European Commission

A COMPILATION OF GOOD PRACTICES

– Second Edition –

EUROPEAN INNOVATION PARTNERSHIP ON ACTIVE AND HEALTHY AGEING

Replicating and Tutoring Integrated Care for Chronic Diseases, Including Remote Monitoring at Regional Level

Action Group B3

The good practices in this document were contributed by the Action Group on Replicating and tutoring integrated care for chronic diseases, including remote monitoring at regional level, in April - September 2013.

The collection of good practices is on-going.

November 2013

EXECUTIVE SUMMARY

The concept of integrated care is considered as one of the most promising solutions, if not the necessary way forward to assure the sustainability of the healthcare system, through reshaping and reinventing care delivery structures around the needs of the citizens/patients.

This Compilation of Good Practices is the product of the unique collaborative work of the members of the B3 Integrated Care Action Group. In this collective effort, the experts of the Action Group have been pooling their knowledge and experience to map existing initiatives relevant to the delivery of integrated health and social care.

This mapping exercise was undertaken to give a picture of the on-going efforts towards implementing innovative solutions in the field of active and healthy ageing; it was not meant to select or validate a limited number of practices. This inclusiveness reflects the collaborative work and knowledge transfer of the European Innovation Partnership on Active and Health Ageing.

The 86 good practices in this Compilation were submitted by the members of the B3 Integrated Care Action Group from April to September 2013. This is the second edition of the Compilation and the collection is on-going.

Examples in this Compilation demonstrate that for the management of chronic diseases and for the provision of comprehensive, long term care for the older people integrated care practices have the potential to improve the quality and sustainability of services. From the good practices and the expertise of the

Action group, the following key issues emerged:

1. Good practices have shown the development of new **Organisational Models** with broad partnerships involving patients, users, health professionals, carers and payers, decision-makers and other stakeholders that can support a more responsive and integrated care programme for chronic diseases.

2. Implementing **Change Management** can be done through incentivisation and advocacy methods, processes, tools and techniques for reducing and managing people's resistance to change when implementing organizational transformations.

3. Good practices related to **Workforce Development, Education and Training** offer replicable training programmes, and show how a skilled health workforce can answer to the challenges of increased and changing demand.

4. **Risk Stratification** optimises the delivery of integrated care by analysing the needs of patients /users in the target groups to predict risks and tailor the services to the needs of the patients.

5. The work on **Care Pathway Implementation** builds on existing guidelines to develop multi-sectorial integrated care pathways (ICPs) for replication. ICPs are structured multi-disciplinary care plans which detail essential steps in the care of patients with a specific clinical problem.

6. **Patient / user empowerment, health education and health promotion** activities are ubiquitous. The good practices demonstrate different ways that ensure that the services are centred on the patients/users, who are active and involved partners in the management of their diseases.

7. There is a growing range of **Electronic Care Records, ICT and Teleservices**; some are closely engaged with the delivery of health and social care services to meet the needs of patients and those in need of care; others aid the governance, coordination and audit of care. These real examples are being used to define services, and develop taxonomies and use cases.

8. **Finance and Funding** are crucial to provide incentive to the transformation and for the sustainability of service deployment. Ecosystems created around health and care services can contribute to growth and job creation.

In order to maximise the impact of these identified good practices, the current material will be analysed; key elements of successful implementation and scaling up will be identified and validated through the work of the experts in the Action Groups during 2014.

The following charts give an overview of the coverage of the mapping of the good practices. They show the distribution of good practices by action areas and by countries. They also indicate the scale of the good practice by indicating the size of the target population, where possible. The table starting on page 6 also indicates to which area(s) each good practice is most relevant to.
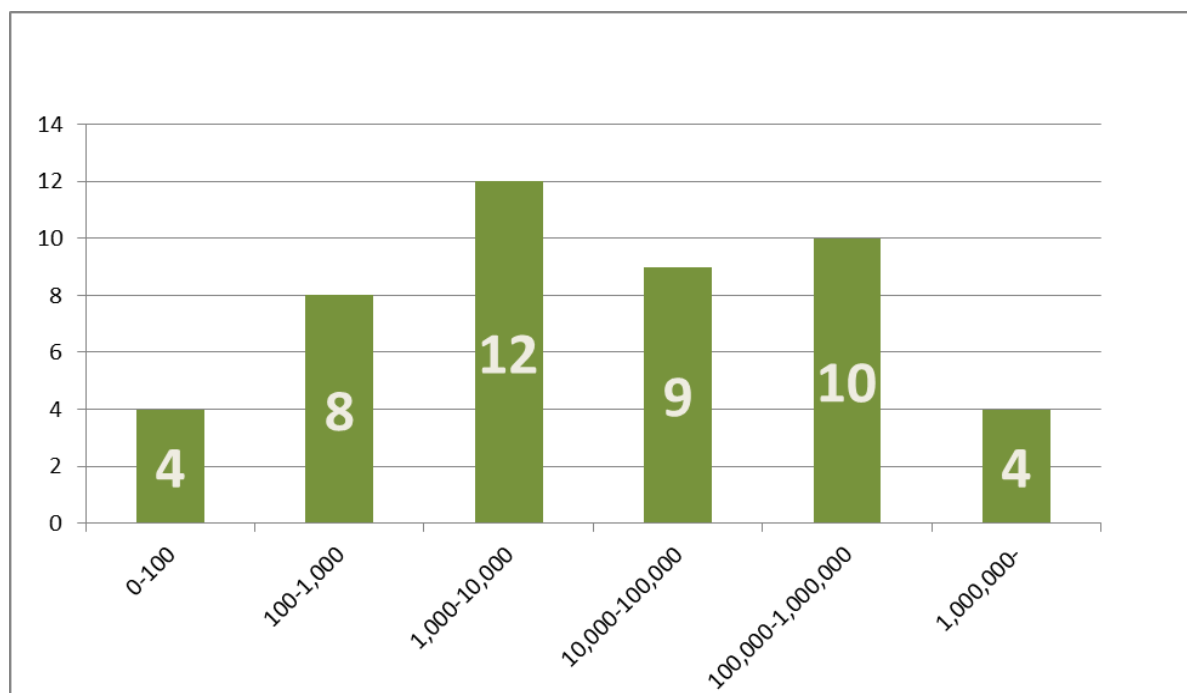
Figure 1. Integrated care good practices by countries and by Action Areas

Country	All Good Practices	Organisational models	Change Management	Workforce Development, Education and Traning	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Denmark	**4**	0	1	0	0	2	1	3	0
France	**4**	2	2	0	2	3	1	3	1
Germany	**6**	0	2	0	1	3	1	4	2
Israel	**1**	0	0	0	0	0	0	1	0
Italy	**19**	4	0	1	0	6	7	9	2
Netherlands	**2**	1	1	1	0	1	1	1	0
Portugal	**6**	1	0	1	2	3	1	0	1
Spain	**27**	7	6	7	5	5	12	15	5
Turkey	**1**	1	0	0	0	0	0	0	0
UK	**16**	8	8	3	2	4	2	5	3
total	**86**	24	20	13	12	27	26	41	14
total %	**100%**	27%	22%	15%	14%	30%	29%	47%	16%

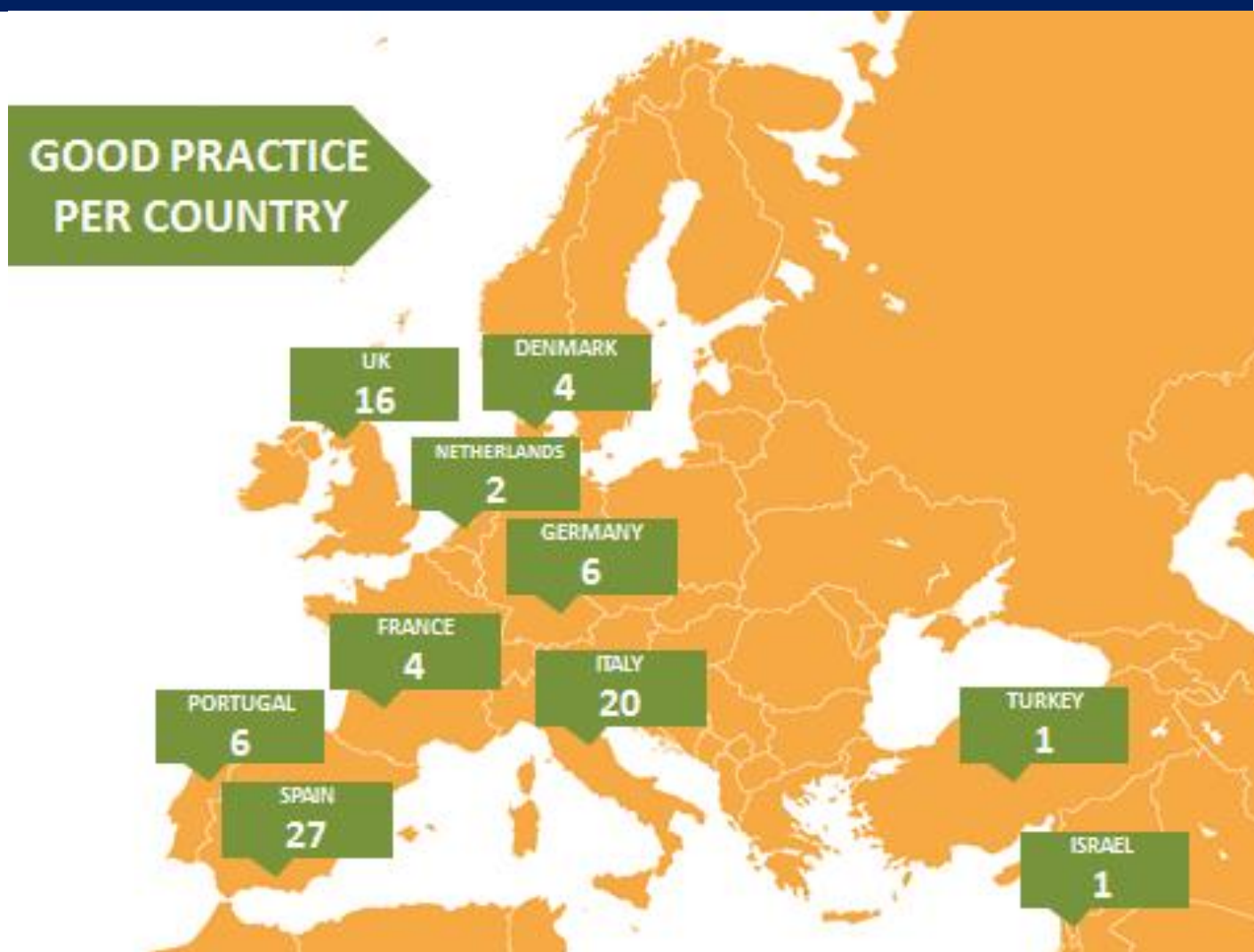*Figure 3. Target population size of the integrated care good practices*

The Compilation of Good Practices aspires to provide the readers evidence and inspiration for implementing and scaling up innovative solutions in integrated care.

GOOD PRACTICES COVERAGE

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Citizen's Online Health Account	Region Zealand	Denmark	19						X		
Epital, Core establishment	Municipality of Lyngby-Taarbaek	Denmark	21		X						
SAM:BO Cooperation on care pathways in the Region of Southern Denmark	Southern Denmark Health Innovation	Denmark	23					X			
The Bridge to better Health	Region Zealand	Denmark	25					X			
Dossier Pharmaceutique® applied to elderly patients	Combattre les Maladies Chroniques pour un Vieillissment Actif en Languedoc Roussillon	France	27	X	X			X	X	X	
Falls prevention initiative	Combattre les Maladies Chroniques pour un Vieillissment Actif en Languedoc Roussillon	France	29	X	X		X	X		X	

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
MACVIA-LR	Combattre les Maladies Chroniques pour un Vieillissment Actif en Languedoc Roussillon	France	31							X	
Multimorbid clinic for chronic diseases (MACVIA-LR)	Combattre les Maladies Chroniques pour un Vieillissment Actif en Languedoc Roussillon	France	33				X				
Improvement in Postoperative PAIN OUTcome (QUIPS internationally)	University Hospital Jena	Germany	35		X						
Personalised Guidance Service for ICT , Project "Alter leben"	Saxon Housing Cooperatives	Germany	37							x	
Personalised Guidance Service for Teleservices; Chronic care management for diabetes patients	Tele-diabetological Competence Centre in Saxony	Germany	39							x	
QUIPS – Quality improvement in postoperative pain treatment	University Hospital Jena	Germany	41		X						

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Second Opinion for Back Pain	Techniker Krankenkasse and the German Pain Association DGS	Germany	43					X			
TK Integrated Care Contract for Back Pain	Techniker Krankenkasse and the German Pain Association DGS	Germany	45					X			
Maccabi Healthcare Services	Maccabi Healthcare Services	Israel	47							X	
A Telemedicine-Based Approach to Sustain Healthcare System: Lessons from Lombardy Region	Fondazione Salvatore Maugeri/ Cefriel/Politecnico Milano	Italy	49		X						
BUONGIORNO CReG	Telbios SpA	Italy	51	X							
BuongiornoCReG and Viva Paziente Esperto	Telbios SpA	Italy	53						X		
Complications Prevention in Diabetes	AUSL Ferrara - ASSRRERIT	Italy	55					X			
eCare Network in Bologna	ASSRRERIT – CUP2000	Italy	57	X							
Eubiosia Project	ANT Foundation	Italy	59	X				X			

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Networking actions in Mirandola Biomedical District	Fondazione Democenter-Sipe ASSERIT	Italy	61								X
Nuove Reti Sanitarie Home-based Telesurveillance Program (HBTelep), Chronic Heart Failure	Salvatore Maugeri Foundation	Italy	63							x	
Nuove Reti Sanitarie Home-based Telesurveillance Program (HBTeleP), COPD	Salvatore Maugeri Foundation	Italy	65							X	
Personal Health Record System And Patient/Citizens Empowerment – TreC – Cartella Clinica del Cittadino	Fondazione Bruno Kessler, Azienda Provinciale Servizi Sanitari, Provincia Autonoma di Trento	Italy	67						X	X	
Positive Technological Innovation as a Driver of People Health Engagement (PHE – Project)	Universita' Cattolica Del Sacro Cuore	Italy	69						x	x	
Regional Diabetics Register - Piedmont	CSI Piemonte	Italy	71							X	

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
SISSI – Social and health information system	AUSL Cesena & Cup2000-ASSRRERIT	Italy	73						X		
Support patients through e-service solutions	AUSL Ferrara-ASSRRERIT	Italy	75						X		
TAGS project - Textiles for Ageing Society	Fondazione Democenter-Sipe - ASSERIT	Italy	77					X			
Telecardiology for Public Health Care of Cardiovascular Disease	Regional Healthcare Agency of Puglia	Italy	79							X	
Telemedicine for Management People with Chronic Diseases	CSI Piemonte	Italy	81							X	
The Abilities Passport and Network of Forensic Medicine - PABI	CSI Piemonte	Italy	83							X	
The ARIA Project	Arcispedale S.Maria Nuova plus Reggio Emilia Local Health Autority	Italy	85	X							
The Health Village	Campus Salute Onlus	Italy	87						X		
ParkinsonNET	Radboud University Nijmegen Medical Centre	Netherlands	89	X	X	X			X	X	

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
The Walcheren Integrated Care Model	Institute of Health Policy and Management, Erasmus	Netherlands	91								
Automated Prospective Model of Health Care in Ophthalmology	Association for Innovation and Biomedical Research on Light and Image Ageing@Coimbra	Portugal	93	X							
GMP Production of Radiopharmaceuticals for Oncology and Neurodegenerative Diseases	ICNAS-Produção, Unipessoal, Lda	Portugal	95								
PREVADIAB 2 – Prevalence Study Follow-up	National Diabetes Observatory	Portugal	97				X				
Retmarker as a Biomarker of Diabetic Retinopathy progression	Association for Innovation and Biomedical Research on Light and Image Ageing@Coimbra	Portugal	99				X				
School of Diabetes – Courses for Health Professionals	APDP – Diabetes Portugal	Portugal	101			X					

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Standardization and Harmonization of Biomarkers for Neurodegenerative Diseases	CNC/CHUC Ageing@Coimbra	Portugal	103					X			
Aprop Telemedicine Platform	Mútua Terrassa	Spain	105								
Basic Care Unit and Home (BaCUaH)	Grupo Aura Andalucía	Spain	107							X	
Chronic Care Programme in Catalonia	Department of Health Catalonia	Spain	109								
Collaborative model between health and social care. MECASS	Institut Català de la Salut / IBM	Spain	111	X						X	
Design of an ontology-based telemonitoring system to support personalized supervision for chronic patient at home	Bio-Med Aragón	Spain	113							X	
DREAMING	Bio-Med Aragón	Spain	115							X	
End-to-end telemonitoring solution working with European standards:	Bio-Med Aragón	Spain	117								

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Evaluation and alignment of telemedicine systems in the HealthCare domain: Teledermatology experience in Aragón	Bio-Med Aragón	Spain	119							X	
Expert Patient Programme of Catalonia	Ministry of Health of Catalonia	Spain	121						X		
FOCUSS	Bio-Med Aragón	Spain	123			x					
Home Care	Adiper Servicios Sociosanitarios	Spain	125						X		
Hospital Clinic Integrated Care Nexes Project	Hospital Clinic, Barcelona	Spain	127							X	
Integrated care through case management in the Valencian Region	Polibienestar Research Institute – University of Valencia	Spain	129		X						

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Integrated Healthcare Information System for End-to-End Standardized Exchange and Homogeneous Management of Digital ECG Formats	Bio-Med Aragón	Spain	131								
Microhealth Hemophilia	MicroHealth	Spain	133							X	
OPIMEC – Observatory of Innovative Practices for Complex Chronic Disease Management	Andalusian School of Public Health	Spain	135		X	X				X	
PALANTE – Patient leading and managing their healthcare through EHealth	Regional Minister of Health and Social Welfare Andalusia	Spain	137						X		
Personalised guidance service for patient empowerment – CHRONICempower	Biomedical Research Institute INCLIVA	Spain	139						X		
PITES: Innovation platform in new telemedicine and e-health services for chronic and dependent patients	Bio-Med Aragon	Spain	141								

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Population Intervention Plans PIP's	Department of Health of the Basque Country	Spain	143	X	X	X	X	X	X	X	X
Population stratification	Department of Health of the Basque Country	Spain	145				X				
PROMIC - Congestive heart failure	Department of Health of the Basque Country	Spain	147			X					
Promoting Autonomy	Adiper Servicios Sociosanitarios	Spain	149				X				
SAIATU	Department of Health of the Basque Country	Spain	151								X
Strategies to tackle the challenge of Chronicity	Department of Health of the Basque Country	Spain	153		X						
TELBIL	Department of Health of the Basque Country	Spain	155	X		X		X	X	X	
Valcronic programme	Polibienestar Research Institute – University of Valencia, Valencian Ministry of Health, and Telefónica	Spain	157				X			X	

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Gard	Chronic Respiratory Disease	Turkey	159	X							
Achieving benefits for patients by levering the use of risk prediction to support anticipatory care planning at scale through the General Practice contract	NHS Scotland	UK	161	X	X						X
Building Capacity and Competency for Staff Using Telehealthcare Education and Training Strategy	Scottish Centre for Telehealth and Telecare, NHS 24	UK	163			X					
Change Fund	Joint Improvement Team, Scottish Government	UK	165								X
Coproduction and Community Capacity Building	Joint Improvement Team, Scottish Government	UK	167						X		
Everyone Matters: 2020 Workforce Vision for healthcare in Scotland	Scottish Government – Health and Social Care Directorates	UK	169			X					
Integrated Care Pathways for Mental Health	Healthcare Improvement Scotland	UK	171								

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Integrated Resource Framework for Health and Social Care	Scottish Government	UK	173								X
Integrated Services for Chronic Pain Patients	NHS Lanarkshire	UK	175					X			
Integration of health and social care in Scotland	Scottish Government – Health and Social Care Directorates	UK	177	X	X						
Integrated falls prevention and management and fracture prevention pathway for older people	Scottish Government	UK	179					X			
Intermediate Care Improvement Community	Joint Improvement Team, Scottish Government	UK	181		X			X			
Key Information Summary - Sharing Patient Information	NHS National Services Scotland	UK	183					X			
Reshaping Care for Older People : A Programme for Change	Joint Improvement Team, Scottish Government	UK	185	X	X						
SPARRA Risk Prediction in the Community	Information Services Division Scotland	UK	187				X			X	

Good Practice	Organisation	Country	Page	Organisational models	Change Management	Workforce Development, Education and Training	Risk Stratification	Care Pathway Implementation	Patient/ User Empowerment	ICT/ Teleservices	Finance/ Funding
Supporting an Integrated Telehealth and Telecare Learning Network	NHS 24, Scottish Centre for Telehealth and Telecare	UK	189			X			X	X	
TeleSCoPE – European Code of Practice for Telehealth Services	Health Design & Technology Institute, Coventry University	UK	191							X	

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:

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

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

Epital, Core establishment

Organisation name: Municipality of Lyngby-Taarbaek

Country: Denmark   **Region**: Copenhagen

Total Region population: 68,000   **Good Practice Target population**: 1.600

Topics / chronic diseases addressed:
COPD

Relevance to B3 Action Plan:

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

Description:

The municipality of Lyngby-Taarbaek (LTK), Region Copenhagen, Denmark established in collaboration with The Epital Association (EA) in 2012 an "Epitope". An Epitope is like a biotope, a self-contained environment in an enclosed structure and is based on the Epital model. In short, the Epital model is inspired by the Chronic Care Model (Wagner 2001) and the Innovative Care Model (WHO 2002). To develop the Epital Model, these have been further developed and operationalized by incorporation of the advantages of the rapid technological development during the last decade. Using this model it is possible to offer a user-centred health-services 24/7 to people with chronic conditions. The first Epitope in Denmark was developed in proof-of-concept in LTK in 2012, as a public private partnership. Based on the experiences the pilot setup was initiated in January 2013. One of the main principles of the Epital model is that citizens with COPD have access to qualified health professionals 24/7 through a call centre manned with certified nurses. The citizen can contact the call centre using the Epital Health Navigator and get instant voice and video contact.

This description of good practice shows how a core organization of an epitope can be established with relatively low costs and simultaneously offer the staff new competences.
At the time where the municipality established the call centre, they already had a home care facility manned 24/7. In order to add the additional features of the Epital Health call centre it was necessary to certify all 40 nurses affiliated with the centre, educating them to interact with the Epital Health it solution. On this basis they were able to respond to contacts from citizens with COPD, and advice and guide them in appropriate treatment or to refer them to other resources when needed. The certification involved theoretical and practical exercises. The duration of the course was three days, and it was possible to educate all 40 nurses by

The total cost for the planning of the courses, salary of participants and instructors and salary for substitutes in the call centre was less than € 100.000.
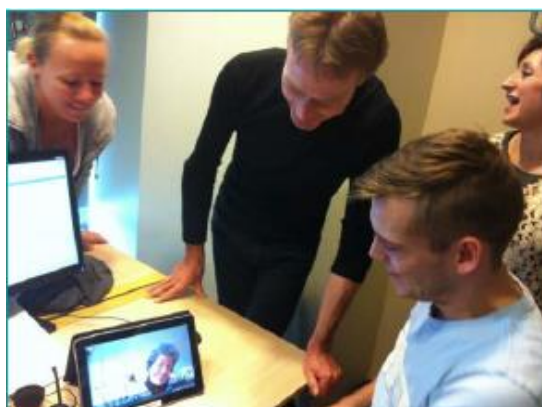
Installation and instruction in use of the Epital Health Navigator: When citizens are referred to Epital Health by the municipality they are supplied with an Epital Health Navigator, which contains basic functions for communication, planning, self-monitoring and an empowerment tool-kit. In order to ensure that the citizen is capable of using the Epital Health Navigator when needed, including during exacerbations, they are introduced to and trained in the functions by a member of the Epital Health Service Team. This team is manned by health informatics students, which both have insight in and knowledge about both the patient perspective and the user of technology perspective, and they have competence in helping and supporting, when technical issues occur. The organization of a service team, which is available 365 days a year, is an example of how installation and maintenance can be organized using staff with knowledge of the conditions rather than by technical staff involved by 3 parties. Also this model is less expensive than other known contracts in the vicinity.

Highlights: Innovation, Impact and Outcomes:
By this process, the call centre personnel are empowered to change from social care to a whole system approach.

Transferability to other organisations/regions:
Although the Epital is an innovative redesign, this example demonstrates that the transformation can be made at an affordable price by reusing, reorganising and empowering existing call centre resources.

Further information:
www.epital.org
Contact person: Jacob Sylvest Nielsen, jsn@ltk.dk

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:

1		Organisational models	5	X	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:

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 are 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, cross-disciplinary, 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 have 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.

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-sectorial health

Relevance to B3 Action Plan:

1		Organisational models	5	X	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:

Region Zealand is the initiator of *The Bridge to Better Health*, which is developed and implemented in partnership with Lolland and Guldborgsund Municipality, Nykoebing 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-sectorial 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-sectorial 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. labour market adjustments for less educated people and people in poor health)
6. **Cross-sectorial 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

Dossier Pharmaceutique® applied to elderly patients (pharmaceutical e-file)

MACVIA-LR: Combattre les Maladies Chroniques pour un Vieillissment Actif en Languedoc Roussillon (Fighting chronic diseases for active and healthy ageing)

Country: France

Region: Region Languedoc Roussillon and France
Total Region population: 66 Million

Good Practice Target population: 97% of French private pharmacists; the vast majority of patients. Coverage over 35% of people in France. Specific targets: drug interactions and compliance to treatment in people ≥65 yrs., risk of falls (≥75 yrs.) and chronic diseases (≥65 yrs.).

Topics: Chronic diseases, falls, prevention, ageing, avoidable hospitalisations

Relevance to B3 Action Plan

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

Description:

The Region Languedoc Roussillon is the umbrella organisation for an interconnected and integrated project on active and healthy ageing covering the 3 pillars of the EIP on AHA. All sub-activities (A1, A2, A3, B3, C2 and D4) are embedded in the project. Importantly, MACVIA-LR is led by the President of the *Région* Languedoc-Roussillon and has a strong political commitment

1. Health and social care integration:
- Law n° 2007-127, 30 January 2007
- Public health provider: Regional Health Agency (ARS).
- Regional health insurance agency (CPAM).
- Conseil National de l'Ordre des Pharmaciens.
- Academia: *Université Montpellier 1* (UM1-Pharmacy).
- Hospitals: Nîmes, Alès.; Private pharmacists, public pharmacists, and emergency medicine.
- URPS Pharmacists (Union Régionale des Pharmaciens Libéraux du LR).
- Schools and training centres for teaching and coaching.
- Insurance companies.
- Private companies in ICT and Pharma, in particular Sanofi.

2- General and specific objectives of initiative:

To use the DP®, an electronic file under the leadership of the *Conseil National de l'Ordre des Pharmaciens* (law 2007-127 and article L.161-36-4-2, *Code Sécurité Sociale),* in elderly patients across France to achieve the goals of the EIP on AHA focussing on (i) drug interactions and compliance to treatment in people ≥65 yrs., (ii) risk of falls (≥75 yrs.), (iii) fall prevention and (iv) chronic disease integrated care in the elderly (≥65 yrs.).

3- Methodology, processes, involvement of health, social care and other personnel

The DP® is an electronic file under the leadership of the *Conseil National de l'Ordre des Pharmaciens*: law 2007-127 and article L.161-36-4-2, *Code Sécurité Sociale*. Each Social Security member can use the DP®. The DP® should be embedded in the electronic personal medical file when available. All pharmacists in France are requested to use the DP® for each

prescription, if the patient does not disagree. The DP® covers over 97% of private pharmacists in France. It is now approved for hospital pharmacies. The DP® stores all medications prescribed over the past 4 months. The DP® is currently used to avoid medical interactions and prescription duplication. It will also be used to assess adherence using a pilot study already carried out in the LR Region (*Conseil de l'Ordre des Pharmaciens-Hérault*).

1- Improve patient adherence to care plans:
- Develop an early warning system on poor adherence to treatment resulting in an integrated adherence monitoring system.
- Develop IT tools to promote real time information exchange between pharmacists and patients, and primary care (in process).
- Monitor adherence through electronic tools.

2- Empower the patients and the care givers
- Implement training programmes to support patients and carers (with Trans Innov Longévité, A3) and develop decision support tools to aid patient involvement and self-management (with A2, A3 and B3).

3- Contribute to the improvement of adherence in the health care system
- Develop a content-sharing platform to allow for future information campaigns and training interventions.
- Design and implement specific informative campaigns targeted to patients, carers and pharmacists to support better adherence to treatment.
- Train health professionals (pharmacists, primary care and nurses) following specific support programmes (with A3).

4- Foster communication: Share pharmaceutical care records across primary and secondary care.
- Target population: patients ≥65 yrs., community pharmacists are scattered around France even in remote rural areas.
- Age range: old people.
- Gender: Males and females.
- Actual or intended geographical coverage: Languedoc Roussillon and France,

4- Funding source(s) of the initiative: French community pharmacists.

5- Sustainability of the initiative: By the *Conseil National de l'Ordre des Pharmaciens*

6- Key innovative elements: The DP® represents an innovative tool that covers France and that can be deployed to other EU countries.

7- Formal or informal evaluations: Several indicators and tools will be used to monitor the impact of MACVIA-LR on the health status and quality of life of its population, from global impact on the total number of Healthy Life Years (HLY) to micro impact at the individual level in terms of well-being and quality of life, through specific AHA indicators such avoidable hospitalisation rates.

8- Success criteria used to determine that the initiative is working well: Over 25 million French patients are using the DP®.

Further information http://www.macvia.cr-languedocroussillon.fr
http://www.ordre.pharmacien.fr/Le-Dossier-Pharmaceutique/
Contact person: *Dr Françoise Radier-Pontal (f.radier@offisecure.com)*

Falls prevention initiative (MACVIA-LR)

Organisation name: MACVIA-LR: Combattre les Maladies Chroniques pour un Vieillissment Actif en Languedoc Roussillon (Fighting chronic diseases for active and healthy ageing)

Country: France   **Region:** Languedoc Roussillon

Total Region population: 2.3 Million

Good Practice Target population: 500 patients in 2013

Topics: Chronic diseases, falls, prevention, ageing, avoidable hospitalisations

Relevance to B3 Action Plan

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

Description:

The Region Languedoc Roussillon is the umbrella organisation for an interconnected and integrated project on active and healthy ageing covering the 3 pillars of the EIP on AHA. All sub-activities (A1, A2, A3, B3, C2 and D4) are embedded in the project. Importantly, MACVIA-LR is led by the President of the *Région* Languedoc-Roussillon and has a strong political commitment.

 2. Health and social care integration:
- *Région* LR, Montpellier city.
- Public health provider: Regional Health Agency (ARS), Regional health insurance agency (CPAM).
- Academia: UM1 (Montpellier)
- Hospitals: Montpellier, Nîmes: "Languedoc-Roussillon Centre - Balance and fall prevention"
- Private and public health care workers: Primary and secondary care physicians, pharmacists, physiotherapists, nurses, occupational therapists.
- Conseil Régional LR de l'Ordre des Médecins (Regional medical board).
- URPS Médecins, Pharmaciens and Nurses (Union Régionale des Médecins Libéraux du LR).
- Conseil Régional LR de l'Ordre des Pharmaciens (Regional pharmacy board).
- Social carers.
- Schools and training centres for teaching and coaching. The Sports Faculty in Montpellier and Euromov (Prof. Benoit Bardy) that implements adapted physical activity programmes (PEMS), available in the main cities of France (Activité physique adaptée à la santé: APA, C2) (http://www.apa-sante.f)
- Patients' associations.
- National public organisations, Research institutes, Eurmove
- Industrial competitiveness**:** Eurobiomed (French government "competitive cluster").

2- General and specific objectives of initiative: Pilot study to screen, test and prevent falls. The falls clinic is operative in the Montpellier CHU and tested 350 patients over 65 yrs in 2012. A project in collaboration with pharmacists and nurses will screen for possible falls in subjects over 65 yrs visiting pharmacies and nurses. This programme will include measures to be taken to reduce the incidence of falls. It will also include an assessment of psychotropic drugs and their relation to falls using the DP® (A1). An integrated care pathway for falls prevention will be established between pharmacists, primary care and an

existing falls prevention clinic in geriatrics with the CPAM. If needed, an adapted physical activity (C2, http://www.apa-santé.fr) and age-friendly coaching (D4-1) will be proposed to the patient. The goal is the MACVIA-LR global objective (reduction of avoidable hospitalisations and increase in HLY). Specific objectives are the number of patients included in the falls prevention (including remote areas).

3- Methodology, processes, involvement of health, social care and other personnel
1- Implementing an integrated and person-centred service pathway

- To define essential requirements and specifications for a support system for tools and technologies for screening, assessment, intervention and monitoring for different settings.
- To define plans through specifications and requirements for integrated fall prevention and management solutions in relation to different settings.

2- Data and evidence to support the implementation of an integrated and person-centred pathway: To raise awareness on the need for a systematic approach to data collection across the whole pathway and by all stakeholders (family members, caregivers, nurses...).

3- Awareness, information and education to underpin the implementation of an integrated and person-centred pathway: To raise awareness and drive attitude change with respect to falls and falls prevention and improve access to information on falls prevention.

4- Governance: innovation, sustainability and scaling-up

- Ensure that the A2 objectives are achieved by involving citizens and other stakeholders and decision makers at regional and national level.
- Stimulate the development of dynamic and sustainable falls prevention and care and cure systems on a regional and national level.
- Ensure that best practice and evidence are identified and shared nationally and regionally.
  - **Target population**: subjects with a risk of falls ≥65 yrs
  - **Age range**: old people.
  - **Gender**: Males and female.
  - **Actual or intended geographical coverage:** Languedoc Roussillon, France, This programme will be shared at national level with two other Regions with different medical organisations (Paris and Lille) and remote rural areas (sustainable care and cure systems)

4- Funding source(s) of the initiative: Région LR, Conseil general (department); university, hospitals. We are seeking durable funding through public-private partnership.

5- Sustainability of the initiative: By innovation and finding appropriate sustainable grants to scale up the initiative (in particular with the Sécurité Sociale).

6- Key innovative elements: Chronic disease clinic based on comorbidities and/or falls integrated with all components of health and social care to provide an integrated cost-effective solution across the region (pharmacists, physicians, nurses, social carers) which can be transferred to other regions.

7- Formal or informal evaluations: Baseline has been established. Evaluations will be carried out every 2 yrs.

8- Success criteria used to determine that the initiative is working well: the aim is to reduce potentially avoidable hospitalizations (PAH) for falls in old people by 20% in2020 (MACVIA-LR project), HLY targeted to regions (currently developed by JM Robine) and QOL. These goals are for the entire MACVIA-LR project.

Further information: macvia.cr-languedocroussillon.fr

Contact person: *Prof Hubert Blain (h-blain@chu-montpellier.fr)*

MACVIA-LR

Organisation name: Combattre les Maladies Chroniques pour un Vieillissement Actif en Languedoc Roussillon - Fighting Chronic Diseases for active and healthy ageing in Languedoc Roussillon

Country: France   **Region**: Languedoc Roussillon

Total Region population: 2.3 Million **Good Practice Target population**: over 75% for some actions.

Topics / chronic diseases addressed:

Cardiovascular diseases, chronic respiratory diseases, diabetes, adherence to the pharmacist, falls, frailty, age-friendly buildings

Relevance to the B3 Action Plan:

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

Description

1.   Aspect of health and social care integration: all regional strengths needed

2.   General and specific objectives:

•   In 2010, before the EIP on AHA was initiated, the Region LR decided to establish Fighting CD (chronic diseases), a holistic (research, care and teaching) proposal to combat chronic diseases with the objective to reduce unavoidable hospitalisations for chronic diseases by 20% in 2020.[1]

•   This objective is in line with the EIP on AHA action plan, and MACVIA-LR set a particular focus on the old people. To reach our global aim, all topics are covered by specific projects: A1 (electronic adherence in the pharmacy for old people: Dossier Pharmaceutique: DP), A2 (integrated falls prevention clinic at the regional level), A3 (frailty), B3 (integrated care for multimorbid patients with chronic diseases and particularly mobile clinic for remote places of the area, integrated care for chronic respiratory diseases), C2 and D4 (healthy buildings).

3.   Methodology, processes, involvement of health, social care and other personnel
Our programme attempts to use all needed methods with all needed stakeholders to reach the objectives set in 2010. It is more the combination of several best practices developed in a stepwise approach that contributes to the originality of the project rather than any best practice by itself. The DP is fully deployed. The falls prevention clinic and the chronic disease clinic (co-morbidities) are operative at the tertiary level (1 yr) and will be in place at the remote areas level at the end of 2013.

4.   Target population:

•   Age range: across the life cycle since chronic diseases are expressed mainly in the elderly but start in pregnancy. Health promotion should be initiated early in life.

•   Gender: male and female.

•   All areas of the region including deprived and/or remote areas

•   Health or social situation: mobilisation of health and social workers needed.

•   Current or intended geographical coverage: Languedoc Roussillon

•   Other organisations: Région LR, University Montpellier 1, University hospitals Montpellier and Nimes, General hospitals, primary care centres of remote areas, Scientific

network, Agence Régionale de Santé, unions of MD, pharmacists, nurses, Eurobiomed (cluster of competitiveness), silver economy.

5.   **Funding source(s**): Région LR, Conseil general (department), university, hospitals. We are seeking durable funding through public-private partnership.

6.   Plan to sustain the initiative: By innovation and finding appropriate sustainable grants to scale up the initiative (in particular with the Sécurité Sociale).

Highlights: Innovation, Impact and Outcomes:

7.   Key innovative elements: Chronic disease clinic based on comorbidities and/or falls integrated with all components of health and social care to provide an integrated cost-effective solution across the region (pharmacists, physicians, nurses, social carers) which can be transferred to other regions.

8.   Evidence on the impact and outcomes: Over 75% of elderly subjects are followed in pharmacies with an electronic tool to improve adherence. Over 1,000 subjects trained in D4. Over 200 patients are followed for falls.

9.   Formal or informal evaluations: Baseline has been established. Evaluations will be carried out every 2 years.

10.   Success criteria are used to determine that the initiative is working well: the aim is to reduce avoidable hospitalisations for chronic diseases in the elderly by 20% in 2020. HLY targeted to regions (currently developed by JM Robine) and QOL.

Transferability to other organisations / regions: Transferability using the expertise of the chronic disease programme which has been translated into 52 languages and transferred successfully to 64 countries[2].

Further information:

macvia.cr-languedocroussillon.fr
1-   Bousquet J et al : Systems medicine and integrated care to combat chronic noncommunicable diseases. Genome Med, 2011 ; 3(7), 43
2-   Bousquet J et al : Allergic Rhinitis and its Impact on Asthma (ARIA): achievements in 10 years and future needs. J Allergy Clin Immunol 2012 ; 130 : 1049-62

Contact persons
Christian Bourquin (Président, Région Languedoc Roussillon)
Jean Bousquet (jean.bousquet@orange.fr)

Multimorbid clinic for chronic diseases (MACVIA-LR)

Organisation name: MACVIA-LR: Combattre les Maladies Chroniques pour un Vieillissement Actif en Languedoc Roussillon (Fighting chronic diseases for active and healthy ageing)

Country: France   **Region:** Languedoc Roussillon

Total Region population: 2.3 Million   **Good Practice Target population:** over 25% for patients with major chronic diseases (WHO definition) in CHU Montpellier (end 2014)

Topics / chronic diseases addressed:
Chronic respiratory diseases, cardiovascular diseases, diabetes, risk stratification, integrated care

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	x	Risk Stratification	8		Finance, Funding

Description:

3.   Health and social care integration:
- *Région* LR, Conseil Général du Gard (30).
- Public health providers: Regional Health Agency (ARS), Regional health insurance agency (CPAM).
- Academia: UM1 (Montpellier), Ecole des Hautes Etudes Pratiques (ITEV, UM2)
- Hospitals: Montpellier, Nîmes: Chronic disease clinic (co-morbidity) and mobile remote rural area chronic disease clinic.
- Private and public health care workers: Primary and secondary care physicians, pharmacists, physiotherapists, nurses, occupational therapists.
- Conseil Régional LR de l'Ordre des Médecins
- URPS physicians, nurses, pharmacists (Unions of practitioners)
- Social carers.
- Schools and training centres for teaching and coaching.
- National public organisations, Research institutes: INSERM, CNRS.
- Industrial competitiveness**:** Eurobiomed (French government "competitive cluster"). It includes 140 companies with about 3,000 industrial researchers ranging from biotech companies to large pharmaceutical, health and ICT companies (Sanofi, Horiba, Bio-Rad, IBM).

4.   **General and specific objectives of the initiative:** Integrated care pathways for chronic diseases have been initiated in hospitals (secondary care) and remote rural areas (primary care, end 2013). They include multi-sectorial care. The pilot studies should be deployed to the entire region by 2015. The goal is the MACVIA-LR global objective (reduction of hospitalisations and increase in HLY). Specific objectives are the number of patients included in primary care (including remote areas).

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

Our programme attempts to use all needed methods with all needed stakeholders. It is more the combination of several best practices (A1 to D4) developed in a stepwise approach that contributes to the originality of the project rather than any best practice by itself. In chronic diseases, an ICT stratification tool using control, severity and risk is used [2].

- Target population: patients with chronic diseases
- Age range: adults and the elderly
- Gender: male and female
- All areas of the region including deprived and/or remote areas (2015)
- Current or intended geographical coverage: Languedoc Roussillon

6. **Funding source(s) of the initiative:** Région LR, Conseil general (department), university, hospitals. We are seeking durable funding through public-private partnership.

7. **Sustainability of the initiative:** By innovation and finding appropriate sustainable grants to scale up the initiative (in particular with the Sécurité Sociale).

8. **Key innovative elements:** Chronic disease clinic based on comorbidities and/or falls integrated with all components of health and social care to provide an integrated cost-effective solution across the region (pharmacists, physicians, nurses, social carers) which can be transferred to other regions.

9. **Formal or informal evaluations:** Baseline has been established. Evaluations will be carried out every 2 years.

10. **Success criteria used to determine that the initiative is working well:** the aim is to reduce avoidable hospitalisations for chronic diseases in the elderly by 20% in 2020 (full MACVIA-LR project). HLY targeted to regions (currently developed by JM Robine) and QOL. These goals are for the entire MACVIA-LR project.

Transferability to other organisations /regions:

Transferability using the expertise of the chronic disease programme which has been translated into 52 languages and transferred successfully to 64 countries[3].

Further information
macvia.cr-languedocroussillon.fr
Bousquet J et al : Systems medicine and integrated care to combat chronic noncommunicable diseases. Genome Med, 2011 ; 3(7), 43
Bousquet et al. Uniform definition of asthma severity, control, and exacerbations: document presented for the World Health Organization Consultation on Severe Asthma. J Allergy Clin Immunol 2009 ; 126 : 926-38
Bousquet J et al : Allergic Rhinitis and its Impact on Asthma (ARIA): achievements in 10 years and future needs. J Allergy Clin Immunol 2012 ; 130 : 1049-62

Further Information
Christian Bourquin (Président, Région Languedoc Roussillon)
Jean Bousquet (jean.bousquet@orange.fr)

Improvement in postoperative PAIN outcome

Organisation name: University Hospital Jena

Country: Germany   **Region**: Copenhagen

Total Region population: 740 million   **Good Practice Target population**: Patients undergoing surgeries in any hospital worldwide

Topics / chronic diseases addressed:
Improvement in postoperative pain treatment, acute pain registry

Relevance to B3 Action Plan:

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

Description:
PAIN OUT is a multi-national research project that provides a unique and user- friendly web-based information system whose goal is to improve treatment of patients with post-operative pain. The project offers a system for measurement and feedback of outcome quality and supports the process of decision making in order to achieve an optimized treatment of patients. From 2009-2012, it was funded by European Commission's 7th Framework Programme (Grant Agreement no. 223590).

Since January 2013, PAIN OUT is being continued in cooperation with professional societies, e.g. the International Association for the Study of Pain (IASP). For benefiting from the services PAIN OUT offers, participating hospitals pay a moderate annual fee.

The main objective of the PAIN OUT project is to run a system for measurement and feedback of outcome quality and support of decision making. The project is executed in the areas of postoperative pain management which serves as an example for other fields of medicine with a high variation of care.

The project provides the medical community with a unique, user-friendly system to assess treatment of patients with postoperative pain. We have developed and implemented a web-based information system, featuring two major functions:

Feedback and benchmarking system which provides participating sites with continuously updating data and analyses about the quality of care they provide compared to other institutions and allows identification of 'best clinical practice'.

A Knowledge Library which provides clinicians with easily accessible summaries of evidence-based recommendations tailored to specific post-operative situations.

Methodology: On the first postoperative day, bedside registration of several outcome quality parameters (pain intensity, functional impairments, side effects, etc.) as well as of selected clinical-demographic data takes place. These anonymized data are inputted into a database, analysed and immediately fed back to the users. This web-based, automatic feedback system

enables an internal and external benchmarking as well as an on-going monitoring of processes. Evaluation of the results allows for detecting underperformance and can help to improve treatment processes. The result is better patient care.

Innovation, Impact and Outcomes:

PAIN OUT provides a system for measurement and comparison of quality in postoperative pain therapy between different hospitals around the world. The system features a standardized data collection, real time analysing and a web-based feedback system.

The impact of PAIN OUT is a continuous monitoring that can help to improve postoperative pain treatment. If postoperative pain treatment is optimized, patients suffer less, the length of hospital stay can be reduced and both patients and staff are more satisfied.

During the EU funding period, more than 60 hospitals joined PAIN OUT on a voluntary basis. This remarkable international interest shows that PAIN OUT is filling a gap in quality management of postoperative pain.

Transferability to other organisations /regions:

PAIN OUT can be transferred to other fields of medicine with a high variation of care. We have shown that the project can be implemented in different parts of the world. PAIN OUT is the international extension of the German QUIPS project.

Further information:

www.quips-projekt.de

Contact: winfried.meissner@med.uni-jena.de

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:

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

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 ageing 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 „Ageing Dwelling" – a growing concept, which is in line with the ageing 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 Ageing" 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 % 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:

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:

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

Description:

The future innovation can be found in the development of innovative patient centred 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 tele-diabetological 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 analysing 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 tele-diabetological 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 tele-diabetological competence centre enables by the help of technological solutions to improve the quality of chronic care of ageing 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 tele-diabetolgical competence centres within Europe. The next level of action in the development of the tele-didabetological 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 tele-diabetological competence centre in Saxony is a clear innovation combining innovative aspects from different level of medicine. The competence centres 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 tele-diabetological 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:

http://www.mk3.uniklinikum-dresden.de/html/de/praevention/index.html

Prof. Dr. med. habil. Peter Schwarz: peter.schwarz@uniklinikum-dresden.de

QUIPS - Quality improvement in postoperative pain treatment

Organisation name: University Hospital Jena

Country: Germany

Region where QUIPS is implemented: Germany and Austria

Total Region population: 90,2 million   **Good Practice Target population:**
Patients undergoing surgeries in Germany and Austria

Topics / chronic diseases addressed:
Acute Pain Registry, quality improvement in postoperative pain treatment

Relevance to B3 Action Plan:

1		Organisational models	5	X	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:
QUIPS (quality improvement in postoperative pain management) is a multicenter, interdisciplinary benchmark project that aims at improving acute pain treatment in hospitals and outpatient clinics. The overall goal of this project is to improve treatment outcomes of postoperative pain therapy by collecting a standardized set of quality data, analysing them and sending an immediate feedback to the hospitals. This web-based, automatic feedback system enables an internal and external benchmarking as well as an on-going monitoring of processes.

The main objective of QUIPS is to improve postoperative pain therapy by collecting data on pain treatment quality outcomes, analysing them and sending an immediate feedback to the participating hospitals. As a sufficient monitoring of symptoms can contribute to reducing the length of stay - and thus increase patient satisfaction - the QUIPS project focuses on outcome quality from the patients' point of view.

Way of proceeding

On the first postoperative day, a bedside registration of several outcome quality parameters (pain intensity, functional impairments, and side effects) as well as of selected clinical-demographic data takes place.

Participation
QUIPS can be carried out in operative centres of any size. Neither a minimum number of beds nor a broad variety of surgery is necessary. As a valid data collection is of utmost priority, the modular participation package includes a detailed training course and written guidelines on the standard operating procedures. The project was designed without industrial support and was

funded by the German Federal Ministry of Health (BMGS) within the BIG project. The steering committees of the German association for anaesthesiology and intensive care (DGAI) and of the professional association of German anaesthesiologists (BDA) decided in 2005 to take over the patronage of this project, ensuring not only the project's continuity after the BMGS funding expired but also the setup of a Germany-wide benchmark project in post-operative pain treatment.

Since autumn 2007, the German association for surgery (DGCH) as well as the professional association of German surgeons (BDC) have been cooperating with QUIPS. Thus, a sustainable and non-commercial implementation of the project is ensured and an extensive platform for discussions on interdisciplinary clinical and nursing questions is made available.

By end of July 2013, the 165 QUIPS participants have collected more than 300,000 datasets for the QUIPS database.

Quips is funded by a fee participating hospitals have to pay. This way of financing ensures sustainability of the project.

Innovation, Impact and Outcomes:

- QUIPS provides the first Germany-wide system for measurement and comparison of quality in postoperative pain therapy between different hospitals. The system features a standardized data collection, real-time analysing and a web based feedback system.
- The impact of QUIPS is a continuous monitoring that can lead to improvement of postoperative pain treatment. Patients suffer less, the length of hospital stay can be reduced and both patients and staff are more satisfied.
- During the last 5 years, the number of hospitals participating in QUIPS has risen from 40 to 173. This increase is a clear indicator for the success of QUIPS.

Transferability to other organisations /regions:

QUIPS can easily be transferred to other regions. We have shown this already by establishing an international extension of QUIPS: the PAIN OUT project. The concept of the QUIPS pain registry can serve as a model for other fields of medicine with a high variety of care.

Further information:

www.quips-projekt.de

Contact: winfried.meissner@med.uni-jena.de

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. 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:

1		Organisational models	5	X	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:
Objective
The goal is to have a patient back in the workplace after four weeks. The outcome should be a sustained ability to work. If the pain continues, there is a re-evaluation after six months.

Compared to US, Sweden, the Netherlands, Israel and Denmark, Germany has the highest rate of early retirement. 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. If there is no early intervention, the situation will continue to get worse.

Target population
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.

- The health insurance assigns the patient to the treatment programme as 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
- 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.
- The patient record is electronic and 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.

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

- 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 €.
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Transferability to other organisations /regions:

- The entire process of patient selection and the implementation methodology is available

Further information:
http://www.sip-platform.eu/156.html
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:

1		Organisational models	5	X	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 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

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Maccabi multidisciplinary centre for chronic disease management

Organization: Maccabi Healthcare Services
Country: Israel   **Region**: Israel

Total Region population: 7.9 million   **Good Practice Target** population:
10,000

Topics / chronic diseases addressed: Telemedicine Disease Management for patients with severe Congestive Heart Failure, severe Chronic Obstructive Pulmonary Disease, new Diabetics, New Stoma patients, Homebound elderly, Frail elderly, cardiac rehabilitation.

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

Maccabi Healthcare Services is the second largest health plan/health services provider in Israel serving 2 million people. The Maccabi healthcare system is fully computerized. All providers of care (physicians, healthcare professionals) use the Maccabi central electronic medical record and there is a sophisticated Patient Health Record providing the patient with access to his medical information. Both doctors (and other providers) and patients receive proactive alerts and reminders. Maccabi provides its members with all of the services in the public basket of services: primary, secondary and tertiary care. It has a comprehensive community based healthcare system that provides health promotion and preventive services in addition to curative care and integrated chronic disease management for long term conditions, increasingly using telemedicine.

The Maccabi central medical record provides the basis and the infrastructure for integrated care as the patient's medical information is available to all of the professionals who are caring for the patient, as well as to the patient (and/or his designated primary caregiver). With this as a foundation, Maccabi Healthcare Services, in conjunction with the Gertner Institute, established the first national Multidisciplinary Call Centre of its kind in Israel, for the remote treatment of a range of chronic conditions, in coordination with the patient's primary physician and other community-based resources.

This call centre represents a new approach for the management of large populations with complex chronic conditions and co-morbidity with effectively coordinated medical treatment and health services. It provides a support network to assist primary physicians, enhances patients' physical and mental quality of life, improves compliance rates, and satisfaction levels and empowers patients and caregivers in order to support the care process.

The Target Population for this service is 6000 complex chronic clients including unstable patients suffering from severe Congestive Heart Failure and COPD as well as homebound elderly patients with multiple chronic conditions and 4000 stable chronically ill patients. These

include patients requiring remote cardiac rehabilitation, new Stoma patients, patients with chronic complex wounds and new insulin dependent Diabetics.

The multidisciplinary call centre operates 24/7. The core staff is comprised of highly trained registered nurses with academic degrees, at least 3 years' experience with complex chronic clients, and high level communication and clinical skills that have been trained in team work. They are supported by other professionals including physicians, social workers, clinical pharmacists, dieticians and physical, occupational and speech therapists.

The care provided is proactive based on computerized clinical protocols that provide alerts and initiate nurse-patient contact based on the care plan, and all significant changes in patient status as indicated by data entered into the central EMR or information provided by the doctor, patient and/or primary caregiver. While there is also considerable telephone contact, a significant number of the patients have been give tablets so that their contact with call centre staff is via videoconference.

Highlights: Innovation, Impact and Outcomes:

- The key innovative element is the comprehensive and PROACTIVE integration of patient care by call centre staff based on total access to the electronic medical record; evidence based computerized clinical care pathways, coordination with the primary care physician, specialists and other health professionals.
- This call centre was implemented only a year ago and therefore long term outcome data is not available. However, in the short term, there is evidence of improved HbA1C levels in the diabetic patients and a significant increase in flu vaccinations among the population served by the Centre. The satisfaction level of the Centre's clients, as measured by satisfaction surveys, is very high.
- A formal evaluation is in progress and the initial results will be available by the end of 2013. The success criteria being used to determine that this initiative is working well include: Quality of care process measures (such as yearly testing for HgA1C for diabetics, immunization, medications' prescriptions etc.);
  Quality of care outcome measures (such as level of HgA1C for Diabetics);
  Quality of Life (SF12 questionnaire); Depression (PHQ9 questionnaire); Healthy life style (Toober questionnaire)

Transferability to other organisations /regions:

The innovations in the area of care pathways, proactive and interactive interventions guided by sophisticated protocols and algorithms will result in programs and platforms that can be exploited by our European partners on both a European and international level. The change management processes involved in the successful deployment of the program will also be useful in helping other organizations overcome implementation barriers.

A telemedicine-based approach to sustain the Healthcare System: lessons from the Lombardy Region

Organisation name: Fondazione Salvatore Maugeri/ Cefriel/Politecnico Milano (CEFRIEL) Department of Management, Economics and Industrial Engineering, Center of Excellence for Research, Innovation, Education and Industrial Labs Partnership Milan, Italy.

Total Region population: 9,8 million   **Good Practice Target population:** chronic patient's care (2,7 million)
Topics / chronic diseases addressed:

Country: Italy   **Region:** Lombardy

Relevance to B3 Action Plan:

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

With its 9,8 million inhabitants, the Lombardy Region counts 220 healthcare organizations, responsible for 2 million annual discharges (10% for non-residents patients), 15 Local Health Agencies, 8,150 GPs, 2,700 Pharmacies. Its healthcare expenditure amounts to 17b€, which represents the 17% of the Italian total spending. 70% of this expense is ascribed to chronic patients' care, though they represent the 27, 5% of the total population only: it is therefore easily deductible that an incorrect approach to these diseases may turn out to be dangerous for the economic and social sustainability of the Region. Hence, the search for alternative solutions, in terms of both policies and tools to sustain their implementation, has been publicly pursued for long. In the first '90s, the National Healthcare Plans boosted the Italian Regions to experiment innovative models of care, alternative to the hospitalizations. Consequently, the Lombard Regional Social-Health Plan 2002-2004 stated the beginning of a gradual shift of care from secondary care structures to the patient's domicile (i.e. home-hospitalization), through the deployment of some experimental projects involving practices of distance monitoring.

In this context, telemedicine (i.e. the delivery of care at distance through information & communication technologies) has soon asserted itself as a key tool for the implementation of this shift from hospital to home, as it allows a continuous and potentially less resource demanding service supply. The positive preliminary outcomes spreading from these projects and their considerable diffusion have pushed the Regional Authorities to further support their diffusion. As a consequence, in the recent Social Health Plans (2007-2009 and following) a specific section is dedicated to the need for assuring a continuity of care through advanced technologic tools, dealing with telemedicine. This policy of innovative service delivery to chronic patients sustained by the Lombardy Region has sprung some results since the very beginning (Figure 1): 4 successful projects (CRITERIA, PIANO URBANO, EVOLVO for chronic heart failure, RADICI for Diabetes and Enteral Nutrition) and an experimentation (TELEMACO for Chronic Heart Failure, Diabetes and Chronic Obstructive Pulmonary Disease) created the basis for the diffusion of the group of experimental services, collected under the umbrella denomination of Nuove Reti Sanitarie (NRS), which are the object of the present case.

The Case of *Nuove Reti Sanitarie*

NRS is a sort of receptacle in which most of the successful experimental services of chronic diseases management have been collected and centrally re-organized, in order to ease the process of making them part of the routine practice (see Figure 2), given the assessed appropriateness of their approach. In fact, at the moment, all the services included in NRS are experimentally included in the Regional Tariffs List, a fact that represents a preliminary step for their definitive incorporation within the shared practice of chronic patients' management, at the Regional level at least.

Five experimental services are included in NRS: (1) Post-Chirurgical Home-Rehabilitation (PCR); (2) Chronic Heart Failure Telemonitoring (HTH); (3) Palliative Care Home-Hospitalization (PCHH); (4) Home-Telemonitoring for patients affected by Chronic Obstructive Pulmonary Disease (COPD) (HTC); (5) Specialists' Teleconsulting to GPs (STC).

Though different in the focus and in the range of activities offered, the five services of NRS share an intensive use of technology, both biomedical and IT. This is mainly due to the fact that, being the pathologies addressed particularly demanding, they require collaboration and dynamic interactions of several actors of the care pathway across the organizational boundaries that are made possible and eased by the technologies.

	Service Name and Diseases addressed	Duration	Experimental tariff	Informative flux	Technologies	Nr. of patients enrolled
POD 2006	**Cardiology** Post-chirurgical rehabilitation **Home Hospitalization**	Max 28 days	140€/day	Record on central informative debt	12 leads ECG to the patient Service center with web-based medical record	658
PTS 2006	**Cardiology** Heart Failure (II-III-IV NYHA) **Home Telemonitoring**	Max 6 months	720€/6 months high intensity 480€/6 months low intensity	Record on central informative debt	One lead ECG to the patient Call center with web-based medical record	1,367
ODCP 2008	**Oncology** Palliative Care **Home Hospitalization**	90 days (estimated)	156€/patient + 63€/day	Record on central informative debt	Defined autonomously by the structures	7,925
PTP 2010	**Pneumology** COPD (III-IV GOLD) **Home Telemonitoring**	Max 6 months	720€/6 months high intensity 480€/6 months low intensity	Record on central informative debt	Oximeter to the patient Call center with web-based medical record	230
TCS 2010	**Cardiology, Pneumology, Dermatology, Diabetes** Teleconsulting to GPs	Real time	18€/ teleconsult.	Record on LHA informative debt	12 leads ECG Oximeter Call center with web-based medical record	168 GPs

BUONGIORNO CReG

Organisation name:
Telbios SpA (member of the Lombardia Cluster "Technologies for Life Environment")

Country: Italy   **Region**: Lombardia

Total Region population: 9.826.141 Good Practice   **Target   population**:   60.000
chronic patients

Topics / chronic diseases addressed: Hypertension, HF, type I and II diabetes, COPD

Relevance to B3 Action Plan:

1	X	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:

With almost 10 million inhabitants, Regione Lombardia represents 1/6 of the Italian population, with an Old Age Index of 141.1 % (2011) and over 4.6 million chronic patients, most of them over 65 years and affected by 3 or more pathologies. Chronic diseases are a growing burden for the regional health and social economy and this, in 2011, prompted the Regional Government to launch an innovative program, called CReG (Chronic Related Grouping) with the objective to promote continuity of care for chronic patients.

The CReG is like a territorial Diagnosis Related Group (DRG) a group of predefined resources (tariff) assigned to an institutional subject (provider), to guarantee the delivery of an established treatment plan to the chronic patients it has in charge, in order to provide them with a real comprehensive care, outside of the hospital. The pathologies involved are BPCO, hypertension, hearth diseases and diabetes.

Based on the 2010 expenditures for outpatients, drugs, minor prosthetics, oxygen and other health related events (registered for each single patient into the regional database), an annual fee was calculated for each pathology or homogenous group of pathologies, in case of comorbidities. The Annual fee, from 650 Euro to 34.000 euro/year, assigned to the CReG Healthcare Provider, includes also care coordination, remote monitoring and patient education

The CReG provider is a cooperative of family doctors (GPs) that must guarantee: the definition of a personalized care pathway for each chronic patient and the adherence of the patient to it; a service centre available for 12h/365 days, operated by trained personnel; the presence of a GPs cooperative medical coordinator; telemonitoring services at home; health data management and indicators evaluation; patient education; evaluation of the customer satisfaction and of the quality of life of the enrolled patients.

On July 2011, 5 ASLs (public health trusts) have issued a „Special Tender" opened to Family Doctors organized in legal entities, Cooperatives, also called CReG providers. The CReG providers could sign contracts with a service provider. The single GPs had the freedom to adhere to the cooperative and then participate or not to the CReG.

The GPs, within the Lombardia Region, established several Cooperatives to submit a CReG Technical Proposal to the ASL. Telbios is the partner of 4 of the bigger cooperatives who

presented a successful proposal in 4 different ASLs, for a total of 300 GPs participants. The project has been called "BuongiornoCReG". The patients enrolled in BuongiornoCReG at June 2013 are 37.000, 90% of them have had a personalized care plan assigned and handed over. The project started on January 2012, and in the next autumn it will be extended to two more ASL and opened to the participation of more family doctors and to the adhesion of other patients. Telbios, a private company, provides the GPs with the data and care plan management platform, the service centre for inbound and outbound patients calls, communication tools, patient's empowerment courses and all the non-medical services.
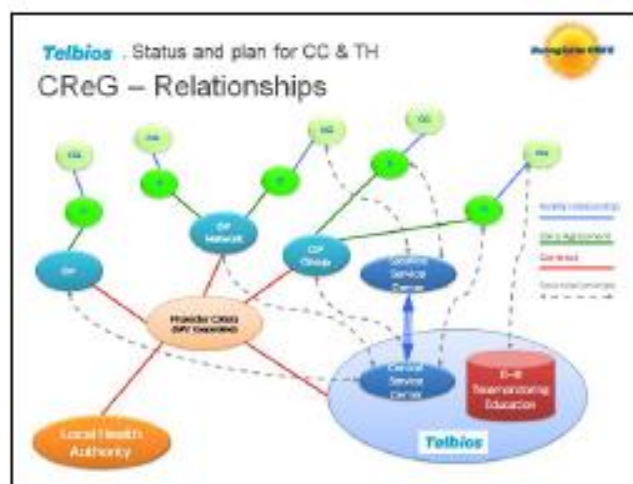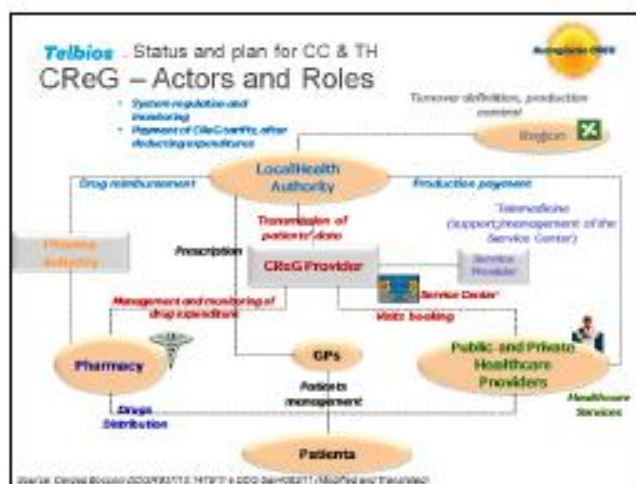
Highlights: Innovation, Impact and Outcomes:

The objective of the Chronic Related Group is to ensure the continuity of care pathway. The management of the different aspects of the patient's health care is entrusted to a single subject, the CreG provider (GPs cooperative) which must coordinate all actors involved in management of the disease, manage the resources available and ensure the necessary administrative, organizational and management skills. The GP, which maintain the clinical responsibility of his patients, is therefore supported in assuring the appropriateness and continuity of the care pathway, patient education and empowerment and the control of the adherence to the care plan.

Transferability to other organisations /regions:

The experience can be transferred, with adjustments, to other Organizations.

Further information:

http://www.sanita.regione.lombardia.it/cs/Satellite?c=Page&childpagename=DG_Sanita/Page/NormativaDetail&pagename=DG_SANWrapper&cid=1213275902673&keyid=2760 ;
http://www.sanita.regione.lombardia.it/cs/Satellite?c=News&childpagename=DG_Sanita%2FDetail&cid=1213421622022&pagename=DG_SANWrapper&news=true ,
http://www.buongiornocreg.it

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BuongiornoCReG and Viva paziente esperto

Organisation name:
Telbios SpA (member of the Lombardia Cluster "Technologies for Life Environment")

Country: Italy   **Region**: Lombardia

Total Region population: 9.826.141   **Good Practice Target population:** 60.000
chronic patients

Topics / chronic diseases addressed: Topics / chronic diseases addressed: Hypertension, HF, type I and II diabetes, COPD

Relevance to B3 Action Plan:

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

Description:

BuongiornoCReG is testing a new model of care of chronic diseases, to provide real comprehensive care of chronic patients, outside of the hospital. In June 2013 BuongiornoCReG involves 300 General Practitioners and 37.000 recruited patients. For the CReG classification method please refer to the Regione Lombardia official documents and to the paper published by Zocchetti et al. Tendenze *nuove* 5; 377-398; 2011.

Main Services provided by BuongiornoCReG are:

Care Coordination – Create a primary point of contact and coordination to offer assistance to complex patients to ensure their health needs are proactively met. Ensures that the patient gets the most appropriate treatment and is following evidence based guidelines. Plans and brings in actual data to drive the care team's clinical decision making, by providing them with timely information on health status and possible escalations before they result in hospitalizations.

Telemonitoring – Basic vital signs like blood pressure, weight, pulse oximeter, and blood sugar values are captured in patient's homes and transmitted to a central office together with results of simple patient's surveys about health and lifestyles. Results are monitored and trended for long term chronic care and appropriate intervention steps are planned and executed.

Patient Education – Population level education programmes with the objectives of creating Informed Activated Patients who have sufficient information to become wise decision makers in the treatment of their disease. Through education, patients become empowered self-managers and make effective behavioural changes that improve their personal prognosis.

Concerning **Patient education and empowerment**, at the moment of recruitment, all patients receive from their GP a welcome kit containing information on the program, a brochure on Lifestyles, created by the Italian Ministry of Health, a poster on the correct use of drugs, a

diary where the patient can record data on medications and drugs and the service centre phone number, where technical operators and nurses are available 12 hours, 7/7 days. They also receive from the GP a personalized care plan, which includes one year program of tests and visit, and are made aware of the preventive importance of such controls. The service centre supports the patient in the care plan compliance.

A selected number of patients are also invited by the GPs to attend the Stanford Chronic Disease Self-Management Program http://patienteducation.stanford.edu/programs/cdsmp.html already utilized in many chronic disease programs.
The training includes 6 meeting of 2.5 hours, managed by two Telbios certified tutors, with small groups (12-15) of patients. The course has been renamed "*viva paziente esperto*" and is being offered to the CReG patients, at the GPs office. Usually the office nurse attends the course too.

The course is not pathology specific and it is based on patient problems (more than on what patients need to know), in order to empower the patient in disease, role and emotional management.
The topics are related to symptoms, pain, emotions and fatigue management, healthy nutrition and physical activity, drug therapy compliance, and communication and collaboration with the doctor and health personnel. Some simple instruments such the use of mind, planning and problem solving techniques and action plans are taught and patients use them during the six weeks course.

The costs of patient education and empowerment are covered by the CReG tariff.

The importance of education and empowerment in integrated care programs has already been highlighted and the efficacy of the CDSMP Stanford method widely proved. In BuongiornoCReG education is focused on lifestyle, drugs and care plan compliance, in order to prevent the progression of the disease. The empowerment intervention is devoted to provide the patients with simple instruments that help them to change their behaviour.
The innovation of this practice dwells in the CReG financing mechanism and in the active participation of the GPs in the organisation of the CDSMP seminars.

Further information:
http://www.sanita.regione.lombardia.it/cs/Satellite?c=Page&childpagename=DG_Sanita/Page/Norma tivaDetail&pagename=DG_SANWrapper&cid=1213275902673&keyid=2760 ;
http://patienteducation.stanford.edu/research/Review_Findings_CDSMP_Outcomes1%208%2008.pdf
www.buongiornocreg.it
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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:

1	X	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 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 ageing 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*
- *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:

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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:

1	X	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 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 old people over seventy-five, who are followed by a specialized Service Centre 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 centre and a constant monitoring of the health and social conditions e 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 old people thanks to the valorisation 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 Centre 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), and 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 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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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 phase) 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:

1	X	Organisational models	5	X	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:

- *Aspect of health and social care of your good practice*
  o FREE CANCER HOME CARE – ONCOLOGICAL HOSPITAL AT HOME (OHH-ANT)
  o 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
  o 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
  o 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
  o 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
  o OHH-ANT supplies to the cancer patients all necessary health care, 24 hours a day, 7 days a week, all year round, holidays included
  o Counselling: psychologists for the management of bereavement, family and medical staff support;
  o Home artificial nutrition service; PICC (Peripherally Inserted Central Catheter)
  o OHH-ANT CHILDREN is a cancer paediatric home care
  o *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 bed sheets, 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

- ***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 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. 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 old people (average 72 y) and their families

- ***Geographical coverage***
Emilia Romagna Region: Provinces of Bologna, Ferrara e Modena

- ***Organisations involvement***
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.

Funding Source

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 (ANT's day of care costs about 20 euros) is covered by donations from citizens, companies, corporate foundations, banking foundations, 5x1000.

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.

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: 9.9 m   **Good Practice Target population**: -

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

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	X	Finance, Funding

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, and 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, and 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 opportunities and 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 centres, 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 centres 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 centres could help to overcame 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.
www.democentersipe.it/images/stories/documenti/Eventi/2012_10_29_Invito_Parma.pdf

www.democentersipe.it/images/stories/documenti/Eventi/2012_10_22_Invito_Forli-Cesena.pdf

Democenter-Sipe Foundation website: www.democentersipe.it/index.php

Contact person: Dr Laura Aldrovandi – biomed.eu@democentersipe.it

"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: 9.9 m   **Good Practice** Target population: Chronic Heart Failure
Topics / chronic diseases addressed: Teleservice, Multidisciplinary management

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	X	Finance, Funding

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

Access to the HBTeleProgram 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 HBTeleProgram, 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).

Program taxonomy

HBTeleProgram 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, 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, 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 Centers

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 (diuretics + ACE inhibitors/ ARBs +□-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.

Highlights: Innovation, Impact and Outcomes:

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.

Further information:

Amerigo Giordano, Simonetta Scalvini, Anna Maria Paganoni et al: HOME-BASED TELESURVEILLANCE PROGRAMME IN PATIENTS WITH HEARTFAILURE: EFFECTS ON CLINICAL STATUS AND IMPLICATIONS FOR ONE-YEAR PROGNOSIS. THE EXPERIENCE OF LOMBARDY REGION WITH "NUOVE RETI SANITARIE"; Journal of Telemedicine and Telecare 2013 in press.

Giordano A, Zanelli E, Scalvini S. HOME-BASED TELEMANAGEMENT IN CHRONIC HEART FAILURE: AN 8-YEAR SINGLE-SITE EXPERIENCE. Journal of Telemedicine and Telecare 2011; 17: 382–386

Giordano A, Scalvini S, Zanelli E, Corrà U, Longobardi GL, Ricci VA, Baiardi P, Glisenti F. MULTICENTER RANDOMISED TRIAL ON HOME BASED TELEMANAGEMENT TO PREVENT HOSPITAL READMISSION OF PATIENTS WITH CHRONIC HEART FAILURE. International Journal of Cardiology 2009; 31:192-199

S. Scalvini, G. Martinelli, D. Baratti, D. Domenighini, M. Benigno, L. Paletta, E. Zanelli, A. Giordano. TELECARDIOLOGY: ONE-LEAD ELECTROCARDIOGRAM MONITORING AND NURSE TRIAGE IN CHRONIC HEART-FAILURE.   Journal of Telemedicine and Telecare 2005; 11 (1) : 18-20

"NUOVE RETI SANITARIE" Home-Based Telesurveillance program (HBTeleP) in patients with COPD

Organisation name: Salvatore Maugeri Foundation

Country: Italy   **Region:** Lombardia

Total Region population: 9.9 m   **Good Practice Target population: COPD**

Topics / chronic diseases addressed: Teleservice, Multidisciplinary management

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	X	Finance, Funding

Description:
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 HBTeleProgram.
Exclusion criteria included the presence of non-respiratory debilitating illness with inauspicious prognosis, cognitive impairment clinically evident and in-hospital patients.
Access to the HBTeleProgram 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 HBTeleProgram 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 HBTeleProgram, a complete medical history and symptomatic status related to COPD, ABG status, vital signs and concomitant treatments were also collected. QoL was assessed by Saint George questionnaire or by CAT score

Programme taxonomy
HBTeleProgram 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 HBTeleProgram 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.

Highlights: Innovation, Impact and Outcomes:
The experience of HBTeleProgram for COPD 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.

Multidisciplinary intervention
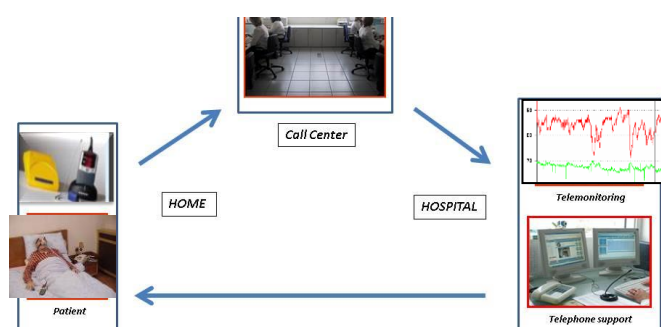
Personal Health Record system and patient/citizens empowerment - TreC - Cartella Clinica del Cittadino

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:

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

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, and 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 old 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_%28s%29.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:

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Positive Technological Innovation as a Driver of People Health Engagement (PHE – Project)

Organisation name: Universita' Cattolica Del Sacro Cuore

Country: Italy   **Region**: Lombardia

Total Region population: 9.759.209   **Good Practice Target population**: all
patients

Topics / chronic diseases addressed:
Patient engagement; positive technology; community empowerment

Relevance to B3 Action Plan:

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

Background

In the majority of the Western countries, to sustain "patient's active roles in their own healthcare" is becoming a key priority. According to this perspective patient engagement constitutes a pivotal element for making patients co-producers of their health and enhancing their care experience as well as gaining improved health outcomes and lower healthcare costs. On the contrary, patient (dis)engagement risks producing waste of healthcare resources and poor clinical outcomes. However the healthcare system often lacks in delivering effective interventions able to sustain patient engagement and to bridge the gap between health and healthcare. Up to now, a shared and evidence-based modelling of patient engagement has still to come, and consequently, concrete guidelines for best practices have not been determined yet.

We advocate for the need for basing healthcare innovation on the deep understanding of patients' "intimate view of problems and needs. Unfortunately so far, studies aimed at giving voice to patients concerning their health experience and will to engage in healthcare have been fairly neglected so far. Many times, patient engagement risks being a fashionable claim rather than a real guidance for practice.

General Objectives
UCSC – in collaboration with local stakeholders at the industrial (Novartis, GfK Eurisko, ASSIRM) and clinical level (Istituto Auxologico, Casa di Cura del Policlinico, San Paolo Teaching Hospital, Asl Città di Milano) – activated a multidisciplinary project (Psychology, Medicine, Public Health, and ICT) devoted to:

- assess patients' needs and priorities of engagement in their health management;

- identification of best practices and priority actions devoted to sustain the patient's engagement process

The project has been co-founded by the stakeholders participating at the initiative.

Highlights: Innovation, Impact and Outcomes:

The innovative contribution of the coalition can be summarized as it follows:

☐ foundation of a strong evidence-based theoretical framework (***Patient engagement process model)*** in the light of a patient-centred medicine paradigm on the basis of the systematic analysis of patients' health experience, focusing on their evaluation and perception of healthcare services and the furthering of their health unmet needs and expectations towards the healthcare system. The assessment was conducted through different chronic conditions (cancer, heart disease, diabetes, neurological disorders) and was based on the collection of narratives and in-depth interviews with a representative sample of 1000 Italian chronic patients (*see attachment*)

☐ development of a **tool kit of interventions** able to favour it constructed on the basis of patients unmet needs and validated by an expert consensus conference (*see attachment*)

☐ **application of the tool kit in designing interventions in 4 Italian health organizational contests** (Istituto Auxologico, Casa di Cura del Policlinico, San Paolo Teaching Hospital, Asl Città di Milano) in 4 different chronic population (neurologic patients; cardiovascular patients; oncological patients, respiratory patients) in order to test its efficacy in sustaining patient engagement and the achievement of better clinical outcomes (*on going*)

Transferability to other organisations /regions:

The evidence based model of patients' engagement and the tool kit of intervention are available for application in other clinical contexts and in other regions.

Further information:

http://www.bmj.com/content/346/bmj.f2614/rr/647892
http://www.bmj.com/content/346/bmj.f886/rr/641273
Graffigna G, Barello S, Riva G. How to make health information technology effective? The challenge of patient engagement. Archives of Physical Medicine and Rehabilitation, 2013 (in press)
Graffigna G, Barello S, Riva G. Technologies for Patient Engagement. Health Affairs (in press)
DOI: 10.1377/hlthaff.2013.0279

Regional Diabetics Register - Piedmont

Organisation name: ~

Country: Italy   **Region:** Piedmont

Total Region population: 4,7 M **Good Practice Target population:** Diabetic Patients (about 268.000)

Topics / chronic diseases addressed:

Regional Diabetics Register in order to allow the creation of the Diabetes Card, the Treatment Plans and the self-monitoring glycemic Plan (PAG)

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

Relevance to B3 Action Plan:

Description:

The Regional Diabetics Register (RDD) was established for the management of diabetic patients in Piedmont, in order to allow the creation of the Diabetes Provisional Card and of Treatment Plans and the glycemic self-monitoring. It also allows the definitive card issuance implying the disease confirmation to diabetic patients. The project was carried out by CSI-Piemonte with the funding and coordination of the Healthcare Directorate of Piedmont Region.

The service is aimed at:

- Diabetes services at hospital and territorial level in Piedmont;
- General Practitioners;
- Diabetic patients;
- Piedmont Region officers (Healthcare Directorate)

Highlights: Innovation, Impact and Outcomes:

The service represents a tool for monitoring and analysing the data related to Diabetic pathology and it offers some advantages. Among them:

- management of administrative personal patient' data through the integration with the AURA system (Regional Unitary Archive of Patients), allowing the supply and update of the primary and secondary patients' data which are indispensable for their certain and unique identification;

• management of the patient epidemiological data, including the Plan of Treatment and the Self-monitoring glycemic Plan (PAG);

• issuance of provisional cards and production of the data stream for printing the definitive cards which confirm the disease state.

The Register's Database is the source for supplying the Diabetics data warehouse, aimed to meet the statistical requirements and monitoring needs of the regional officers at the Healthcare Directorate (Piedmont Region).

The service is available today at the Diabetology services in all local health providers and hospitals in Piedmont.

Transferability to other organisations /regions:

The solution could be easily transferred to other regions even in other countries characterized by similar needs.

The service is widely reusable at regional and national level, both in terms of technical solutions realized and in terms of the expertise, which can be made available at international level in similar contexts.

Further information:

http://www.csipiemonte.it/en/

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SISSI – Social and health information system

Organisation name: AUSL Cesena & Cup2000_ASSRRERIT

Country: Italy   **Region**: Emilia Romagna

Total Region population: 4.350.000   **Good Practice Target population**: 3.239

Relevance to B3 Action Plan:

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

Description:
The local health authority of Cesena and CUP 2000 have realised an integrated social health information System (SISSI) which manages the different available services and is capable of responding to the management needs of all participating subjects (municipalities, Local health authorities, long care homes, hospitals, territorial facilities) and information needs at local and regional levels. The system is the foundation for the design of regional integrated social-health platforms generating the Electronic Social-Health Record (ESHR).
The ESHR represents an information expansion to a regional network of the personal health record in order to provide operators and people all the needed information concerning the social-health care pathway, in real time.
SISSI is currently addressed to the management of elderly who are at home. The actors of the system are the GPs, the nurses and the other healthcare operators, equipped with a tablet with which it is possible to update the different health and social data concerning the elderly they care.

The system is under experimentation in the territory of the Local Health Authority of Cesena where the target population who can benefit is near to 3.239 persons each year (source: statistics from Emilia Romagna Region – 2012). The general objective is to prevent illness and not self-sufficiency and manage the care process of those elderly who need long term care provided at home.
Currently, SISSI is financed by the regional health system thanks to yearly allocation of funds.

Highlights: Innovation, Impact and Outcomes:

SISSI realises a good integration between the healthcare professionals (GPs and hospital doctors, nurses) and the social operators mainly between registries, electronic health records and health accounting systems. It makes use of the patient summary of each elderly realised by the GP. In the Emilia Romagna Region the patient summary is a function of the SOLE project which realises the electronic health record for the Region; with SISSI is now possible the management of the home care and open the process of the health monitoring and prevention in a systematic manner involving all the relevant actors of the care process. Through the SOLE network the patient summary realised by the GP is now enriched with the data coming from the nurses who can update it during their visits at the user home using the tablet and the web.

SISSI is going to be implemented within the local health authority of Imola and Modena (other towns of the Emilia Romagna). Moreover the Region is well determined to apply the reuse mechanism which allows the rationalisation of expenses and the redirection of cash flows towards sectors and areas that are not yet computerised. Indeed Italian Legislative Decree N. 179 of 18 October 2012 refers to catalogue of reuse of the systems and applications, therefore the development of the different components has taken into account the needs to adopt standards formats and processes for the indexing and sharing of the applications and is based on standard open techniques, promoting the interoperability of the solutions found. Indeed the reuse of existing software, be it owned by public administration or belonging to the free or open-source code software category, allows the rationalisation of expenses and the redirection of cash flows towards sectors that are not yet computerised. This also allows benefits in terms of quality of the functional requirements, uniformity and quality of the products implemented, the adoption of standards and reduction of time to entry into operation of products.

Further information:

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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.

Relevance to B3 Action Plan:

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

Description:
The **Ferrara pilot study** is targeted to patients affected by chronic respiratory fai 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 saturimeter 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, monocenter, 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 and 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 CO_2).
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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TAGS project - Textiles for Ageing Society

Organisation name: Fondazione Democenter-Sipe *(collaborator of ASSRRERITin EIP on AHA B3 AG)*

Country: Italy   **Region**: Emilia Romagna

Total Region population: 4.471.104   **Good Practice Target population**: -

Topics / chronic diseases addressed:
Textiles, ageing society, research, innovation, transfer, new materials, production techniques, benchmarking

Relevance to B3 Action Plan:

1		Organisational models	5	X	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 older persons have specific needs for clothing and other textile products, for personal hygiene or medical reasons. Improvements in these products will significantly increase their quality of life and improve the effectiveness of medical and social care services. The optimum way to achieve significant advances is through a concerted and coordinated effort by innovators, manufacturers, carers and end-users to address the multiple concerns related to product and/or process development, including: translation of often subjective assessments into quantitative measures of quality, availability of new technologies, and the feasibility of incorporating new technologies in the manufacturing chain.

The aim of the "TAGS" consortium is to bring together the older persons, carers, social and medical care institutions, research institutions, technology transfer institutions and manufacturers to identify: specific requirements of the older persons and care institutions; latest developments in materials science and technology that will help meet these requirements; and strategies to incorporate developments in the manufacturing chain. The goal is to improve or innovate products and/or processes to meet the specific clothing and textile needs of a growing sector of the European population.

Textiles for Ageing Society is a project financed by the 7FP of the European Union and Fondazione Democenter-Sipe is one of the participants.

Highlights: Innovation, Impact and Outcomes:
Fundamental and applied research towards the development of new textile materials, processes, technologies and methodologies is carried out by universities and research institutions. New knowledge generated here, in combination with existing knowledge, leads to innovation. Only when innovation is transferred to practice, new opportunities for business are open and whole EU society can benefit. The action of the "TAGS", consisting of end-users, members of textile manufacturing and innovation community, and scientific partners from different research areas of textiles (textile chemistry and physics, material and fiber processing and nonwoven materials), from various European countries, will support the transfer of knowledge and innovation in the field of new textile products for healthcare, human hygiene, medical practice and clothing for older persons people.

Seeking new materials, available and alternative technologies, new innovative routes, overcoming of industrial limitations is core of this project in order to fulfill requirements of older persons people on textile products. For individual consumers it is difficult to formulate their needs with regard to appearance, functionality, comfort, safety and convenience of clothing

and textiles. Thus establishment of the network, where social and medical care institutions represent the older persons in care system, seniors living at home or in retirements homes; will enable bilateral transfer of information and knowledge to the manufacturers and research community.

Transferability to other organisations /regions:

"TAGS" joins in one network: the older persons, represented by social and medical care institutions, together with manufacturers, technology developers and research institutions; with the purpose of active exchange of information, experiences and know-how in the field of textiles for the older persons. This interdisciplinary consortium provides access to information describing wide range of demands of all kinds of ageing people.

The European Technology Platform for the Future of Textiles and Clothing encourages effective search and use of existing vast textile and clothing design and engineering capacities across Europe. For this purpose it is important to develop capacities for more efficient set-up of European networks of researchers/experts able to understand innovation and market dynamics in any textile-related field. There should be also more efficient information exchange between universities, industry and research centers.

Further information:

To increase awareness about the "TAGS" project and particularly textiles for the older persons, regular public meetings were organised to initiate discussion/collaboration between public/end users, academia and industry. Dissemination through participation at international/national conferences, contribution to other meetings, publication of news release on the "TAGS" home webpage (www.tags.ac), meeting book (available at www.tags.ac), and also contributions to internet newsletter on European level (EPNOE newsletter April 2012; http://issuu.com/tags_fp7/docs/newsletter_tags) have been performed or are planned to be done shortly.

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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	X	ICT / Teleservices
4	Risk Stratification	8		Finance, Funding

Description:

The Apulia 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 (between October 2004 and March 2013. The 118 Emergency Medical Service provides immediate diagnosis of critical diseases, to avoid emergency department delay to diagnosis. Final hospitalization is disposed by crews' physicians and the 118 district centres connected by mobile phone, according to level of care. In the event of normal findings, patients are discharged from the ambulance and not transported at all.

Objective: 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 the worsening of patients conditions thanks to better management of patients both in acute phase and in chronic conditions guaranteeing a standardized diagnostic and therapeutic pathways: this avoided inappropriate hospital access, reduced hospital stays, reducing costs of patients' management.
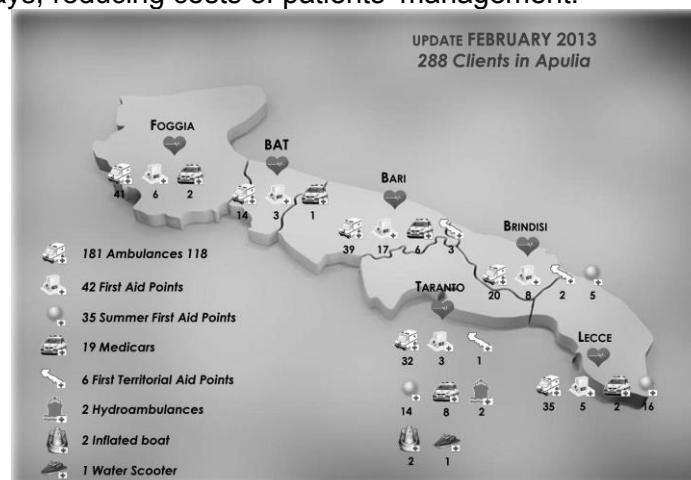
Apulia emergency medical services (EMSs) centers include 118 EMS point with telecardiology electrocardiogram (ECG) recorder , 165 staff who underwent specific training, 27 first-aid points, 33 summer first-aid points, and 12 medical vehicles equipped with apposite devices for recording and telephone transmission of 12-lead ECG (CardioVox P12 heart-line receiving system; Aerotel, Holon, Israel). Data recorded transmitted by mobile phone to a single regional telecardiology hub centre where a cardiologist available 24/7 promptly reports the ECG and briefs on-scene EMS personnel and the EMS district centre. ECG records may be sent back and visualized on a smart phone. Admission to the appropriate services is arranged after this consultation.

Telecardiology support and hub centre facilities are provided by the ISO certified Cardio-on-line Europe S.r.l., and UNI CEI. The telecardiology hub centre serving the entire regional territory, operative 24/7, has two cardiologists promptly available for ECG reporting, 12 computer terminals, 25 telephone lines, 2 call centre operators active 24/7, an emergency power system in case of electrical power outage and IT support.

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. 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.

Methodology: In line with Italian legislation, the regional EMS is the only provider of services, ambulances and medical cars for the whole region, which provides a unique opportunity to standardize protocols, equipments and trainings.

In the management of chronic patients affected by chronic cardiovascular disease, Care-managers record and submit to the telecardiology hub the ECGs. (800 ECGs reported and growing). Homecare for patients with chronic cardiovascular disease is expected to represent the point of strength of Puglia Region Healthcare System.

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

Outcome: Cardio-On-Line Europe activity since 2004 reported in total 541,792 ECGs.
- 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 Apulia 118 network fairly fits with the AHA statement because of several positive conditions: the entire 4 million inhabitants 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. The experience could be extended 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.ncbi.nlm.nih.gov/pubmed/?term=brunetti+dellegrottaglie*
http://www.cardioonlineeurope.com

Telemedicine for Management People with Chronic Diseases

Organisation name: CSI Piemonte

Country: Italy   **Region:** Piedmont

Total Region population: 4,7 M

Good Practice Target population: people with chronic diseases

Topics / chronic diseases addressed: Telemedicine service for management of chronic diseases: heart failure, diabetes (type I, II and diabetes in pregnancy), COPD and oncological diseases

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

The Telemedicine project in VCO (Verbano-Cusio-Ossola, north west mountain area in Piedmont) represents one of the first experimentation in Italy focused on innovative tele-health service for chronic diseases management, started in 2009: it is an innovative model of service with a strong integration between hospital and territory. It guarantees the distance monitoring of patients with the following chronic stabilized diseases:

- heart failure;
- diabetes (type I, II and diabetes in pregnancy);
- chronic obstructive pulmonary disease (COPD);
- oncological diseases.

CSI-Piemonte played the role of the implementing and coordinating body. The project experimentation phase was carried on from year 2009 to 2011, on behalf of the Piedmont Region, launched by the Local Health Provider ASL VCO (Verbania Cusio Ossola Province). Since year 2012, Telemedicine became a fully operational service managed by CSI-Piemonte on behalf of the Piedmont Region. Today, this service represents a multi-pathologies case management and a success story recognized at national and international level. It was selected among the innovation projects presented on year 2010 at the Shangai Expo (exhibition "Italy of Innovators") and at the "International eHealth, Telemedicine, and eHealth ICT Forum 2011" in Luxembourg.

Structure and Technology

The service implies a continuous, scrupulous methodological definition in terms of clinical and specialized responsibility during patient monitoring, charged to the medical staff, by personalized monitoring protocol and threshold values for every physiological parameter, to manage alarms upon need; by periodical monitoring of patient and by evaluation of their answers, if compared with measured data, while elaborating therapeutic suggestions and indications about a suitable lifestyle.

The easy-to-use is a success factor, reached through a strong coordination at process level (actions carried out by single players) and the integration of different technology components, eg.: easy medical devices for data take-over (different according to the pathology); a mobile

phone to send and receive data by the broadband with the possibility for video-conferencing; an information system that adopts updated and consolidated architectural and technology standard, permitting data transmission, archiving and reporting; a system that assures the maximum security for sensitive data

Highlights: Innovation, Impact and Outcomes:

The originality and innovation of this model is the overcoming of the simple telemedicine concept towards on-demand or emergency tele-health. It is an alternative to traditional daily services offered by health providers (surgery, hospitalization, emergency care), permitting better recovery of autonomy and independence in patients' daily life; the health providers obtains decongestion of spaces and services in favour of acute cases.

Since year 2009, overall, 400 patients have been cared. This initiative allowed the registering tangible benefits in terms of social impact. Patients, for example, have seen minimized unnecessary hardships related to their condition.
It brings the whole system a "green impact": it reduces the share of transfers, assuming having avoided a single transfer per month from home to clinic per patient (so leading to an estimated value of 50.000 km less to drive), patients gained in timesaving, while obtaining less inconvenience.

The efficiency in resource allocation is obtained with the reduction of accesses to secondary level of care. This means resources as personnel, structures can be devoted to acute cases, lowering costs and waiting time. Only in the first year of service, the patients reduced of about 80% their requests to the Emergency Departments and of about 63% their requests to Surgeries.

Favouring the de-hospitalization, finally, the Telemedicine service in VCO allows a saving of about 80% on costs, if compared to the cost of a traditional hospitalization.

Transferability to other organisations /regions:
The Telemedicine service is reusable by other administrations, both with regard to the management platform and for the organizational model adopted.

Further information:

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The Abilities Passport and Network of Forensic Medicine – PABI

Organisation name: CSI Piemonte

Country: Italy **Region**: Piedmont

Total Region population: 4,7 M   **Good Practice Target population**: Disabled citizens (Disabled citizens over 60 are about 8%)

Topics / chronic diseases addressed:
Centralized collection point of the disabilities certifications for disabled citizens in Piedmont Region

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

The Abilities Passport and Network of Forensic Medicine (PABI) is an Information System acting as a centralized collection point of the disabilities certifications in the Piedmont Region, intending:

• to be a support to the collegial, single judge, administrative and necroscopia activity of the Regional Services of Forensic Medicine;

• to facilitate the access to the certification and acts of disability for disabled people who are in percentage mainly old people

The subjects involved in the Abilities Passport and Network of Forensic Medicine at regional level are the following:

• disabled citizens, who take steadily advantage of a reduced time for obtaining benefits and certifications;
• the forensic services, that are shrinking the time and cost associated with the activity of verification and certification of disability;
• the bodies to which citizens with disabilities are addressed, which can provide definite answers at lower times and lower costs, at the same time increasing control over the adequacy of the benefits granted.

Thanks to the Abilities Passport and Network of Forensic Medicine, it becomes possible:

• to simplify the access of disabled people to the services, by reducing the certificates to be produced
• to standardize the administrative procedures at regional level, that are related to the acknowledgment of disability;
• to provide support to the Local Health Providers Services of Legal Medicine, for the establishment of an integrated database of acknowledgments of disability at regional level.

Information managed by the system relates to the integrated medical examiner, the certificates of civil disability, the civil blind, the civil deaf, the disability related to its severity status (Law n.104/92 - Framework Law for the assistance, social integration and rights of persons with disabilities: it protects the rights of the persons with disabilities), the targeted job placement (Law n. 68/99 - promoting inclusion and work integration of disabled people into the labour market through support services and targeted employment), the Local Medical Committee (driver's special license) and the medical-legal requirements for exemption from vehicle tax.

Through the system, it's possible to enter and update the personal data of the disabled, to acquire the applications for a disability acknowledgment presented by the patient to the National Institute for Social Security (INPS), to enter and maintain the minutes of the disability acknowledgment and send them for the final confirmation to the National Institute for Social Security (INPS) information system, to know the position of the medical-legal disabled, to define and update the established diagnosis (through the ICD-10 and ICF codes), to know the people or entities of reference referred to the disabled person.

Highlights: Innovation, Impact and Outcomes:

The system, in compliance with applicable privacy laws, makes it easier to access the services by disabled citizens, in order to simplify the administrative paths within the Local Health Providers and among the providers themselves and other competent bodies (Regional Tributes Office, National Institute for Social Security - INPS, bodies managing the social welfare functions).

Simultaneously with the management system, a data warehouse has been created, allowing the Region to obtain an overview of the activities by the forensic medicine, the Local Health Providers to generate statistical reports and data analysis with respect to their activities, and thus permitting to perform data analysis of the disability phenomenon from the epidemiological point of view and to enable other bodies to analyse the regional data regarding disability, that is a phenomenon mainly associated with elderly age.

Transferability to other organisations /regions:

The solution could be easily transferred to other regions even in other countries characterized by similar needs.
The service is widely reusable at regional and national level, both in terms of technical solutions realized and in terms of the expertise, which can be made available at international level in similar contexts.

Further information: *http://www.csipiemonte.it/en/*

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The ARIA Project

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

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:
telemedicine, muscular dystrophy, chronic respiratory failure, neurological diseases, acute early exacerbations detection and treatment, health saving costs.

Relevance to B3 Action Plan:

1	X	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:

- 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 threating 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 following14 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 Amiothophy 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 such a 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 € 7000 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 Dystrophy. 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.

Further information:

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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, tiroid, frailty

Relevance to B3 Action Plan:

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

Description:

- Aspect of health and social care integration your good practice covers

The Health Village is an itinerant Camp Hospital that is set up on 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 occasion 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. 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, 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: *economic 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 is 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:
http://www.villaggiodellasaluteonlus.it/

ParkinsonNet

Organisation name: ParkinsonNet, Radboud University Nijmegen Medical Centre

Country: Netherlands   **Region**: nationwide

Total Region population: 16 million   **Good Practice Target population**: 50.000

Topics / chronic diseases addressed: people with Parkinson's disease, chronic care, Parkinson's disease, Reorganisation of care, Clinical practice guidelines, Education of health professionals, Patient empowerment, Networks

Relevance to B3 Action Plan:

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

Description:

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.

Further information:

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

Website: www.ParkinsonNet.info Contact person s.keus@parkinsonnet.nl

The Walcheren Integrated Care Model

Organisation name: Institute of Health Policy and Management, Erasmus University

Country: Netherlands   Region: Walcheren

Total Region population: 115.000   Good Practice Target population: 22.000

Topics / chronic diseases addressed:
Frailty, preventive and integrated model of care, quality of life, informal caregivers, health professionals, cost-effectiveness, quality and efficacy of care

Relevance to B3 Action Plan:

1	X	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 aim 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 WICM is a comprehensive integrated model for the detection and assessment off needs and the assignment and evaluation of care for independently living frail elderly. The frail elderly aged 75+ years are identified by their general practitioner (GP) with the Groningen Frailty Indicator (GFI), a tool for the detection of frailty. Elderly with a GFI =4 are identified as frail and assigned to a case manager. Geriatric nurse practitioners are the case managers. The case managers assess the needs of the frail elderly and their informal caregiver with the EASYcare instrument, an 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. Explicit attention is paid to the necessary support and guidance of thee caregivers. The results of the assessment are described by the case manager in an individualized care plan, which 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 is approved, actions and care paths are discussed, and agreements are 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. 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 fulfill 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.

The stakeholders involved are: Zorggroep Walcheren, Veersche Huisartsen Coöperatie, Stichting Werkt Voor Ouderen, Stichting Zorgstroom, Stichting Voor Regionale Zorgverlening, POSO, ADZR, Stichting Ketenzorg Midden en Noord Zeeland, institute of Health Policy and Management (Erasmus University). The project is funded by ZonMW and the health insurer CZ Zorgverzekeraars. The positive results have led to new funding to disseminate the model in all GP-practices in the region of Walcheren and Brabant.

Highlights: Innovation, Impact and Outcomes:

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 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.

The project has been evaluated with a quasi-experimental design with a before and after measurements (12 months) with a control group. The experimental group consisted of 254 elderly of 8 GPs (General Practitioners) who provided care according to the integrated model. The control group consisted of 249 elderly of 6 GPs who were given care as usual.

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. Informal 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. Their objective burden increased due to non-patient related tasks (e.g. time spent on the multidisciplinary meeting). The model was not cost-effective. The lack of results in regard to some outcomes might be due to the short study period. Also, embedding new working- and help seeking practices takes time.

Transferability to other organisations /regions:

A handbook (in Dutch) has been made to help other regions implement the model, supported with conferences and on site help.

Further information:

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http://www.nationaalprogrammaouderenzorg.nl/projecten/transitie-experimenten/ketenzorg-ouderen-walcheren/

Fabbricotti et al. 'Integrated care for frail elderly compared to usual care: a study protocol of a quasi-experiment on the effects on the frail elderly, their caregivers, health professionals and health care costs', *BMC Geriatrics* 2013, 13:31

Automated Prospective Model of Health Care in Ophthalmology

Organisation name:
AIBILI – Association for Innovation and Biomedical Research on Light and Image
Ageing@Coimbra - European Reference Site for Active and Healthy Ageing

Country: Portugal   **Region**: Centre

Total Region population: 2.327.755   **Good Practice Target population**:
250.000 (estimated prevalence of the disease)

Topics / chronic diseases addressed:
Diabetes, Diabetic Retinopathy, Management of Diabetic Retinopathy, Prevention,
Screening programmes, Assessment of disease progression

Relevance to B3 Action Plan:

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

Description:

Prospective healthcare include determining risks of different individuals to develop specific diseases and early detection of the disease creating conditions for treatment in early stages of the disease with maximum benefits for the patient and lower costs for the health system.

New methods of imaging of the retina opened new doors to early diagnosis and, consequently, effective prevention and effective treatment at the right time.

Currently it is estimated that 39 million people worldwide are blind and 285 million are visually impaired. In addition, 246 million people worldwide have low vision and 85% of blind people are 50 years and older.

Diabetes leaves 23.000 people unable to work and costs with the disease amounted to 952 million euros per year. Only job loss and absenteeism totalled 336 million euros. Diabetes is the leading cause of disability, but the blindness overcomes cerebral vascular accident and stroke in relation to increased morbidity. Blindness is the second disease related to diabetes that brings more years of life lived with disability, i. e, with less quality. According to 2008 data, 27% of years lived with disability are due to blindness, above accounted for problems attributed to diabetes, such as stroke or heart attack.

Target population is all type 1 and type 2 diabetic patients except those already treated/in treatments for diabetic retinopathy.

This approach uses new non-invasive methodologies, such as digital fundus imaging and Optical Coherence Tomography, using automatic and human grading in central units.

This ensure early detection of these diseases and the identification of early changes that could be treated in time and prevent blindness, thus avoiding absenteeism and loss of employment, and contributing to a clear reduction in the costs of health and treatment of patients.

This prospective model involves an SME (Critical Health) and is being supported by the Regional Health Administration of the Centre Region (ARS-Centro).

Highlights: Innovation, Impact and Outcomes:

This screening programme allows:
- to detect early the disease in order to assure its timely treatment
- to separate patients who need prompt referral from those who need yearly screening. This separation is based on automated programmes that decrease significantly the human burden and health care costs

Transferability to other organisations /regions:

This innovative model can be transferred to other regions resulting in maximum benefits for the patient and lower costs for the local/national health system. Health Regional Administrations should be involved since the beginning.

Further information:
http://www.aibili.pt/project_details.php?ID=269
Prof. José Cunha-Vaz
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GMP Production of Radiopharmaceuticals for Oncology and Neurodegenerative Diseases

Organisation name: ICNAS-Produção, Unipessoal, Lda

Country: Portugal   **Region:** Center Region

Total Region Population 10 000 000   **Good Practice Target population:**
40 000/year (Oncology)
150 000/year (Neurodegenerative diseases)

Topics / chronic diseases addressed:
Good Manufacturing Practice, Radiopharmaceutical Production, Imaging Biomarkers, PET, SPECT, MRI, Cancer, Neurodegenerative diseases, Alzheimer's, Parkinson's.

Relevance to B3 Action Plan:

1		Organisational models	5	X	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:

ICNAS-Produção (ICNAS-P) is a company created in 2009 by the University of Coimbra (UC) to work in the area of radiopharmaceutical production and molecular imaging. The company operates the only public cyclotron in the country complete with full GMP (Good Manufacturing Practice) production labs and benefits from the extensive imaging facilities at ICNAS that include 2 PET scanners (1 clinical with CT, 1 pre-clinical), 2 MRI (3T for Humans, 9.4T for animals), 4 SPECT and an optical imaging system.

Located at the new health campus of the University of Coimbra the company has strong links with IBILI (centre of excellence for R&D in Biomedical Imaging), CNC (Centre for Neuroscience of Coimbra) and several nearby hospitals including the Coimbra University Hospital (one of the country's major reference hospitals) and the Coimbra Institute of Oncology.

Highlights: Innovation, Impact and Outcomes:

ICNAS-P obtained in December 2011 its first Marketing Authorization for [18F]Fludeoxyglucose, an imaging biomarker for cancer detection and staging, that is distributed to almost all hospitals and clinics that perform PET exams in Portugal. In June 2013 ICNAS-P also received production authorization for its second product to enter the market ([68Ga]DOTA-NOC), for the evaluation of neuroendocrine tumours, and has already 3 more products in the pipeline to be marketed by the end of the year.

The company also produces carbon-11 based radiopharmaceuticals for internal use in ICNAS. These include Pittsburgh Compound B (PiB), an imaging Biomarker for Alzheimer's disease, flumazenil (for central benzodiazepine receptor mapping), Raclopride (a marker for Parkinson's disease) and PK11195 (for neuroinflammation

studies).

Further information:

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PREVADIAB 2 – Prevalence Study Follow-up

Organisation name: National Diabetes Observatory

Country: Portugal   **Region:** National Scope

Good Practice Target population: 1200 (follow-up from the initial 5167 people study)

Topics / chronic diseases addressed:
Diabetes, prevalence, prevention, biomarkers, risk, obesity, hypertension,

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	X	Risk Stratification	8		Finance, Funding

Objectives:
- National prevalence of diabetes, pre-diabetes, and hepatic injury/fatty liver;
- Insight into mechanisms of pre-diabetes/diabetes development;
- Establishment of sample biobank for research into new biomarkers and genetic factors determining predisposition.
-

Description:

Between 2008 and 2010, the Portuguese National Diabetes Observatory and APDP – Diabetes Portugal conducted the first nation-wide Diabetes and associated pathologies prevalence study in Portugal, with funding from the Portuguese General Directorate of Health (DGS).
Up until then, official statistics for the country were calculated theoretically. Prevadiab showed that the dissemination of Diabetes and comorbidities was higher than expected: 11,7% diabetes prevalence, with an additional 23.2% showing an evaluation of pre-diabetes. The revealed scenario was even more worrisome for the elderly population: 26.3% of the individuals over 60 years of age were diagnosed with diabetes, while an additional 46.2% were characterised already with pre-diabetes. Furthermore, almost 40% of the elderly found to have diabetes were not previously aware of their condition.

The objective of Prevadiab was not only to assess the epidemiological reality in Portugal, but also to evaluate the validity of the Finnish risk score for Diabetes (Findrisk), a short questionnaire for population use, for risk stratification in the Portuguese population. This was designed as a first step towards using this tool to evaluate the impact of future prevention programs.

122 sampling locals were chosen to be representative of the country based on the National Census. Individuals were randomly chosen based on the National Health Registry, and then called by letter. Exclusion criteria included pregnancy, chemotherapy, and treatments known to interfere with glucose homeostasis.

Prevadiab teams were constituted by physicians, nurses, and technicians, from APDP. For each local, randomly selected individuals were called to attend on a specific morning, usually to a collaborating Health Centre or Town Hall, still on the fasting state. Blood was collected at fasting and 120 minutes after the ingestion of a 75g glucose solution (oral glucose tolerance test). Biometrical and personal and family history data were collected, and the Findrisk questionnaire was applied. Blood samples were centrifuged on site and transported refrigerated to the ISO certified laboratory at APDP for glucose, triglycerides, total cholesterol, HDL, LDL, HbA1c, and creatinine determination.

Recalled individuals for Prevadiab2 were all those that on the first Prevadiab study, 5 years prior, were not diagnosed with diabetes. Again, a 75g OGTT was performed, and blood collected. This time, clinical analyses also included insulin, liver transaminases (AST, ALT, GamaGT), and free fatty acids. From these parameters, information was systematised not only for glucose and lipid metabolism but also regarding liver disease scoring. This enabled us to relate current metabolic status with past profile and associated Findrisk risk score assessment. Preliminary results indicate that indeed from the individuals with the highest Findrisk score, 20% became diabetics after 5 years, while none with the lowest risk score developed diabetes in the same period. Since the Findrisk score was originally developed to assess risk on a 10 years period, these results are quite expressive. Not surprisingly, higher risk was related with age over 60 years.

The fieldwork of Prevadiab2 is currently on-going, having covered already 2/3 of the country. Findrisk questionnaire is again performed, to assess life changes, and to preview the next 5 years period. The information generated is integrated together with data from primary care facilities and hospitals, within the National Diabetes Observatory, an independent structure initiated by the Portuguese Diabetology Society (SPD), to provide evidence medicine in the field for the general public and public policy makers.

Highlights: Innovation, Impact and Outcomes:

This follow-up study provides reliable information about the status of Portuguese Health, with clinical data from fasting and post-glucose load status (which is relevant in terms of disease aetiology). Furthermore, the data concerning liver injury status is enabling a pilot project regarding the impact of this condition, especially non-alcoholic fatty liver, which is presently recognised as a silent burden on European Health, and its relation with diabetes and associated pathologies.

Likewise, a broad biobank is being constituted with Prevadiab2 plasma and whole-blood samples, thus providing a representative nationwide population already characterised in terms of general health and metabolic control, and that can be further studied regarding innovative biomarkers and genetic factors.

Transferability to other organisations /regions:
This good practice is easily transferable to other regions, and we consider it to be of considerable interest, due to the epidemic proportion of the pathologies that it regards to.

Further information:
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Retmarker® as a Biomarker of Diabetic Retinopathy progression

Organisation name:
AIBILI – Association for Innovation and Biomedical Research on Light and Image
Ageing@Coimbra - European Reference Site for Active and Healthy Ageing

Country: Portugal   **Region**: Centre

Total Region population: 2.327.755   **Good Practice Target population**: 250.000

Topics / chronic diseases addressed:
Diabetic Retinopathy, Personalized Management, Biomarker, Prevention, Risk
Stratification, Individualized Treatment, Retmarker®

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	X	Risk Stratification	8		Finance, Funding

Description:

The evolution and progression of diabetic retinopathy provokes retinal changes varies
between different individuals. It is therefore of fundamental importance to monitor the
progression of the disease and identify whether the patient is a "progressor", i.e., whether
there are signs of rapid progression, which may lead to visual deterioration. Such
eyes/patients need special attention and timely interventions to avoid permanent functional
loss.

The Retmarker® software provides an objective measure of Microaneurysm Turnover which
may be used to provide information on the likelihood of development of vision threatening
diabetic macular edema in patients with early stage of diabetic retinopathy.

The Retmarker® is used for automated processing of colour fundus photographs
(retinographies). By automatically co-registering (overlapping) different images based on a
proprietary algorithm, the Retmarker® is able to detect microaneurysms which are then
classified as new, old or as having disappeared. Based on this, the product computes relevant
ratios regarding Microaneurysm Turnover (the formation rate and disappearance rate), which
would be extremely difficult and time consuming to compute manually.

Highlights: Innovation, Impact and Outcomes:

The Retmarker® in clinical practice provides information on the likelihood of development of
vision threatening diabetic macular oedema in patients with early stage of diabetic retinopathy.

Using colour fundus photographs, a non-invasive technique, and an automated analysis software, the Retmarker®, it is possible to identify the diabetics with a higher risk of developing clinically significant macular oedema.

The Retmarker® software has already been validated in three different studies by AIBILI (Coimbra, Portugal) and the LMU Eye Hospital (Munich, Germany). These three independent studies gave similar results demonstrating the value of the microaneurysm turnover rate as a biomarker for Diabetic Retinopathy progression.

Transferability to other organisations /regions:

The software Retmarker® is being marketed by Critical Health is already released globally with sales in the United States of North America, Europe and Asia.

This innovative model can be transferred to other regions resulting in maximum benefits for the patient and lower costs for the local/national health system. Health Regional Administrations should be involved since the beginning.

There are currently on-going negotiations for the implementation of Retmarker® in screening systems in Latin American countries, including Venezuela, Peru, Colombia, Argentina, Mexico and Brazil.

Further information:

Retmarker® is a software developed at AIBILI and already commercialized by Critical Health.
Website: www.retmarker.com
Prof. José Cunha-Vaz
E-mail: cunhavaz@aibili.pt

School of Diabetes – Courses for Health Professionals

Organisation name: APDP – Diabetes Portugal

Country: Portugal   **Region:** National Scope

Good Practice Target population: Health Professionals for public and private institutions (physicians, nurses, pharmacists, healthcare providers, etc.).

Topics / chronic diseases addressed:
Education, workforce, diabetes, metabolic syndrome, retirement homes

Relevance to B3 Action Plan:

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

Description:

APDP has been conducting courses for health professionals since 1974. Since then, a great effort is continuously made to adapt the available courses to the present needs, especially by the feedback of current students and also by contacts with Health institutions, particularly the Portuguese National Health System.
New courses are introduced, and current ones are reorganized, as new technologies and good practices and group dynamics counsel. APDP professionals that are involved in ministering the courses also participate periodically in refreshment activities, particularly those on the Congress of Diabetes Educators and the Seminars on Chronic Disease Education (in both cases organized by APDP). These initiatives give special attention to interdisciplinary strategies, and the presentation and discussion of new methodologies and teaching competences.
Teaching teams reflect this interdisciplinary approach, being constituted by physicians, nurses, dieticians, nutritionists, psychologists, physical trainers and podologists. Teaching Quality Certification has been obtained, and is regularly tested.

APDP has recently allocated these courses to a new building, called "School of Diabetes", which has, apart from teaching rooms and an auditorium, a gymnasium and a teaching kitchen, for the exercise and nutritional components of the courses (also because the same structure is additionally devoted to courses for patient empowerment, for people with diabetes and their families). A brochure is produced yearly detailing the available courses, and distributed among Healthcare institutions and professionals. The "School of Diabetes" also has a role in academic/clinical teaching, in collaboration with the Faculty of Medical Sciences of Lisbon and the Institute of Hygiene and Tropical Medicine of Lisbon.

Currently the courses for professionals are structured in one level 1 course (18h), seven level 2 courses (12-30h), and six level 3 courses (18-36h). These include "Integrated Diabetes Course", "Therapeutic strategies for type 2 diabetes", "Prevention and Control of Diabetes", "Type 1 diabetes in Children and Youngsters", "Insulin therapy in type 2 diabetes", "Nutritional counselling in diabetes", "Diabetic foot", "Therapeutical education in diabetes",

"Psychopedagogy in the chronic patient", "Advanced course in clinical diabetology", "Advanced course in diabetes", "Advanced nutrition in diabetes", "Implementation of prevention programs in type 2 diabetes", and "Insulin continuous perfusion systems". The courses focus on the ability to recognise symptoms and conditions, in learning the theoretical and pathophysiology that underline them, to be able to adequately communicate with patients, to promote patient empowerment, to implement and integrate new knowledge and methodologies.

Furthermore, a specific small course has been created regarding "Healthcare for the elderly with diabetes", specifically targeted to healthcare providers that deal with aged people in retirement institutions on a daily basis, and that need to be aware of the particular healthcare needs and complications brought about by diabetes in the elderly, including prevention and monitoring.

Additionally, APDP personnel are also called upon to collaborate in the production of teaching materials for professionals and for use in primary care institutions. This is mainly know-how and scientific support to manuals and other materials distributed throughout the National Health Service.

Highlights: Innovation, Impact and Outcomes:

Courses are constantly renovated, providing an up-to-date integrated look into each subject. Courses are given by professionals that are involved daily in the clinical practice, so communication with students is facilitate, as well as being aware of hurdles that are faced by those in the clinical practice. The courses have theoretical and practical components.

We consider that gains in healthcare services are considerable after participation in the courses, which are ministered to more than 500 professionals on a yearly basis.

Transferability to other organisations /regions:

This good practice is easily transferable to other regions. The courses are independent and can be implemented as modules with different degrees of complexity and number of teaching hours.

Further information:
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Standardization and Harmonization of Biomarkers for Neurodegenerative Diseases

Organisation name:
CNC/CHUC Ageing@Coimbra, Consortium

Country: Portugal

Region: Coimbra / Centre

Total Region population: 2,323,906
        1350/year

Good Practice Target population:

Topics / chronic diseases addressed:
Neurodegenerative diseases Biomarkers Early diagnosis Integrated care

Relevance to B3 Action Plan:

1		Organisational models	5	X	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 tight partnership between the Centre of Neuroscience and Cell Biology of the University of Coimbra (CNC) and the University Hospital Centre of Coimbra (CHUC) encompasses several groups with a common interest in Neurodegenerative diseases ranging from clinical studies, to genetic, biochemical and molecular characterization to animal models of disease.

CHUC is the largest hospital in the central region of Portugal with circa 1,500 beds, incorporating a Neurology Department with 100 beds and thirty neurologists and a Dementia outpatient clinic, with a team of three neurologists, five neuropsychologists and two nurses, that follows over 800 patients with cognitive diseases, including around 200 new out-patients annually. The Dementia outpatient clinic is a reference centre on dementia diagnosis and clinical trials in Portugal and a member of the European Alzheimer's Disease Consortium (EADC), a network of centres of excellence in Alzheimer's Disease in Europe. A multidisciplinary approach to the demented patient is employed, with particular interest in the clinical, neuropsychological and imaging characterization of the initial phases of these neurodegenerative diseases. This approach is aimed at promoting an early and accurate diagnosis of dementia, crucial for intervention and treatment as well as for planning assistance and economical resources, and is supported by the units of neurochemistry, neurogenetics, neuropathology and neurophysiology. In addition, an imaging combined characterization of the Dementia population is provided by the recently created *Instituto de Ciências Nucleares Aplicadas à Saúde* (ICNAS) of the University of Coimbra, which includes a high field MRI (3T), PET with a cyclotron and a radiochemistry unit.
The Neurogenetics unit houses both research and diagnostic activity that is fundamental to establish the new genetic research findings that are of relevance in a clinical setting. Therefore, a wide range of genetic tests has been available to test different patients, including known causative genes as well as susceptibility genes. Therefore, different studies have been conducted to identify and characterize the pathogenic mutations present in different

Portuguese patient's cohorts. In addition, the associated phenotypic characteristics of the mutation carriers have also been assessed. These studies have contributed to a better understanding of the mechanisms of neurodegeneration and to a greater insight into the common mechanisms that underlie apparently different clinical presentations.

The Neurochemistry Unit has long-time interest and experience in biomarker assessment and validation for neurodegenerative diseases, particularly Alzheimer's disease and Creutzfeldt-Jakob disease. To this end, this unit has created a biological fluids archive containing CSF, plasma and serum samples that were collected during the diagnostic evaluation of the patients. The Neurochemistry unit is, since 2000, in the framework of the Portuguese Epidemiological Surveillance Program for Human prion Diseases, the Reference Laboratory for CSF analysis in Creutzfeldt-Jacob disease. This unit participates, since 2010, in the Alzheimer's Association Quality Control Program for CSF Biomarkers and is also a member of two Joint Programming of Neurodegenerative Diseases (JPND) consortia for standardization of biomarkers for Alzheimer's and Parkinson's disease (BIOMARKAPD) and rapidly progressive dementia (DEMTEST).

Highlights: Innovation, Impact and Outcomes and Future Perspectives

The harmonisation of biomarker-related procedures across Europe will facilitate clinical trials and allow for general implementation of the newly proposed diagnostic guidelines for Neurodegenerative Diseases with a focus on Alzheimer's Disease in clinical routine.

This multidisciplinary approach to the early and accurate diagnosis of neurodegenerative diseases, leading to the identification of a panel of biomarkers that cover the most relevant physiopathological mechanisms of these disorders, will be crucial for intervention and treatment as well as for planning assistance and economical resources. In future, we plan to extend these practices to other laboratories that perform biomarkers analysis in the country and to promote network initiatives for the identification of new biomarkers of disease, according to the aims of Horizon2020.

Further information:

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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:

1		Organisational models	5	X	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:

Faced with the challenge of the increase in chronic disease due to the ageing 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.

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 haemoglobin, 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:
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Basic Care Unit and Home (BaCUaH)

Organisation name: Grupo Aura Andalucía

Country: SPAIN   **Region**: ANDALUSIA

Total Region population: 7 Million   **Good Practice Target population**: 300 Residents

Topics / chronic diseases addressed: chronic diseases

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	x	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

- *Aspect of health and social care integration your good practice covers*:

We are working in a system to control for patients with chronic diseases. These conditions were: diabetes, heart failure, respiratory diseases. They come to the centre (Basic Care Unit) to recuperate after exacerbation of their disease and to learn about their chronic condition and to get the stability after the worsening or deterioration.

They will be in our centre for 2 weeks and later they return at home with a tablet to control daily 3 or 4 parameters (O2 saturation, glucose level, blood pressure, and ECG). This tablet will be connected to a virtual platform to transmit the results to the professional who will be deciding the health situation in relation at this results and the patient's clinical situation.

- ***General and specific objectives of initiative***:

Our general objectives are: - Using the ITC to control the patients and implementing the technology to the health services to improve the patient's conditions and their quality of live. - Using our system to control the patients with chronic conditions it is possible to reduce the cost in the health public system in a half term. Empower the patients and care givers to know the disease and to become the main person responsible the evolution and maintenance the own health.

Our specific objectives are: We are working to control the exacerbations in the chronic diseases and so it's possible to avoid the worsening and complications. Empower the patient to know the disease and to find the way to help the professionals for the control the crisis. The direct results probably it will be less public spending, less attendance, less medication use, and in the other hand to get more quality of life, more sustainability the public health system and a social benefit.

Methodology, processes, involvement of health, social care and other personnel: We are using a pilot trial in our centres. We are making use of the technology to get the results in the patient's chronic control.
The main objective it's the health's maintenance with the ICT like support and the direct professional intervention with the patients.

Partners who are involved in the project:
1) Aura Andalucía- Spain (Nursing Homes and leader company) www.auraandalucia.es
2) Human Overall- Spain (develops human capital of organizations) www.humanoverall.es
3) Primum Health- Spain (Technology Industry) www.primumhealth.es
4) Tic Touch- Spain (technology-based start-up company) www.tictouch.eu
5) Ab.acus- Italy (engineering SME gathering experts from biomedical and Assistive Technology (AT) sectors. www.ab-acus.com
6) Villa Beretta- Italy (reference centre in the field of rehabilitation, gait analysis and telemedicine).

- *Target population, in terms of age range, gender, kinds of health or social situation. Actual or intended geographical coverage*: The population objective in the project is between 250-300 residents who belong to our two main centres in Andalusia, Cádiz and Seville. After we can be able to apply this system to Andalusia and later this initiative probably can be transfered at other places and other different cities in Europe.
- *Funding source(s) of the initiative:* At the beginning this initiative are implementing and developing by own funding
- *Highlights: Innovation, Impact and Outcomes*: The most important innovative elements of our good practice it's concerning to the use of the technology for the control the chronic diseases and the preventions of the exacerbations in the patients. The patients have available a tablet and all the others instruments and equipment to control the disease. This technology equipment is connecting with an online platform to send the information and details to the professionals who manage the action.

Transferability to other organisations /regions:
The transfer is possible because the problems and the needs are running in the same way in Europe. The reason it's that the diseases are similar in the different countries and the similar patient's profile. The use of the technology makes easier this implementation because the equipment it isn't expensive and we can find it in every place. In addition the technology systems are being making by the small size industries in all Europe countries.

Further information:

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Chronic Care Programme in Catalonia

Organisation name: Department of Health Catalonia

Country: Spain   **Region**: Catalonia

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

Topics / chronic diseases addressed: Chronic care

1	X	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:

- 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:

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Collaborative model between health and social care: MECASS

Organisation name: Institut Català de la Salut / IBM

Country: Spain   **Region:** Catalonia

Total Region population: 7,5 M   **Good Practice Target population:** 1,5 M

Topics / chronic diseases addressed: Integrated care coordination, Clinical Pathways, Centric vision of patient, Interoperability and Complex patients

Relevance to B3 Action Plan:

1	x	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 Healthcare Plan for 2011-2015 states the challenges facing ICS (Catalan Health Institute): growing demand due to an ageing population (200,000 people over 65 by 2020), and increasing morbidity (number of people with at least one chronic disease to double between 2012 and 2020).

Despite the great impact of the chronic patients, the health services are mainly focused on acute care patients, with a reactive approach, a **high degree of fragmentation and lack of coordination and exchange of information between levels and health and social services**.

The **challenge of chronic disease** requires both a profound transformation from an organizational point of view, where you create new figures care, as the care process (tours, guides) assessment results (financial models), and from an ICT based to respond to new business requirements.

Highlights: Innovation, Impact and Outcomes:

The solution has been developed to address the challenge of chronicity in Catalonia is based on a set of guiding principles:

- Having a population approach and risk and be proactive, change to orientation of the treatment to the people and their needs, from preclinical to all stages of the disease.

- Adequately inform citizens in management of their health and increase their responsibility in the health system.

- Promote the activities and initiatives of health professionals to incorporate their expertise as a vehicle for improvement, and support and visibility to their initiatives and projects.

- Create an integrated healthcare system that increases the degree of coordination between different levels of care (public health, primary care, specialty care, social and health care ...).

- Take advantage of new technologies and communication systems to create a system of care for chronically ill innovative and accessible.

The main parts of the integrated care management solution proposed in collaboration with IBM to cover the previous requirements are the following:

- **Patient-centered Vision:** key patient information (clinical & social) to take right decision on real time

- **Target patient identification**: The process of identifying and assigning a patient management program contains a number of cases.

- **Patient evaluation** to identify risk factors, barriers and clinical risks levels of patient

- **Global patient treatment plan:**

- **Assessments and tests** depending on healthcare program, where each program can determine what should be the test comprising assessments; scales to measure their results by monitoring the evolution factor and comparison with other test other systems.

- **Goals and objectives of the patient**: where the system can support different catalogues goals (nursing goals, objectives case manager, social work, etc...) In one case, a patient assigned to the control time to evaluate specific aim of progress and track them.

- **Patient risk factors** (barriers) and the recommendations (based on clinical pathways) to control or reduce the risk level of the patient.

- **Collaboration environment between professionals**

Highlights: Innovation, Impact and Outcomes:

The solution is oriented to outcome management for evaluating the impact in the healthcare system (resources, patient safety and providers), in particular in:

- Increase patient satisfaction
- Optimize resources focused on complex patients.

Transferability to other organisations /regions:

Business part: The solution is based on a new way to treat the patient completely oriented to integrated care management that can cover all healthcare programs

Technical part: The technical solution allows escalating the integrated care management to different healthcare programs and different regions,

- o Scope: Health care programs and Business rules & clinical pathways

- Accelerators of healthcare industry based on an open architecture: HL7, DICOM, etc.

- Alignment with the strategy of the ICS to connect with other health care environments (social aspect) and extend capabilities to improve the quality and efficiency of services for chronic patients

- Connectivity and interoperability with patient-centred management, and analytics technology that allows two-way exchange of structured and unstructured data between the ICS and other suppliers.

- Scalable and robust system with a rich user interface, friendly and very flexible. Built on Java EE architecture and supports SOA and provides strategies for the gradual implementation of additional components offered by the system - built on a common base - can be added over time (eg, vendor control, economic or access to patients).

Design of an ontology-based telemonitoring system to support personalised supervision for chronic patient at home

Organisation name: Bio-Med Aragón

Country: Spain   **Region:** Any

Total Region population: Chronic and multi-chronic people

Good Practice Target population: Chronic and multi-chronic people

Topics / chronic diseases addressed:
Chronic, old people, decision support, ontology, telemedicine, home-monitoring

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	x	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

The goal of this work was to contribute to personalized clinical management in home-based telemonitoring scenarios by developing an ontology-driven solution that enabled a wide range of remote chronic patients to be monitored at home.
Through three stages, the challenges of integration and management were met through the ontology development and evaluation. The first stage dealt with the ontology design and implementation. The second stage dealt with the ontology application study in order to specifically address personalization issues. For both stages, interviews and working sessions were planned with clinicians. Clinical guidelines and MDs (medical device) interoperability were taken into account as well during these stages. During the second stage, the application of the ontology was studied to monitor patients with different and multiple morbidities. Specifically it was studied to supervise patients with the following chronic conditions: (1) COPD (chronic obstructive pulmonary disease), (2) obesity, (3) thyroid disorders, (4) ischemic heart disease (IHD), (5) asthma, (6) hypertension (HTA) or high blood pressure, (7) osteoporosis (OPO), (8) heart failure (HF), often called congestive heart failure (CHF), (9) diabetes mellitus (DM), (10) dyslipidaemia (DLP) and (11) osteoarthritis (OA).
Finally the third stage dealt with a software prototype implementation.

Highlights: Innovation, Impact and Outcomes:

An ontology was developed as an outcome of the first stage. The structure, based on the autonomic computing paradigm, provides a clear and simple manner to automate and integrate the data management procedure. During the second stage, the application of the ontology was studied to monitor patients with different and multiple morbidities. After this task, the ontology design was successfully adjusted to provide useful personalized medical care. In the third and final stage, a proof-of-concept on the software required to remote monitor patients by means of the ontology-based solution was developed and evaluated.

Transferability to other organisations /regions:
Our proposed ontology provides an understandable and simple solution to address integration and personalized care challenges in home-based telemonitoring scenarios. Furthermore, our three stage approach contributes to enhance the understanding, reusability and transferability of our solution.

Further information:
The details of this work can be found in:
N. Lasierra, A. Alesanco, S.Guillén and J. García. A three stage ontology-driven solution to provide personalized care to chronic patients at home. *Journal of Biomedical Informatics* (2013) 46 (2013), pp. 516-529

Contact person: José García Moros: jogarmo@unizar.es

DREAMING ICT-PSP GA No 225023

Organisation name: Bio-Med Aragón

Country: Spain   **Region:** Aragón

Total Region population: 1.346.293

Good PracticeTarget population: Fragile chronic Elders

Topics / chronic diseases addressed:
Fragile elderly with high frequency to emergency rooms and with at least one of the following pathologies: DM, ischemic heart disease (IHD), Heart failure, COPD, CVA

Relevance to B3 Action Plan:

1		0rganisational models	5		Care Pathway Implementation
2		Change Management	6		Patient / user empowerment,
3		Workforce Development, Education & Training	7	x	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:
DREAMING project belongs to the ICT-PSP program, CIP-ICT-PSP-2007.2.2 - ICT for ageing well, Project reference: 225023, it was executed from 01/05/2008 to 30/06/2012.

The DREAMING project was set out to pilot new, economically sustainable home assistance and e-Inclusion services able to extend the independent living of old citizens in their homes, and address their loneliness. The system provided health and safety monitoring and assistance to older people in their homes through privacy-respecting and user-friendly technology (health sensors mainly).

The pilots were aimed at verifying the impact of the services on the quality of life of older people, their formal and informal caregivers and their relatives, on economic and clinical indicators, its financial sustainability and the satisfaction of users.
The Spanish Pilot was held at Barbastro Healthcare Area, from the Aragonais Healhcare Service (SALUD).

Potential participants (fragile elders with frequent accesses to emergency rooms) were evaluated by an **Evaluation Team** and the group was randomized taking into account several **inclusion and exclusion criteria** as the age, medication, clinical stability or suffering from a chronic disease in study (isquemic heart disease or heart failure, COPD, CVA, diabetes mellitus) . Each participant at the control group was equipped with a **technology set** at home and trained for **self-collecting** vital constants. Each technology set was selected on the basis of individual health conditions. Constants were sent to a server located at the healthcare provider side, so the doctor or the Contact Centre Operator could view them at the portal. If there was a value out of the normal threshold, an alarm was generated (type 1- urgent, sent by SMS or type 2-, indicative, sent by email). Healthcare professionals at the contact centre evaluated the data, validated the alarm and handled the attention needed. If the alarm was validated, data were also included on the patient's EHR. A technical centre gave technical support 24x7.

80 chronics , 40 at the Intervention Group and 40 at the Control Group participated at the trial. The average ages were 75 for both groups.
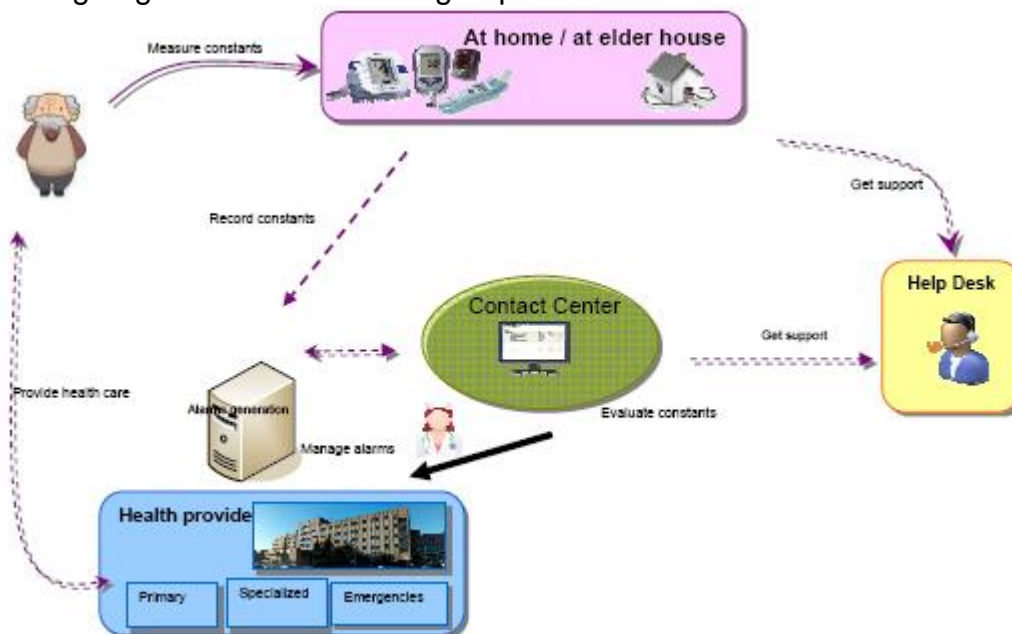
Highlights: Innovation, Impact and Outcomes:

- There has been a complete evaluation on clinical, economic and quality of life indicators.
- Telemonitorization:
  - Permits to act before emergencies situation arises, this implies less suffering and a better quality of life.
  - Minimizes the impact of frequentation from arbitrary to objective
  - Reduces emergency room access (emergencies are programmed towards Primary Attention)
  - Acts as a scheduler of the activity and download the frequency to emergency units and specialized care.
- Patients co-morbidity should be taken into account when including them on telemonitoring services.
- There is a positive impact on the quality of life of patients in the intervention group. This can be seen in the MCS (Mental Component Summary) SF-36 questionnaire and also in the HADS questionnaire results.
- Importance of training.

Transferability to other organisations /regions:

Any organisation/region where any of the following needs is identified: telemonitoring of chronic patients , social e- Inclusion and/or transfer of some activities from the healthcare side to the patient or the social care side.

Further information:

http://www.dreaming-project.org/
Contact person: Dr. Juan Coll Clavero *(jcoll@salud.aragon.es)*

End-to-end telemonitoring solution working with European standards: ISO-IEEE 11073 and EN13606

Organisation name: Bio-Med Aragón

Country: Spain   **Region**: Any

Total Region population: 1.346.293

Good Practice Target population: Chronic and multi-chronic people

Topics / chronic diseases addressed:
Chronic, elderly, standards, telemedicine, home-monitoring

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

The need for standardization and seamless interoperability in healthcare environments has motivated the proposal and implementation of an interoperable end-to-end personal health solution. This solution guarantees the specific requirements established by the most recent versions of the X73PHD and IS0/EN13606 standards and proposes a new approach for the end-to-end X73PHD-IS0/EN13606 communication. This prototype implements new transport technologies such as USB and Bluetooth and includes new functionalities not yet supported in previous implementations, such as Plug-and-Play capabilities, integration of PHDs, and remote configuration through the end-to-end communication.

Highlights: Innovation, Impact and Outcomes:

A system architecture and standard based design was defined in terms of its technical features. Regarding the X73PHD and IS0/EN13606 implementations, the most recent evolutions of both standards were analysed by distinguishing, respectively, their specific requirements. In the X73PHD-IS0/EN13606 communication part, a proposal for an interoperable end-to-end communication based on X73PHD and IS0/EN13606 was proposed. The entire prototype has been designed, developed, and tested as a proof-of concept of personal solution.

Transferability to other organisations /regions:

Our proposed system provides an interoperable and simple solution in home-based telemonitoring scenarios. The clinical validation of the prototype with these new contributions could allow its subsequent transfer to the healthcare system.

Further information:

Martínez I, Escayola J, Martínez-Espronceda M, Muñoz P, Trigo JD, Muñoz A, Led S, Serrano L and García J. Seamless Integration of ISO/IEEE11073 Personal Health Devices and ISO/EN13606 Electronic Health Records into an End-to-End Interoperable Solution. Telemedicine Journal and e-Health (2010) vol. 16 (10), pp. 993-1004.

Martínez I, Fernández J, Galarraga M, Serrano L, de Toledo P, Jiménez-Fernández S, Led S, Martínez-Espronceda M and García J. Implementation of an end-to-end standard-based patient monitoring solution. IET Communications (2008) Special Issue on Telemedicine and e-Health Communication Systems. Vol 2 (2), pp. 181-191.

Contact person: José García Moros: jogarmo@unizar.es

Evaluation and alignment of telemedicine systems in the HealthCare domain: Teledermatology experience in Aragón

Organisation name: Bio-Med Aragón

Country: Spain   **Region**: Aragón

Total Region population: 1.340.00 inhabitants

Good Practice Target population: Patients with dermatological lesions

Topics / chronic diseases addressed:
Telemedicine, teleservice, evaluation, alignment, dermatological lesions

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

The teledermatology experience was active from 2008 to 2010 in our region. Using a teledermatology system, GPs (general practitioners) are able to refer consultations to a dermatologist located elsewhere using information and communication technologies (ICTs).

A complete design and evaluation methodology was conducted to fully address significant issues emerged in other teledermatology experiences and thus success with our teledermatology system set-up. First, system design requirements and image quality issues were studied. This research led to the development of a web-based teledermatology system based on the clinical setting and the clinical staff skills. Then, a detailed clinical concordance study was undertaken during two years in order to determine the accuracy of the diagnoses made using teledermatology for different dermatological clinics. Finally, an impact study on the health system was performed. Clinical, technical, social and alignment outcomes were analysed during the study and at the end of it, in order to understand how and what emerging factors affected the final setup of the teledermatology system.

A retrospective assessment of the project as a whole together with the results was carried out after the three-year experience in order to identify the main problems and analyze benefits derived from the experience. It allowed us to study and discuss critically the issues that emerged during the experience and report the main lessons learned.

Highlights: Innovation, Impact and Outcomes:

The teledermatology experience was very positive and high rates of concordance were measured both for paediatrics and adults. It should be noted that low cost resources were used for the tele-consultations and that clinicians involved in the experience were not experts in photography.
The experience with the teledermatology system allowed us to identify keys that contribute to

the long term implementation of a telemedicine system. As an outcome of this experience we developed a methodology which can be re-used for the evaluation of other telemedicine systems.

**Transferability to other organisations /regions:**

Our methodology can be re-used for the assessment of other telemedicine experiences. Furthermore detected keys for the success and failure can be study to the adherence of other telemedicine systems (including telemonitoring systems) to the healthcare domain.

Further information:

The details of the experience can be found in:

N. Lasierra, A. Alesanco, Y. Gilaberte, R. Magallón and J. García Lessons learned after a three-year store and forward teledermatology experience using internet: Strengths and limitations. *International Journal of Medical Informatics* (2012), 81(5):332-343
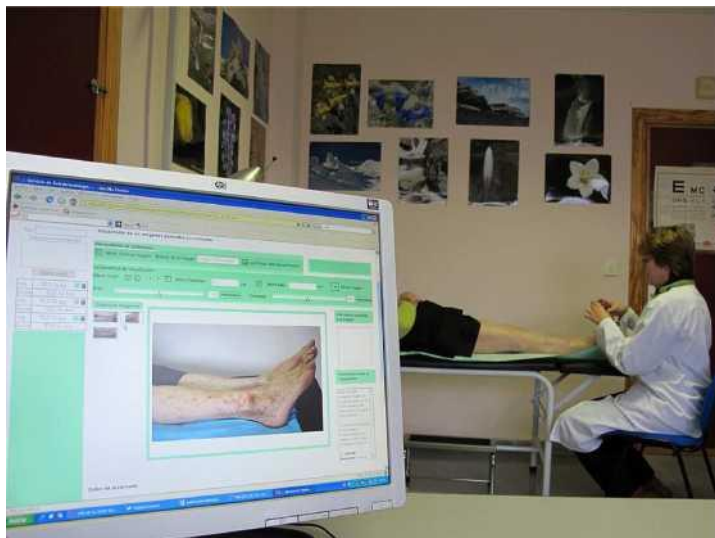
Contact person: José García Moros: jogarmo@unizar.es

Expert Patient Programme Of Catalonia

Organisation name: Ministry of Health of Catalonia

Country: Spain　　　　　　　　　**Region:** Catalonia

Total Region population: 7.611.711　　　**Good Practice Target population**: 2.210.000

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

Relevance to B3 Action Plan:

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

Description

The Expert Patient Programme 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 (GP, nurse and social worker) becomes and 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 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, 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, Oral Anticoagulant Therapy, Diabetes Mellitus type 2, Fibromyalgia, Breaking the tobacco habit, Anxiety and Chagas disease in its chronic stage from 212 Primary Health Teams (PHT), almost 60% PHT, and 3 Hospital Units within Catalonia and with the involvement of various healthcare providers of the Catalan Health System. **Participating Patients** (2690) and **Experts Patients**(201)

Number of : groups(269),**healthcare professionals** (584 _376 nurses, 178 family doctors and 30 social workers), **participants**(2690) and **Expert Patients**(201)

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: 156

Average visits/patient for worsening of the disease

Visits Primary Care GP/Nurse 1 Year before starting sessions	Visits Primary Care GP/Nurse 1 Year after finishing the sessions	% reduction	Emergency visits 1 Year before starting sessions	Emergency visits 1 Year after finishing the sessions	% reduction	Hospital admissions 1 Year before starting sessions	Hospital admissions 1 Year after finishing the sessions	% reduction
2.81	1.76	37,36%	0.42	0.24	42,85%	0.18	0.13	27,77%

Key change management elements the EPPC has brought:

For the patients	For the Healthcare Professionals	For the Health System
To aware of their disease. To give them a more active role and responsibility To share knowledge and experience between with the use of the same language To take the importance of good adherence. To promote self-care and improve their quality of life To identify signs and alarm signals and how to act Shared decisions-making Satisfaction of participants	Identifying patients capabilities in decision. Change of relation with patient: active listening, greater participation by the patient, convenant and agreement in the proceeding. Note that the person with a chronic disease often is not await, then it is more difficult to change habits and lifestyle of the patient. Need to use more appropriate language, close and understandable.	Promote the change of paternalist model to deliberative model Patient informed and corresponsable makes better use of health services and more efficient Reduce the consumption of resources in form of visits to primary care, emergency and hospital admission for acute helps to make sustainable Health System Obtain good results , comparable with international experiences, prove effectiveness

Further information:

http://www20.gencat.cat/portal/site/salut
Contact person: Mrs. Assumpció González-Mestre assumpcio_gonzalez@gencat.cat
Expert Patient Program Catalonia®. Main characters opinion http://youtu.be/vMQRDuRRAo4

FOCUSS

Organisation name: Bio-Med Aragón

Country: Spain   **Region:** Aragon

Total Region population: approx. 1.350.000 Good Practice Target population: All workers of the Aragon public health system (approx. 13.000)

Topics / chronic diseases addressed: Education & training, innovation, workforce development, collaborative networks

Relevance to B3 Action Plan:

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

Description:

focuss is a knowledge management project that optimizes the intellectual capital of the system by using the resources of the own organization, identifying needs, sharing professional knowledge and making them explicit in the Public Health System of Aragón (PHSA).

This project consists in health professionals teaching each other about diagnostic, therapeutic, and communication skills in their daily practice workplaces, while the "practitioners-teachers" do their usual work.

Since **focuss** was launched, in 2005, a prestigious and consolidated training network in Aragon Public Health System has been created and it goes on growing every year. **focuss** involves the Directors of the all the hospitals and health centres in the pupils (learners) and training proposals selection. It also has a Coordination Committee formed by representatives of the Department of Health of Aragón and the IACS (Instituto Aragonés de Ciencias de la Salud (Aragon Institute of Health Sciences)) which is the Organization that manages **focuss**.

focuss is financially supported by IACS, the Public Health System of Aragón (PHSA) and the collaboration of some pharmaceutical companies. As these "practitioners-teachers" train others while developing their normal work, they receive a recognition payment (30 € per day).

focuss is launched on an annual basis and offers between 80 and 85 training programmes.

General objective
The general objective of **focuss** is to contribute to the improvement of the Aragon health care system quality therefore increasing the level of health in the regional population. This will be achieved by improving the knowledge and skills of the Aragon public health system professionals by using the resources of the own Organization.

Specific objectives
- To create an informal networking cooperation between health centres and hospital-primary care services to encourage and facilitate the "continuum of care".
- To improve the professional's satisfaction by giving value to their knowledge and improving the users perception about the quality of care they get.
- To manage the Organization intellectual capital making it explicit, preserving and sharing it.

- To facilitate the professionals access to teaching and training especially to those who are far away from the usual circuits because of geographical limitations or lack of communication.

Highlights: Innovation, Impact and Outcomes:

The success of this project is based on the quality of its training programmes, the commitment of all professionals involved, both teachers and pupils (learners), the good organization and management of the project and the Public System Health Managers support.

Finally the programme has succeeded because it is an eminently practical training given by experts and because the acquired knowledge can be implemented immediately by the "learners" in their respective work centres.

Following most relevant figures are shown:

- June 2006 focuss first launch
- February 2013 focuss 8th launch
- Territory implementation: A 100% of public hospitals and 85% of primary care centres have been involved.
- An impact study has been carried out in 2012 with the following results:
  o Training methodology Acceptance: 100%
  o Knowledge / skills Withholding: 90.42% (very or somewhat)
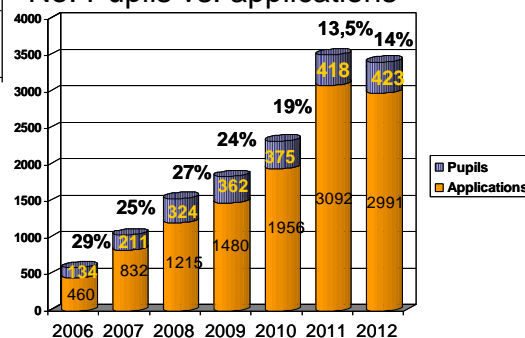 o Professional Competence improvement: 91.6%

Pupils' satisfaction
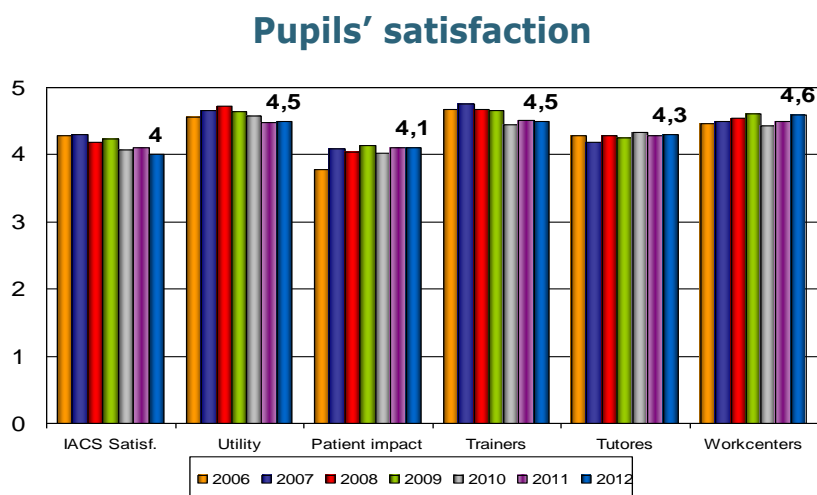
Training overall satisfaction: 4,54 / 4,49 / 4,36 / 4,57 / 4,43 / 4,42 / 4,5

% surveys 2007: 82,5 %   % surveys 2008: 79 %   % surveys 2009: 79,3%
% surveys 2010: 80,4 %   % surveys 2011: 80 %   % surveys 2012: 62%
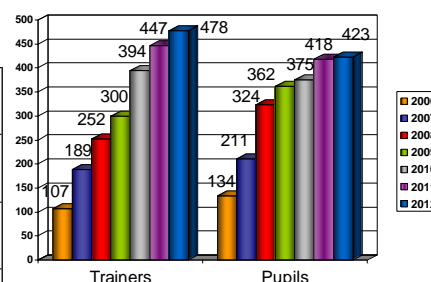
No. Pupils vs. applications

Transferability to other organisations /regions:

focuss is a quite flexible training tool that can be adapted to any type of educational content and can be transferred to any other health organization, region or country.

Further Information

http://www.iacs.aragon.es/awgc/contenido.busquedapredefinidas.do?idBusqueda=focuss

Contact person is   Vega Alonso (valonso.iacs@aragon.es)

Home Care

Organisation name: Adiper Servicios Sociosanitarios

Country: Spain   **Region**: Extremadura

Total Region population: 1.108.130 inhabitants (Badajoz: 694.533, Cáceres: 413.597)

Good Practice Target population: 130

Topics / chronic diseases addressed: Home Care

Relevance to B3 Action Plan:

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

Description:

The **home help service** has as main objective to support the user in the basic tasks of daily living that cannot do on their own and / or unable to perform their families (personal hygiene, management, etc. ...) in order to facilitate the stay in his/her usual way of life. The Service is not a substitute for family obligations.

This service allows to:

* Provide the necessary attention to individuals or groups of families with difficulties in their autonomy.
* Prevent deterioration of personal, family and social situations.
* Promote the acquisition of skills that enable more autonomous development in daily life.
* To facilitate integration into the usual environment of coexistence.
* Supporting family groups in their care responsibilities.
* Delay or prevent institutionalization
* Complementing the work of the family.
* Replace familiars' when temporally absence.
* Improve the quality of life.

Beneficiaries of **home help service** are people or households with limited autonomy that prevents them from meeting their personal and social needs on their own and require care and support for the maintenance of an adequate standard of living.

Highlights: Innovation, Impact and Outcomes:

The most innovative element of this set of care activities is that they are undertaken in the homes of the user and avoiding or delaying them to go to any nursing home. Through satisfaction questionnaires ADIPER has identified that the idea has been very beneficial to the users and their environment.

Transferability to other organisations /regions:

The services that integrate the **home help service** can be transferred to any region or social organization in an easy, safe and fast way, by the implementation of the activities at the users' home. These activities try to provide solutions to many care problems, such as:

1. From a personal perspective:
   - Support for grooming and personal care in order to maintain hygiene.
   - Aid for feeding, provided if the user is not able to do by him/herself.
   - Directors, if applicable, simple medication prescribed by medical staff.
   - Help for mobility within home.
   - Company at home.
   - Company out of making representations home for doctors' visits, processing of documents ...
2. Household perspective
   - Home cleaning and maintenance.
   - Washing and ironing.
   - Food acquisition and preparation.
3. Psychosocial and educational perspective (vocational-technical interventions of educational content).
4. Technical and complementary hospitality.

Further information:
www.adiper.es

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, COPD, CHF and type II diabetes, frailty, co-morbid conditions.

Relevance to B3 Action Plan:

1	X	Organisational models	6		Patient / user empowerment
2	X	Change Management	7	X	ICT / Teleservices
3		Workforce Development, Education & Training	8		Finance, Funding
4		Risk Stratification	9		Communication / Dissemination
5	X	Care Pathway Implementation			

Description:

The need for diminishing the impact of the seasonal exacerbations of patients with chronic conditions prompted the hospital to develop a line of work in the area of integrated care in 2000 with a focus on specific conditions (COPD, HF). The goal was to keep patients stable and out of the hospital. The initial small scale pilot projects provided the required understanding on aspects of service design and sensible use of technology along with evidence on the clinical, organisational and economic benefits. This moved the direction of the hospital to support Integrated Care as a mainstream service through the creation of the Integrated Care Unit (IC-Unit) in 2007. The IC-Unit manages patients through their adscription to integrated care programmes (integrated care pathways), collaborating with other healthcare providers in the area.

In an effort to transfer complex patient cases from the hospital to primary care and to the patients' home with proper integration with community services, the IC-Unit required expanding its service portfolio together with better understanding the barrier and facilitators for such collaboration.

This specific research work was undertaken under the NEXES project (CIP-PSP program, Grant agreement 225025) with a focus on four main programs within this portfolio: wellness and rehabilitation (W&R), enhanced care (EC), home hospitalization (HH) and remote support to primary care for diagnosis and therapy (Support). The project investigated the strategies for future extensive regional deployment and adoption of Integrated Care Services, in particular when they were delivered with supporting Information and Communication Technologies (ICS-ICT). The underlying hypothesis was that well-articulated ICS-ICT improve patients' care and results in better clinical outcomes. Additionally, by preventing the unnecessary use of complex care services, ICT-ICS promotes cost-effectiveness. Optimal articulation of tasks required care pathways redesign. This was achieved by means of using a notation formalism known as BPMN (figure 1, below)
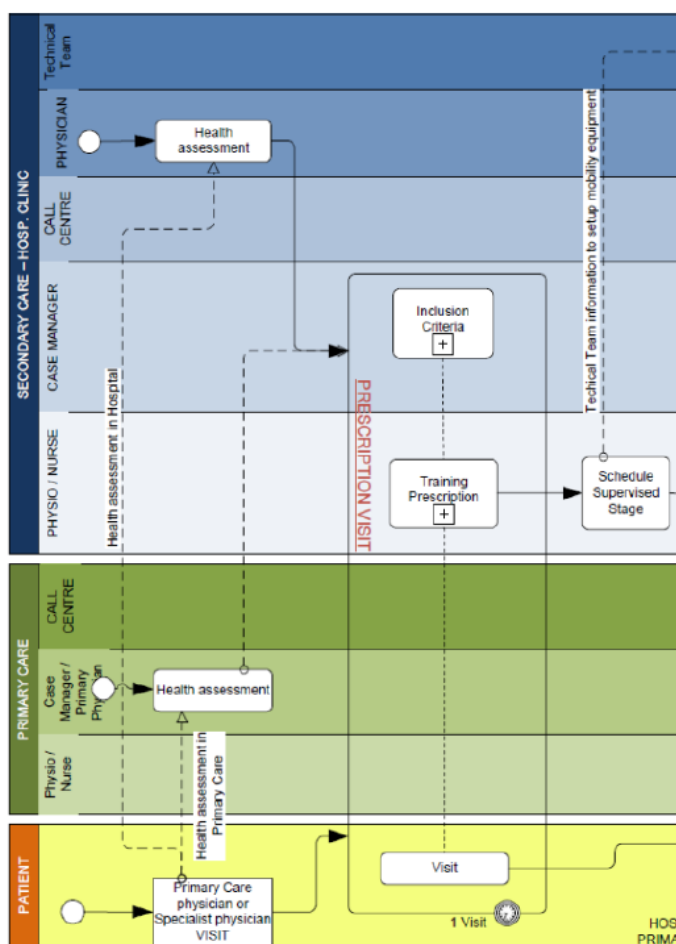
Figure 1 Business Process Model

For the four programmes mentioned, NEXES studied the enabling role of ICT in the deployment of integrated care services in two different health information models: Health Information Sharing (HI-Sharing) and Health Information Exchange (HI-Exchange). In the project the first one was exemplified by the Linkcare® platform adopted in Barcelona and Athens while the HI-Exchange model was used in Trondheim.

Highlights: Innovation, Impact and Outcomes

The main findings of the project and lessons learnt are the following:

1. The four ICS-ICT services showed efficacy or effectiveness being complementary between them and with potential for transferability.
2. The HI-Sharing model (exemplified by Linkcare®) 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 outcomes. Specific strategies to foster organizational changes (including ethical and legal aspects) were described.
4. A bundle payment scheme where risk is shared between payers, healthcare providers and ICT suppliers seems to be adequate to release the efficiencies of ICS-ICT services at a health system level facilitating investment on ICT innovation without increasing total healthcare costs.

Transferability to other organizations / regions:

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. In the Barcelona site, deployment is going on and the following three elements have been prioritised to achieve extension at regional level in 2013: i) convergence of existing pre-deployment experiences, ii) agreement on indicators, and, iii) interoperability at systems level (among all providers). In the current project INTEGRATE, these issues are addressed at a European level (http://www.integratedcarefoundation.org/project/project-integrate)

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

Contact Person: Mirjam Hillenius (mhillen@clinic.ub.es)

Integrated care through case management in the Valencian Region

Organisation name: Polibienestar Research Institute – University of Valencia

Country: Spain   **Region:** Valencia

Total Region population: 5.1 million   **Good Practice Target population:** Chronic patients over 65 years, who require social
and health care at home.

Topics / chronic diseases addressed:
Case management, integrated care, chronic disease, older patients, care pathways.
Relevance to B3 Action Plan:

Relevance to B3 Action Plan:

1		Organisational models	6		Patient / user empowerment
2	X	Change Management	7	X	ICT / Teleservices
3		Workforce Development, Education & Training	8		Finance, Funding
4		Risk Stratification	9		Communication / Dissemination
5	X	Care Pathway Implementation			

Description:
In 2004, the Valencian Ministry of Health estimated about 65,000 people above the age of 65 needing health and social care at home in the Valencian Region. With this target group in mind, the project consisted in setting up a pilot case management unit in two primary care centres in the town of Burjassot (Valencian Region, Spain). Public and private health and social care services participated in the project between 2004 and 2005, with a sample of 152 patients.

The main aim was to assess the effect of a case management programme applied in primary care in several variables:
      a) the frequency of use of social and health care resources;
      b) number of patients visiting a doctor or social worker in the primary care centre, and
      visits that these professionals receive;
      c) number of drugs consumed;
      d) urgent hospital admissions which did not need significant intervention, and
      e) patients' and caregivers' satisfaction regarding the social and health care resources
      received.

The direct interaction with the patients participating in the project was carried out by a multidisciplinary team, comprising by a physician, a nurse and a social worker. The intervention lasted for periods of six to nine months. The case management team took charge of: assessing individual needs, designing and starting individual care pathways, benefit quality assurance and monitoring and on-going review of the strategy used.

The following health and social resources were available for the intervention groups in order to define the care pathways:
a) Health care resources: primary care centre; speciality care centre; one home hospitalisation unit (at the public hospital Arnau de Vilanova in Valencia); one palliative care unit at the Dr

Moliner Long-Term Care Public Hospital; one Public Mental Health Unit; ambulance service (health care adapted transport), non-pharmaceutical complementary benefits, and

b) Social resources: two long-term public placements in the Velluters nursing home for the older adults (placed in Valencia); ten temporary placements in the Velluters nursing home for the older adults (placed in Valencia); six placements at the Day Centre for the older in Burjassot; remote care, technical aids and removal of architectural barriers.

Highlights: Innovation, Impact and Outcomes:

The case management methodology employed improved the interaction between the different actors involved, establishing common criteria for cooperation. The results of the project underline the effectiveness of the case management programme partly for a significant effect could be shown in only a few variables measured. While the intervention group had fewer office visits and hospital admissions (emergencies) than the control group, no significant differences could be found. However, the case management programme significantly reduced the exclusive use of health care resources and promoted the use of cheaper resources: 55.5% of users were provided social care at home, rather than more expensive health care facilities.

The road to change has been initiated in the Valencian healthcare system by creating two new professional positions: 'management nurses' and 'continuity nurses' who apply the case management methodology from a primary health care centre and in hospitals to better connect both spheres between themselves and with social resources. It also affects innovation from a technological point of view, because Polibienestar has developed a simulator of public policies based on the studio.

Transferability to other organisations /regions:

The tested model for integrating social and health resources confirms that the proposal is an appropriate model to address current shortcomings. However, it is evident that there are important gaps that remain yet to be resolved. The testing of the model was limited both spatially and temporarily – a more widespread impact is currently tested through a mathematical model.

To transfer this practice to other regions it is necessary the cooperation between different actors and sectors, as such regional and local administration, private companies, professionals, patients and caregivers.

Further information:

Contact person :Francisco Ródenas (francisco.rodenas@uv.es) and Jorge Garcés (jordi.garces@uv.es)

Relevant sources:

- Garcés, J.; Ródenas, F. & Sanjosé, V. (2004). Care needs among the dependent population in Spain: an empirical approach. *Health Soc Care Community, 12*(6): 466–474.
- Garcés J, Ródenas F & Hammar T (2013): 'Converging methods to link social and health care systems and informal care – confronting Nordic and Mediterranean approaches', LIECHSENRING, K.; BILLING, J & HENK, N: Long Term Care in Europe – Improving policy and practice, pp.100-117, Ed. Palgrave-MacMillan.
- Grimaldo F, Orduña JM, Ródenas F, Garcés J & Lozano M (2013): 'Towards a Simulator of Integrated Long-term Care Systems for Elderly People', in International Journal on Artificial Intelligence Tools -IJAIT's special issue on Agents Applied in Health Care.
- Ródenas, F.; Garcés, J.; Carretero, S. & Megia, M.J. (2008). Case management method applied to older adults in the primary care centres in Burjassot (Valencian Region, Spain). *European Journal of Ageing, 5*: 57–66.

Integrated Healthcare Information System for End-to-End Standardized Exchange and Homogeneous Management of Digital ECG Formats

Organisation name: Bio-Med Aragón

Country: Spain   **Region:** Any

Total Region population: Chronic and multi-chronic people

Good Practice Target population: Chronic and multi-chronic people

Topics / chronic diseases addressed:
Information system, chronic, ECG, management, standards, home-monitoring

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

The application of the enterprise information system (EIS) paradigm to standardized cardiovascular condition monitoring was investigated. There are many specifications in cardiology, particularly in the ECG standardization arena. The existence of ECG formats, however, does not guarantee the implementation of homogeneous, standardized solutions for ECG management. In fact, hospital management services need to cope with various ECG formats and, moreover, several different visualization applications. This heterogeneity hampers the normalization of integrated, standardized healthcare information systems, hence the need for finding an appropriate combination of ECG formats and a suitable EIS-based software architecture that enables standardized exchange and homogeneous management of ECG formats. The goals were to find an appropriate combination of ECG formats and a suitable EIS-based software architecture that enables standardized exchange and homogeneous management of ECG formats and to design and develop the integrated information system that satisfies the requirements posed by the previous determination.

Highlights: Innovation, Impact and Outcomes:

The ECG formats selected include ISO/IEEE11073, Standard Communications Protocol for Computer-Assisted Electrocardiography, and ECG ontology. The EIS enabling techniques and technologies selected include web services, simple object access protocol, extensible mark-up language, or business process execution language. Such a selection ensures the standardized exchange of ECGs within, or across, healthcare information systems while providing modularity and accessibility. This framework guarantees the specific requirements established by X73PHD and SCP-ECG, thereby facilitating the standardized exchange of digital ECG formats within, or across, healthcare information systems. Furthermore, an ontology-driven backend component for the integration and homogeneous management of electrocardiography formats capable of reaching a central hospital server has been designed and developed, thereby solving the problem of coexisting ECG formats and avoiding the use

of multiple ECG viewers. The designed ECG backend component provides modularity (supporting a new ECG format is as easy as mirroring its attributes or fields to the central ontology) and accessibility (a single web page is required to use the system).

Transferability to other organisations /regions:

Our proposed framework provides an homogeneous management of ECGs that would ease comparisons between ECGs, thereby reducing the possibilities of diagnostic misinterpretation in any organisation.

Further information:

The details of this work can be found in:

Trigo JD, Martínez I, Alesanco A, Kollmann A, Escayola J, Hayn D, Schreier G and García J. An integrated healthcare information system for end-to-end standardized exchange and homogeneous management of digital ECG formats. IEEE Transactions on Information Technology in Biomedicine (2012) vol. 16 (4), pp. 518-529.

Trigo JD, Alesanco A, Martínez I and García J. A review on digital ECG formats and the relationships between them. IEEE Transactions on Information Technology in Biomedicine (2012) vol. 16 (3), pp. 432-444.
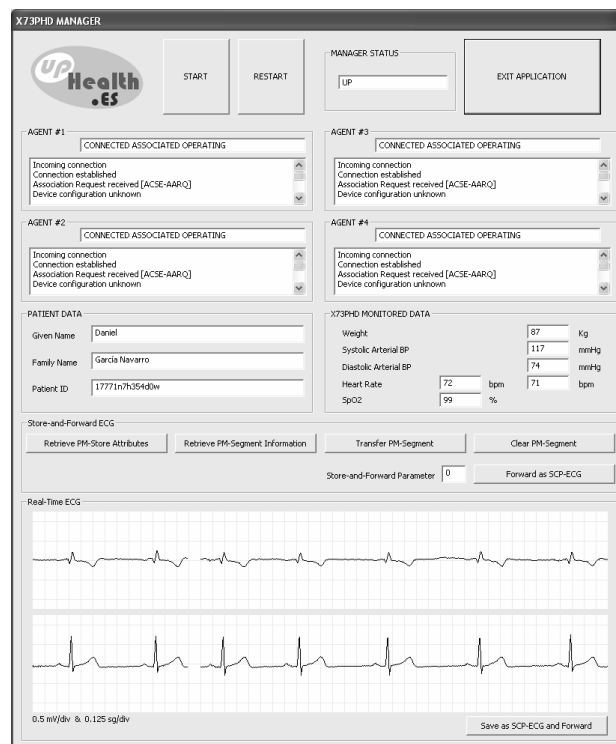
Contact person: José García Moros**:** jogarmo@unizar.es

Microhealth Hemophilia

Organisation name: MicroHealth

Country: Spain & United States   **Region:** National

Total Region population: 360M   **Good Practice Target population:** 23,000

Topics / chronic diseases addressed:
Haemophilia, bleeding disorders

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

MicroHealth, through a state of the art mobile and web platform, helps haemophilia patients and providers to: trigger positive behaviour change; track treatment progress; build collaborative relationships; share knowledge with the community; and, most importantly, make well informed clinical decisions.

The project is currently 100% focused on haemophilia care. In November 2012, during National Hemophilia Foundation's annual meeting, MicroHealth opened its platform to the general public in the bleeding disorders community. Since launch, our platform is quickly gaining traction and recognition in the haemophilia community.

Members can sign up into the project for free directly or by doctor recommendation.
Caregivers can also create family accounts to manage their children's health. Patients receive real-time personalized infusion reminders and educational content that adjust to their individual care plan (e.g. prophylaxis, on-demand, or immune tolerance induction).

Users, at their own discretion, can designate who will be part of their Care Team and grant them access (or not) to their private health information. Clinicians using the platform's control panel can see, at a glance, which patients are reporting bleeds or low adherence; prioritizing effectively their clinical time. Nurses and doctors can also make timely interventions (e.g. request an appointment or send motivational messages) to improve the patient's health outcomes.

Availability of patients' progress reports at the point of care fosters a productive patient provider discussion around critical issues, including:

• Symptoms and exacerbations management

• Patient adherence to drugs and lifestyle regimes
• Attitudes toward treatment barriers

Additionally, MicroHealth offers a private health network that empowers users to share relevant insights with the whole haemophilia community. This is a private initiative with mostly private capital, and it has also received some funds from the Spanish and Aragon Government and EU programs. MicroHealth is collaborating with several haemophilia chapters to promote and improve the tool.

Highlights: Innovation, Impact and Outcomes:

The main benefits for patients are better therapeutic outcomes (it is still common for haemophilia patients to develop disabling joint damage because of low treatment adherence) and an improved psychosocial experience around their disease state.

Additionally, for those patients transitioning to a new treatment regimen, MicroHealth is a useful companion to guide the change in behaviour / habits. Finally, through MicroHealth, haemophilia patients can track private and secure information about their treatment progress, and share this data with designated health professionals online.

Benefits for professionals include instant access to pharmaco-dynamic data (which makes possible the individualization of dosing and scheduling of clotting factor concentrates) and time-sensitive clinical alerts that allow professionals to prioritize valuable clinical time.

Transferability to other organisations /regions:

MicroHealth's platform is available world-wide. In Spain, specific initiatives are being implemented (training, awareness, dissemination) for the haemophilia community.

Further information:

Website: www.microhealth.org
Facebook: https://www.facebook.com/MicroHealth
Contact person: contact@microhealth.org

OPIMEC – Observatory of Innovative Practices for Complex Chronic Disease Management

Organisation name: Andalusian School of Public Health

Country: Spain   **Region**: Andalusia

Total Region population: 8,424,102   **Good Practice Target population**: Healthcare professionals

Topics / chronic diseases addressed:
Complex chronic diseases, polypathology, pluripathology, multiple chronic diseases, multimorbidity, online social network, innovative practices

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	x	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:
OPIMEC is the Spanish acronym of the Observatory of Innovative Practices for Complex Chronic Disease Management.

The Observatory is a project funded by the General Directorate for Health Planning and Innovation of the Andalusian Regional Government in Spain. It is coordinated by the Andalusian School of Public Health (EASP), in Granada, Spain. The project also receives generous support from a growing number of innovators who share a strong interest in collaborative efforts to improve the management of complex chronic diseases worldwide.

OPIMEC responds to the need to harness the power of information and communication technologies to support a global network of policy makers, researchers, health professionals, patients and caregivers interested in transforming the management of complex chronic diseases, thus facilitating continuous improvement of quality in health care, worldwide.

OPIMEC is aimed at managers, researchers, healthcare professionals in general and patients and caregivers interested in reducing the impact of complex chronic diseases.

Highlights: Innovation, Impact and Outcomes:
Easy-to-use innovative online social media resources support the platform that powers www.OPIMEC.org. This platform:
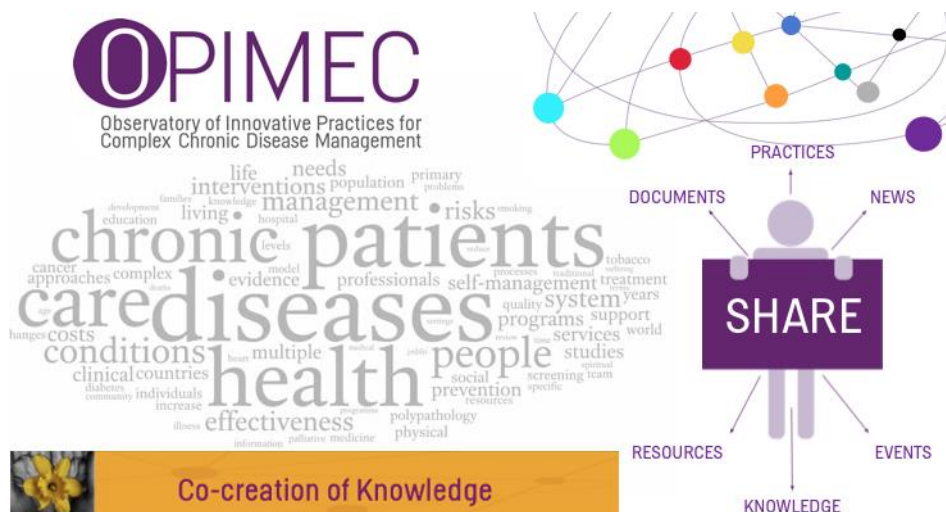- Includes information about more than **250 practices** and links to more than **1700 resources** of interest to clinicians, patients and caregivers.
- Links **1200 experts** from more than 30 countries (list).
- Leads to groundbreaking products such as the book "When people live with multiple chronic diseases: a collaborative approach to an emerging global challenge".
- Supports **meetings** (e.g., "Promoting High Quality Services for People living with Chronic Diseases").
- Publishes regular **newsletters**.

- Develops **online courses** (e.g., Improving Care for People with Chronic Diseases or Chronic Pain).

Transferability to other organisations /regions:
This initiative:
- Allows anyone to create and upload documents through www.opimec.org.
- Supports the co-creation of knowledge by online communities of practice.
- Convenes meetings.
- Contributes to capacity building efforts through online training.
- Promotes recognition of innovations through its Practice Map and social networks.
- Facilitates the participation of its individual members and communities in international projects.

Further information:
- *Innovative Practices Map http://www.opimec.org/practicas/mapa/ and directory http://www.opimec.org/practicas/*
- *Documents http://www.opimec.org/documentacion/directorio/ and multimedia material http://www.opimec.org/multimedia/*
- *Book "When people live with multiple chronic diseases: a collaborative approach to an emerging global challenge": http://www.opimec.org/equipos/when-people-live-with-multiple-chronic-diseases/*
- *Activity report: http://www.opimec.org/comunidades-de-practica/EASP/documentos/1787/*
- *Strategic Plan for Caring People with Chronic Diseases in Andalusia (PAAIPEC): http://www.opimec.org/comunidades-de-practica/plan-andaluz-de-atencion-a-personas-con-enfermedades-cronicas/*
- *Join OPIMEC: http://www.opimec.org/registro/*
- *Add a practice: http://www.opimec.org/practicas/agregar/*
- *Contact: info@opimec.org*

Contact person: Andrés Cabrera León http://www.opimec.org/personas/andrescabrera/

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:

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

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

- 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 centre 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:

http://www.palante-project.eu/

Project duration: From 01/02/2012 to 31/01/2015

Personalised Guidance Service For Patient Empowerment Chronic EMPOWER

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	X	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 analysed/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.

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)

PITES: Innovation platform in new telemedicine and e-health services for chronic and dependent patients

Organisation name: Bio-Med Aragon

Country: Spain   **Region:** Aragón

Total Region population: 1.349.467 **Good Practice Target population:** Chronic & dependent elders

Topics / chronic diseases addressed:
Chronic and dependent elders over 65 with at least one of the following conditions: heart failure, heart schematic disease, COPD, DM or receiving social care by Red Cross organization.

Relevance to B3 Action Plan:

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

Description:

PITES is a pilot project with the participation the centre in charge of the coordination of the Public Health Research in Spain (Health Institute Carlos III). PITES is aligned with the National R&D and Innovation Plan (2008-2011) to promote the Research in Public Health and health services to enhance the quality of life of the Spanish elder population.

PITES is a research infrastructure made of a technological platform and an interdisciplinary team of researchers oriented to research teams, entities and public or private organizations with the aim of offering support to the collections of evidences on the new care provisioning models based on ICTs in scenarios related to chronic illnesses and dependency. Specifically PITES platform gives support to the deployment and evaluation through experimental studies and e-services based on telemedicine that implement new care delivery models.

The project main goal is **to design an integrated health and social-care service for frail old chronic dependent people.** There is a technology platform that manages vital constants collected through monitoring devices and sends them to the health organization clinical information systems.

As specific objectives the project aims to:

- Design the monitoring service social and medical protocol for the dependent chronic elder.
- Pilot the new benefit, comparing it with the assistance nowadays.
- Evaluate the performance of the assistance from a clinical point of view, social economic and user's and professional's satisfaction.
- Improve the quality of life of chronic dependent elders

Methodology:

A randomized case trial study (RCT) has been performed with participants from the area of Barbastro (Aragon); the Servicio Aragones de Salud as healthcare provider and the Huesca Red Cross as partner providing social care services.

Potential participants were evaluated by a Evaluation Team and the group was randomized taking into account several inclusion and exclusion criteria as the age, medication, clinical stability or suffering from a chronic disease in study (isquemic heart disease or heart failure, COPD, CVA, diabetes mellitus) . Once the medical protocol has been established the monitoring phase and follow up run by social and healthcare agents.

Red Cross agents are in charge of collecting the vital constants through biomedical devices at the patient's homes. These are forwarded to the technological platform that integrates them into the personal patient's Electronic Health Record. A software application filters the information and generates alarms in case the measurement is over the normal thresholds. Alarms can be either very urgent (immediate need of attention) or medium risk. A contacting centre is in charge of handling the emergencies produced by triggering the care provider needed; primary care, specialized care, social care or emergency units.

32 participants at the Intervention Group and 32 at the Control Group participate at the trial. The average ages are 85,87 (IG) and 82,56 (CG). 20 red cross volunteers, several professionals (GP, nurses and Emergency Units Doctors) and also ICT professionals (24x7) have been involved in the project.

Highlights: Innovation, Impact and Outcomes:

A complete evaluation has been performed at the beginning, mid and end of the trial, measuring clinical, economic and quality of life indicators and user and professional satisfaction. First outcomes show relevant conclusions:

• User satisfaction with the service provided
• Transfer from emergency rooms visits to scheduled GP visits
• Transfer from specialized healthcare to primary healthcare attention
• Economical savings under ideal circumstances (no co-morbidity and all the attendance handled by the Contact Centre).

Transferability to other organisations / regions:

This model can be applied to organizations that wish to optimize their resources and want to transfer some activities
• from specialized and emergency units to primary care
• from the healthcare to the social care side

Further information:

Contact person: Dr. Juan Coll Clavero *(*jcoll@salud.aragon.es *)*

Population Intervention Plans: PIPs

Organisation name: Department of Health of the Basque Country

Country: SPAIN   **Region:** BASQUE COUNTRY

Total Region population: 2.500.000   Good Practice Target population: 50.000

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

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

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.**
Of the 860,000+ chronic patients in the Basque Country today, a **fully-identified selection of a little over 50,000 of them have been selected and classified as intervention groups** at each risk level in each of the microsystems, for each one of those local networks to be able to define their Population Intervention Plans (PIPs).
The PIP is associated with the Health Plan and **incorporated into the contract program on prioritization based on the needs of the health system**. 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 contract 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 Review 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
There is an interdependent relationship between innovation and the PIP and innovation and the Contract Program. First, the Program Contract 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:

Something that was taken into account when preparing the deployment and extension of different projects related to the strategy of chronicity was that the extension of a project is a way of improving health system although there are difficulties in carrying out this process. On the one hand, **it is necessary to establish a prioritization of projects to extend depending on the needs of the health system**. On the other, **there is not one single methodology for project extension**, but many depending on the characteristics of the projects.

Further information:

Website: http://cronicidad.blog.euskadi.net/
Contact person is Joana Mora Amengual email: jmora@kronikgune.or

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:

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

Description:
Risk Stratification is a tool for the predictive classification of the population based on a) identifying future healthcare needs and 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. It makes 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 for populations of patients selected using the risk stratification tool.
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 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/Outcomes
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

100% of the Basque Country population is stratified based on 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).

Further Inofrmation: http://cronicidad.blog.euskadi.net/
Contact person Joana Mora Amengual email: jmora@kronikgune.org

PROMIC

Organisation name: Department of Health of the Basque Country

Country: Spain   **Region:** Basque Country

Total Region population: 2500000 Good Practice Target population: 194 patients

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

Relevance to B3 Action Plan:

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

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. 194 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) and number needed to treat (NNT)

Funding of the program came from Osakidetza and Kronikgune (International Center of excellence in the study of Chronic Diseases). 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 194 patients indicate that the program is able to reduce the HF related HR (HR: 0.52). The relative risk reduction was significantly different also, meaning that the program was able to induce a 48% reduction in readmissions. NNT was of 4, thus, we needed to treat at least 4 patients to avoid one event (HF 3-10).

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 email: cristina.domingorico@osakidetza.net

Promoting Autonomy

Organisation name: Adiper Servicios Sociosanitarios

Country: Spain   **Region**: Extremadura

Total Region population: 1.108.130 inhabitants (Badajoz: 694.533, Cáceres: 413.597)

Good Practice Target population: 30 inhabitants

Topics / chronic diseases addressed: Care, health, Promoting Autonomy

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	x	Risk Stratification	8		Finance, Funding

Description:

Promotion services are rendered for the personal autonomy consisting on advice, guidance, assistance and training in assistive technologies and adaptations to help facilitate the implementation of activities of daily living, those in rehabilitation, occupational therapy, and any other intervention programs established for the same purpose.

Its main objective is to develop and maintain personal ability to control, face and make decisions about how to live according to the rules, preferences and facilitate the implementation of the basic activities of daily living.

Specific objectives are:

- Community life in a normal environment.

- Autonomous and independent life.

- Preferential use of the ordinary resources of the community to which the user belongs.

- Fostering integration and economic autonomy through a stable and quality employment.

- Promotion of leisure and free time, citizens standardized environments.

- Social, political and cultural participation

- Development of own decision making by the person with disabilities and respect for such decisions by the people around

Our network of professionals, equipped with a great experience and highly skilled in care for old people, disabled and / or in a position of dependence, will be at user side for support and supervision in daily living activities.

Highlights: Innovation, Impact and Outcomes:

The most innovative element of this set of care activities is that they are undertaken in the homes of the user and avoiding or delaying them to go to any nursing home. Through satisfaction questionnaires ADIPER has identified that the idea has been very beneficial to the users and their environment.

Transferability to other organisations /regions:

The services that integrate the promotion of personal autonomy can be transferred to any region or social organization in an easy, safe and fast way, by the implementation of the activities at the users' home. These activities try to provide solution to many care problems, such as:

- Prevent or reduce an activity limitation or alteration in physical function, intellectual, sensory or mental, and to maintain or improve skills already acquired, in order to achieve the highest possible degree of personal autonomy, adaptation to their environment, improving in the quality of life and integration into community life.

- Promote the person's functional health, prevent and treat deficiencies and / or disabilities in order to recover their motor skills or functional re-educate getting the maximum possible level of autonomy in physical activity, work and leisure.

- Stimulate and maintain existing cognitive abilities, with the intent of improving or maintaining cognitive functioning and reduce dependence on ill.

- Help the mentally ill regain or acquire the skills and abilities necessary for the development of a daily life in community in the most independent and dignified, and the performance and management of different social roles and demands involved in living, working and relate.

- Rehabilitation, problems, failures, delays or conditions that occur in communication, language, speech, voice and swallowing.

Further information:

www.adiper.es

SAIATU

Organisation name: Department of Health of the Basque Country

Country: Spain   **Region:** Basque Country

Total Region population: 2.193.093

Good Practice Target population: People with advanced and terminal illness and their families.

Topics / chronic diseases addressed: Palliative care, Terminal care, End of life, Social support, Social needs, Cost effectiveness, Efficiency, Social Innovation

Relevance to B3 Action Plan:

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

Description:

SAIATU care program is a social innovation project launched in February 2011, aiming to provide in-home intensive social support services to complement clinical palliative care, in order to improve comprehensive care for people with advanced and terminal illness and their families, allowing them to spend the last months of their lives at home. Saiatu project has been operating in the Basque region of Gipuzkoa (with a population of around 700.000 people) and has cared for 150 families.

Currently, the program provides in-home care in complex social situations, or in cases requiring attendance by clinical teams to provide appropriate symptom control. These are situations requiring the assistance of an intensive social support network to facilitate the interventions of palliative, care teams. This new care model for Palliative Care patients is currently thriving in other health systems internationally, including the Canadian and British health systems.

Objetives:

- To provide support, face-to-face and/or by telephone, for the care and emotional accompaniment of patients and families at any time of day or night, every day of the year.
- To collaborate with other palliative care resources in the Basque Country to ensure comprehensive care through specialized social support.
- To facilitate in-home care and meet the wishes of patients who prefer to die at home and their families, alleviating pain, and offering accompaniment and support in the care of physical symptoms, as well as emotional and social needs.
- To support family members throughout the course of the illness and after the death in the bereavement period.
- To generate a new niche of employment for informal care providers.
- To provide a new business model based on a pay by result approach.

Partners

O+berri, Basque Institute for Healthcare innovation (www.oberri.org), Urbegi Foundation, Denokinn, Basque Center for Innovation (www.denokinn.eu), Social Innovation Laboratory Koop (SILK)

Highlights: Innovation, Impact and Outcomes:

Innovation

Adding a new social service to the healthcare system; Making existing services more efficient; Demonstrating direct savings. A new business model; Employment generation value

Impact

- Saiatu primarily benefits cancer patients and families, who will receive an affordable and more comprehensive care service based on the needs expressed by their families as opposed to a standard solution.
- Saiatu also benefits the hospitals (Health Service) and social workers (Social services), by reducing the use and cost of emergency, hospitalization and related services.
- This project benefits health care assistants, informal carers and nurses to become more specialized and highly valued professionals in an area of growing need.
- The new business model will also make a significant contribution to demonstrate the potential of Social Innovation for applying new solutions to the health sector in general and ageing population in particular.

Outcome Measures

1.- The overall impact is being measured by the number of families using this new service and the reduction of hospital admissions in their areas of influence. These families will undergo qualitative user experience evaluation.

2.- The financial impact will be calculated by annual independent evaluations that will demonstrate the generated savings per family and intervention. Related savings connected with better managed grieving process will also be incorporated.

3.- The employment generation impact will be calculated by the number of unemployed individuals that have started working on this field after an intensive and specialized training. Statistics referring to long term unemployed women and migrant workers will be specially monitored.

Results

The pilot program is being evaluated since January 2012, to compare the intensity of health care provided to end-of-life patients in traditional services *vs.* specialized Palliative Care services. For the first time, adding to the second group the effect of a social service trained in Palliative Care. The pilot experience has been of enormous utility in properly channeling the program's contribution to the real needs of the patients and their families, clarifying what should be the vision and mission of the program, and determining that SAIATU should position itself as a specialized and Intensive Social Program being aware of the emotional needs, and working in close co-ordination with the current healthcare system (primary care, specialized care, and home hospitalization). The results of the pilot experience suggest that SAIATU:

- Reduces consumption of health care resources by program users.
- Facilitates staying at home for patients with preference for dying at home.
- Increases the number of home-based activities developed by Primary Care. So, SAIATU activated a community-based healthcare model reducing overall costs.
- Satisfactory outcomes for the families of patients questioned in the course of the study.

Transferability to other organisations /regions:

Saiatu could easily be implemented in most of EU member state countries. Pilot projects could be established in neighboring European countries by offering a package of education in end of life care and then sharing with them the lessons learned to date, so locally adapted "intensive end of life care" social enterprises could be launched.

Further Information

Link to publication**:** http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3576230/
Contact person**:** Gorka Espiau: gespiau@denokinn.eu
Naomi Hasson: naomihasson@gmail.com

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. 2,500,000   **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:

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

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/ and contact person is Joana Mora Amengual

TELBIL

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:

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

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 old patients.

Further information:
Link to publication: http://www.biomedcentral.com/1472-6963/11/56#IDAOGQR1
Contact person is Iñaki Martin-Lesende

Valcronic programme

Organisation name: Polibienestar Research Institute – University of Valencia, Valencian Ministry of Health, and Telefónica.

Country: Spain   **Region:** Valencia

Total Region population: 5,1 million   **Good Practice Target population:** 12,000 chronic patients (500 high risks, 1,500 medium risk and 10,000 low risks), of which 2,928 old patients (+65)

Topics / chronic diseases addressed:
ICT, teleservices, management of chronic patients, diabetes, COPC, hypertension, heart failure, risk stratification.

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	X	ICT / Teleservices
4	X	Risk Stratification	8		Finance, Funding

Description:
Valcronic is a programme implemented and funded by the Valencian Ministry of Health (*Valencian Health Agency– VHA*), which entails the participation of the VHA, primary care centres, a technological company (Telefónica) and Polibienestar Research Institute. The main objective of the programme is to improve the management of chronic patients from Valencian Region through the use of new technologies. The specific objectives are:

a) To improve the efficacy and efficiency of care provided.
b) To facilitate a longer stay of chronic patients at home, and avoid hospital admissions.
c) To improve the communication between professionals (clinicians, nurses, etc.) through integrated care practices.

The provision of care and technology was established in accordance with a stratification of the target population based on patients' risk of hospital readmission carried out through a validated tool (*The Community Assessment Risk Screening – CARS*). So, in this sense, patients were classified into three different groups (high, moderate and low) and they received the resources shown in the following table:

Risk Group	Equipment	Biomedical devices	Communication with healthcare providers
High	Tablet PC	Tensiometer, pulsimeter, glucometer, scale	Programmed visits and calls, personalized messages, alarms, etc.
Moderate	Smartphone / PC	Tensiometer, pulsimeter, glucometer, scale	Calls, SMS, etc.
Low	Access to website	--	Massive campaigns (website, SMS, etc.)

High and moderate risk patients send their clinical data through the indicated devices to the primary care centre, where general practitioners (GP) and nurses monitor their health status and symptomatology.

This service is free for the enrolled patients. So, at the moment, its sustainability depends on the *VHA* funding.

Highlights: Innovation, Impact and Outcomes:

This programme entails an innovative approach in the Valencian context to manage patients with chronic diseases empowering them in their daily self-monitoring and facilitating that GPs and nurses have available updated clinical data of patients. So, this initiative has several social and scientific impacts and benefits:

- Use of Tele-health as a preventive approach.
- Improvement of continuity of care.
- Standardization of screening methods to detect frail patients through informatics
- information systems.
- Extension of the benefits of the programme in the future.
- Technological inclusion of old people.
- Support for informal caregivers in the management of chronic diseases.

The implementation of the programme began firstly in just four primary care centres between March and May 2012. The project is on-going and it is making an analysis of its impact. For example a basal analysis of health-related quality of life (HrQoL) was carried out through the questionnaire EQ-5D. Other criteria to determine the success or not of the initiative is if patients have experienced a decrease in the frequentation at primary care centres or hospitals during their involvement in the programme.

Transferability to other organisations /regions:

This initiative could be transferred to other European regions, because the burden in the different National Health Systems (NHS), especially at primary care level, related to the management of chronic diseases is a common fact in most of the western countries.

Further information:

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GARD TURKEY

Organisation name: Chronic Respiratory Disease (Asthma And Copd) Prevention And Control Program And National Action Plan

Country: Turkey　　　　　　　　　**Region:** national

Total Region population: 73.64 m　　　**Good Practice Target population:** 73.64 m

Topics / chronic diseases addressed: respiratory diseases

Relevance to B3 Action Plan:

1		Organisational models	5	X	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:

GARD Turkey is the first project involving the Ministry of Health (MoH) and an NGO, the Turkish Thoracic Society (TTS) in a joint management of a major national program together with 58 parties. The integrated approach of GARD was applied to GARD Turkey Project. The Turkish MoH has decided to implement this national control program in conformity with the other NCD action plans of which some of them have been finalized such as cardiovascular diseases, obesity and tobacco control programs.

GARD Turkey City councils have been established in 81 cities by laws. Councils are composed of the local representatives of the GARD Turkey parties in each city and chaired by the director of MoH or vice-director in the city and responsible for the management and coordination of the activities of each group in the city.

Methodology:

Five working groups (**W1-5**) have met twice and selected the short, medium and long term activities in their action plans. Some examples of the activities since 2009 are listed below:

W1.　Monitoring the chronic diseases and the control program evaluation

A workshop was held for renovating the recording system, collecting the current data and planning a new data collection system throughout the country. A surveilance study has been conducted by MoH regarding all NCDs and their common risk factors. Data will be available by the end of 2013.

W2.　Awareness and Advocacy

This group has conducted two studies regarding the awareness of Asthma and COPD among public and health care professionals and they are about to publish it. They have prepared

standard educational material for patients and public as well as the materials for awareness and advocacy of GARD Turkey Project. These standard materials are now being used throughout the whole country.

W3.   Prevention of the development of disease

An expert panel has prepared and published a report "Evaluation of indoor and outdoor pollution and climate change in respect of the control of chronic respiratory diseases"

W4.   Early detection of diseases and prevention of   progress

This group has been considered as an advisory board for drug and social security system. Members have prepared the curriculum and educational materials of educators for primary care settings about asthma, COPD, Home care, pulmonary rehabilitation and tobacco control. 7500 out of 20000 Primary care physicians have been educated using the same structured materials

W5.   Effective treatment of the diseases and prevention of complication development

A workshop was held for homecare integrated with home care and rehabilitation programs of other NCDs and a report was published. The group made important changes in the reimbursement rules of the items of pulmonary rehabilitation and home care.

2 reports regarding GARD Turkey have been published [1,2]

A Paediatric Coordination group has been established to develop action plans for each WGs.

The National control plan has been updated and paediatric data have been added and will be published in 2 months.

Further information:

Arzu Yorgancıoğlu, GARD Turkey Coordinator

Detailed information can be obtained from GARD website: **http://gard.thsk.gov.tr/**

[1] Yorgancıoğlu et al. The WHO global alliance against chronic respiratory diseases in Turkey (GARD Turkey). Tuberk Toraks. 2009;57(4):439-52. Review

[2] Yorgancıoğlu A et al Integration of GARD Turkey national program with other non-communicable

diseases plans in Turkey. Tuberk Toraks. 2010; 58(2): 213-228)

Achieving benefits for patients by levering the use of risk prediction to support anticipatory care planning at scale through the General Practice (GMS) contract in Scotland

Organisation name: NHS Scotland

Country: UK   **Region:** Scotland

Total Region population: 5.3M   **Good Practice Target population**: 2M - People with Long Term Conditions

Topics / chronic diseases addressed:
Contractual arrangements, risk prediction, Anticipatory Care Planning, Polypharmacy, reducing risk of harm/waste from medicines, General Practice, Pharmacists primary/secondary interface, communication – with patients/carers, across professionals, Long Term Conditions, Multi-morbidity

Relevance to B3 Action Plan:

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

Description:
General Practitioners in Scotland operate as independent contractors of services provided for their population and are contracted by the local Health Board through a nationally negotiated (UK level) General Medical Services (GMS) contract, with minor differences in each of the 4 countries of the UK. For 2013-14 discussions on the GMS contract for the UK as a whole stalled but agreement was reached in Scotland, resulting in more significant differences than in previous years, one of which included the mainstreaming of risk profiling and Anticipatory Care Planning/Poly-pharmacy reviews.

The concept of applying risk prediction to target people for Case Management and Anticipatory Care has grown from an innovation in a single GP practice in the NHS Highland area of Scotland. It was extended to all practices in Highland using a mechanism in the GP contract – a Locally Enhanced Service, and on the basis of local evaluation which showed significant benefits, it was extended to all other Health Boards through the Long Term Conditions improvement programme between 2008 –2011.

Anticipatory Care Planning combined with a review of medicines for people prescribed multiple drugs can help reduce the risk of medication harm; thus a polypharmacy review is an integral part of Anticipatory Care Planning.

Acknowledging the potential benefits for patients, their carers, and local health and care service providers, Anticipatory Care Planning and Polypharmacy Review was agreed as part of the Quality and Productivity domain of the GMS contract in Scotland for 2013-15 (i.e. for two years). This domain assigns GPs the resources required to enable them to identify, review and then co-produce an anticipatory care plan with patients and their carers at significant risk of future emergency admission to hospital.

Highlights: Innovation, Impact and Outcomes:
This nationally commissioned approach will extend the reach of this innovation to all General Practices – nearly 5,000 GPs employing over 2,000 practice nurses.

GPs are provided with patient risk profiling information from the national risk prediction tool SPARRA (Scottish Patients at Risk of Readmission and Admission), or a locally developed alternative, and guidance on how to use this online tool to help identify those patients who might benefit most from an anticipatory care plan and poly-pharmacy review, in line with the GMS contract in Scotland.

Anticipatory Care Planning can also be prioritised at a local (Board) level to target other key groups of patients e.g. by community nursing teams for housebound older people and for residents in care homes.

The Quality and Productivity Indicators include the need to report on anticipatory care planning activities and on learning by the practice and for the wider system, via internal and external peer review processes. The practice prepares an end of year report to the NHS Board on internal and wider system changes that may benefit patients with Anticipatory Care Plans (ACPs), to inform future activity in this clinical area.

A range of improvement support is available to help GPs deliver Anticipatory Care Planning and Polypharmacy as part of their contract. These include a DVD of patient and practitioner stories to illustrate the impact that these approaches can have on the lives of people with long term conditions. This will be made available to GP practices and community teams. The NHS Scotland Quality Improvement Hub website will hold information about ACP and Polypharmacy reviews including a practical 'route map' guide, a set of PowerPoint slides and some digital stories.

As well as ensuring sustainability through embedding Anticipatory Care Planning and Polypharmacy in the GP contract in Scotland, work is on-going to integrate risk prediction tools such as SPARRA with existing information systems used by health and social care providers to facilitate whole system implementation.

Transferability to other organisations /regions:
Using contractual arrangements to lever change at scale can be used across a range of areas and provides a means of embedding, learning from, evaluating and sustaining change. It is important that the change required aligns with regional/organisational objectives, that it is evidenced and continually reviewed to ensure continued alignment. Scotland will continue to evaluate the impact of ACP and polypharmacy reviews as this approach is developed and spread.

Further information:

A full range of supporting documentation and materials can be found at
http://www.qihub.scot.nhs.uk/quality-and-efficiency/outpatient-primary-and-community-care/primary-and-community-care.aspx

Contact person:
Dr John Nugent, Senior Medical Officer, john.nugent@scotland.gsi.gov.uk
Anne Hendry, National Clinical Lead for Integrated Care, anne.hendry@scotland.gsi.gov.uk
Susan Bishop, Quality and Efficiency Support Team, Susan.Bishop2@scotland.gsi.gov.uk

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:

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

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

- 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, lead 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

Change Fund

Organisation name: Joint Improvement Team, Scottish Government

Country: UK   **Region**: Scotland

Total Region population: 5.3 m   **Good Practice Target population**: Older People

Topics / chronic diseases addressed:
Funding Change, Older People, Health and Social Care services, strategic joint commissioning

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	X	Finance, Funding

Description:
In 2011, Scottish Ministers introduced a £300m Change Fund for older people's services to support the implementation of the Reshaping Care for Older People Programme.

The Fund is allocated across all 32 health and social care partnerships in Scotland over the 4 financial years running from 2011-12 (£70m/£80m/£80m/£70m), to support better service planning across health and social care and to act as a catalyst for more radical, innovative redesign of older people's services. This £300 million continues to drive the development of services that optimise the independence and wellbeing of older people at home or in a homely setting, and to rebalance care and support towards anticipatory and preventative services that support older people to be supported at home.

To access the Change Fund each of the 32 local Partnerships is invited to submit a Change Plan which must be prepared, agreed and signed off by the Health Board, the Local Authorities, Third and Independent Sector Partners. Central to developing the Plan is the full engagement of the teams who deliver services directly to older people from across health and social care and including carers.

Partnerships share information about work that has been successful and about projects that have not progressed to plan. They are also required to record how funding has been spent to understand and measure the proportion of funding allocated to anticipatory and preventative services.

Highlights: Innovation, Impact and Outcomes:
The Change Fund approach has worked on a number of levels:
- as an enabler for the strategic vision on Reshaping Care;
- as a lever for closer joint working, via joint ownership of the Fund through shared signatures on change plans;
- as an accelerant in changing attitudes, cultures and behaviours;

- as a means of jointly testing and spreading innovative approaches to inform partnerships' longer term investment and disinvestment decisions;

- as an important element in helping partnerships develop and implement Strategic Joint Commissioning – with the expectation being, post 2014-15, that this will supplant the CF as a permanent way of planning and providing services locally;

- as a key catalyst for the changes envisaged in the integration Bill (Public Bodies (Joint Working) Scotland) currently before Parliament particularly in relation to integrated budgets and the requirement to share partnership resources.

Progress with local initiatives being taken forward through Change Plans is reported regularly by partnerships. The JIT Change Fund Mid-Year Report 2012/13 highlights key themes across partnerships, such as improvements in partnerships' joint working and enhanced service user/carer engagement, examples of community based support, developing anticipatory care and preventative interventions, and enhancing intermediate care and reablement/enablement. http://www.jitscotland.org.uk/action-areas/reshaping-care-for-older-people/change-fund-plans/

An example of using the Change Fund within a local partnership Change Plan is the Borders Care and Repair One Stop Shop which used the Change Fund to buy equipment to support the introduction of the Home Falls Initiative. This Initiative has reduced the number of falls in the home from 33%(National statistics) to 9% in the 65-80 year old age group and from 50% to 9% for the over 80 year old age group in the pilot cohort. The hand held equipment and data software used to collect and manage information from the screening tool was funded by the Change Fund. http://www.jitscotland.org.uk/action-areas/reshaping-care-for-older-people/reshaping-care-improvement-network/no-place-like-home-resources/

Full information including Partnerships' Change Plans and Change Fund guidance can be accessed at: http://www.jitscotland.org.uk/action-areas/reshaping-care-for-older-people/change-fund-plans/

Transferability to other organisations /regions:
Within the current Spending Review period, the Fund is also a key element in the Scottish Government's overall approach to preventative spend and its use is subject to regular review. We are working closely with Audit Scotland and other stakeholders to determine where the Fund has made most impact and will take on board lessons learned.

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

Coproduction and Community Capacity Building

Organisation name: Joint Improvement Team, Scottish Government

Country: UK   **Region**: Scotland

Total Region population: 5.3M   **Good Practice Target population**: Older People

Topics / chronic diseases addressed:
Community Capacity Building, Coproduction, Asset Based Approach

Relevance to B3 Action Plan:

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

Description:
The Scottish Government has recognised the challenges of a significant increase in service demand during a time of demographic change and a period of sustained decline in financial resources and has developed a ten year change programme 'Reshaping Care for Older People: A Programme for Change 2011 – 2021'(RCOP), which, amongst other things promotes the development of co-production and community capacity building as key elements of public service transformation.   The £70 million Change Fund is an initiative under the RCOP banner which provides funding to local partnerships on the basis of a Change Plan agreed by each partner - the NHS Board, Local Authority, the Third Sector and the Independent (private) Sector.

The Joint Improvement Team (JIT), which is co-sponsored by the Scottish Government, the Confederation of Scottish Local Authorities and NHS Scotland and also has the direct involvement of the third and independent sectors, provides support to the 32 local partnerships across Scotland to integrate coproduction as an approach within health and social care. The JIT Strategy 2013-2016 includes, as one of several objectives, 'Embed coproduction as mainstream practice in the design, commissioning, delivery and review of services'. This part of JIT's activities focuses on:
• Hands on support to partnerships to deliver these approaches through their Change Plans
• Awareness raising activities, eg the first Co-Production and Community Capacity-Building Conference in Dunfermline in January 2012, attended by more than 300 participants.
• Providing evidence that co-production works including the "Co-production in Health and Social Care: What it is and how to do it', and good practice case studies.
• Building management and front-line staff capacity across partnerships by rolling out training based on the Governance International Co-Production Star.
• Promoting models of working that use these approaches.
• Identifying and publicising sources of funding that might be used to support the use of such approaches.
• Networking and exchanging experiences through the Scottish Co-Production Network.
Coproduction and community capacity building take an 'asset based approach' which recognises that people have assets, such as knowledge, skills, experience, characteristics,

family and communities, which can be brought to bear to support their health and wellbeing. Communities have collective assets at their disposal which protect against negative health outcomes and promote health status. The asset based approach works with individuals to make visible their skills and give them confidence that they are valued; it allows people to become connected with each other and encourages a spirit of co-operation and caring for one another.

Highlights: Innovation, Impact and Outcomes:
The JIT coproduction and community capacity building workstream aims to create the conditions in which others can deliver directly. Its impact has to be judged primarily at this level, however there has to be a clear record of JIT activity and contribution to its strategy and external indicators.

Across Scotland examples of coproduction and community capacity building approaches to new service models have emerged, many of which have been funded by local Change Funds. There is also evidence as to the positive outcomes for health and care for older people of these approaches and a growing body of evidence that they result in direct saving to other health and care systems, e.g. reduced admission to A&E. Work continues to demonstrate the efficacy of using these approaches and, in this context, JIT is currently testing the applicability of 'Contribution Analysis with some partnerships. This methodology builds a credible 'performance story' demonstrating the influence certain activities have had in driving change, possibly along with other factors. It is hoped that the results from the test sites will be reported in late 2013.

The need for a logical process or 'toolkit', which could support partnerships develop coproduction within and between their organisations and their communities was identified. During 2012, JIT, working with Governance International, delivered a programme of training opportunities to help partnerships develop practical approaches to coproduction. These were positively received and work to provide tailored, partnership specific support has started.

The Scottish Co-production Network was established in 2010, as an informal network to bring together practitioners with an interest in a coproduction approach and to facilitate networking. Support from JIT in 2012-13 enabled it to be formally developed and it has since expanded to membership of almost 250 people with a reach that stems across policy areas, sectors and operational and strategic levels of both local and national bodies.

Transferability to other organisations /regions:
Coproduction and community capacity building uses an asset based approach which can be adopted in a range of settings. It is a concept and thus is not confined or limited by organisational or geographical constructs or policy areas. The concept of coproduction can be traced through other Scottish Government planned and extant legislation such as the Self Directed Support (Scotland) Bill (Feb 2012) and The Integration of Health and Social Care Bill (Sept 2012).
Supporting documentation and materials which may be of interest to B3 members can be found via the Reshaping Care website. This includes the new JIT publication Co-production of Health and Wellbeing in Scotland which is available for free download. Reshaping Care CoProduction and Community Capacity Building workstream: http://www.jitscotland.org.uk/action-areas/reshaping-care-for-older-people/community-capacity-building/
Further information: http://www.jitscotland.org.uk/
Contact person: Gerry Power, National Co-lead, Community Capacity Building and Coproduction, gerry.power@scotland.gsi.gov.uk

Everyone Matters: 2020 Workforce Vision for healthcare in Scotland

Organisation name: Scottish Government – Health and Social Care Directorates

Country: UK **Region**: Scotland

Total Region population: 5.3m **Good Practice Target population**:
NHSScotland staff – over 150,000

Topics
Valuing and treating people well in the workforce

Relevance to B3 Action Plan:

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

Description:

Our Vision for Health and Social Care is that by 2020 everyone is able to live longer, healthier lives at home or in a homely setting.

Achieving our 2020 Vision for healthcare in Scotland will mean changing how we deliver services in the future – with staff doing different things, in different ways, and developing new skills. It will mean the relentless pursuit of our Quality Ambitions for safe, effective and person centred care, with quality improvement and people at the heart of everything we do. The 2020 Workforce Vision concerns all NHScotland staff and has implications for how staff across health and social care work together.

10,000 voices have been involved in informing Everyone Matters:2020 Workforce Vision launched by the Cabinet Secretary for Health and Wellbeing in June 2013. This is one of the largest qualitative exercises undertaken in NHSScotland listening to the views of our staff and our colleagues working in healthcare.

An engagement exercise with staff was carried out through participation in local facilitated discussions in NHS Boards, a website online discussion forum and 4 small focus groups. A consultation exercise followed with a good spread of response across individuals, NHSBoards, trades unions, professional organisations, local authorities, education bodies and Scottish Government.

We are committed to continuing engagement with our staff and key stakeholders as we develop the 2020 Workforce Vision Implementation Framework and annual Plan due to be published in November 2013.

Highlights: Innovation, Impact and Outcomes:

- Agreed workforce vision for 2020
- Core values across the organisation
- Increasing collaboration and integration
- Implementation Framework
- Annual Implementation Plans

Leading to:
An integrated and capable workforce effectively managed and led operating in a healthy organisational culture.

Transferability to other organisations /regions:

- Collaborative work which is transferable across boundaries and organisations.
- People who are valued and treated well improve patient care and overall experience.

Further information:
http://www.workforcevision.scot.nhs.uk

Contact person: Marilyn Barrett, Marilyn.Barrett@scotland.gsi.gov.uk

Integrated Care Pathways for Mental Health

Organisation name: Healthcare Improvement Scotland

Country: UK   **Region:** Scotland

Total Region population: 5.3m   **Good Practice Target population**: All ages

Topics / chronic diseases addressed:
Mental Health, Dementia, Learning Disabilities, Adults, Later Life

Relevance to B3 Action Plan:

1		Organisational models	5	X	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:

Integrated care pathways (ICPs) provide a person-centred, evidence-based framework for delivery of high quality mental health care.

An ICP tells multidisciplinary and multi-agency care providers, people using services, and their carers what should be expected at any point along the journey of care. They allow services to compare planned care with what was actually delivered. This information can be used to develop services and improve the patient journey.

Local services are supported to develop ICPs by Healthcare Improvement Scotland which has a Mental Health ICP programme of work and there is a website with a range of resources. On the site there are the national ICP standards and their evidence base along with contacts, practical help and resources. The site also contains the national policy context, the rationale behind the development of the national standards and information on other linked work.   http://www.icptoolkit.org/home.aspx.   The resources include a toolkit which was developed primarily for service providers working within, or in partnership with mental health services, across all age ranges, in Scotland.

Highlights: Innovation, Impact and Outcomes:

Examples of use of the tool kit by local teams are numerous and are hosted on the PIRAMHIDs website - Positive and Innovative Resources: A Mental Health Interactive Database (Scotland) http://piramhids.com/home.aspx :
➢ The Dementia Integrated Care Pathway in Ayrshire and Arran provides a multi-disciplinary approach which includes the person and their carers. http://www.nhsaaa.net/services-index/m-mental-health-services.aspx

➢ In Dumfries and Galloway an 'Interests and Activities Toolkit' to improve the quality of life for people with Dementia has been developed. It is in use in hospital inpatient wards for Adults and Older Adults, in Intermediate Care Units and has been provided to local Care Homes. The Toolkit includes Reasons for using Activities, Guidelines for Selecting Activities, Interest Checklists, an Activity Timetable, an Activity Chart and an Adapted Activity Sheet. Parts of the Toolkit are designed to travel with the person and can be implemented across settings to assist with the quality of care. Requests for the Toolkit have been received from other parts of Scotland.
http://piramhids.com/case_study_data/interests_and_activities_toolk1.aspx

➢ In Forth Valley a Learning Disability Memory Multi-Disciplinary Team Clinic has been established to allow easy access to the assessment, diagnosis and treatment of dementia in adults with Learning Disabilities. The MDT includes a Consultant Psychiatrist, a principal Psychologist, a General Practitioner with a Special Interest in Learning Disabilities, Community Learning Disability Nurses from each of the 4 local areas, a Speech and Language Therapist and an Occupational Therapist. People with Learning Disabilities suspected of dementia are referred to the clinic and are progressed through the integrated pathway of Health Screen and Functional Assessment by members of the MDT. Following assessment and diagnosis the MDT monitors and manages the person's treatment and functions.
http://piramhids.com/case_study_data/forth_valley_memory_multi_disc1.aspx

Transferability to other organisations /regions:

The development of ICPs in Mental Health has shown that they can be used in different settings and with all types of care. Pathways will require to be developed locally based on the existing service state, however using national standards as the benchmark will support consistency in quality of care.

Further information:

European Care Pathways Conference, Glasgow, June 2013 including poster presentations and speaker presentations: www.scottishpathways.com

Integrated Care Pathways website: http://www.icptoolkit.org/home.aspx

PIRAMHIDs website - Positive and Innovative Resources: A Mental Health Interactive Database (Scotland): http://piramhids.com/home.aspx :

Further information on care pathways and access to support can be located at www.scottishpathways.com or by contacting:
David Thomson, National ICP Coordinator & Inspector of Prisons,
dthomson2@nhs.net

Integrated Resource Framework for Health and Social Care in Scotland

Organisation name: Scottish Government

Country: UK   **Region:** Scotland

Total Region population: 5.3m   **Good Practice Target population**: 5.3m

Topics / chronic diseases addressed:
Health and social Care activity and resource use for the population
Care pathway analysis for specific cohorts of the population, for example, dementia, alcohol and drug, multiple emergency admissions etc

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	X	Finance, Funding

Description:

- The integrated resource framework (IRF) was developed to support the National Health Service, (NHS), Local Authorities (LAs) and other partners who deliver care to understand expenditure on health and social care across the population. It is also intended to provide an evidence base for shifts within and between Health and Social Care. IRF supports the Scottish Government's policy for adult health and social care integration, and shifting the balance of care from acute to community based settings.

- The project has two main aspects, IRF mapping which analyses for every community health partnership (CHP), in Scotland of which there are 32, health and social care resource use by all ages, 65 plus and 75 plus. This shows the resource use by hospital based setting, health community (district nursing etc), general practice (GP) and GP prescribing, and social work (care home, home care etc)

- The IRF mapping allows CHPs to see the amount of resource that is spent on the population (i.e. 65 plus) and the balance of that care between hospital and community settings. The data can also be analysed at various geographic levels, including GP practice, intermediate data zone and data zone (the latter over 6,500)

- The second aspect of the work is examining specific cohorts of the population health and social activity and resource use by care pathway. Specific patient (client) data is examined to observe what type of services are utilised. This is compared to a control group. The benefit of this type of analysis is that the cohort can be followed through time to see if there is any impact as a result of service redesign, for example a reduction in emergency admissions. Examples of this type of analysis, include dementia patients, patients who experience multiple emergency admissions or delayed discharges, patients with a drug and alcohol illness.

- The Scottish Government has funded analysts in NHS ISD (data collection for NHS Scotland) to provide IRF mapping for each CHP in Scotland.
- NHS ISD is also funded to provide health and social care activity and cost data at patient (client) for every CHP throughout Scotland.
- It is hoped that data linking of health and social care at patient (client) level will become a routine data collection over time. It will be crucial to support the policy of health and social care integration in Scotland.

Highlights: Innovation, Impact and Outcomes:

- The ability of partnerships to see the balance of care between hospital and community based settings. Throughout time shift that balance of care towards community based settings'.
- To evaluate if specific care pathway redesign, care initiatives such as reducing delayed discharges are working.
- Ultimately, robust data evidence to allow improved decisions about health and social care investment to be made and hence improved outcomes for those who use health and social care in Scotland.

Transferability to other organisations /regions:

- The type of analysis is easily transferable to other regions and countries. The ability to examine patient (or client) specific data is very attractive for both those providing health and social care and academic researchers.

Further information:

Please contact for more information Christine McGregor, Economist at the Scottish Government, (details below) who would be happy to share more information about the project.

Christine McGregor,
DG Health and Social Care -The Quality Unit - Analytical Services Division, Scottish Government, St Andrews House, Regent Road, Edinburgh, EH1 3DG

0131-244-3394, christine.mcgregor@scotland.gsi.gov.uk

Integrated Services for Chronic Pain Patients

Organisation name: NHS Lanarkshire

Country: UK   **Region:** Scotland - Lanarkshire

Total Region population: Scotland – 5.3m, Lanarkshire - 570,000
Good Practice Target population: 103,000

Topics / chronic diseases addressed: Chronic Pain (integrated, local, community, tailored, coordinated, together)

Relevance to B3 Action Plan:

1		Organisational models	5	X	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:
Traditionally patients with chronic pain have described their experience of accessing services like being lost in a maze, passed from specialty to specialty, and having numerous investigations and tests over many years. Meanwhile the impact of living with pain on family and work life can be devastating and has serious social and economic consequences. Different individuals require different levels of care at various stages throughout the care continuum. 4 levels of care are described:

Level 1: Systematic routine assessment, preventative maintenance and health promotion
Level 2: Self-care with low intensity support
Level 3: Condition management with specialist advice
Level 4: Specialist care

Taking a whole systems approach facilitates movement through the different levels of care based on the individual healthcare needs of the patient and lends itself well to the management of chronic pain as illustrated in figure 1 (overleaf).

The Scottish Chronic Pain Service model takes this whole systems approach. It works across the spectrum of health and care services in partnership with Third and voluntary sector agencies.
http://www.knowledge.scot.nhs.uk/pain/scottish-service-model.aspx

The objectives of an integrated approach are as follows:
• To improve the quality of care by offering chronic pain management specialist skills and service at a Community Health Partnership level.
• To improve access to appropriate care, by offering rapid assessment and advisory service to local GPs.
• To build extra capacity within primary care for chronic pain services, reducing demand on secondary care pain clinics and regional services.
• Reducing waiting times to chronic pain services in primary and secondary care within NHS Lanarkshire.

- To promote a single integrated chronic pain service within NHS Lanarkshire while continuing to maintain close relationships with regional services.
- To streamline the patient journey through services whilst ensuring quality, person centeredness and appropriateness of care.
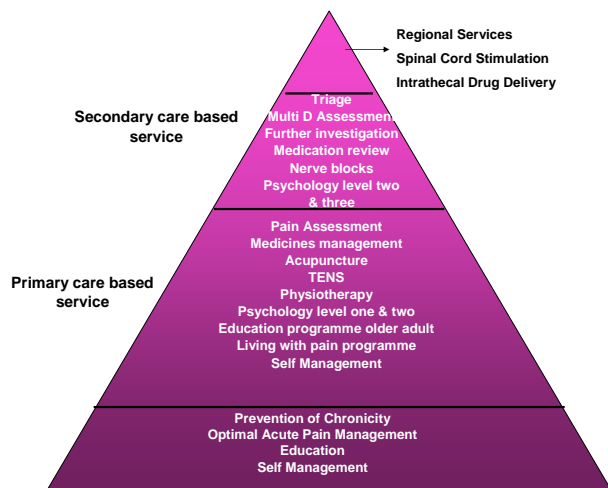

Figure 1 Stratification Approach

Highlights: Innovation, Impact and Outcomes:

To improve the experience of patients NHS Lanarkshire has been working towards introducing an integrated approach working with General Practitioners, Community Physiotherapy, voluntary organisations etc, to ensure patients access the right individual as early as possible within their chronic pain journey. Scottish Government has funded a service improvement group which is working through a detailed work plan to achieve this integrated service. The Group includes Chronic Pain staff, service users, General Practitioners and Voluntary Agencies.

Many changes have already taken place. These include moving the service from an acute hospital setting to a primary care setting within a local high street. Patients can access chronic pain education groups directly either by self-referral or through their community physiotherapist or GP. They are provided with comprehensive self-management materials to support the management of their pain. Voluntary agencies regularly deliver self-management programmes. Patients with more complex needs have detailed assessment and management plans and a psychology led Pain Management Programme can be accessed locally.

A number of key performance indicators are monitored and reported and from a qualitative perspective the patient experience is captured as well as measures on quality of life, mood and self-efficacy. The patient experience is key to the core values of the service.

Transferability to other organisations /regions:

The approach is in line with contemporary thinking in the management of all long term conditions where the patient and their family are at the centre of care and involved in every process. This approach is transferrable to other healthcare organisations.

Further information:

Scottish Chronic Pain Community Website - 'Scotland's One-Stop Site for Pain Management:
http://www.knowledge.scot.nhs.uk/pain.aspx
Healthcare Improvement Scotland Chronic Pain Programme:
http://www.healthcareimprovementscotland.org/programmes/governance_and_assurance/chronic_pain.aspx

Integration of health and social care in Scotland

Organisation name: Scottish Government – Health and Social Care Directorates

Country: UK   **Region**: Scotland

Total Region population: 5.3m   **Good Practice Target population**: Adults

Topics / chronic diseases addressed:
Integration of health and social care, people with multiple complex needs

Relevance to B3 Action Plan:

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

Description:

The Scottish Government introduced the Public Bodies (Joint Working) Scotland Bill to the Scottish Parliament in May 2013. The Bill provides the legal framework to support improvements in the quality and consistency of health and social care services by integrating health and social care in Scotland.

The Scottish Government's ambitions for integrating health and social care are:

• to improve the quality and consistency of services for patients, carers, service users and their families;
• to provide seamless, joined up quality health and social care services in order to care for people in their homes or a homely setting where it is safe to do so; and
• to ensure resources are used effectively and efficiently to deliver services that meet the increasing number of people with longer term and often complex needs, many of whom are older.

There is widespread recognition across Scotland that reform needs to go further. Separate – and sometimes disjointed – systems of health and social care can no longer adequately meet the needs and expectations of increasing numbers of people who are living into older age, often with multiple, complex, long-term conditions, and who need joined-up, integrated services. The goal for integration of health and social care in Scotland, and therefore for this legislation, is to tackle these challenges, so that the balance of care shifts from institutional care to services provided in the community, and resources follow people's needs.

Highlights: Innovation, Impact and Outcomes:

The objectives are of the legislation are:

1. that Health and social care services are firmly integrated around the needs of individuals, their carers and other family members;
2. that they are characterised by strong and consistent clinical and care professional leadership;
3. that the providers of services are held to account jointly and effectively for improved delivery; and
4. that services are underpinned by flexible, sustainable financial mechanisms that give priority to the needs of the people they serve – rather than the organisations through which they are delivered.

Key features of the reform:

Nationally agreed outcomes will apply across health and social care.
Health Boards (which provide primary and secondary health care) and Local Authorities (which provide social care) will be required to establish integrated partnership arrangements.

Health and social care functions and budgets will be delegated by the Health Board and Local Authority to the new integrated partnership. Legislation will establish the "minimum scope" of functions and budgets that must be integrated – this will cover adult primary and community health care, social care, and aspects of acute hospital care that offer the best opportunities for service redesign in favour of prevention.

Locality planning arrangements will assure strong clinical and professional leadership, and engagement of the third and independent sectors, in strategic service planning.

Transferability to other organisations /regions:

The Scottish Government's approach to this legislation is to focus on ensuring cross-sectorial strategic planning to meet the needs of population/care groups. Rather than focussing on re-organising existing structures, the emphasis is on ensuring that strategic planning to support people, particularly those with multiple complex needs, operates with maximum effectiveness across traditional boundaries, and places the patient/service user at the centre of care planning and provision.

Further information:

http://www.scottish.parliament.uk/parliamentarybusiness/Bills/63845.aspx
http://www.scotland.gov.uk/Publications/2012/05/6469
(http://www.scotland.gov.uk/Resource/0041/00411060.pdf
http://www.scotland.gov.uk/Publications/2013/02/4208
(http://www.scottish.parliament.uk/parliamentarybusiness/Bills/63845.aspx).

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Integrated falls prevention and management and fracture prevention pathway for older people

Organisation name: Scottish Government

Country: UK   **Region**: Scotland

Total Region population: 5.3m   **Good Practice Target population**: People aged 65 and above, approximately 900,000 in Scotland

Topics / chronic diseases addressed:
Falls and fragility fracture prevention, falls management pathways for older people, evidence based strategies to prevent falls and fragility fractures, active ageing, health improvement, self-management, multifactorial assessment, care bundles for falls prevention, Community of Practice.

Relevance to B3 Action Plan:

1		Organisational models	5	X	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 National Falls Programme aims to reduce the personal and economic cost of falls in Scotland by supporting health and social care partnerships to implement local integrated, evidence-based falls and fragility fracture prevention and management pathways for older people. Its goal is for every Health and Social Care Partnership in Scotland (32 partnerships) to have a local integrated falls prevention and management and fracture prevention pathway for older people in operation by the end of 2014. This national, multi-agency programme, aims to raise the profile of falls and fracture prevention and to support the development of related services in Scotland. The programme focuses on older people living in the community.

Local partnerships were required to appoint a falls lead and on a national basis; a Programme Manager was appointed and a Community of Practice developed.

In 2010, following wide consultation, the Programme produced 'Up and About' which is a reference resource and included the 'Up and About' Pathway Model, which provides a blueprint for the Programme. The pathway is underpinned by an integrated approach, essential given the nature falls in older age, and has 4 stages:
Stage 1: Supporting active ageing, health improvement and self-management.
Stage 2: Identifying individuals at high risk of falls and fractures.
Stage 3: Responding to an individual who has fallen and requires immediate assistance.
Stage 4: Co-ordinated management including specialist assessment.

Other enablers include workforce development, sharing of information and other innovative systems and services throughout the Scottish health and care system, e.g. the SPARRA tool, polypharmacy service and Community Alarms Service. Partners in the work have included statutory services, national support and inspection organisations, the third and the independent (private) sector.

Highlights: Innovation, Impact and Outcomes:

The important and continuing role of the Programme Manager became evident early in the programme – liaison across many different groups, acting as a conduit for and point of information, answering queries, and significant networking activities, particularly nurturing the Community of Practice among the Falls Leads.

In 2011, a mapping exercise found that 22 partnerships (58%) reported a falls and fracture prevention pathway was in place; the remaining 16 were actively working towards this (with the caution that not all components of the pathway were yet embedded). This compares to 9 partnerships (24%) reporting in January 2010 that a pathway was in place.   It also found that found that 77% of partnerships had a community alarm falls pathway in place or in the process of being developed. The remaining CH(C)Ps had plans to develop them.

As well as the 'Up and About' reference resource and pathway model other resources have been co-produced with the Falls Leads and other stakeholders, including the Care Inspectorate, NHS Education for Scotland and the Joint Improvement Team.   These include a self-assessment resource for care home staff, a pocket resource for care at home workers and a telehealthcare workbook.

Managing falls and fractures in care homes for older people. A self assessment resource. http://www.scswis.com/index.php?option=com_docman&task=cat_view&gid=329&Itemid=378

Telehealthcare and Falls. http://www.dementiashop.co.uk/products/telehealthcare-and-falls-using-telehealthcare-effectively-support-people-risk-falling-free-

Transferability to other organisations /regions:

The Programme aims to capitalise on synergies with other national initiatives targeting older people with mulitmorbidity and there are further opportunities to integrate it work with initiatives relating to polypharmacy management and adherence, the prevention and diagnosis of functional decline, integration and independent living solutions.

Innovative new programmes like Living it Up and SmartCare provide opportunities to explore ways in which local fall pathways can be enhanced by ICT and other technologies. Such innovations may enable falls prevention strategies to reach a much wider population, eg in rural areas.

Wider sharing of the innovative practice has been enabled through collaboration with the National Telecare Learning Network and the Reshaping Care Improvement Network.

The falls and telehealthcare work stream provides an example of how the Programme works in partnership to develop, test and spread innovative practices.

Further information:
http://www.knowledge.scot.nhs.uk/fallsandbonehealth.aspx

'Up and About': http://www.healthcareimprovementscotland.org/default.aspx?page=13131
Contact person: Ann Murray, National Falls Programme Manager,
ann.murray3@nhs.net

Intermediate Care Improvement Community

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:

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

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/
Maximising Recovery, Promoting Independence: An Intermediate Care Framework for Scotland - http://www.scotland.gov.uk/Publications/2012/07/1181/downloads#res396826

Contact person: Dr Margaret Whoriskey, Director, Joint Improvement Team - Margaret.Whoriskey@scotland.gsi.gov.uk

Key Information Summary - Sharing Patient Information

Organisation name: NHS National Services Scotland

Country: UK **Region:** Scotland

Total Region population: 5.3m **Good Practice Target population:** 750,000 – 1m

Topics / chronic diseases addressed:
Electronic Record, Anticipatory Care, Unscheduled and Emergency Care, Patient Information

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	X	ICT / Teleservices
4		Risk Stratification	8		Finance, Funding

Description:

The Key Information Summary (KIS) is a shared electronic patient summary record created in Primary Care and shared across organisations in Scotland and aims to ensure that critical clinical, demographic and care information is available to safely support patient care. Patient centred care is promoted by including patient wishes and carer details and the summary is created with help and explicit consent from the patient if appropriate.

The KIS is automatically updated when changes are made in the primary care system and is available on a variety of end user systems such as clinical portals in secondary care, and Tablets and iPads for cars and ambulances.

KIS is designed to support any patient who may require additional support or is likely to visit hospital or contact Out of Hours services. It is a national record and available across all health boards in Scotland. The KIS record is also flexible to enable any patient of any age to benefit from the sharing of important information, although it is anticipated to be of greatest benefit for old patients (75+) or patients with Long Term Conditions.

Key stakeholders who have supported the project include the BMA, Scottish Government, patient groups including Health and Social Care Alliance Scotland (the ALLIANCE) and all NHS Health Boards. Good collaboration with these groups has been a vital element in the success of KIS.

As well as the technical solution, KIS has delivered major training and communication materials to a wide range of users and patients across multiple platforms, resulting in very positive feedback and outcomes.

The project has been fully funded by the Scottish Government as part of wider funding to develop tools to support patients with Long Term Conditions and complex care needs. KIS will be sustained longer term as it has been fully integrated into practice and end user systems and has been developed to minimise ongoing costs and future changes.

Highlights: Innovation, Impact and Outcomes:

KIS has produced many examples of improvements in care for patients. One patient in a nursing home was frequently admitted to hospital at weekends with haematemesis. The patient and GP agreed that if it recurred, she would prefer to be managed in the nursing home. Recording this on KIS along with specific instructions on how to manage her care if she should deteriorate, resulted in peace on mind for the patient and reassurance for her carers. The next time she had a haematemesis, the OOH clinician was able to manage her in the care home and avoided an unnecessary admission to hospital.

Another example is of a child with a complex neurological condition who needed very specific positioning instructions when ill in order to avoid compromising their airway. The ambulance which was called to transport them to hospital was able to view these instructions on the way to the call, and arrived fully prepared and informed giving the child and his parents great confidence and avoiding the need to explain complex information multiple times.

KIS has also demonstrated benefits to users by streamlining the sharing of information that was previously faxed and re-keyed, and providing faster access to patient information.

Excellent feedback has been received and GP's have reported a reduction in workload through changes in business practice introduced by KIS, as well as a very high acceptance by patients. Only 1 patient out of the initial 2000 patients identified as potentially benefiting from KIS has refused to consent to share their information.

NHS Forth Valley initially asked GP Practices to complete 5 KIS records. By the evaluation stage, all Practices had significantly exceeded this number and had confirmed that KIS was easy to complete and flexible enough to meet multiple patient needs. The average time taken to complete a KIS was measured at 5 minutes, and the completion of a KIS is now an integral part of the patient consultation.

The pilot of over 100 GP Practices included a formal independent evaluation by NHS Forth Valley, and a further evaluation is underway with York University, as part of a study on Anticipatory Care Plans.

End user evaluations, including clinicians in Accident and Emergency, have also demonstrated a high degree of satisfaction, with many users reporting an increase in the quality and safety of care or a reduction in time taken to make treatment decisions.

Transferability to other organisations /regions:

KIS is completely generic and entirely flexible and will support local Health Board strategies for Anticipatory Care Planning, Long Term Conditions, Nursing Home Services and Mental Health. KIS is already used in a wide range of settings including prisons and is expected to be the core summary for use in Health and Social Care Integration.
Interest in KIS has already been expressed by all parts of the UK Health Service and Northern Ireland are planning to implement a KIS type solution for wider sharing of patient information.

Further information:

Patient Information on KIS is available from the NHS24 website:
http://www.nhs24.com/Explained/MyInfoNHS24/WhatisKIS

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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:

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

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:

The JIT has produced a set of Case Study Highlight documents http://www.jitscotland.org.uk/action-areas/reshaping-care-for-older-people/reshaping-care-improvement-network/effective-care-at-times-of-transition/ - which record the experiences of health and care partnerships in Scotland in reshaping care and integration at a local level. This learning may be useful to regions and organisations outwith Scotland.

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/

Reshaping Care Improvement Network: http://www.jitscotland.org.uk/action-areas/reshaping-care-for-older-people/reshaping-care-improvement-network/

Contact person: Dr Margaret Whoriskey, Director, Joint Improvement Team - Margaret.Whoriskey@scotland.gsi.gov.uk

SPARRA Risk Prediction in the Community

Organisation name: Information Services Division Scotland

Country: United Kingdom   **Region:** Scotland

Total Region population: 5.3 m   **Good Practice Target population**: 3.5+

Topics / chronic diseases addressed:
Long term conditions, chaotic lifestyle, frail elderly, risk prediction, risk stratification.

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	X	Risk Stratification	8		Finance, Funding

Description:

Risk prediction and risk stratification are increasingly being used by health care providers in Scotland as a basis for planning patient care in a community setting. SPARRA (Scottish Patients at Risk of Readmission and Admission) is a risk prediction tool produced by the Information Services Division Scotland. SPARRA scores are produced every quarter for over 3.5 million patients.

The latest version of SPARRA was launched in 2012 and this predicts a person's risk of an emergency admission in the coming year, based on their previous hospital contacts and on their prescribing data from primary care. The quality outcomes framework (QOF) in primary care now provides an incentive to use risk prediction tools in general practice. These new QOF indicators introduce anticipatory care planning and poly-pharmacy (multi-medicines review) into routine practice. SPARRA allows GPs to identify the patients who have the greatest risk of hospital admission and who would benefit most from anticipatory care plan and medicines review.

SPARRA helps practitioners plan and co-ordinate the care and support of people with complex or frequently changing needs – achieving a better experience and outcomes for the patient and avoiding emergency hospitalisation. Regular use of SPARRA data should also prompt discussions at multi-disciplinary, multi-agency team meetings within Practices or other settings and helps make best use of people, resources and services. Practitioners can reassess the person-centred care plan, address any gaps and work collaboratively and wholly in the interests of the patient.

Highlights: Innovation, Impact and Outcomes:

Three different cohorts have been defined within the SPARRA dataset: a younger chaotic lifestyle group, a long term conditions cohort and a frail elderly group. Each cohort has a

different set of risk factors associated with risk of emergency admission and therefore patients from each require distinct approaches to case management.

This innovative use of patient cohorts has helped to identify patients earlier, before they require intervention from acute secondary services. Primary and community care interventions include better care planning and referral for patients, and more appropriate and safe prescribing of medicines.

Improved secondary care outcomes should include a reduction in the expected number of readmissions, the number of hospital beds used and a reduced length of stay for patients who have had a community intervention. New communication pathways are further being developed between primary care, social care and secondary care as a result of using a more integrated approach to patient case management in the community.

Health and social care integration will also be enhanced, especially between primary care and social services, where risk prediction has been implemented as part of anticipatory care planning, encouraging frequent multidisciplinary meetings between primary care and social care.

Additional QOF indicators are specifically designed to develop external peer review by other GP practices, as well as interaction with the health board to find out which interventions have been effective. Where good practice has been identified by practices in one health board, this may be shared with other boards and be used for service redesign.

Transferability to other organisations /regions:

SPARRA will also be of use to both those delivering health and social care, and managers and planners of these services. It uses national datasets to provide information at a local level to support targeting of services on a geographic and an individual basis. Its ability to stratify (select a subset of) the 'at risk' population and to generate analyses provides a greater understanding of this sub-population and its needs. In a climate of scarce resources this ability to target interventions to prevent potentially more significant interventions will be of use to other organisations and regions.

Further information:
Information Services Division Scotland website, SPARRA Link:
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	X	Patient / user empowerment,
3	X	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
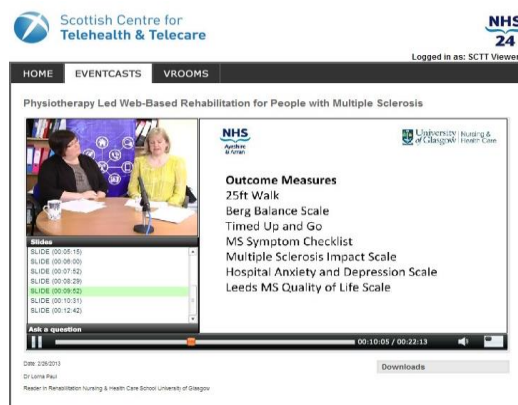
Objectives
To support the Learning Network knowledge transfer activities. In 2012 the format changed from quarterly day-long face to face meetings with 1 annual conference style event, to a programme of monthly webcasts to reflect the interests of the members. In May 2013 The Learning Network event attracted over 180 people. Staff from health, social care, housing,

academia, voluntary organisations and policy attended the event. In July 2013 A poster 'Switch On to Knowledge Exchange: Webcasts' was accepted and presented to the Kings Fund International Congress on Telehealth and Telecare in London.

From February 2012 – October 2013 We have recorded and made available (as a resource) over 40 webcasts. The Learning Network webcasts cover a wide range of topics; this is one of the aspects which make this a value rich resource. Based on feedback from the first year of webcasts we have revised the frequency and duration of the webcasts. Some webcasts are 5 minutes length, others 30 minutes.

We continue to host a very popular day-long networking event and 1 annual conference. These events also provide an opportunity to capture and re-use learning and experience. We have also used this format to capture feedback from specific European (CASA) project study visits.

To view Telehealth and Telecare Learning Network webcasts go to http://www.video3uk.com/sctt

Highlights: Innovation, Impact and Outcomes:
- This area is constantly developing and sharing new approaches and good practice is essential to developing sustainable services
- The challenges of accessing webcasts do remain for some of our public sector colleagues.
- Creating a resource library of freely available webcasts results in increased views as knowledge of the webcast programme grows
- Re-useable content: several webcasts have been reused in undergraduate teaching sessions, hosted on professional skills websites and used at learning events for public sector staff.
- The diversity of the Network members 'sharing' provides significant insight into the key elements of sustainable development in technology enabled services

Transferability to other organisations /regions:
- Promoting 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
- The increased frequency and short duration makes viewing webcasts more convenient.

Further information:
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
Nessa.Barry@nhs.net

TeleSCoPE – EUROPEAN CODE OF PRACTICE FOR TELEHEALTH SERVICES

Organisation name: Health Design & Technology Institute, Coventry University

Country: UK (EU)   **Region:** West Midlands

Total Region population: N/A   **Good Practice Target population**: All EU

Topics / chronic diseases addressed:

Telehealth, public and preventative health.

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 beta version of the European Code of Practice for Telehealth Services was released at the Medetel Conference in Luxembourg in April 2013. The 'final' version will be ready in the summer / early autumn. The framework for adoption of the Code in EU member states is now under development.

The Code (a) establishes a quality benchmark for telehealth services; and (b) helps to shape telehealth services in ways that supports patient/user autonomy. The first of these (the quality benchmark) will help to build the necessary trust (called for by the European Commission) by which telehealth service development can more readily take place. The second (shaping services) supports the much needed radical transformation of health services in ways that link with European Commission agendas around citizenship, health literacy, etc. In helping to maximise self-management the Code can be seen as having an indirect but potentially crucial influence on the achievement of additional healthy life years for European citizens.

The ten sections of the Code include attention to issues of governance, ethical principles, personal information behaviours, lifestyles, and in self-management) as well as in responding to the needs of (e.g.) older people with chronic conditions.

The Code is both (i) 'bottom-up' and, therefore, responds to the needs and choices of users and, where appropriate, carers; and (ii) wide-ranging - and, therefore, relevant to people's needs as different as pregnancy and palliative care. It recognises that telehealth, therefore, is much more than vital-signs monitoring. Significantly the Code directly challenges the technology-driven approaches that are evident in some initiatives.

Adoption of the European Code will help enable people to access the services they need or want rather than simply being 'patients' who are the recipients of services delivered by 'professionals'. The Code covers service approaches (using terrestrial and mobile networks) that include health and motivational coaching, medication compliance, activity monitoring,

vital-signs monitoring, social alarms and telecare. It challenges, therefore, perspectives on telehealth that are focused on little more vital-signs monitoring.

Transferability to other organisations /regions:

The European Code is appropriate to all EU countries and, potentially, internationally. There is no other Code, as yet, that seeks to provide the trust, etc. and required benchmarks for emergent services.

A European organisation is likely to be established to manage further development of the Code and co-ordinate inspections and certification.

Highlights: Innovation, Impact and Outcomes:

The European Code resonates strongly with the European Commission eHealth Action Plan and the work of the eHealth Task Force. It focuses on health in both its clinical and 'well-being' senses. It is considered as relevant to people of all ages. This is in keeping with the major role seen for telehealth in prevention and in public health.

Further information:

Information on the website www.telehealthcode.eu from June 2013.

Background   material   –   2013
http://www.eis.mdx.ac.uk/research/groups/Alert/ehealthwks2013/malcolm-fisk-2013.pdf
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