the Reshaping Care Improvement Network website. This includes the new JIT publication *Co-production of Health and Wellbeing in Scotland* which is available for free download.

**Further information:**
- Joint Improvement Team: [http://www.jitscotland.org.uk/](http://www.jitscotland.org.uk/)
- Contact person: Dr Margaret Whoriskey, Director, Joint Improvement Team - [Margaret.Whoriskey@scotland.gsi.gov.uk](mailto:Margaret.Whoriskey@scotland.gsi.gov.uk)
SPARRA Risk Prediction Tool

Organisation Name: Information Services Division Scotland

Relevant to B3 Action Areas:

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Long Term Conditions Management

It is estimated that over two-thirds of the Scottish population aged 65 and over have at least one long term condition. The population aged 65 and over is forecasted to increase by 62 per cent between 2006 and 2031 and so the prevalence of Long Term Conditions will increase significantly.

People with Long Term Conditions are intensive users of health and social care services, including community services, urgent and emergency care and acute services. There are huge benefits to the population and financial savings to be made if health and social care communities invest in effective Long Term Conditions management.

What is SPARRA?

Scottish Patients at Risk of Readmission and Admission is a risk prediction tool developed by ISD. It predicts an individual’s risk of being admitted to hospital as an emergency inpatient within the next year. The tool uses national datasets to calculate these risk scores and details of individuals at risk are distributed to Health Boards, Community Health Partnerships and GP practices.

SPARRA was first developed in 2006 and has been at the fore-front of efforts to develop new models of care for those most at risk of admission, including better anticipatory care through case management/coordination.

Information Services Division has an established programme of work to continue to develop the SPARRA risk prediction algorithm. The programme seeks to maximise the increasing richness of national datasets and the supporting data warehousing and reporting infrastructure that is being developed by NSS/ISD.

The next version of SPARRA will seek to utilise data on hospital admissions, A&E attendances, outpatient attendances and prescribed medication. This enhancement is likely to increase the number of individuals for whom a risk can be estimated from 750K to over 3 million.

The development of SPARRA is overseen by a national Steering Group including representatives from health and social community care.

iSPARRA

iSPARRA is a new innovative development to incorporate SPARRA into a Long Term Conditions Information Management system. This web-based system will build on SPARRA’s case-finding ability but will also provide functionality to utilise the wider benefits of risk-stratification in understanding and managing local LTC populations.

Potential Benefits

- Targeting of person-centred interventions to those who are most like to benefit
- Optimum deployment of resources to achieve maximum impact for the populations targeted
- Evaluation of new interventions
- Re-design of services based on local need
- Supporting reduction in secondary care usage and ‘shifting the balance of care’.
Who might use iSPARRA?

- Managers and planners of Health & Social Community Care Services
- GPs and the wider primary care team
- Community nursing teams
- Multidisciplinary teams (including social care)
- Information Specialists.

Product features

Case-finding (Phase 1)

Phase 1 will focus on delivering the key functionality required by SPARRA users now and build the foundations for Phase 2

- Direct web-based access via secure login for all practitioners or users of SPARRA data
- Ability to generate case listings of patients at risk within your local population and to download to Excel or CSV format
- Ability to interrogate underlying dataset via user-defined reports.

Stratification (Phase 2)

As well as incorporating the new algorithm and its expanded list of risk factors, Phase 2 of iSPARRA development will focus on providing the functionality you would expect in a fully-fledged LTC management information system.

A key feature will be the ability to stratify (select a subset of) the ‘at risk’ population and to generate analyses that provide a greater understanding of this sub-population and its needs.

A user-friendly dashboard will allow the user to filter on particular data items to select the chosen sub-population (strata). Items may include

- Risk scores (range)

Intervention Tracking & Evaluation (Phase 3)

Phase 3 of iSPARRA development will offer users functionality to record, track and measure the success of new interventions to improve the care of LTC patients. This will include functionality to

- Assign and record the type of interventions applied to a particular strata or individual e.g.
  - Setting a Anticipatory Care Plan (ACP)
  - Assignment to a Case Manager
  - Admission to a ‘virtual ward’
  - Assignment to a case or control group in a particular study.
- Forecast the number of inpatient admissions, bed days and mortality for the chosen strata in a particular risk year.
• Forecast the net reduction in activity and cost after predicting the likely success of the intervention in reducing admissions and offsetting the cost of the intervention.
• Monitor actual versus expected with respect to forecasted activity and costs in the year after the intervention.

Example Risk Distribution

For further information:
Information Services Division Scotland website -
http://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/SPARRA/
[Supporting an Integrated Telehealth and Telecare Learning Network]

Organisation name: NHS 24, Scottish Centre for Telehealth and Telecare

Country: Scotland Region: National Organisation

Total Region population: 5.2 million Target population: Health and Care Workforce

Topics:
Knowledge Transfer, Webcasts,Reusable Learning Object, Integrated approach

Relevance to B3 Action Plan:

| 1 | Organisational models | 5 | Care Pathway Implementation |
| 2 | Change Management | 6 | Patient / user empowerment, |
| 3 | Workforce Development, Education & Training | 7 | ICT / Teleservices |
| 4 | Risk Stratification | 8 | Finance, Funding |

Description

The formation of the Scottish Centre for Telehealth and Telecare brought together the Scottish Centre for Telehealth and the Telecare Development Programme under the governance of NHS 24 in Scotland provided the stimulus to bring together two existing knowledge transfer networks. The resulting Telehealth and Telecare Learning Network has a significantly increased membership which includes staff from:

- Health
- Social care
- Housing
- Voluntary sector
- Education
- Policy

Objectives

To support the Learning Network we changed the format from quarterly day-long face to face meetings with 1 annual conference style event, to a programme of monthly webcasts to reflect the interests of the members, 1 annual day-long networking event and 1 annual conference.

Since 2012 the Learning Network has broadcast webcasts on the following topics:

- SCTT strategy and work programme for 2012-15
- Research: Implementing Transnational Telemedicine Solutions
- Epilepsy: Telehealth and Telecare Approaches
- Children and Young People and Telehealth
- Telehealth and Telecare to Support People Living with Dementia in Their Homes and Communities
- The Future Landscape for Unscheduled Care in Scotland
- The role of telehealth in pulmonary rehabilitation is outlined
- Telehealth and Telecare in Ayrshire and Arran
- Housing and Telecare in Scotland
- A National Delivery Plan for Telehealth and Telecare in Scotland to 2015

European Innovation Partnership on Active and Healthy Ageing
B3 Action Group `Replicating and tutoring integrated care for chronic diseases`

- Research: Using technology to support self-management for people with Long Term Conditions (MS and Heart Failure) at home
- Edinburgh City Council – Telecare: benefits and lessons learned

In addition we hosted a 1 day Network Event at which workshops and snapshot presentations gave the Network members the opportunity to find out about new developments, good practice and integrated approaches to telehealth and telecare. The snapshot presentations were also filmed at the Network Event and added to the webcast archive.

**Highlights: Innovation, Impact and Outcomes:**

- Anytime, Anywhere: webcasts have improved access for staff to knowledge transfer activities
- Creating a resource library of freely available webcasts results in increased views as knowledge of the webcast programme grows
- Encourage members of the Learning Network to determine the content of the webcasts
- The diversity of the Network members ‘sharing’ collectively provides significant insight into the key elements of sustainable development in technology enabled services.

**Transferability to other organisations /regions:**

- Promoting an integrated approach to a single topic e.g. health and social care staff, community and acute staff results in meaningful dissemination of lessons learned
- Using technology as a delivery mechanism can overcome the challenge of accessing learning, especially from remote and rural areas

European Innovation Partnership on Active and Healthy Ageing
Further information:

Contact: Nessa Barry, Service Development Manager, NHS 24 - Nessa.Barry@nhs.net
To find out more about the Telehealth and Telecare Learning Network.

http://www.knowledge.scot.nhs.uk/telehealthcare.aspx

To view Telehealth and Telecare Learning Network webcasts go to:

http://www.video3uk.com/sctt
[Building Capacity and Competency for Staff Using Technology Telehealthcare Education and Training Strategy]

**Organisation name:** Scottish Centre for Telehealth and Telecare, NHS 24  
**Country:** UK  
**Region:** Scotland  
**Total Region population:** 5.2 million  
**Good Practice Target population:** health and care workforce  

**Topics / chronic diseases addressed:**  
Workforce Development, Education, Learning, Competency, Networks, Knowledge Transfer, Telehealth and Telecare  

**Relevance to B3 Action Plan:**

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**Description:**  
Recognition of the workforce development implications around technology enabled services is essential to produce sustainable, transformative change in health and care services.  

**General Objectives:**  
Our objective is to raise the profile of the workforce issues around technology enabled health and social care services and to produce a workforce which is: capable and confident in the use of these technologies; which can support the policy vision for an integrated health and social care model; and whom recognise and promote good practice in technology enabled service delivery.  

**Health and Social Care Integration:**  
During 2010 - 2012 the (then) Scottish Centre for Telehealth and the national Telecare Development Programme established the Telehealthcare Education and Training Steering Group, which has driven change and produced resources for staff working in health, social care and housing services.  

**Processes:**  
We have worked with key stakeholders who are developing services, brokering educational provision and overseeing staff who use telehealth and telecare. Stakeholders in the Steering Group included: the Scottish Government Joint Improvement Team, Edinburgh City Council, Middlesbrough Local Authority, Equipu, Scottish Centre for Telehealth and Telecare, NHS Education for Scotland and the Scottish Social Services Council.  
This integrated approach has given us unique insights into the requirements and the challenges of those working in all sectors of health and social care using technology.
Specific Objectives:
To develop a:
- Competency Framework for Telecare Service Support staff;
- Competency Framework for Professionals working in health and social care services;
- Qualification: Professional Development Award in Telehealthcare, produced with the Scottish Qualifications Authority

Qualifications Authority
- New approach with Higher Education Institutions to embed telehealth and telecare in the undergraduate curricula
- Telehealth and Telecare Community website – to share resources and good practice which is used by staff from health, housing, social care, voluntary and education organisations
- National Telehealth and Telecare Learning Network – to promote and support knowledge transfer of good practice, service developments and innovation

Highlights: Innovation, Impact and Outcomes:
- The Strategy and accompanying actions provided a credible platform from which to influence relevant national policy and organisational strategies impacting on the health and social care workforce. This includes the Scottish Government’s 2020 Workforce Review, led by NHS Education for Scotland and the Scottish Social Services Council, which considers the requirements of an integrated health and care workforce.
- The success of the Strategy has led to workforce development being recognised as a key strand of the National Delivery Plan for Telehealth and Telecare 2012-15.
- New collaboration with UK-wide colleagues to develop a UK Skills Frameworks for staff using assistive technology to deliver services.

Transferability to other organisations / regions:
- Taking a “whole system approach” which includes stakeholders from health, social care and housing, service managers and education providers
- Our approach to supporting knowledge transfer (examples of good practice) across organisational and professional boundaries

Further information:
Telehealthcare Education and Training Strategy –
http://www.jitscotland.org.uk/publications-1/telecare
Professional Development Award in Telehealthcare:
http://www.sqa.org.uk/sqa/47947.html

Telehealthcare in Scotland Knowledge Network
http://www.knowledge.scot.nhs.uk/telehealthcare.aspx

NHS 24 Contact:
Nessa Barry, Service Development Manager, NHS 24 Nessa.Barry@nhs.net