

Deliverable 7.1:

Financial flows and reimbursement descriptions of all programs

WP 7: Sustainability and business models

*ACT@Scale
Advancing Care Coordination
and Telehealth @ Scale*

Document Information

PROJECT ACRONYM:	ACT@Scale
CONTRACT NUMBER:	709770
DISSEMINATION LEVEL:	Public
NATURE OF DOCUMENT:	Report

TITLE OF DOCUMENT:	Deliverable 7.1
REFERENCE NUMBER:	D7.1
WORKPACKAGE:	WP7
VERSION:	V3.0
EXPECTED DELIVERY DATE:	(M5)
DATE:	September 30 2016
AUTHORS:	Maarten M.H. Lahr, UMCG, m.m.h.lahr@umcg.nl Montse Moharra, AQuAS, mmoharra@gencat.cat Emilie Nielsen, RSD, Emilie.Nielsen@rsyd.dk Anna Gine, OSAKIDETZA, agine@kronikgune.org Claire Buchner, NIRE, Claire.Buchner@hscni.net And the ACT@Scale consortium
EDITOR:	Cristina Bescos, Cristina.Bescos@Philips.com

Short description of the Deliverable:

The work package 7 (WP7) of the ACT@Scale project, which aims at consolidating and scaling up of care coordination and telehealth programs, knowledge transfer of best practices including organizational adaptations. The accomplish to aim of WP7, a survey on sustainability and business models was conducted, of which the results will be presented in this deliverable (7.1).

REVISION HISTORY

REVISION	DATE	COMMENTS	AUTHOR (NAME AND ORGANISATION)
0.1	06/07/2016	First draft	Maarten Lahr (UMCG)
0.2	27/07/2016	Second draft	Maarten Lahr (UMCG) Anna Gine March (Kronikgune) Montse Moharra (AQuAS) Claire Butcher (NIRE) Emilie Nielsen (RSD)
1.0	03/08/2016	First release	Appendix added. First review ready for release
2.0	09/09/2016	Second release	Analysis per program included
3.0	31/09/2016	Third release. Final version	Updates from Catalonia and NIRE

Executive Summary

Aims and objectives

The specific objective of WorkPackage 7 (WP7) is to deliver at least equal quality of care at lower costs and/or fewer personnel.

The initial goal will be to collect baseline information of reimbursement methods and financial flows for all programs involved in the ACT@Scale project.

Methods

The mapping information presented here is based on a survey send out to all programs. For the development of the survey various sources available in the literature and online were utilized. The surveys were directed at the program leaders and managers. Descriptive statistics were used to present the data.

Results

A total of fourteen surveys were received from program managers of the five regions participating in the project (Basque Country, Catalonia, Northern Ireland, Northern Netherlands and South Denmark). Most programs (50%) were funded through budget, which was in most cases (50%) funded by government budgets. Eight programs (57%) indicated to expect a change in funding within the next three years. Alternative business models included shared savings, a veterans health administration model, capitation, population coverage, co-payment by social services and predictive modeling.

Conclusions

Most programs were funded through budgets financed by (local) governments. A small majority indicated to expect a change in funding of their program within the next couple of years, in which a wide variety of alternative business models are being considered. This finding may be relevant to policy makers aiming to scale-up integrated care models.

List of abbreviations

ACT	Advancing Care coordination and Telehealth deployment
MULTIMORBID INTEGRATION	Basque Country, Multimorbid Population Integrated Intervention Programme
CHF TELEMONTORING	Basque Country, Telemonitoring services for Congestive Heart Failure
NURSING HOMES	Catalonia, Health support programmes for nursing homes
CHRONIC CARE	-A Catalonia, The Chronic Patient Programme – Badalona Serveis Assistencialis
COMPLEX CASE MANAGEMENT	Catalonia, Support for complex case management AISBE
PHYSICAL ACTIVITY	Catalonia program for life style management AISBE
FRAIL OLDER ADULTS	Catalonia program on frail elderly PSPV
D7.1	Deliverable 7.1
EIP-AHA	European Innovation Partnership-Active and Healthy Ageing
CC&TH	Care coordination & Tele Health
MCDA	Multi Criteria Decision Analysis
COPD TELEMONTORING	Northern Ireland, COPD telemonitoring services
DIABETES TELEMONTORING	Northern Ireland, Diabetes telemonitoring services
WEIGHT MANAGEMENT TELEMONTORING	Northern Ireland, Services for Pregnant Woman with BMI over 39
ASTHMA/COPD	Northern Netherlands, Asthma/ COPD Telehealth service
EMBRACE	Northern Netherlands, Embrace – Connecting health and community Services
EFFECTIVE CARDIO	Northern Netherlands, Heart Failure Program
TELEPSYCHIATRY	Region of South Denmark, Center for Telepsychiatry
VHA	Veterans Health Administration
WP	Work Package

Glossary

Sustainability is defined by 3 key attributes (Fineberg H, NEJM 2012): affordability (for patients and families, employers, and the government), acceptability to key constituents (including patients and health professionals), and adaptability (because health and health care needs are not static).

Business models are defined as the design of transaction content, structure and governance so as to create value through the exploitation of business opportunities (Amit and Zott 2001).

Shared Savings model: in this model one or more care providers and one or more health insurers form an agreement that savings relative to a benchmark can be returned to the providers and/or insurers.

Capitation model: capitated payment or capitation means paying a provider or group of providers to cover the majority (or all) of the care provided to a target population, such as patients with multiple long term conditions (LTCs), across different care settings.

Veterans Health Administration (VHA) model: a model aimed at reducing capacity in secondary care (i.e. by reducing the number of hospital beds) and expanding primary care facilities.

Population coverage model: a model in which care provider(s) receive a fixed amount of money per inhabitant or insured person in their population, irrespective if the inhabitant or insured uses this care or not. The care provider manages the budget, which is realized after negotiations with payors (eg.: health care insurance companies and municipalities).

Content

Document Information	2
Executive Summary.....	3
List of abbreviations.....	4
Glossary	5
Introduction.....	7
ACT@Scale WP7.....	7
Sustainability and business models	7
Sustainability and business models approach.....	7
Sustainability and business models outcomes.....	8
Sustainability and business models scaling up.....	8
Sustainability and business indicators.....	9
Methods.....	10
Sustainability and business models mapping.....	10
Results	11
Overall Results	11
Financial flows	11
Financing of the programs	11
Data information	13
Innovative business models	15
Analysis per region	16
North of the Netherlands.....	16
Region of South Denmark.....	19
Catalonia.....	20
The Basque Country.....	23
Northern Ireland.....	25
Conclusions.....	28
Appendix 1. Description of survey on mapping indicators send out to all regions.	30
Appendix 2: Results of the surveys per program.....	33
References.....	50

Introduction

ACT@Scale WP7

Advancing Care Coordination & TeleHealth (ACT)@Scale project goal is to identify, transfer and scale up existing and operational Care Coordination and Telehealth good practices with the target of reaching a total of 75,000 care recipients across regions and programmes in multiple European countries. The project uses experiences from successful programs already implemented in clinical practice in five European regions by using indicators to assess real world services and linking drivers and outcomes. Key methodological approaches are utilized in order to reach the project goals. The activities reflect the areas that need to be addressed in an upscaling process. These areas include and cover:

- Stakeholder and change management
- Service selection
- Sustainability and business models
- Citizen empowerment

Work Package 7 (WP7) identifies which are the key elements of sustainability and business models that can be improved to scale-up good practices on integrated CC&TH delivery

The aim is to deliver at least equal quality of care at lower costs and / or with fewer personnel, and addresses the innovation foreseen in new business models, reimbursement methods, cost-efficiency and reorganization of care structure.

Sustainability and business models

Sustainability and business models approach

The hypothesis is that sustainable business models towards care coordination and telehealth will facilitate scaling up and transfer of CC&TH services. In addition, cost effectiveness and resource utilisation will be monitored throughout the implementation process and scaling up on sustainability and business models in the different regions.

Per capita costs will be investigated using two approaches:

- Population level approach. The development of sustainable business models will focus on total expenditure per program, including total outpatient (primary and outpatient hospital care), hospital, medication, and administrative expenditure.

- Individual level approach. Per user the annual costs and use of health care utilization will be collected, including primary, secondary, and communication care. In addition, medication, administrative, and travelling costs are measured.

Sustainability and business models outcomes.

The outcomes of WP7 are:

- 1) To scale-up and transfer good practices on new and sustainable business models towards care coordination and telehealth
- 2) To enable rapid improvement cycles by adopting a collaborative methodology with annual do-plan-act-evaluate implementation cycles
- 3) To monitor cost effectiveness and resource utilisation with the scaling-up of coordinated care and telehealth systems
- 4) To develop training and coaching instrument to support transfer of good practices within the EU regions. ACT@Scale contributes directly to the objectives set out in the EIP-AHA B3 action group by improving chronic disease management in terms of scaling-up good practices and knowledge sharing throughout EU regions.

Sustainability and business models scaling up.

People who suffer from chronic disease require integrated, multidisciplinary care from various health care professionals. However, current health care systems and their underlying payment schemes focus on acute, mono-disciplinary and segmented care, and are therefore ill-equipped to provide integrated care. Financial systems and payment schemes are key factors for stakeholders, and thus can stimulate collaboration and steer health care delivery systems towards integration. In addition, improving quality of life and reducing hospitalization costs are main drivers of the total costs of CC&TH programs, thereby underlying sustainability and scaling up.

Reforming payment schemes in CC&TH programs depend strongly on the structure of a health care system. For this reason the first step within WP7 is to collect (map) information from the various program on how their health care system is organized.

Sustainability and business indicators

Two kinds of indicators are included in Sustainability and Business Models.

- Mapping indicators will be collected for all programs on CC&TH identified in ACT@Scale. These mapping indicators describe the overall financing structure of the programs and identify key elements in sustainability and business models.
- Key progress indicators (KPIs) aim to monitor yearly elements that provide information on the implementation process and scaling-up of sustainable business models in the good practices on integrated CC&TH programs in the different regions.

Sustainability and business models indicators will collect and monitor all business model elements, description, identification, and selection of innovative business models both on a population and individual level.

This Deliverable 7.1. focuses on the first bullet, aiming at mapping the ACT@Scale programmes from a financial perspective.

Methods

Program managers of each of the programs on CC&TH identified in ACT@Scale fill out surveys per program.

Mapping indicators for sustainability and business models was collected once in month 5 of the project, and the results is presented as a mapping exercise in the results section of this deliverable.

Sustainability and business models mapping

The complete survey sent out to the programs is listed in the Appendix 1.

The responses per program on the survey are listed in Appendix 2.

14 Programs out of the 14 identified have responded to the survey.

Results

Overall Results

The results indicate that all programs could participate in describing financial flows of their program, also on an annual basis. This could provide valuable information on how CC&TH program are currently organized and financed, and where obvious gaps and difficulties in payment schemes are occurring. In relation to the anticipated scaling-up of the programs, the next step is to quantify financial flows by collecting both quantitative and qualitative indicators (mixed-method approach). This will provide a comprehensive overview on how costs and payment are organized within the programs. An important observation is that eight programs expect a change in funding in the next years, which means that six programs do not. Programs that are expecting a change are located in the Netherlands, Catalonia and Northern Ireland. Potential reasons for other regions why they do not expect a change will be worked out in the following phase of the project. Importantly, also programs that do not expect a change in funding indicate innovative business models that could serve as an alternative to current funding schemes. A variety of innovative business models are suggested by the programs, with a small trend toward a model of shared savings and a Veterans Health Administration model (i.e. reducing hospital beds and expanding primary care). Summary tables on the responses to the individual survey items is provided in the next section.

A description of the overall answers per category of questions is provided here. Four categories for identified: (1) Financial flows, (2) Financing of the program, (3) Data information and (4) Innovative business models. A total of fourteen surveys were received from five program managers of the five regions participating in the project.

Financial flows

These questions aim to identify the availability of financial flows for the different programs, as a baseline measurement (2015) and the following years given the duration of the ACT@Scale project (up to 2018).

Results showed that **all programs were able to provide the financial flow of their program as a baseline measurement and in the upcoming years.**

Financing of the programs

These questions aim to identify how programs are financed and which organization(s) are funding the program. Also, program managers were asked if they expected a change in funding in the next three years.

Results showed that most programs (50%) were funded through budget, and that government budgets were the primary source of financing (50%). Eight programs (57%) indicated that a change in financing was expected in the next couple of years.

Figure 4. Response to Q4. "How is the program financed" (N=14).

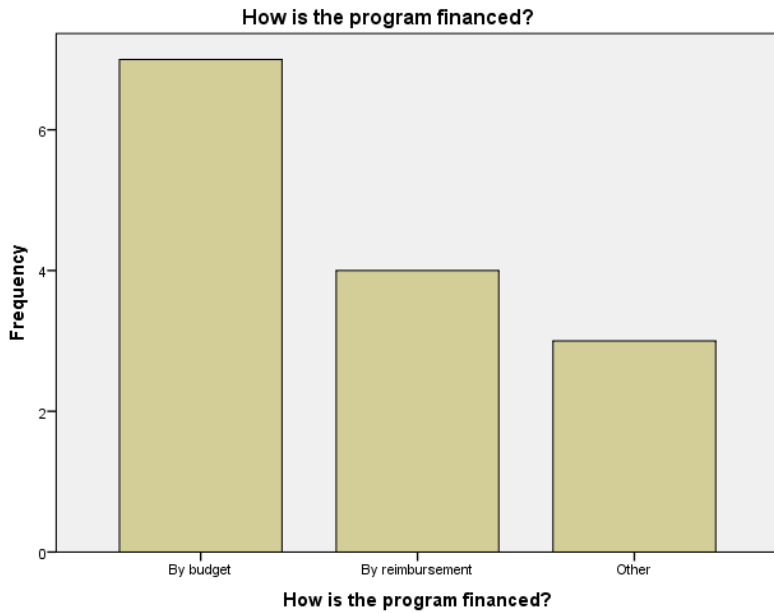


Figure 5. Response to Q5. "Funding of care is provided by" (N=14).

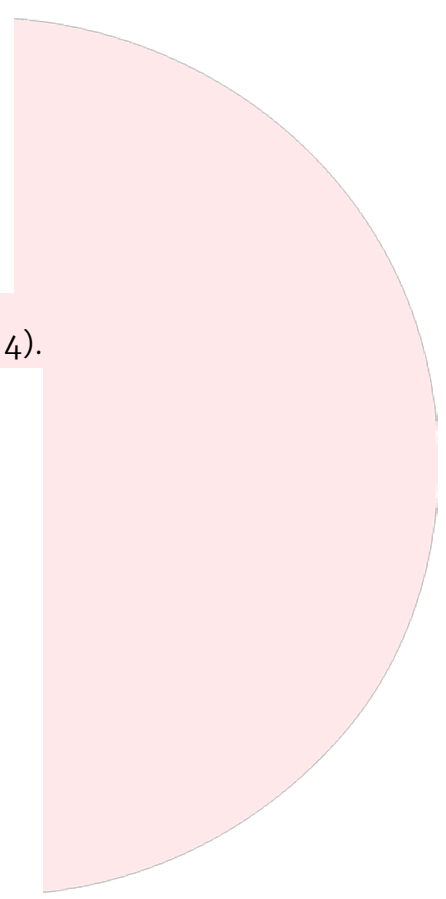
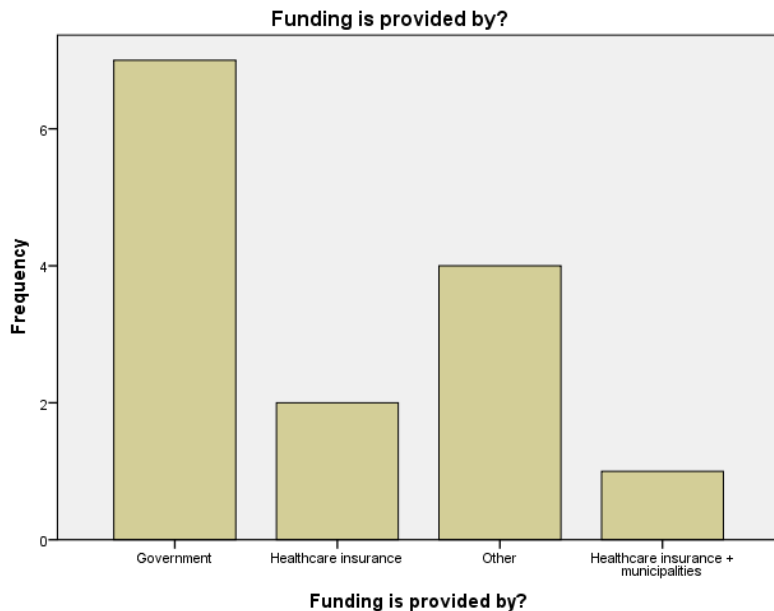
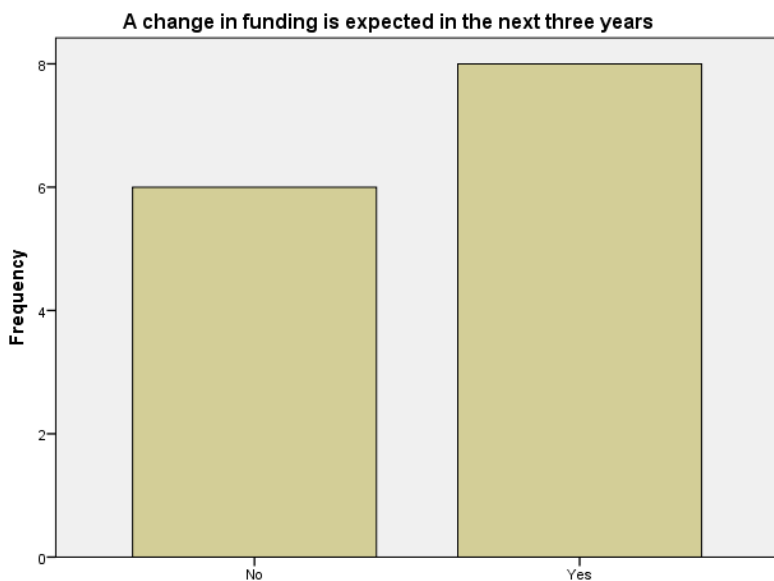


Figure 6. Response to Q6. “A change in funding is expected in the next three years” (N=14).



Data information

These questions aim to identify the way in which information on sustainability business models indicators is collected. Also, the frequency of data collection is asked.

Results showed that most programs (71%) use hospital information systems to extract data from participants. The majority of the programs indicated that data and information can be collected annually (86%).

Figure 7. Response to Q7. “Data and information on care consumption is collected” (N=14).

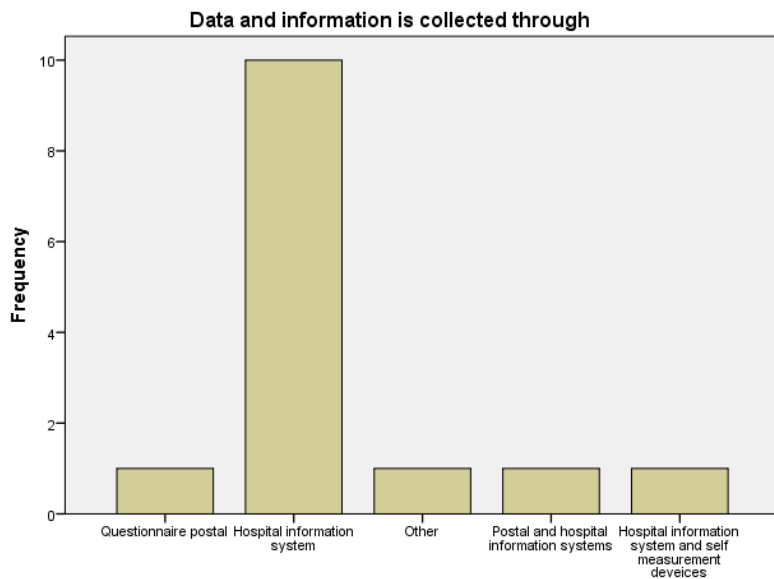
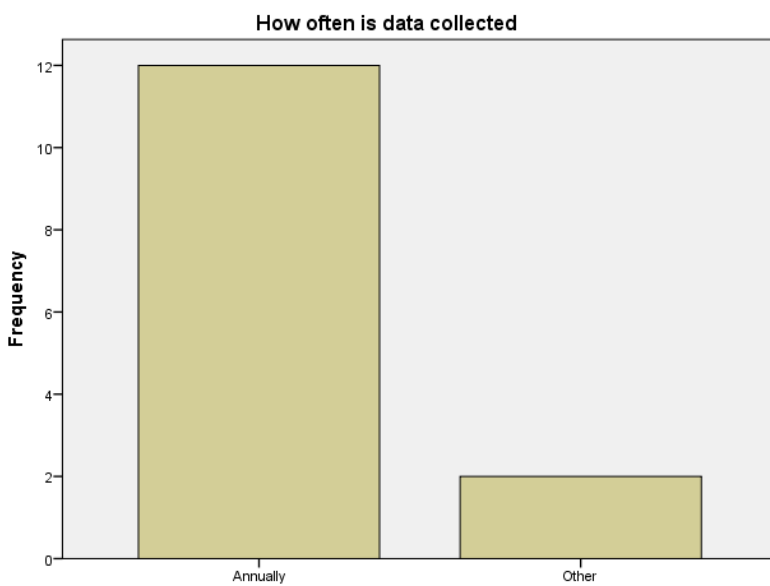


Figure 8. Response to Q8. “How often is data collected” (N=14).

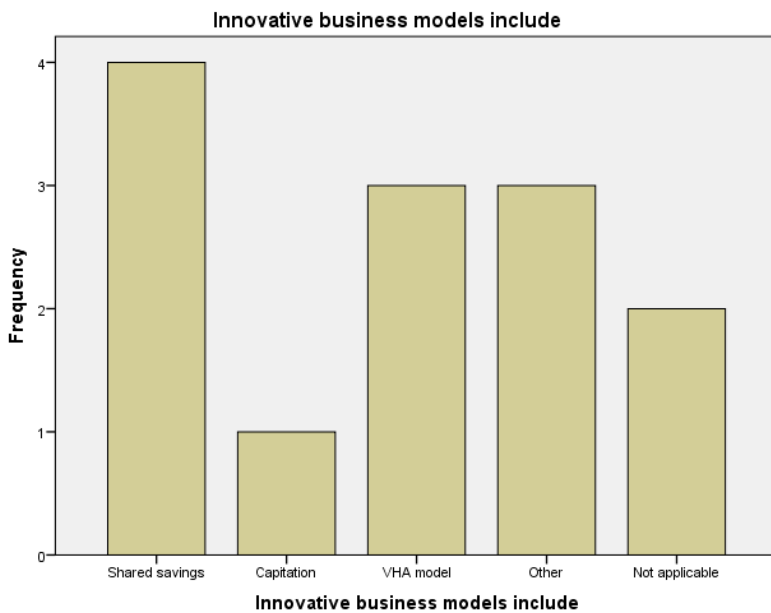


Innovative business models

These questions aim to identify innovative business models that may be applicable to the various programs. Current health care systems focus on acute, mono-disciplinary and segmented care as opposed to integrated, multi-disciplinary care as provided by CC&TH programs. Therefore, a change in financing of the programs is foreseen.

Results showed that alternative business models suggested included shared savings (four programs, 29%), Veterans Health Administration model (three programs, 21%), co-payment by social services (one program), population coverage (one program), capitation (one program), predictive modeling (one program) and one program indicated expansion of the current capacity. For two program alternative business models were not applicable.

Figure 9. Response to Q9. “Innovative business models that are applicable for our program include” (N=14).



Analysis per region

A summary per program and region is described below. Also the financial flow of the programs is depicted.

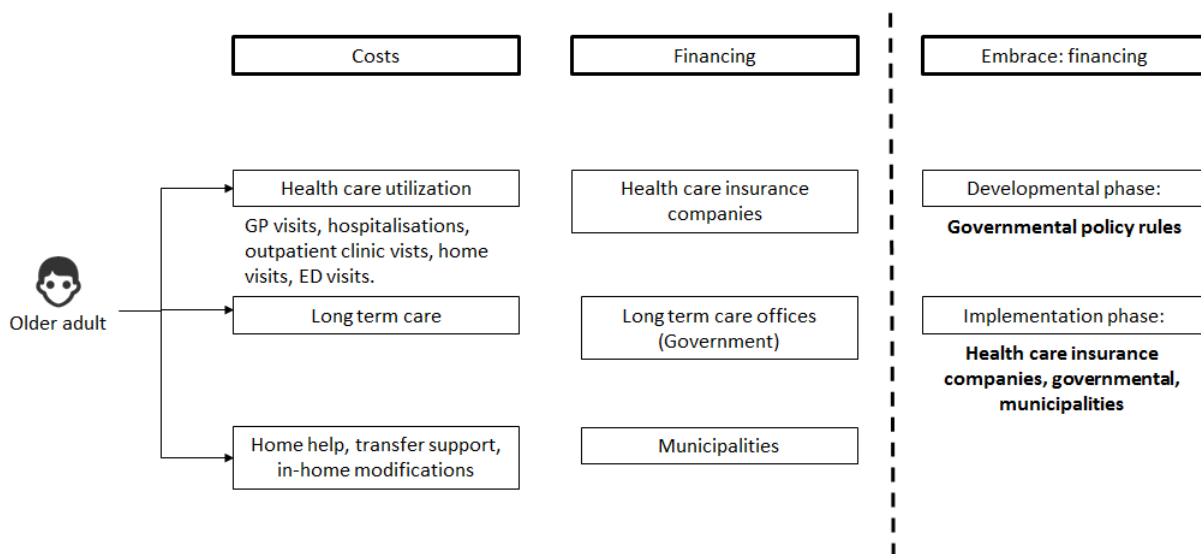
North of the Netherlands

Three programs in the North of the Netherlands were investigated: (1) the Embrace program (EMBRACE) delivering integrated care for elderly above the age of 75 (2) the asthma COPD telehealth program (ASTHMA/COPD) and (3) the effective cardio program (EFFECTIVE CARDIO). The current payment schemes used in the Netherlands is depicted in Figure 11. A strong point of the programs in the North of the Netherlands is their patient-centeredness. All program were developed in co-creation with the end-user and their needs were explicitly asked and collected at the very beginning of the program. A limitation is that current financials models hinder the scaling up of the programs in the future. Because participants in the program may visit different care providers in the region, self-reported questionnaires are predominantly used for data collection.

EMBRACE

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by budget through healthcare insurance companies and municipalities, which is expected to change within the next three years. Data and information on care consumption is collected via questionnaires send out by postal services and is collected annually. Innovative business models that might be applicable to this program is population coverage. A description of the financial flow is depicted in Figure 10.

Figure 10. Financial flow of the Embrace program.



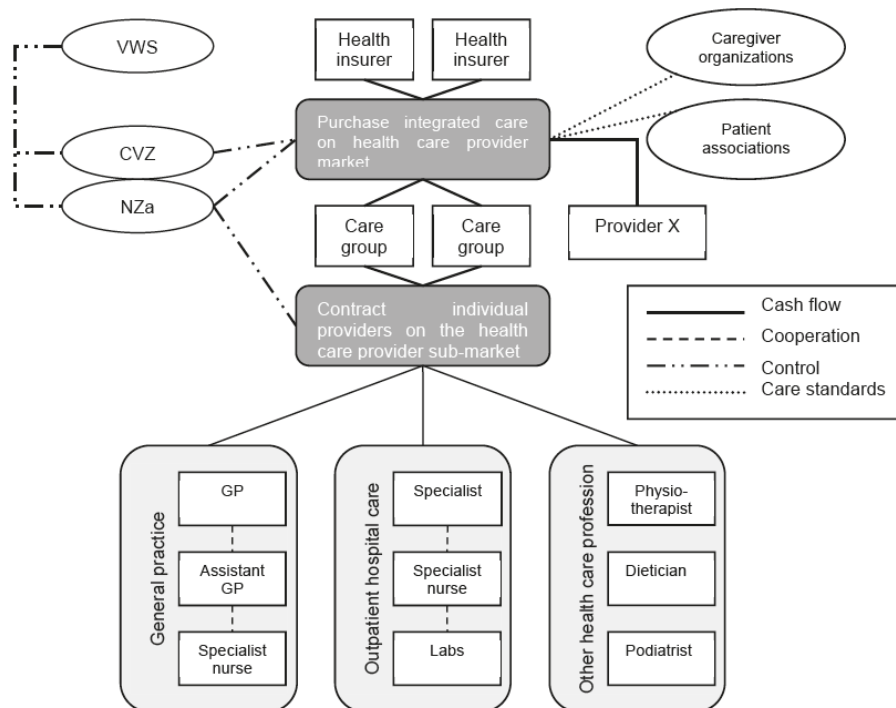
ASTHMA/COPD

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by reimbursement through healthcare insurance companies, which is expected to change within the next three years. Data and information on care consumption is collected via questionnaires send out by postal services and through extraction of hospital information systems. Data is collected annually. Innovative business models that might be applicable to this program is shared savings.

EFFECTIVE CARDIO

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by reimbursement through healthcare insurance companies, which is expected to change within the next three years. Data and information on care consumption is collected via extraction of hospital information systems and automatically through self measurement devices. Data is collected continuously. Innovative business models that might be applicable to this program is shared savings.

Figure 11. Payment schemes for health care in the Netherlands¹.



Since 2006, the distinction between public and private insurance has disappeared, meaning that insurers are free to contract care group for the provision of care and patients to choose their caregiver and insurer. Insurers negotiate with care groups on price and quality. With the introduction of the market mechanism, the healthcare system has a unique character as social insurance system. A bundled payment for multidisciplinary care (as proposed in integrated care models) was initiated in 2010. This type of payment aims to control unnecessary health care consumption, improve coordination between care providers, and stimulate high quality care delivery. Insurers negotiate with care groups a predefined fee (bundled payment) that covered all care needed by a patient with a particular chronic disease for a year (excluding inpatient care, medication, medical devices, and diagnostics)¹. Then care groups negotiate with and subcontract individual care providers for the care delivery.

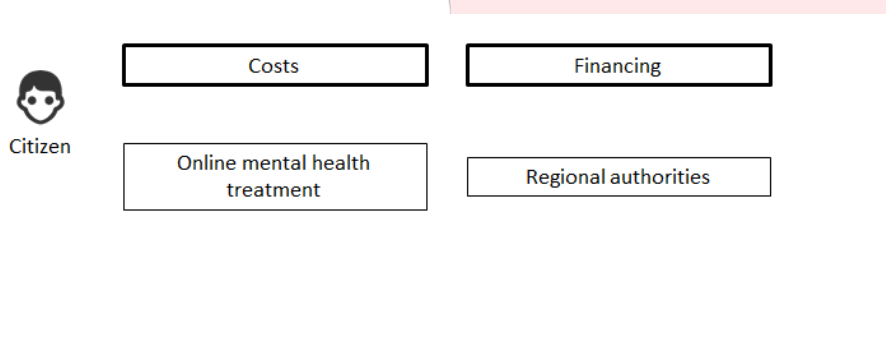
Region of South Denmark

The program investigated the region of south Denmark included the telepsychiatric treatment program (TELEPSYCHIATRY).

TELEPSYCHIATRY

Financial flow can be described at baseline (2015) and is provided in August 2016. The professionals working in the program have to check the level of detail that is available in the following years (2016–2018). The program is funded by reimbursement through government agencies, which is not expected to change within the next three years. Data and information on care consumption is collected as part of the online treatment of patients, and available depending on the treatment. Potential innovative business models include expansion of the current capacity. The program is now serving a patient group that was underserved prior to the service.

Figure 12. Payment schemes for the Telepsychiatry program in Denmark.



The financing of the telepsychiatry program is done by budgets of regional governments and made available early 2016 by the Innovation Fund Denmark. The funding is part of the budget that is provided by the region to the Telepsychiatry center, all paid by the tax system.

Catalonia

Five programs in Catalonia were investigated: (1) a healthcare support program for nursing homes (NURSING HOMES), (2) the chronic patient program – Badalona Serveis Assistencialis (CHRONIC CARE), (3) Support for complex case management AISBE, (4) Services promoting healthy lifestyles: physical activity – AISBE and (5) the complex case management program (COMPLEX CASE MANAGEMENT). The financial flow for the program is depicted in Figure 12. A strong point in the Catalonia programs is identification of specific drivers directly impacting upon patient outcomes. For example: interventions in training, early engagement of staff, introducing feed-back loops and ensuring recognition of professional expertise. A gap in current knowledge is the need for proper KPI systems (data + IT system) to review the progress of interventions, guide decision-making and identify areas that need management attention and resources.

NURSING HOMES

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by Government budget, which is not expected to change within the next three years. Data and information on care consumption is collected via extraction of healthcare information systems and is collected annually. No innovative business models are described for this program.

CHRONIC CARE

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded through several funding streams including public Catalan insurance (CatSalut), municipality, third sector and co-payment for some social lines by government budget. The funding is not expected to change within the next three years. Data and information on care consumption is collected via extraction of healthcare information systems and is collected annually. Innovative business models that might be applicable to this program is co-payment of some of the social services.

COMPLEX CASE MANAGEMENT

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded through several funding streams by Convergence between reimbursement of the Home Hospitalization Program and other sources of funding associated with Innovation & Research. The funding is expected to change within the next three years. Data and information on care consumption is collected via extraction of healthcare information systems and is collected annually. Innovative business models that might be applicable to this program is shared savings.

PHYSICAL ACTIVITY

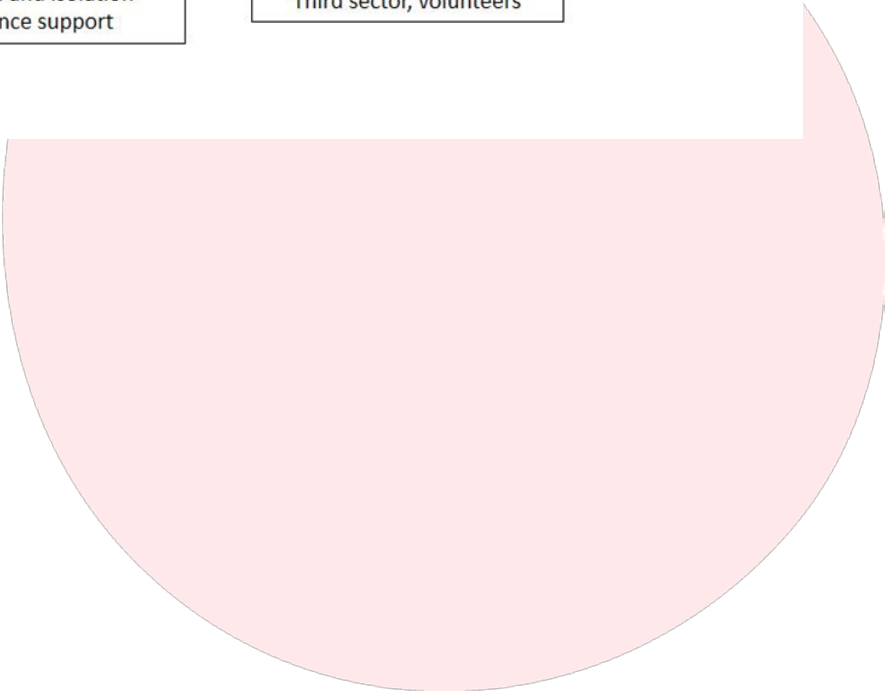
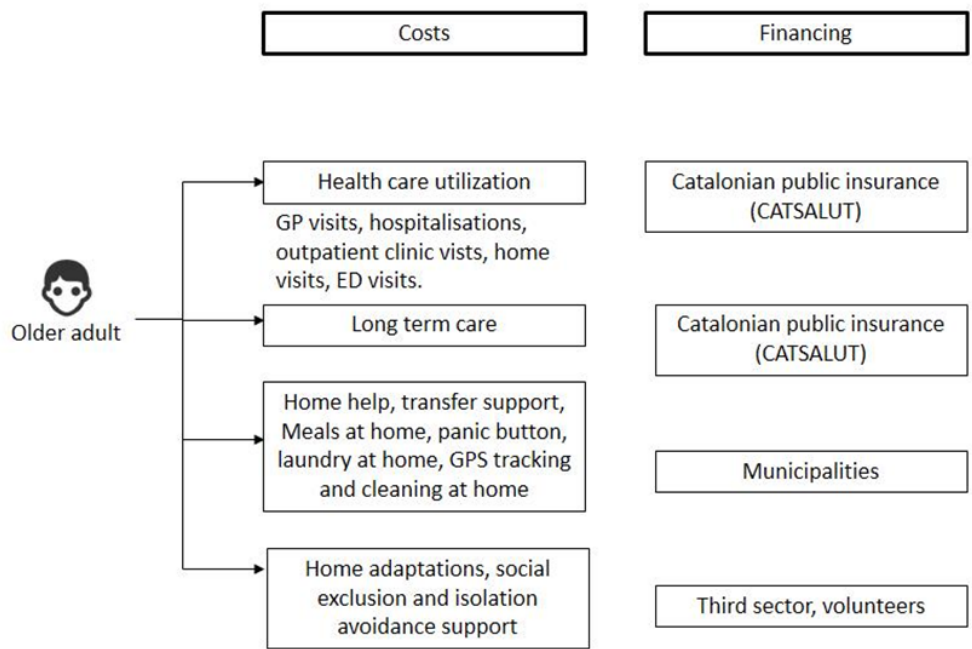
Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded through several funding streams by Convergence between reimbursement of the Home Hospitalization Program and other sources of funding associated with Innovation & Research (same as for the COMPLEX CASE MANAGEMENT program). The funding is expected to change within the next three years. Data and information on care consumption is collected via extraction of healthcare information systems and is collected annually. Innovative business models that might be applicable to this program is shared savings.

FRAIL OLDER ADULTS

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by reimbursement through government agencies, which is not expected to change within the next three years. Data and information on care consumption is collected via extraction of healthcare information systems and is collected annually. Innovative business models that might be applicable to this program is capitation.

The funding scheme of the Catalonia programs is quite complex because the funding comes from various entities and differs between the programs evaluated here. For instance, two first and third programs are financed by budget either through government budgets or reimbursement. The second program however is financed through multiple agencies including public insurance, municipalities, third parties and co-payment by social services.

Figure 12. Financial flow of the programs in Catalonia.



The Basque Country.

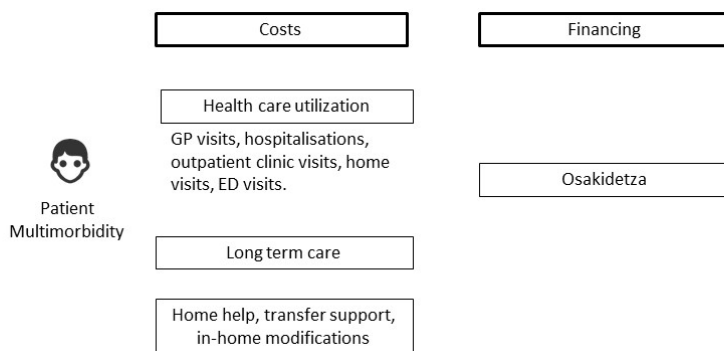
Two programs in the Basque Country were investigated: (1) a population intervention program on multimorbidity (MULTIMORBID INTEGRATION) and (2) telemonitoring services for congestive heart failure (CHF TELEMONITORING). The financial flow for the programs is depicted in Figure 13 and 14. A strong point of the programs in the Basque country is the well-developed regional risk stratification strategies that indicate how to match population and individual requirements to appropriate service levels. A barrier in current organisation of the programs is that despite positive results achieved the funding scheme has not changes appropriately, thereby hindering further implementation and scaling up.

MULTIMORBID INTEGRATION

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by Government budget, which is not expected to change within the next three years. The patients are invited into the program by their general practitioner (GP) and contact with the patient is made through several ways including telephone, face-to-face contact and via remote telecommunication. Data and information on care consumption is collected via extraction of healthcare information systems and is collected annually. Innovative business models that might be applicable to this program is predictive modelling.

The Basque healthcare system is a Beveridge type system designed to improve the health status of the population. It is funded by taxes, and healthcare professionals are public employees. The process of commissioning and funding of the Department of Health defines who and what services are financed and contracted. This relationship is expressed in Law 8/1997, 26 June on Health Regulation in the Basque Country, and is articulated through the Framework Contract.

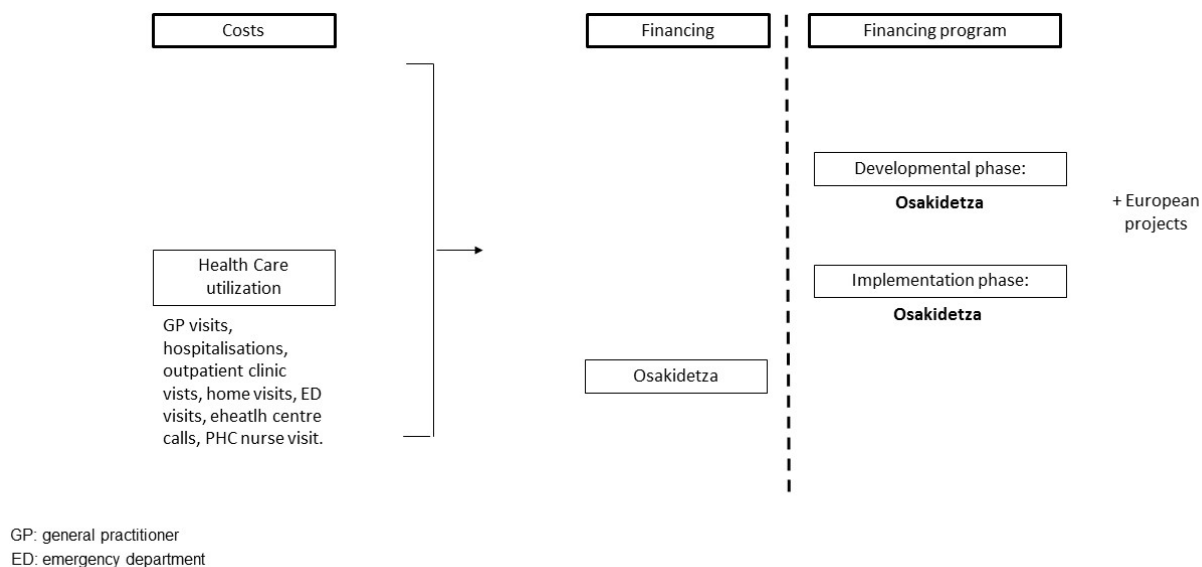
Figure 13. Financial flow of the multi-morbidity program in the Basque Country.



CHF TELEMONITORING

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by Public Health Services budget, which is not expected to change within the next three years. The patients are invited into the program by secondary care (medical specialist or hospital nurses) by telephone. Data and information on care consumption is collected via extraction of healthcare information systems and is collected annually. No innovative business models are described for this program.

Figure 14. Financial flow of the telemonitoring for CHF program in the Basque Country.



Northern Ireland

Three programs in Northern Ireland were investigated: (1) a COPD telemonitoring service (COPD TELEMONITORING), (2) Diabetes type I telemonitoring services (DIABETES TELEMONITORING) and (3) Weight management telemonitoring services. The financial flow for the program is depicted in Figure 15. A strong point of the COPD telemonitoring service is that it is associated with improved quality of life and reduced anxiety, compared to standard home-based programs. However, the ability to reduce hospitalisations and the cost-effectiveness of the intervention has not been proven. A strong point of the Diabetes program is a high level of patient satisfaction, expressed as feeling more in control of their disease and making them more independent. Challenges include current financing models which are not considered sustainable for further scaling up of services.

COPD TELEMONITORING

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by budget through governmental agencies, which is expected to change within the next three years. Data and information on care consumption is collected via of hospital information systems, and is collected annually. Innovative business models that might be applicable to this program is the Veterans Health Administration (reduce hospital bed capacity, expand primary care clinics) model.

DIABETES TELEMONTORING

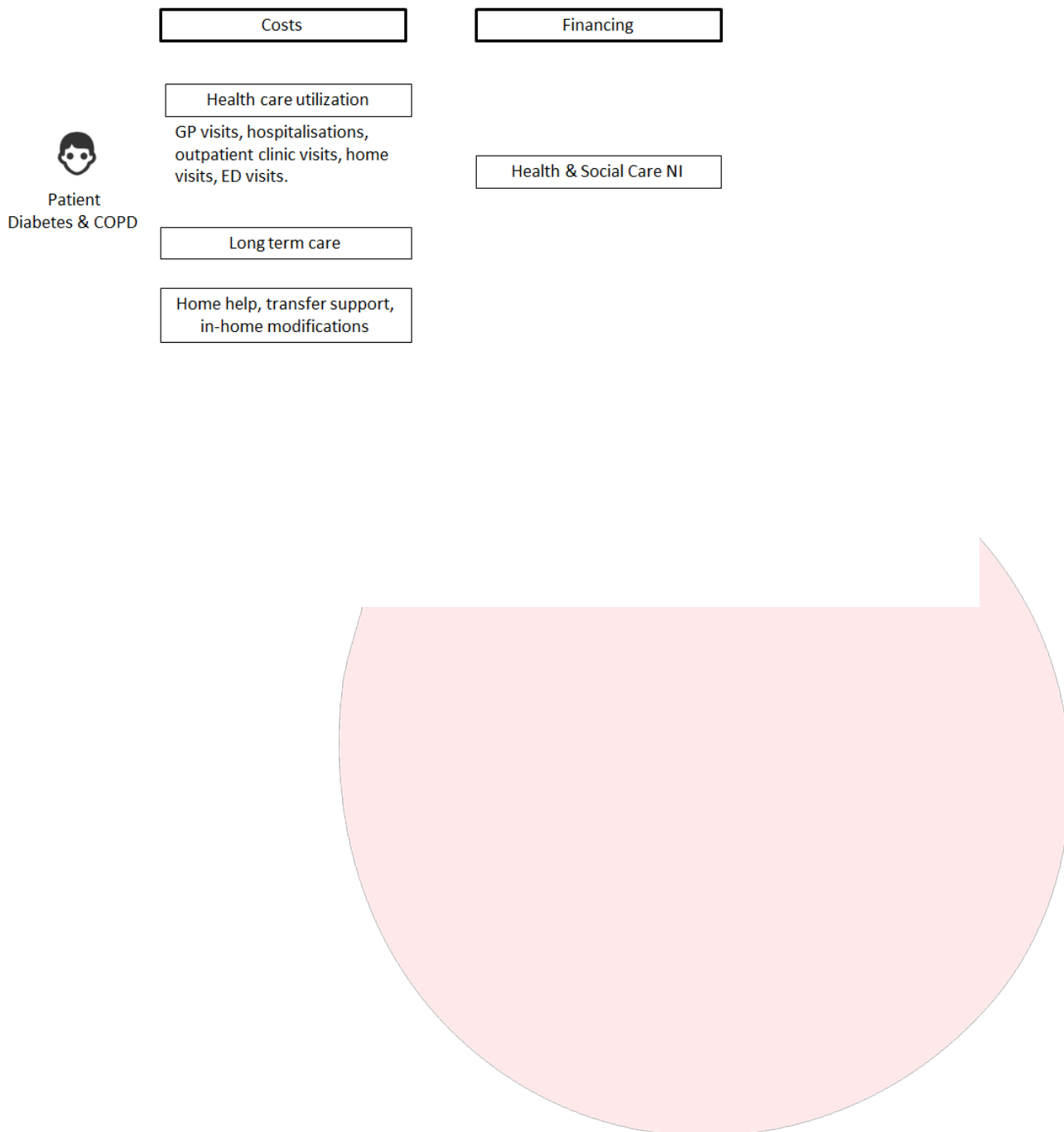
Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by budget through governmental agencies, which is expected to change within the next three years. Data and information on care consumption is collected via of hospital information systems, and is collected annually. Innovative business models that might be applicable to this program is the Veterans Health Administration (reduce hospital bed capacity, expand primary care clinics) model.

WEIGH MANAGEMENT TELEMONTORING

Financial flow can be described at baseline (2015) and subsequently in the following years (2016–2018). The program is funded by budget through governmental agencies, which is expected to change within the next three years. Data and information on care consumption is collected via of hospital information systems, and is collected annually. Innovative business models that might be applicable to this program is the Veterans Health Administration (reduce hospital bed capacity, expand primary care clinics) model.

The funding scheme indicates that patient utilises services and all services are funded by Health and Social Care Northern Ireland. There may be a little private funding for additional home support by the patient themselves through the use of disability living allowances or direct payments but this money also comes from the Health and Social Care NI budget.

Figure 15. Financial flow of the programs in the Northern Ireland.



Conclusions

At the moment there is a lack of sustainable models for the delivery of integrated care and telemonitoring systems in the EU and also little evidence of business model assessment for integrated care programs.

The results of the ACT@Scale mapping survey indicate that all selected programs have the capacity to describe their financial flows at baseline and on an annual basis. This is important because it provides the opportunity to study the flow of patients through the various health care systems in more detail to see exactly how costs and revenue streams are changing as a result of the implementation and scaling up of integrated care delivery systems.

A couple of trends can be discerned from the results. First, most of the programs were funded through budgets financed by (local) governments. Second, a small majority of initiatives indicated to expect a change in funding of their program. Programs that reported to expect a change in funding suggest a wide variety of alternative business models to be applicable to their specific health care setting. This is interesting because it highlights that moving towards sustainable business models for CC&TH differs between EU regions and regional healthcare systems. As a result, reconfiguration of health care systems may necessitate different incentives towards different stakeholders in the different regions. Here the input from other Work Packages (WPs) in the ACT@Scale project (for example WP5 on stakeholder management) will play an important role. Programs that are expecting a change in funding of their program are located in either the Netherlands, Catalonia or Northern Ireland. Potential reasons for other regions why they do not expect a change will be worked out in the following phases of the project. Importantly, also programs that do not expect a change in funding indicate innovative business models that could serve as an alternative to current funding schemes. This finding on itself may be of interest to policy makers and clinicians aiming to scale-up current CC&TH delivery models.

Selection of good practices include methods on service selection/patient stratification as carried out for example in the Basque Country. Also, drivers for staff engagement have developed in Catalonia which directly impact upon patient outcomes. The transfer of these practices can be difficult due to differences in health care system set-up between regions and countries. Still, a lot of work remains to be done. For instance, the level of detail on exactly how funding streams are organised is currently lacking. This represents an important area for improvement and future work carried out in the ACT@Scale project. One approach that will be followed includes the quantification of the financial flows through collection of both quantitative and qualitative indicators (mixed-method approach).

Apparent gaps or issues are whether programs that indicated not to expect a change in funding schemes consider their programs to be sustainable for future scaling up. If so, what are the success factors and can these elements be transferred to other programs and regions, can we identify drivers and barriers? This is one of the main challenges within the ACT@Scale project. Another issue in need of answering is how to select appropriate (alternative) business models suitable to local healthcare settings and how to evaluate their outcomes on financial flows and changes in patient reported outcomes.

Appendix 1. Description of survey on mapping indicators send out to all regions.

1. Financial flow can be described for the program?
 - i. Yes (please attach description, see PPT)
 - ii. No

2. Financial flow can be described at baseline (2015)
 - i. Yes
 - ii. No

3. Financial flow can be described each year (2016, 2017, 2018)
 - i. Yes
 - ii. No

4. How is the program financed?
 - i. By budget
 - ii. By reimbursement
 - iii. Other,

5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government
 - Health care insurance companies
 - Municipalities

□ Other,

6. A change in funding for our program is expected in the next three years

i. Yes

ii. No

7. Who invites the participant into the program?

i. General practitioner (primary care)

ii. Medical specialists (secondary care)

iii. Government organisations

iv. No one, the participant can enter by him or herself

v. Other,

8. All care providers for patients in the program can be described

i. Yes

ii. No

9. How is the contact with the patient organized?

i. By telephone

ii. Face to face

iii. Via remote telecommunication (e.g. video-conferencing)

iv. Other

10. Data and information on care consumption is collected

i. Via questionnaire that is send to the participant by postal services

- ii. Via questionnaire that is filled out face-to-face with care professional
- iii. Via extraction of health care information systems
- iv. Automatically using self-measurement (electronical) devices
- v. Other,.....

11. How often is data collected

- i. Annually
- ii. Other,.....

12. Innovative business models that are applicable for our program include:

- i. Shared savings
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
- iv. Other,.....
- v. None

Appendix 2: Results of the surveys per program.

Northern Netherlands

EMBRACE

1. Financial flow can be described for the program?
 - i. Yes (please attach description, see PPT)
 - ii. No

2. Financial flow can be described at baseline (2015)
 - i. Yes
 - ii. No

3. Financial flow can be described each year (2016, 2017, 2018)
 - i. Yes
 - ii. No

4. How is the program financed?
 - i. By budget
 - ii. By reimbursement
 - iii. Other,.....

5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government
 - Health care insurance companies
 - Municipalities
 - Other,

6. A change in funding for our program is expected in the next three years
 - i. Yes
 - ii. No

7. Data and information on care consumption is collected
 - i. Via questionnaire that is send to the participant by postal services
 - ii. Via questionnaire that is filled out face-to-face with care professional
 - iii. Via extraction of health care information systems
 - iv. Automatically using self-measurement (electronical) devices
 - v. Other,.....

8. How often is data collected

- i. Annually **X**
- ii. Other,.....

9. Innovative business models that are applicable for our program include:

- i. Shared savings
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
- iv. Other **population coverage**
.....

ASTHMA/COPD

1. Financial flow can be described for the program?

- i. **X** Yes (please attach description, see PPT)
- ii. No

2. Financial flow can be described at baseline (2015)

- i. **X** Yes
- ii. No

3. Financial flow can be described each year (2016, 2017, 2018)

- i. **X** Yes
- ii. No

4. How is the program financed?

- i. By budget
- ii. By reimbursement **X**
- iii. Other,.....

5. Funding of care in the program is provided by: (please tick all applicable boxes)

- Government
- Health care insurance companies **X**
- Municipalities
- Other,

6. A change in funding for our program is expected in the next three years

- i. Yes **X**
- ii. No

- 7. Data and information on care consumption is collected
 - i. Via questionnaire that is send to the participant by postal services **X**
 - ii. Via questionnaire that is filled out face-to-face with care professional
 - iii. Via extraction of health care information systems **X**
 - iv. Automatically using self-measurement (electronical) devices
 - v. Other,.....
- 8. How often is data collected
 - i. Annually **X**
 - ii. Other,.....
- 9. Innovative business models that are applicable for our program include:
 - i. Shared savings **X**
 - ii. Capitation
 - iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
 - iv. Other,.....

EFFECTIVE CARDIO

- 1. Financial flow can be described for the program?
 - i. **X** Yes (please attach description, see PPT)
 - ii. No
- 2. Financial flow can be described at baseline (2015)
 - i. **X** Yes
 - ii. No
- 3. Financial flow can be described each year (2016, 2017, 2018)
 - i. **X** Yes
 - ii. No
- 4. How is the program financed?
 - i. By budget
 - ii. By reimbursement **X**
 - iii. Other,.....
- 5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government
 - Health care insurance companies **X**
 - Municipalities

Other,

6. A change in funding for our program is expected in the next three years

- i. Yes **X**
- ii. No

7. Data and information on care consumption is collected

- i. Via questionnaire that is send to the participant by postal services
- ii. Via questionnaire that is filled out face-to-face with care professional
- iii. Via extraction of health care information systems **X**
- iv. Automatically using self-measurement (electronical) devices **X**
- v. Other,.....

8. How often is data collected

- i. Annually **X**
- ii. Other, Continuously

9. Innovative business models that are applicable for our program include:

- i. Shared savings **X**
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
- iv. Other,.....

Region of South Denmark

TELEPSYCHIATRY

1. Financial flow can be described for the program?

- i. Yes (please attach description, see PPT) **X**
- ii. No

2. Financial flow can be described at baseline (2015)

- i. Yes **X**
- ii. No

3. Financial flow can be described each year (2016, 2017, 2018)

- i. Yes **X**
- ii. No

4. How is the program financed?

- i. By budget
- ii. By reimbursement **X**
- iii. Other,.....

5. Funding of care in the program is provided by: (please tick all applicable boxes)

- Government **X**
- Health care insurance companies
- Municipalities
- Other,

6. A change in funding for our program is expected in the next three years

- i. Yes
- ii. No **X**

7. Data and information on care consumption is collected

- i. Via questionnaire that is send to the participant by postal services
- ii. Via questionnaire that is filled out face-to-face with care professional
- iii. Via extraction of health care information systems
- iv. Automatically using self-measurement (electronical) devices
- v. Other, **Data is collected as part of the online treatment.**

8. How often is data collected

- i. Annually
- ii. Other, **Automatically on an ongoing basis as part of the online treatment system**

9. Innovative business models that are applicable for our program include:

- i. Shared savings
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
- iv. Other, **Capacity expansion – we are now serving a patient group that was underserved prior to the service/programme.**

Catalonia

NURSING HOMES

1. Financial flow can be described for the program?

- i. Yes **X** (please attach description, see PPT)
- ii. No

- 2. Financial flow can be described at baseline (2015)
 - i. Yes **X**
 - ii. No

- 3. Financial flow can be described each year (2016, 2017, 2018)
 - i. Yes **X**
 - ii. No

- 4. How is the program financed?
 - i. By budget **X**
 - ii. By reimbursement
 - iii. Other,.....

- 5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government **X**
 - Health care insurance companies
 - Municipalities
 - Other,

- 6. A change in funding for our program is expected in the next three years
 - i. Yes
 - ii. No **X**

- 7. Data and information on care consumption is collected
 - i. Via questionnaire that is send to the participant by postal services
 - ii. Via questionnaire that is filled out face-to-face with care professional
 - iii. Via extraction of health care information systems **X**
 - iv. Automatically using self-measurement (electronical) devices
 - v. Other,.....

- 8. How often is data collected
 - i. Annually **X**
 - ii. Other,.....

- 9. Innovative business models that are applicable for our program include:
 - i. Shared savings
 - ii. Capitation
 - iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
 - iv. Other,.....

CHRONIC CARE

1. Financial flow can be described for the program?
 - i. Yes **X** (please attach description, see PPT)
 - ii. No

2. Financial flow can be described at baseline (2015)
 - i. Yes **X**
 - ii. No

3. Financial flow can be described each year (2016, 2017, 2018)
 - i. Yes **X**
 - ii. No

4. How is the program financed?
 - i. By budget
 - ii. By reimbursement
 - iii. **Other:** The financing system is very complex because there is funding coming from different places: public Catalanian insurance (CatSalut) + Municipality + Third Sector + co-payment for some social lines

5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government **X**
 - Health care insurance companies
 - Municipalities **X**
 - Other: Patient and third sector **X**

6. A change in funding for our program is expected in the next three years
 - i. Yes
 - ii. No **X**

7. Data and information on care consumption is collected
 - i. Via questionnaire that is send to the participant by postal services
 - ii. Via questionnaire that is filled out face-to-face with care professional
 - iii. Via extraction of health care information systems **X**
 - iv. Automatically using self-measurement (electronical) devices
 - v. Other,.....

8. How often is data collected
 - i. Annually **X**
 - ii. Other,.....

9. Innovative business models that are applicable for our program include:
- Shared savings
 - Capitation
 - Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
 - Other:** co-payment of some of the social services

COMPLEX CASE MANAGEMENT

- Financial flow can be described for the program?
 - Yes (please attach description, see PPT) **X**
 - No
- Financial flow can be described at baseline (2015)
 - Yes **X**
 - No
- Financial flow can be described each year (2016, 2017, 2018)
 - Yes **X**
 - No
- How is the program financed?
 - By budget
 - By reimbursement
 - Other, Convergence between reimbursement of the Home Hospitalization Program and other sources of funding associated with Innovation & Research **X**
- Funding of care in the program is provided by: (please tick all applicable boxes)
 Government **X**
 Health care insurance companies
 Municipalities
 Other, Research + Innovation initiatives **X**
- A change in funding for our program is expected in the next three years
 - Yes **X**
 - No
- Data and information on care consumption is collected
 - Via questionnaire that is send to the participant by postal services

- ii. Via questionnaire that is filled out face-to-face with care professional
- iii. Via extraction of health care information systems **X**
- iv. Automatically using self-measurement (electronical) devices
- v. Other, + datasets of I+D programs **X**

8. How often is data collected

- i. Annually **X**
- ii. Other,.....

9. Innovative business models that are applicable for our program include:

- i. Shared savings **X**
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
- iv. Other, Increase capacity for sophisticated (tertiary care) at Hospital Clinic level **X**

PHYSICAL ACTIVITY

1. Financial flow can be described for the program?

- i. Yes (please attach description, see PPT) **X**
- ii. No

2. Financial flow can be described at baseline (2015)

- i. Yes **X**
- ii. No

3. Financial flow can be described each year (2016, 2017, 2018)

- i. Yes **X**
- ii. No

4. How is the program financed?

- i. By budget
- ii. By reimbursement
- iii. Other, Convergence between reimbursement of the Home Hospitalization Program and other sources of funding associated with Innovation & Research **X**

5. Funding of care in the program is provided by: (please tick all applicable boxes)

- Government **X**
- Health care insurance companies
- Municipalities

X Other, Research + Innovation initiatives X

6. A change in funding for our program is expected in the next three years

- i. Yes X
- ii. No

7. Data and information on care consumption is collected

- i. Via questionnaire that is send to the participant by postal services
- ii. Via questionnaire that is filled out face-to-face with care professional
- iii. Via extraction of health care information systems X
- iv. Automatically using self-measurement (electronical) devices
- v. Other, + datasets of I+D programs X

8. How often is data collected

- i. Annually X
- ii. Other,.....

9. Innovative business models that are applicable for our program include:

- i. Shared savings X
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
- iv. Other, Increase capacity for sophisticated (tertiary care) at Hospital Clinic level X

FRAIL OLDER ADULTS

1. Financial flow can be described for the program?

- i. Yes X (please attach description, see PPT)
- ii. No

2. Financial flow can be described at baseline (2015)

- i. Yes X
- ii. No

3. Financial flow can be described each year (2016, 2017, 2018)

- i. Yes X
- ii. No

4. How is the program financed?

- i. By budget
- ii. By reimbursement X
- iii. Other,.....

5. Funding of care in the program is provided by: (please tick all applicable boxes)

- Government
- Health care insurance companies
- Municipalities
- Other,

6. A change in funding for our program is expected in the next three years

- i. Yes
- ii. No

7. Data and information on care consumption is collected

- i. Via questionnaire that is send to the participant by postal services
- ii. Via questionnaire that is filled out face-to-face with care professional
- iii. Via extraction of health care information systems
- iv. Automatically using self-measurement (electronical) devices
- v. Other,.....

8. How often is data collected

- i. Annually
- ii. Other,.....

9. Innovative business models that are applicable for our program include:

- i. Shared savings
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
- iv. Other,.....

The Basque Country

MULTIMORBID INTEGRATION

1. Financial flow can be described for the program?

- i. Yes (please attach description, see PPT)
- ii. No

2. Financial flow can be described at baseline (2015)

- i. Yes
- ii. No

- 3. Financial flow can be described each year (2016, 2017, 2018)
 - i. Yes **X**
 - ii. No

- 4. How is the program financed?
 - i. By budget **X**
 - ii. By reimbursement
 - iii. Other,.....

- 5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government **X**
 - Health care insurance companies
 - Municipalities
 - Other,

- 6. A change in funding for our program is expected in the next three years
 - i. Yes
 - ii. No **X**

- 7. Data and information on care consumption is collected
 - i. Via questionnaire that is send to the participant by postal services
 - ii. Via questionnaire that is filled out face-to-face with care professional
 - iii. Via extraction of health care information systems **X**
 - iv. Automatically using self-measurement (electronical) devices
 - v. Other,.....

- 8. How often is data collected
 - i. Annually **X**
 - ii. Other,.....

- 9. Innovative business models that are applicable for our program include:
 - i. Shared savings
 - ii. Capitation
 - iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
 - iv. **Other**,.....Predictive Modelling?

CHF TELEMONITORING

1. Financial flow can be described for the program?
 - i. Yes **X** (please attach description, see PPT)
 - ii. No

2. Financial flow can be described at baseline (2015)
 - i. Yes **X**
 - ii. No

3. Financial flow can be described each year (2016, 2017, 2018)
 - i. Yes
 - ii. No **X**

4. How is the program financed?
 - i. By budget **X**
 - ii. By reimbursement
 - iii. Othe, framework programme with the Department of Health of the Basque Country

5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government
 - Health care insurance companies
 - Municipalities
 - Other, Public Health Service **X**

6. A change in funding for our program is expected in the next three years
 - i. Yes
 - ii. No **X**

7. Data and information on care consumption is collected
 - i. Via questionnaire that is send to the participant by postal services
 - ii. Via questionnaire that is filled out face-to-face with care professional
 - iii. Via extraction of health care information systems **X**
 - iv. Automatically using self-measurement (electronical) devices
 - v. Other,.....

8. How often is data collected
 - i. Annually **X**
 - ii. Other,.....

9. Innovative business models that are applicable for our program include:
- i. Shared savings
 - ii. Capitation
 - iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics)
 - iv. Other,.....
None X

Northern Ireland

COPD TELEMONITORING

1. Financial flow can be described for the program?
- i. Yes X (please attach description, see PPT)
 - ii. No
2. Financial flow can be described at baseline (2015)
- i. Yes X
 - ii. No
3. Financial flow can be described each year (2016, 2017, 2018)
- i. Yes X
 - ii. No
4. How is the program financed?
- i. By budget X
 - ii. By reimbursement
 - iii. Other,.....
5. Funding of care in the program is provided by: (please tick all applicable boxes)
- Government X
 - Health care insurance companies
 - Municipalities
 - Other,
6. A change in funding for our program is expected in the next three years
- i. Yes X
 - ii. No

- 7. Data and information on care consumption is collected
 - i. Via questionnaire that is send to the participant by postal services
 - ii. Via questionnaire that is filled out face-to-face with care professional
 - iii. Via extraction of health care information systems **X**
 - iv. Automatically using self-measurement (electronical) devices
 - v. Other,.....
- 8. How often is data collected
 - i. Annually **X**
 - ii. Other,.....
- 9. Innovative business models that are applicable for our program include:
 - i. Shared savings
 - ii. Capitation
 - iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics) **X**
 - iv. Other,.....

DIABETES TELEMONITORING

- 1. Financial flow can be described for the program?
 - i. Yes **X** (please attach description, see PPT)
 - ii. No
- 2. Financial flow can be described at baseline (2015)
 - i. Yes **X**
 - ii. No
- 3. Financial flow can be described each year (2016, 2017, 2018)
 - i. Yes **X**
 - ii. No
- 4. How is the program financed?
 - i. By budget **X**
 - ii. By reimbursement
 - iii. Other,.....
- 5. Funding of care in the program is provided by: (please tick all applicable boxes)
 - Government **X**
 - Health care insurance companies

- Municipalities
- Other,

6. A change in funding for our program is expected in the next three years

- i. Yes **X**
- ii. No

7. Data and information on care consumption is collected

- i. Via questionnaire that is send to the participant by postal services
- ii. Via questionnaire that is filled out face-to-face with care professional
- iii. Via extraction of health care information systems **X**
- iv. Automatically using self-measurement (electronical) devices
- v. Other,.....

8. How often is data collected

- i. Annually **X**
- ii. Other,.....

9. Innovative business models that are applicable for our program include:

- i. Shared savings
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics) **X**
- iv. Other,.....

WEIGH MANAGEMENT TELEMONITORING

10. Financial flow can be described for the program?

- i. Yes **X** (please attach description, see PPT)
- ii. No

11. Financial flow can be described at baseline (2015)

- i. Yes **X**
- ii. No

12. Financial flow can be described each year (2016, 2017, 2018)

- i. Yes **X**
- ii. No

13. How is the program financed?

- i. By budget **X**
- ii. By reimbursement
- iii. Other,.....

14. Funding of care in the program is provided by: (please tick all applicable boxes)

- Government **X**
- Health care insurance companies
- Municipalities
- Other,

15. A change in funding for our program is expected in the next three years

- i. Yes **X**
- ii. No

16. Data and information on care consumption is collected

- vi. Via questionnaire that is send to the participant by postal services
- vii. Via questionnaire that is filled out face-to-face with care professional
- viii. Via extraction of health care information systems **X**
- ix. Automatically using self-measurement (electronical) devices
- x. Other,.....

17. How often is data collected

- iii. Annually **X**
- iv. Other,.....

18. Innovative business models that are applicable for our program include:

- i. Shared savings
- ii. Capitation
- iii. Veterans Health Administration model (reduce hospital bed capacity, expand primary care clinics) **X**
- iv. Other,.....

References.

¹Tsiachristas A, Hipple-Walters B, Lemmens KM, Nieboer AP, Rutten-van Mólken MP. Towards integrated care for chronic conditions: Dutch policy developments to overcome the (financial) barriers. Health Policy. 2011 Jul;101(2):122-32.

