Learning from integrated eCare practice and promoting deployment in European regions

BeyondSilos

D2.1 ORGANISATIONAL & SERVICE PROCESS MODELS

WP2 Organisational models and service process models

Version 1.0 / 28th November 2014

The BeyondSilos project is co-funded by the European Commission within the ICT Policy Support Programme of the Competitiveness and Innovation Framework Programme (CIP).
Grant Agreement No.: 621069

cip competitiveness and innovation framework programme 2007–2013

Document information

Organisation responsible

Badalona Serveis Assistencials (BSA)

Authors

Piera Jiménez, Jordi (BSA)

Contributing partners

Donat Castelló, Lucas (LAFE)
Iaccarino, Guido (Campania)
Melle, Christian (Kinzigtal)
Fernandes, Adriano (Amadora)
Kouzmanov, Yanko (CPRH)
Hobson, Penny (HSCNI)

Dissemination level

PU Public

Version history

Version	Date	Changes made	By
0.1	17th October 2014	TOC	BSA
0.2	30th October 2014	Incorporation of pilot sites input into deliverable	BSA
0.3	16th November 2014	Incorporation of pilot sites reviewed input according to new numbering of the ICT Building blocks	BSA
0.4	26th November 2014	Finalisation of the deliverable and sent for quality assurance	BSA
1.0	28th November 2014	Issue	HIMSA

Outstanding issues

None

Filename

D2.1 v1.0 BeyondSilos Organisational & Service process models

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

Executive summary

The aim of BeyondSilos is to develop and pilot integrated care services delivered with the help of a multifunctional ICT infrastructure. These services are based on two generic care pathways, previously developed in the SmartCare project, and described in D1.2 BeyondSilos Pilot Level Pathways:

a) Integrated short-term home support after an acute episode (ICP-acute) and

b) Integrated long-term home support (ICP-LTcare).

This document sets out the localised versions of the two pathways, translated into comprehensive workflows (service process models) to show the real implementation of the generic model in each particular region.

Table of Contents

List of Figures

Table of Tables

1 Introduction

1.1 Purpose and structure of this document

This document is the first and only deliverable to be produced within the context of the second work package (WP2). The efforts carried out by the different pilot sites in this context mainly consisted of localising the two generic pathways to the specific characteristics prevailing at each pilot site. To achieve this, the pilot sites have translated the generic pathways into comprehensive workflows (service process models) to show the specific implementation of the models in each particular region.

These service process models are based on two generic care pathways, previously developed in the SmartCare project[1], which have been adapted where appropriate in work package 1 (WP1) to the BeyondSilos service delivery characteristics. The two generic pathways are: a) Integrated short-term home support after an acute episode; and b) Integrated long-term home support. Both of them are described in deliverable D1.2 BeyondSilos Pilot level Pathways.

The service process models present a step-by-step scenario, showing as far as possible the sequence of actions to be realised by all the different stakeholders involved in the provision of the services in each regional. To accomplish this, the pilot sites were provided with a briefing document, including basic information about WP2 description and objectives, its interdependencies with other work packages, and a common set of modelling tools in order to gather as much homogeneous input as possible. All of these can be found in Appendix A.

The main body of the deliverable focuses on describing the two service process models at each pilot site. For each site, a short description of the starting point is provided. Afterwards, the localisations of the integrated short-term home care support pathway (ICP-acute) and the integrated long-term home care support pathway (ICP-LTcare) are provided.

Note that the graphical representations of the service process models were made by the different pilot sites using a variety of different software applications: some used MS Excel, while others used MS Visio or Open Source tools. Because of this, and because of the complexity of such representations, it was not always easy to make them fit in this document. Original service process models in the formats they were delivered can be made available upon request.

Finally, readers will be able to learn from the experiences gained by the different pilot sites when producing the service process models. This information can be found in Appendix B.

1.2 Glossary

ASL	Local Health Agencies
BSA	Badalona Serveis Assistencials
CLAS	Amadora Municipality Assessment Unit
CPRH	Centre for Protection of Rights in Healthcare
CR	Care Recipient
EMR	Electronic Medical Record
EU	European Union

[1] See http://www.pilotsmartcare.eu

GP	General Practitioner
GPS	Global Positioning System
HSCB	Health and Social Care Board (Ireland)
ICT	Information and Communication Technologies
SCMA	Misericórdia of Amadora
SCR	Social Care Record
WP	Work Package

2 Amadora pilot site – localisation of the two generic pathways and service process modelling

2.1 Local background to the two pathways

Amadora is one of the largest cities in Portugal by population; despite the geographic area being only 23.8 km^2, it has a population of 175,558 inhabitants according to the preliminary results of the 2011 Census, which reflects its high population density. It forms a conurbation with the Portuguese capital Lisbon. Both cities share the same subway, bus and train network. It is also a major residential suburb of the capital. The landscape is mainly defined by large apartment blocks and some industry. Accessibility and proximity to Lisbon are pull factors, which has contributed to the great social and cultural diversity that characterises the Municipality of Amadora.

According to the "Social Diagnosis 2011 Amadora", elaborated by the Social Network of Amadora "the demographic context of the Municipality reflects, in the last years, the loss of resident population and its gradual aging, due to the combination of socio-economic factors". Also according to this document, 19% are aged over 65 years, and 42% of these are over 75; in parallel, the young population represent around 15%.

The progressive ageing of the population has been a key issue for all the relevant social and health care providers in Amadora. Despite several efforts made by the key stakeholders at Amadora, namely Amadora Municipality, Social Security and representatives from non-profit sector, the delivery of social and health care services have not been integrated, either for ICT usage or links between social and health care.

Amadora Municipality has made an effort to gather all the key stakeholders into an umbrella association named CLAS (Amadora Municipality Assessment Unit) that started its activity in 2003. Since then, CLAS has served the purpose of establishing and reinforcing networks between health and social care providers, and discussing strategies to work in partnership. CLAS meets every quarter; since the association has existed, a lot of progress has been made regarding services provided in partnership.

Misericórdia of Amadora (SCMA) is one of the non-profit organisations taking part in CLAS, and has been delivering services for social and health care for 27 years. SCMA delivers services to different vulnerable groups; in the domain of elderly people living in a frail situation, it has different social responses such as nursing homes, day care centres, continuing care unit, carers' support unit; and a home care support service.

All these services require medical doctors, nurses and other health professionals. However, SCMA and Amadora Municipality work in partnership with other health actors on the council such as the hospital, public health care centre, and other private health services, that will be engaged in the BeyondSilos deployment site in the following context:

- Referring clients with the appropriate profile to both pathways.
- Attending focus group sessions and other regular meetings to give inputs and contributions to maximise the quality of services provided.
- Providing services to clients that do not fulfil the criteria of the BeyondSilos deployment site.

Finally, the main relevance of SCMA relating to other institutions is explained by the integrated services that SCMA provides in terms of social and health care, such as the home care service that delivers services to 150 clients daily. SCMA reaches 5300 clients daily through different services on education, social support, health and geriatrics.

Amadora Municipality and SCMA have been developing in the past years a strong partnership to deliver services to vulnerable groups: elderly people; citizens in a vulnerable social and economic condition; youngsters; immigrants, etc. In this case, Amadora Municipality and SCMA considered that they could join efforts to provide better social and health care to the population, namely through the integration of social and health care services and providers, and through the reinforcement and extension of the ICT in use.

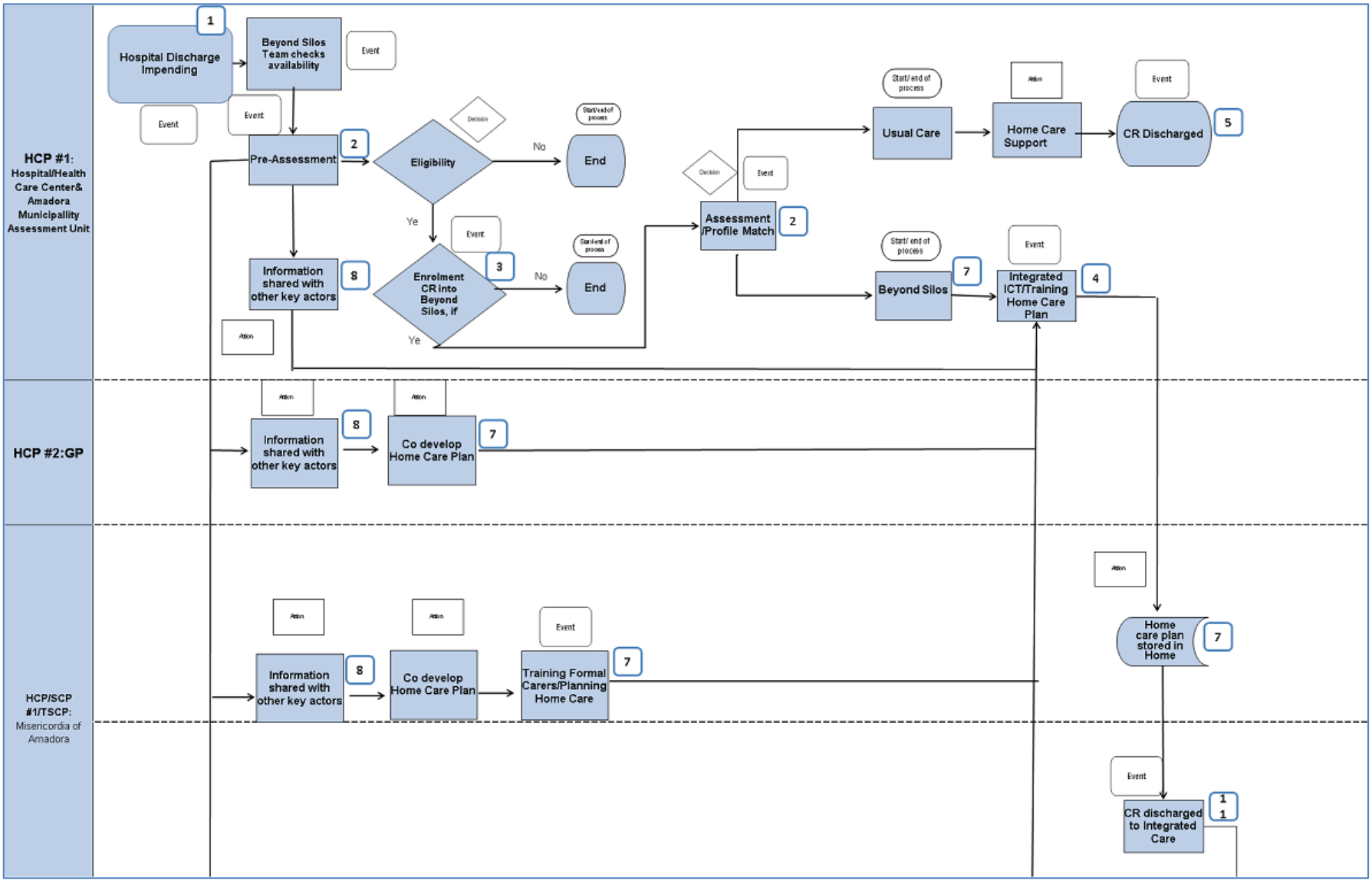
2.2 Service process model for integrated short-term home support after an acute episode (ICP-acute)

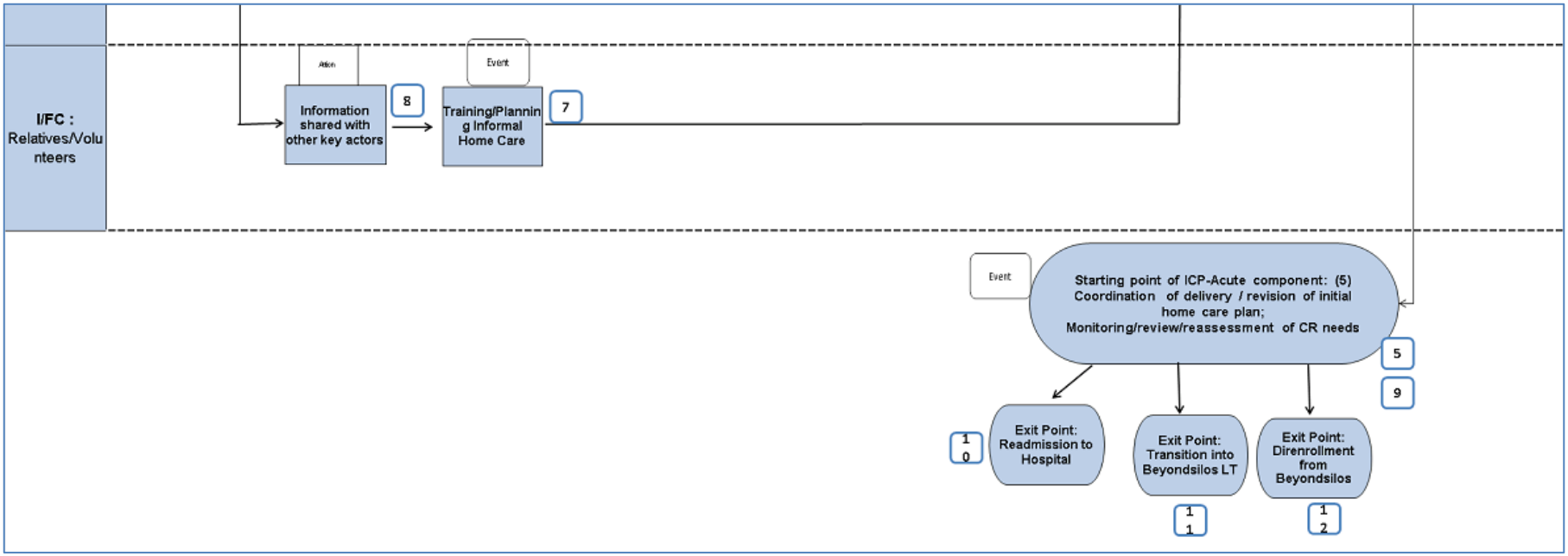
This section presents the service process model for integrated short-term home support after an acute episode. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 1: Stakeholder overview for the ICP-acute in Amadora

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital/Health Care Centre & Amadora Municipality Assessment Unit
HCP #2	Health care provider	GP
HCP #3 / SCP #1 / TSCP #1	Health care provider / Social care provider / Third sector care provider	Misericordia of Amadora
I/FC	Informal / family carer	

Figure 1: ICP-acute service process model in Amadora




I/FC : Relatives/Volu nteers
Ation
Information shared with other key actors
8
Event
Training/Plannin g Informal Home Care
7
Event
Starting point of ICP-Acute component: (5) Coordination of delivery / revision of initial home care plan; Monitoring/review/reassessment of CR needs
5
9
1 0
Exit Point: Readmission to Hospital
Exit Point: Transition into Beyondsilos LT
1 1
Exit Point: Direnrollment from Beyondsilos
1 2

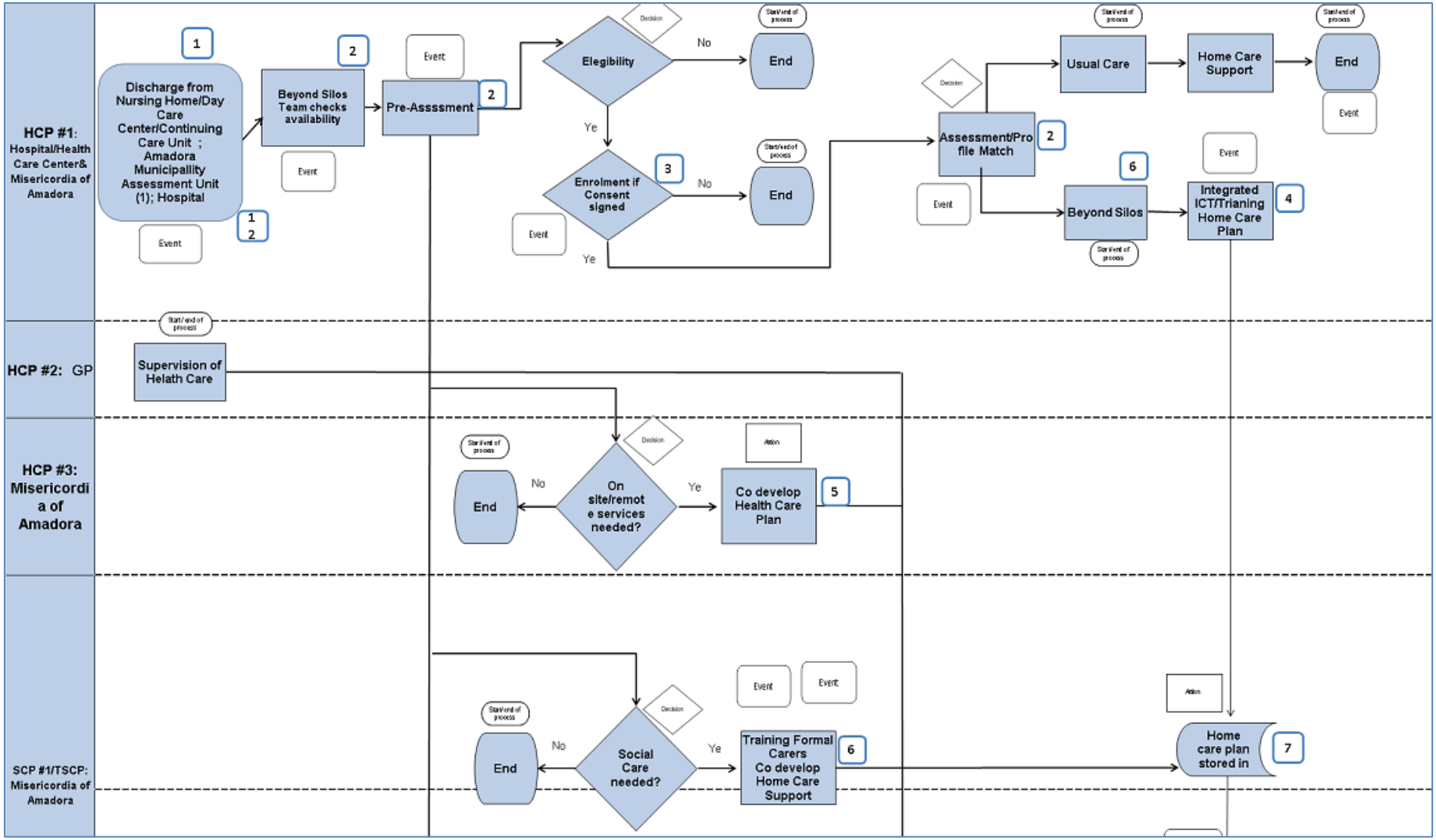
2.3 Service process model for integrated long-term home support (ICP-LTcare)

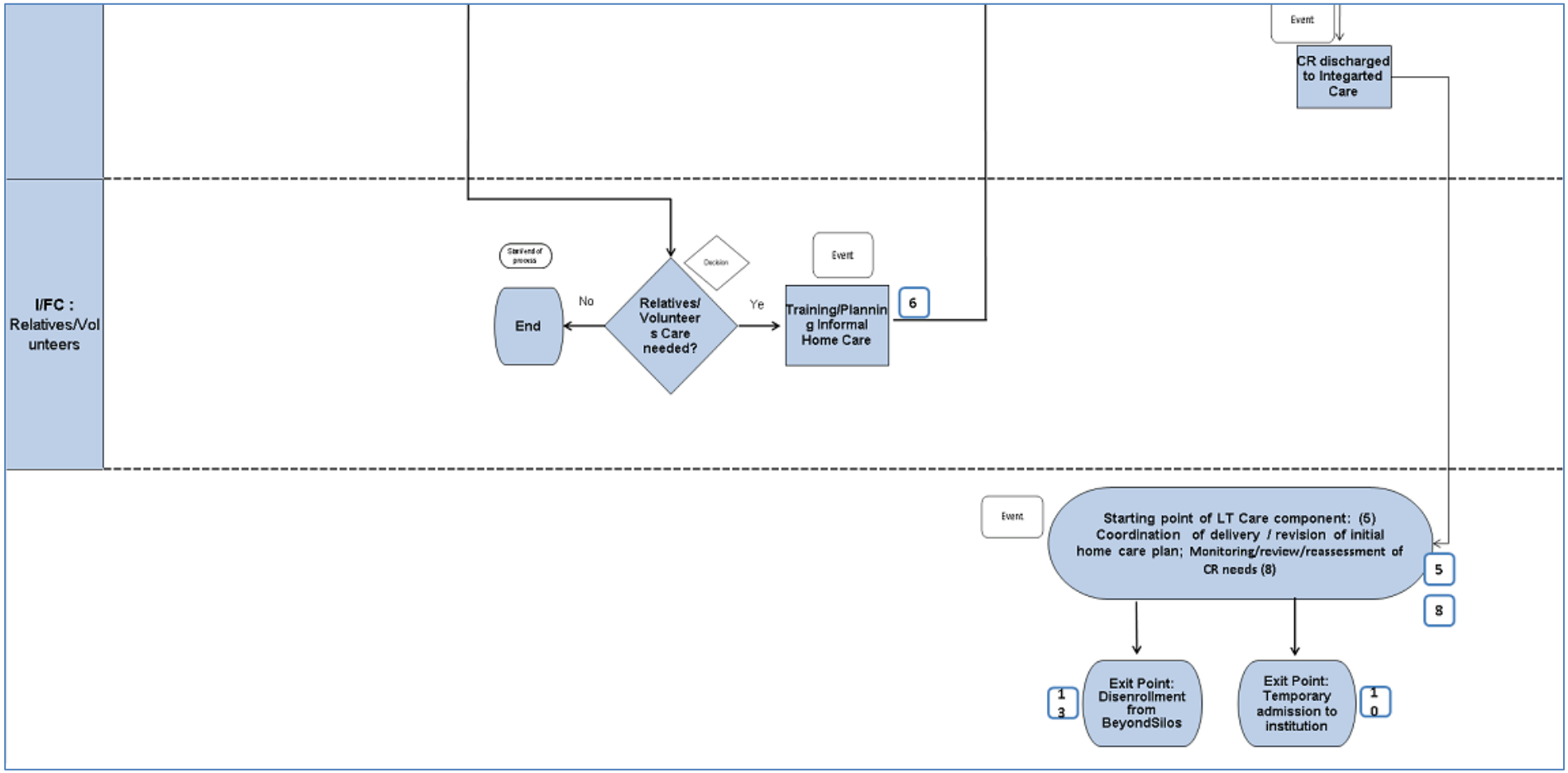
This section presents the service process model for integrated long-term home support. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 2: Stakeholder overview for the ICP-LTcare in Amadora

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital/Health Care Center& Amadora Municipallity Assessment Unit
HCP #2	Health care provider	GP
HCP #3	Health care provider	Misericordia of Amadora
SCP #1/ TSCP #1	Social care provider / Third sector care provider	Misericordia of Amadora
I/FC	Informal / family carer	

Figure 2: ICP-LTcare service process model in Amadora




I/FC : Relatives/Volunteers
Event
CR discharged to Integarted Care
Start/end of process
Decision
No
Relatives/ Volunteers Care needed?
Ye
End
Event
Training/Planning Informal Home Care
6
Event
Starting point of LT Care component: (5) Coordination of delivery / revision of initial home care plan; Monitoring/review/reassessment of CR needs (8)
5
8
13
Exit Point: Disenrollment from BeyondSilos
Exit Point: Temporary admission to institution
10

3 Badalona pilot site – localisation of the two generic pathways and service process modelling

3.1 Local background to the two pathways

Badalona Serveis Assistencials (BSA) is an integrated private health and social care organisation with entirely public capital that manages the Hospital Municipal de Badalona, the Homecare Integrated service, the socio health centre El Carme, seven primary care centres and the Centre for Sexual and Reproductive Health. It provides care to a total population of 419,797 inhabitants in a very populated suburban area of Barcelona.

BSA has a special characteristic that distinguishes it from all the other healthcare providers in Catalonia: it also provides the social care services for the region of Badalona and three other towns surrounding it. Originally in our country, a separation between the Department of Social Welfare and Family and the Department of Healthcare has existed. In terms of welfare, this separation has not proven to be the most suitable to provide effective and quality care to the patient who receives both types of care simultaneously. Because of that, from BSA and with the support of Badalona's Council, it was decided in 2000 to change the conceptual model, focusing it on the patient. This model was carried out at the operating level by transferring social services to BSA, a company originally dedicated to the provision of health services, thus obtained the perfect fusion between the conceptual and operational level.

The union of the older healthcare-oriented infrastructure (the Geriatric Department) dealing with all kinds of elderly typologies ranging from the healthy, the frail, ill, dependent or those in a late stage of life, along with a public Social Service department, renders BSA able to complement health-related interventions with social assistance on a level of almost unprecedented process consolidation. This situation, as a whole, makes BSA work effectively as an integrated care organisation, not only taking into account the transversality among assistance levels, but also being able to deal with and manage the complete social welfare situation among the whole reference population. The structure of the organisation is formed by a Primary Care unit, administering a reference population of 114.347; the Hospitalisation unit, located at the Hospital Municipal de Badalona; the Socio-Health Care unit and a Home Care Service; and all supported by state-of-the-art technology.

BSA is involved in a number of research and innovation projects, both national and European, dealing with the development of new services for their target population with the support of ICT, including all types of telemedicine and e-health solutions. BSA is constantly aiming to improve the services offered to the population that it is responsible for. In the last five years, the complexity of wellbeing related problems has greatly increased, especially in the social care area. The geriatrics, psycho geriatrics, neuropsychiatry, convalescence, rehabilitation and palliative care specialties are currently being complemented by several programmes that have been put in place in order to improve the services provided.

BSA has been providing social and health care services in an integrated way for quite a long time now, but there is still a long way to go. With BeyondSilos, BSA aims to better integrate the measurements that patients are taking at home with the corporate electronic medical record (EMR). Another challenge that BSA would like to achieve during the project timeframe is opening specific subsets of its EMR to the third sector organisations surrounding it, in order to increase the effectiveness of the integration beyond current levels.

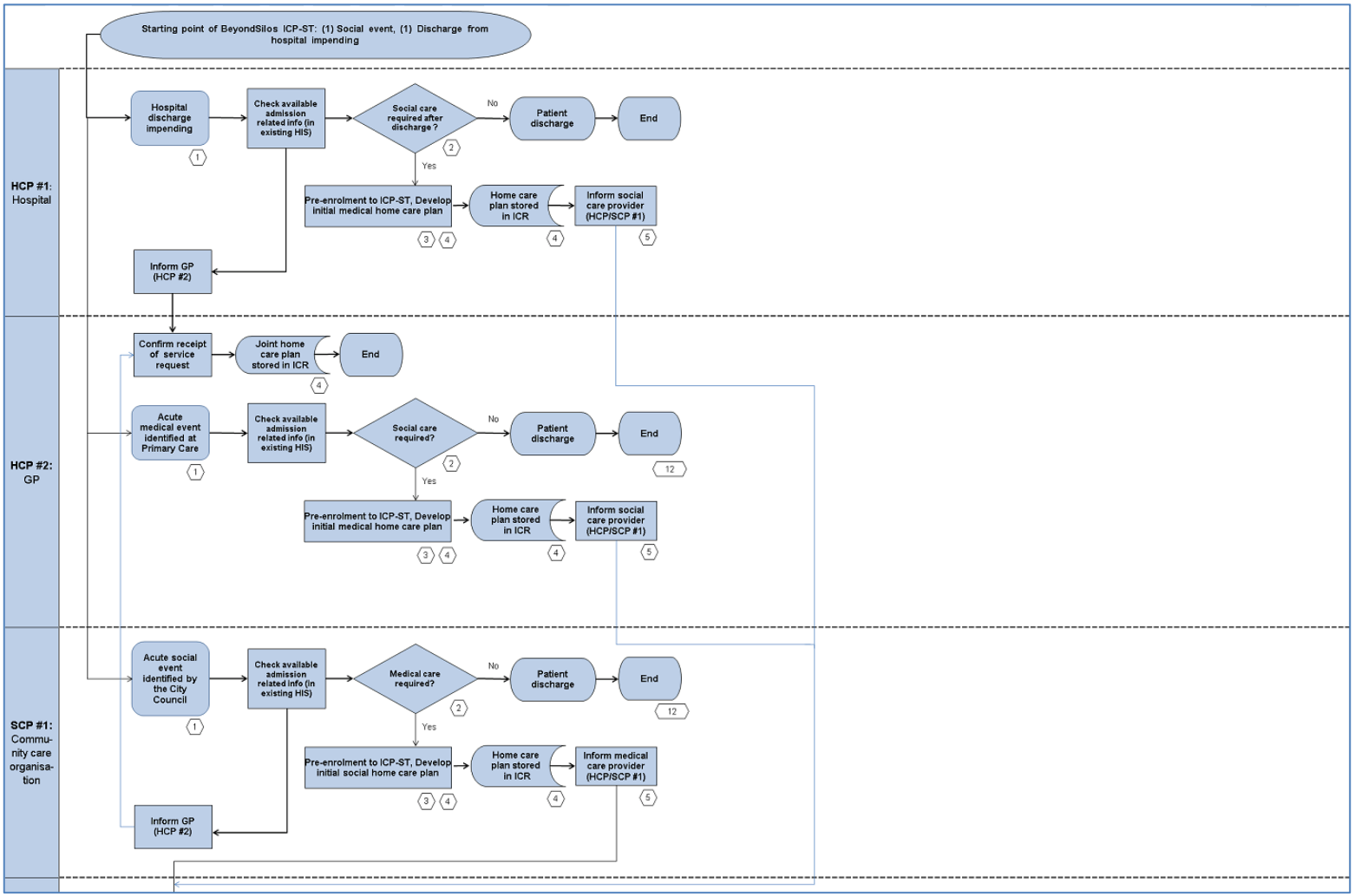
3.2 Service process model for integrated short-term home support after an acute episode (ICP-acute)

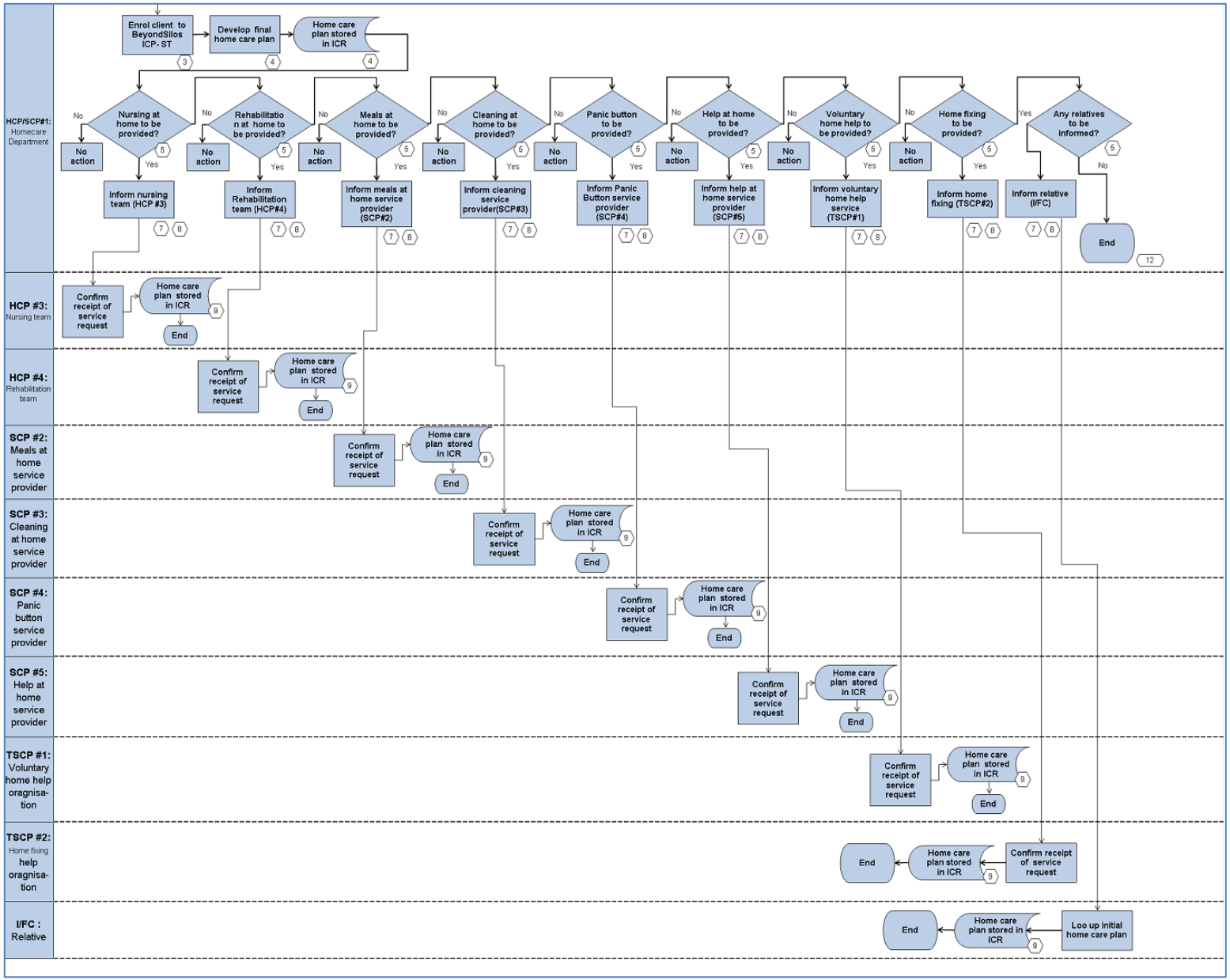
This section presents the service process model for integrated short-term home support after an acute episode. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 3: Stakeholder overview for the ICP-acute in Badalona

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital Municipal de Badalona
HCP #2	Health care provider	GP from the Primary Care Centre
SCP #1	Social care provider	Community care
HCP/SCP#1	Health care provider / Social care provider	Homecare Department from BSA
HCP #3	Health care provider	Nursing team
HCP #4	Health care provider	Rehabilitation team service provider
SCP #2	Social care provider	Meals at home service provider
SCP #3	Social care provider	Cleaning at home service provider
SCP #4	Social care provider	Panic button service provider
SCP #5	Social care provider	Help at home service provider
TSCP #1	Third sector care provider	Voluntary home help organisation
TSCP #2	Third sector care provider	Home fixing help organisation
I/FC	Informal / family carer	

Figure 3: ICP-acute service process model in Badalona




HCP/SCP#1: Homecare Department
Enrol client to BeyondSilos ICP- ST
Develop final home care plan
Home care plan stored in ICR
Nursing at home to be provided?
Rehabilitation at home to be provided?
Meals at home to be provided?
Cleaning at home to be provided?
Panic button to be provided?
Help at home to be provided?
Voluntary home help to be provided?
Home fixing to be provided?
Any relatives to be informed?
No action
Inform nursing team (HCP #3)
Inform Rehabilitation team (HCP#4)
Inform meals at home service provider (SCP#2)
Inform cleaning service provider(SCP#3)
Inform Panic Button service provider (SCP#4)
Inform help at home service provider (SCP#5)
Inform voluntary home help service (TSCP#1)
Inform home fixing (TSCP#2)
Inform relative (I/FC)
End
HCP #3: Nursing team
Confirm receipt of service request
Home care plan stored in ICR
HCP #4: Rehabilitation team
SCP #2: Meals at home service provider
SCP #3: Cleaning at home service provider
SCP #4: Panic button service provider
SCP #5: Help at home service provider
TSCP #1: Voluntary home help oragnisa-tion
TSCP #2: Home fixing help oragnisa-tion
I/FC : Relative
Loo up initial home care plan

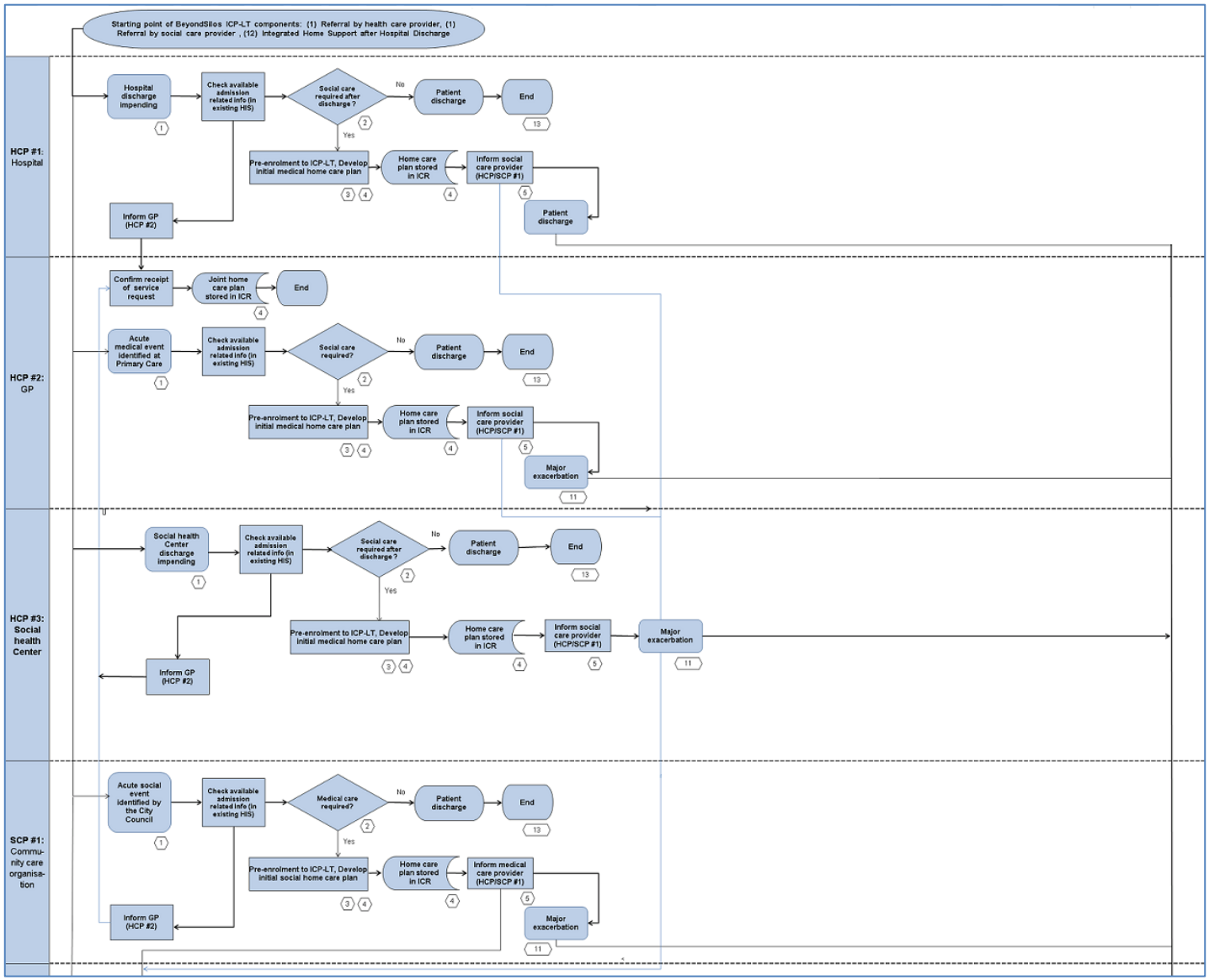
3.3 Service process model for integrated long-term home support (ICP-LTcare)

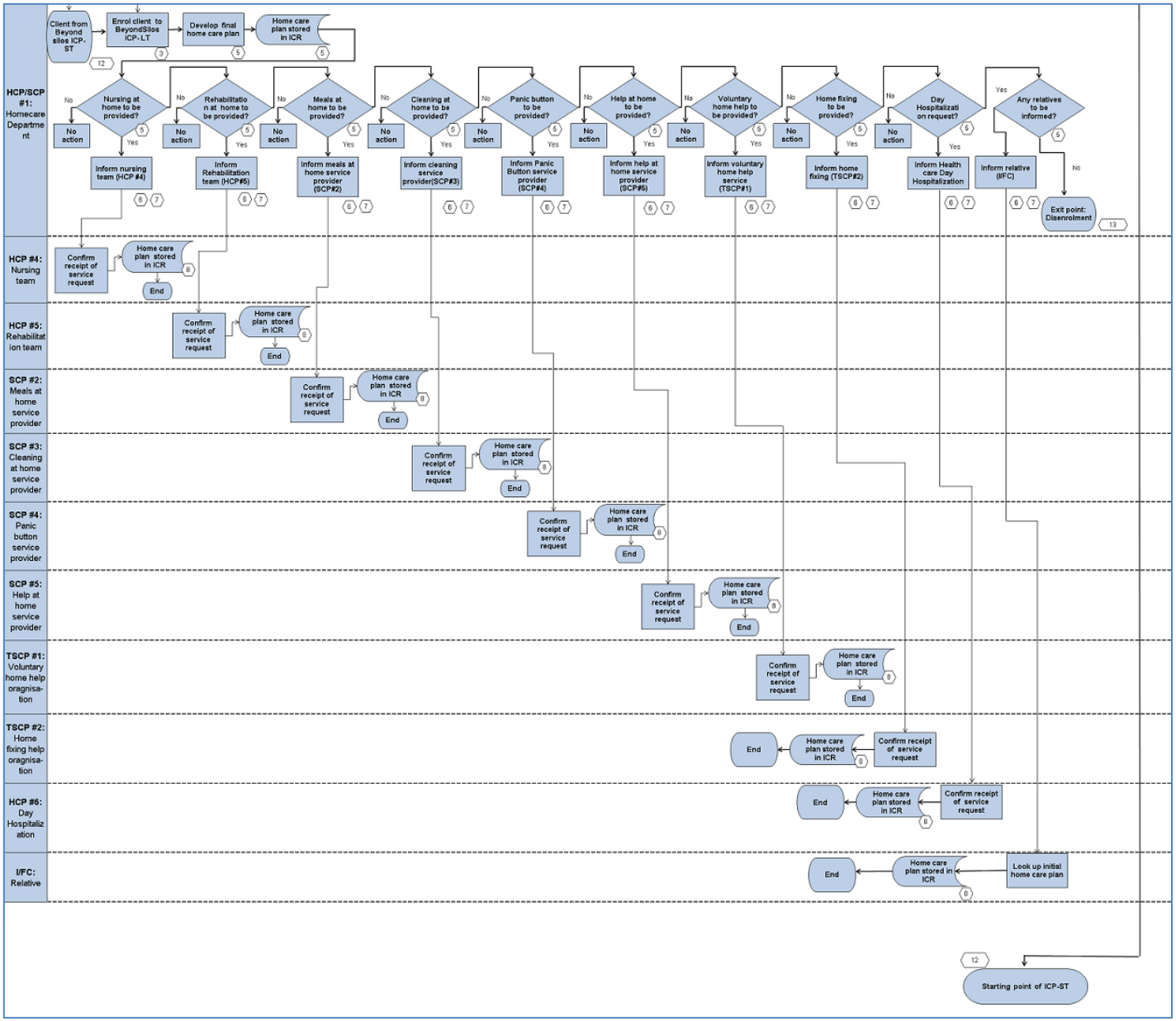
This section presents the service process model for integrated long-term home support. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 4: Stakeholder overview for the ICP-LTcare in Badalona

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital Municipal de Badalona
HCP #2	Health care provider	GP from the Primary Care Centre
HCP #3	Health care provider	Social health centre (Residence)
SCP #1	Social care provider	Community care
HCP/SCP#1	Health care provider / Social care provider	Homecare Department from BSA
HCP #4	Health care provider	Nursing team
HCP #5	Health care provider	Rehabilitation team service provider
SCP #2	Social care provider	Meals at home service provider
SCP #3	Social care provider	Cleaning at home service provider
SCP #4	Social care provider	Panic button service provider
SCP #5	Social care provider	Help at home service provider
TSCP #1	Third sector care provider	Voluntary home help organisation
TSCP #2	Third sector care provider	Home fixing help organisation
HCP #6	Health care provider	Day hospital
I/FC	Informal / family carer	

Figure 4: ICP-LTcare service process model in Badalona




HCP/SCP #1: Homecare Department
HCP #4: Nursing team
HCP #5: Rehabilitation team
SCP #2: Meals at home service provider
SCP #3: Cleaning at home service provider
SCP #4: Panic button service provider
SCP #5: Help at home service provider
TSCP #1: Voluntary home help oragnisation
TSCP #2: Home fixing help oragnisation
HCP #6: Day Hospitalization
I/FC: Relative
Client from Beyond silos ICP-ST
Enrol client to BeyondSilos ICP-LT
Develop final home care plan
Home care plan stored in ICR
Nursing at home to be provided?
Rehabilitation at home to be provided?
Meals at home to be provided?
Cleaning at home to be provided?
Panic button to be provided?
Help at home to be provided?
Voluntary home help to be provided?
Home fixing to be provided?
Day Hospitalization request?
Any relatives to be informed?
Inform nursing team (HCP #4)
Inform Rehabilitation team (HCP#5)
Inform meals at home service provider (SCP#2)
Inform cleaning service provider(SCP#3)
Inform Panic Button service provider (SCP#4)
Inform help at home service provider (SCP#5)
Inform voluntary home help service (TSCP#1)
Inform home fixing (TSCP#2)
Inform Health care Day Hospitalization
Inform relative (I/FC)
Exit point: Disenrolment
Confirm receipt of service request
Home care plan stored in ICR
End
Look up initial home care plan
Starting point of ICP-ST

4 Campania pilot site – localisation of the two generic pathways and service process modelling

4.1 Local background to the two pathways

Campania is a southern region of Italy, with about 6 million inhabitants. Politically, it is organised into five smaller areas, named "Provincia", which coordinate the activities of the cities within their area.

Healthcare in Italy is public; it is delegated by central government to the Regional government, which has a budget derived from governmental allocation of funds, and from regional taxes. The regions derogate healthcare through the means of local health agencies, named ASL. In each Provincia, there might be more than one ASL. In Campania, care provision is organised by 7 ASLs:

- A.S.L. Avellino (Corresponds to the Provincia of Avellino).
- A.S.L. Benevento (Corresponds to the Provincia of Benevento).
- A.S.L. Caserta (Corresponds to the Provincia of Caserta).
- A.S.L. Napoli 1 Centro (One of the 3 ASL of the Provincia of Napoli).
- A.S.L. Napoli 2 Nord (One of the 3 ASL of the Provincia of Napoli).
- A.S.L. Napoli 3 Sud (One of the 3 ASL of the Provincia of Napoli).
- A.S.L. Salerno (Corresponds to the Provincia of Salerno).

Each ASL is in charge of everything that relates to public health. The activities are delivered through means of departments, which control the services of hospitals, outpatient clinics, laboratories, counselling points, public pharmacies, veterinary care, etc.

Social care is also controlled by the government, which delegates municipalities, with an allocation of funds raised from taxes.

Currently, the delivery of integrated health and social care is regulated by government legislation which sets the standards to be adopted by each local government in Italy. Regional law 11/2007 regulates the delivery of integrated care at the place of the patient. In 2009, a decree from the Social Department of the Region formulated the operational indications for the Regional Social Plan. This interaction takes place in the Assessments Unit for Integrated Care (AUIC) which already exists today, an evaluation office that includes ASL and Municipality staff who evaluate the needs of a client, and decide the level of assistance that has to be delivered to the client. The AUIC can be accessed by the client only after a referral that is started by either the GP of the client, or territorial social workers. Then an integrated team of care providers (usually geriatricians, nurses, physiotherapists and social workers), which is coordinated by the head geriatrician and takes the name of ADI, delivers the level of care decided by the AUIC.

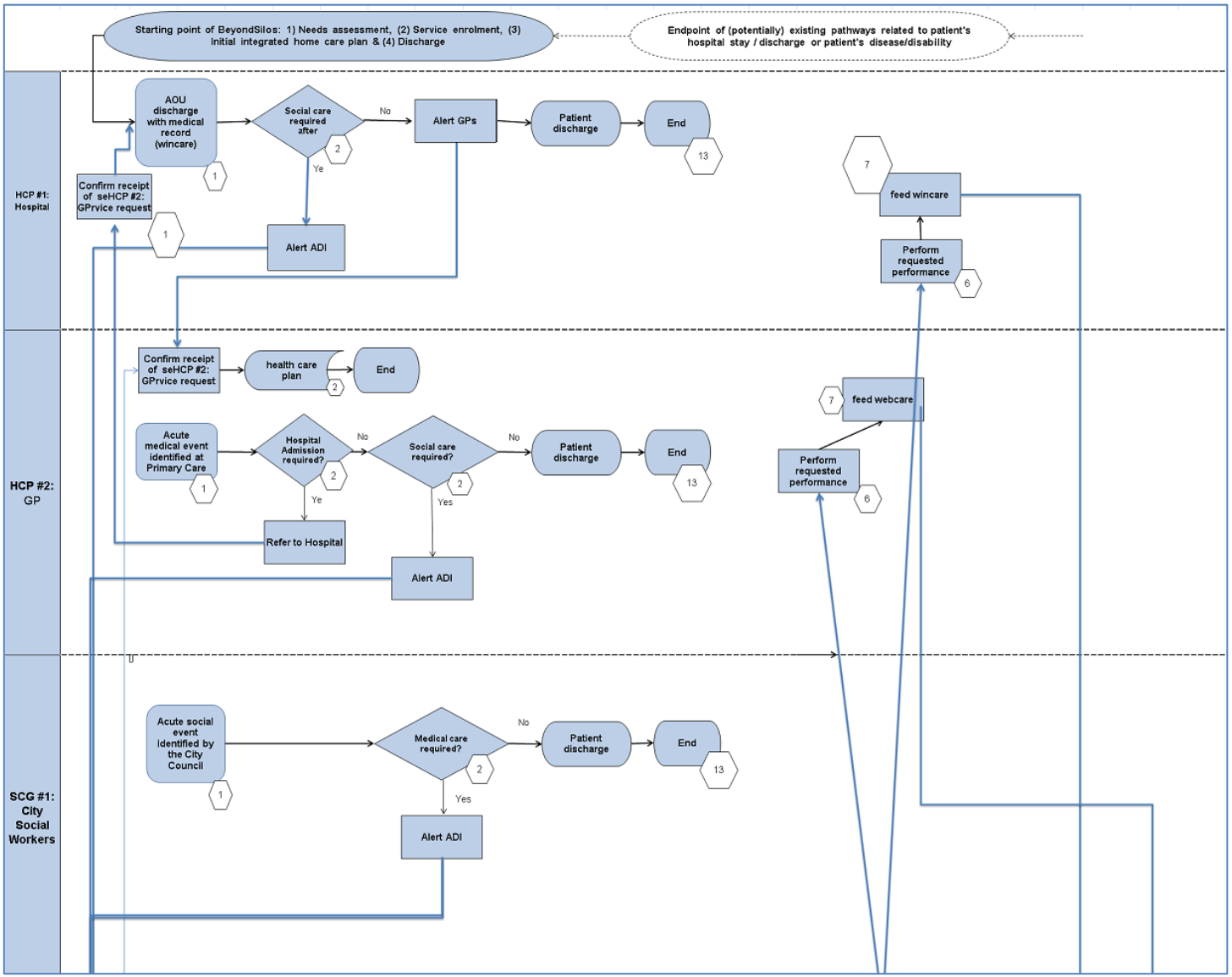
4.2 Service process model for integrated short-term home support after an acute episode (ICP-acute) and integrated long-term home support (ICP-LTcare)

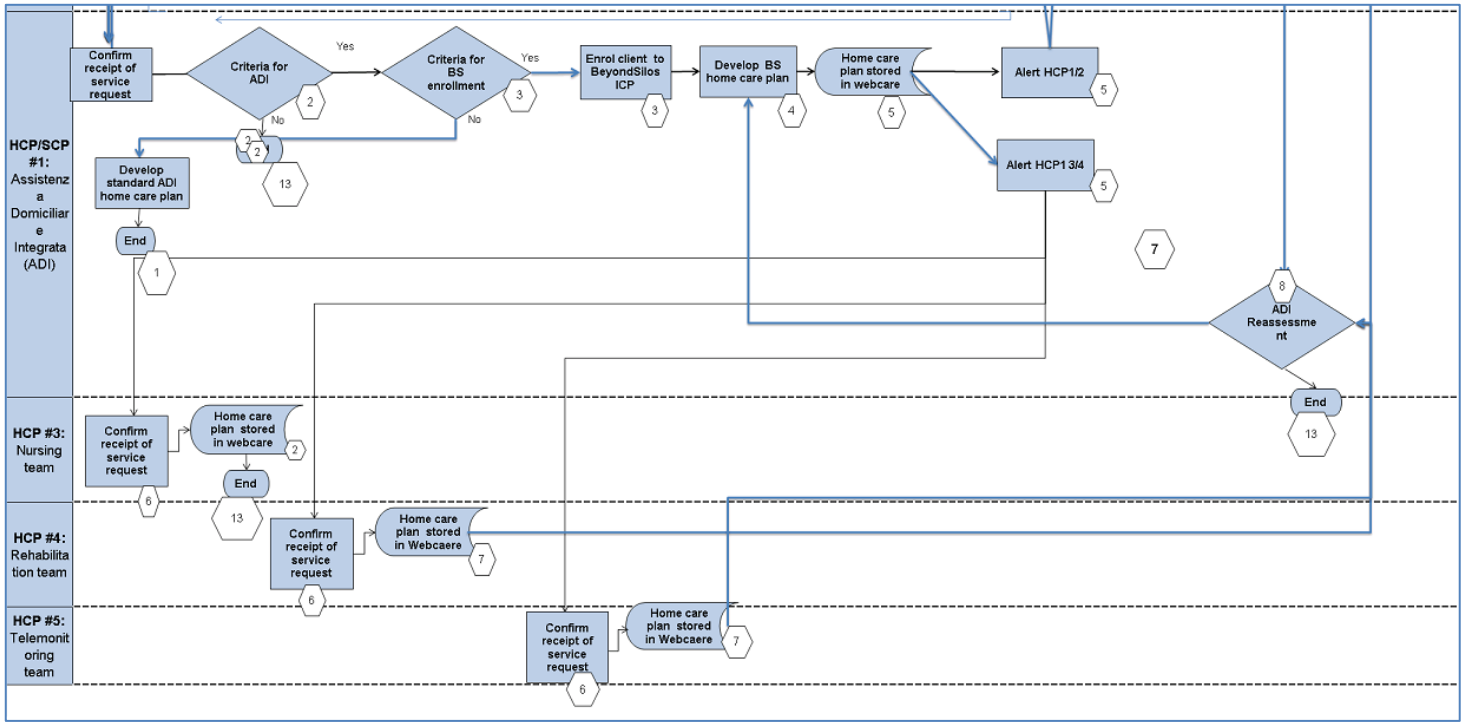
This section presents the service process model for integrated short-term home support after an acute episode. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 5: Stakeholder overview for the ICP-acute in Campania

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital
HCP #2	Health care provider	GP
SCP #1	Social care provider	City social workers
HCP / SCP#1	Health care provider / Social care provider	Assistenza Domiciliare Integrata (ADI)
HCP #3	Health care provider	Nursing team
HCP #4	Health care provider	Rehabilitation team
HCP #5	Health care provider	Telemonitoring team
I/FC	Informal / family carer	

Figure 5: ICP-acute service process model in Campania




HCP/SCP #1: Assistenza Domiciliare Integrata (ADI)
HCP #3: Nursing team
HCP #4: Rehabilitation team
HCP #5: Telemonitoring team
Confirm receipt of service request
Criteria for ADI
Yes
No
Criteria for BS enrollment
Yes
No
Enrol client to BeyondSilos ICP
Develop BS home care plan
Home care plan stored in webcare
Alert HCP1/2
Alert HCP1 3/4
Develop standard ADI home care plan
End
ADI Reassessment
End
Confirm receipt of service request
Home care plan stored in webcare
End
Confirm receipt of service request
Home care plan stored in Webcaere
Confirm receipt of service request
Home care plan stored in Webcaere

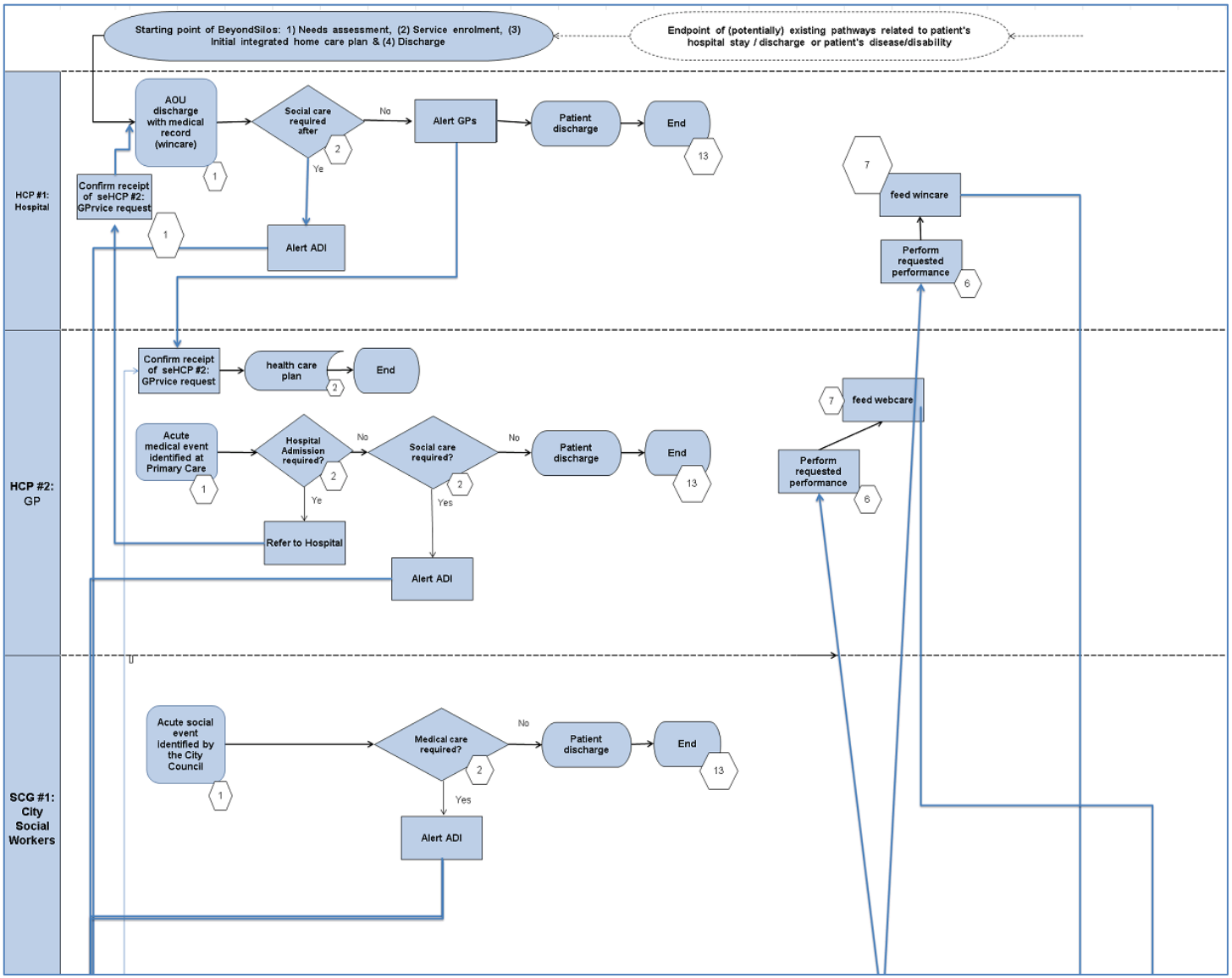
4.3 Service process model for integrated long-term home support (ICP-LTcare)

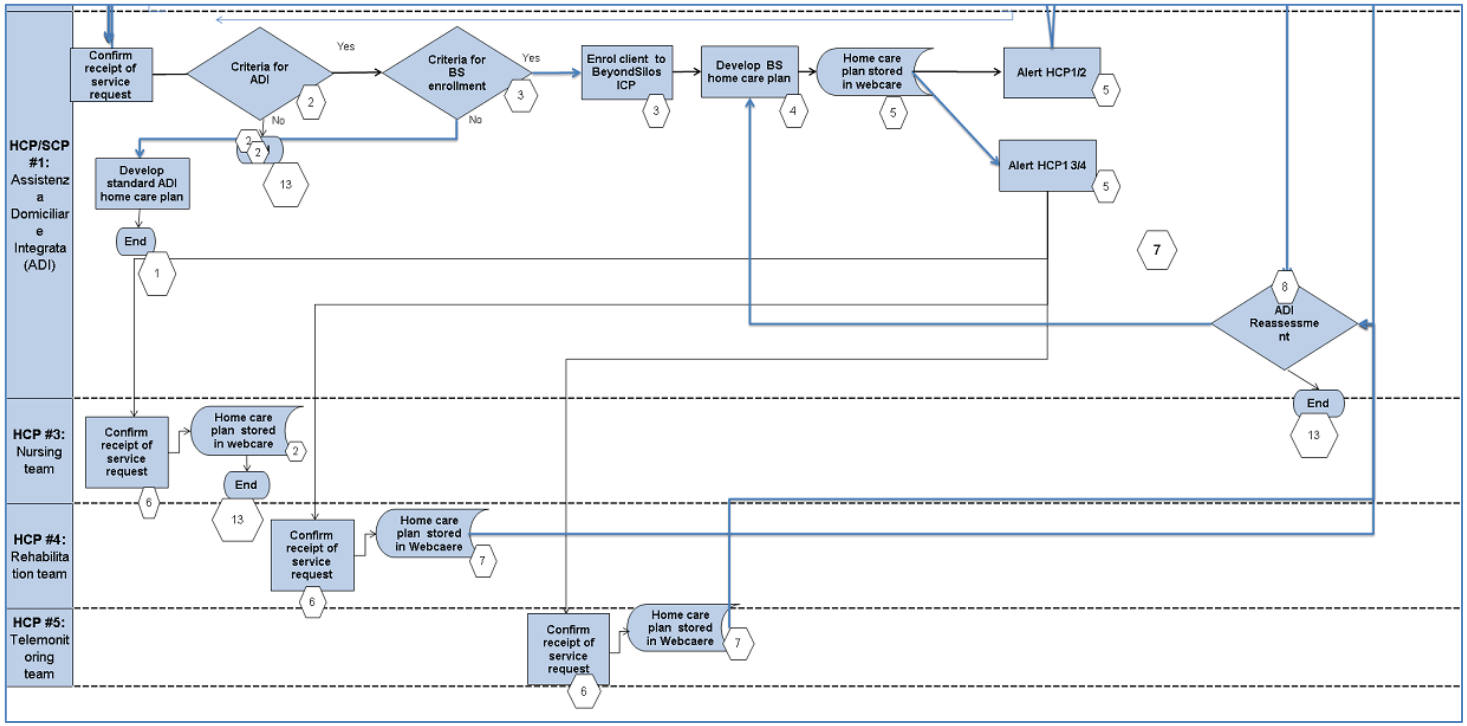
This section presents the service process model for integrated long-term home support. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 6: Stakeholder overview for ICP-LTcare in Campania

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital
HCP #2	Health care provider	GP
SCP #1	Social care provider	City social workers
HCP / SCP#1	Health care provider / Social care provider	Assistenza Domiciliare Integrata (ADI)
HCP #3	Health care provider	Nursing team
HCP #4	Health care provider	Rehabilitation team
HCP #5	Health care provider	Telemonitoring team
I/FC	Informal / family carer	

Figure 6: ICP-LTcare service process model in Campania




HCP/SCP #1: Assistenza Domiciliare Integrata (ADI)
HCP #3: Nursing team
HCP #4: Rehabilitation team
HCP #5: Telemonitoring team
Confirm receipt of service request
Criteria for ADI
Yes
No
Criteria for BS enrollment
Yes
No
Enrol client to BeyondSilos ICP
Develop BS home care plan
Home care plan stored in webcare
Alert HCP1/2
Alert HCP1 3/4
Develop standard ADI home care plan
End
ADI Reassessment
End
Confirm receipt of service request
Home care plan stored in webcare
End
Confirm receipt of service request
Home care plan stored in Webcaere
Confirm receipt of service request
Home care plan stored in Webcaere

5 Kinzigtal pilot site – localisation of the two generic pathways and service process modelling

5.1 Local background to the two pathways

Germany's healthcare system is divided into two sections: the inpatient sector with hospitals and residential homes, and the outpatient sector with GPs and specialists. In addition to this division, there is a second one, between healthcare and social care sectors. Both used to be involved hand-in-hand in the care process for the patient. But in reality, they operate with different software systems and database architectures, which produce a big lack of information and communication flow.

For example, a medication change or other intervention because of a short stay in hospital for a long term patient in a residential home is not communicated properly between them. In addition, GPs are not well prepared during regular patients' visits to GPs, or the calls of GPs to residential homes. Another aspect is that GPs do not properly fill out prescriptions; this costs the formal carers a lot of time to resolve the mistakes.

Better communication between social care and healthcare institutions, for example in terms of pharmacotherapy or management of traumatic wounds, reduces the hospitalisation rate. A GP with adequate data about social care activities and the status of his patient is able to make calls to residential homes with less time resources. Therefore a better link between the social care database and the healthcare database in terms of a combined electronic patient record would optimise the care pathway of long term patients.

The idea of implementing mutually compatible electronic means of communication and data processing for cooperating providers has remained a utopia for German normal care, with 68% of primary care physicians working in solo practices, and another 31% in small group practices. The same holds for the idea of creating a system of electronic patient files accessible to all providers treating a given patient (patients' informed consent provided). By facilitating the cooperation of hospitals with other providers, e.g. though jointly developed care pathways, synchronising medications and electronic patient records across the sectors of care, Gesundes Kinzigtal aims to create the preconditions for a better-coordinated follow-up.

In 2013, the implementation of an electronic patient record system called CGMnet was finished, for GPs and specialists in Gesundes Kinzigtal, in cooperation with Compugroup medical. The chances for the physician to receive adequate information will rise, instead of asking the same questions a second or third time about patients' health status and treatments. Not only for the physician (by saving valuable time), but also for the patient and social care institutions. This is an important aspect in terms of getting a confidential relationship, relief of staff, and more transparency between the stakeholders in the care system, and a higher level of quality of care. The idea for BeyondSilos project is to expand the electronic information and communications system by adding social care institutions of Gesundes Kinzigtal. Till now, a linked documentation system between those two sectors has not existed. The social care provider owns a documentation database system which holds the patient's data referring to social attention, but has no access to the patient's medical records or information that may be useful, and in some cases important, for decision making. In the same way, social providers and healthcare providers maintain separate records of the assistance procured and services consumed by patients, without access or data sharing between them. There is no horizontal inter-organisation integration, making the coordination of activities more difficult. Against this background, the implementation of the BeyondSilos pilot service aims to provide a common framework that allows the coordination of health and social professionals, along with a common

patient data set, that provides an integrated type of care, not only for discharge cases but also for patients' long term at home.

The residential home “Seniorenzentrum am Schlossberg” with its home care services, which is already member of Gesundes Kinzigtal, will be a partner in the pilot site. Relevant exchanged data will contain issues of mobility, nutrition, safety, personal hygiene, and communication. The date of the next meetings with caregivers will be defined much more closely.

The technical part will be realised by medical networks in cooperation with Compugroup medical to link the social care documentation system AscleonCare with the electronic patient record CGMnet.

Complemented by access for informal carers such as relatives or volunteers to a website portal to see particular information about the patient, it would give a feeling of safety to those who want to check the health status regularly that the person is doing fine. Informed consent by the patient is mandatory. Based on questionnaire results, patients themselves are only partly interested to check their patient data via internet. But the high age of the target group (75+), and the probable related low affinity for web based tools, could be the reason for these results.

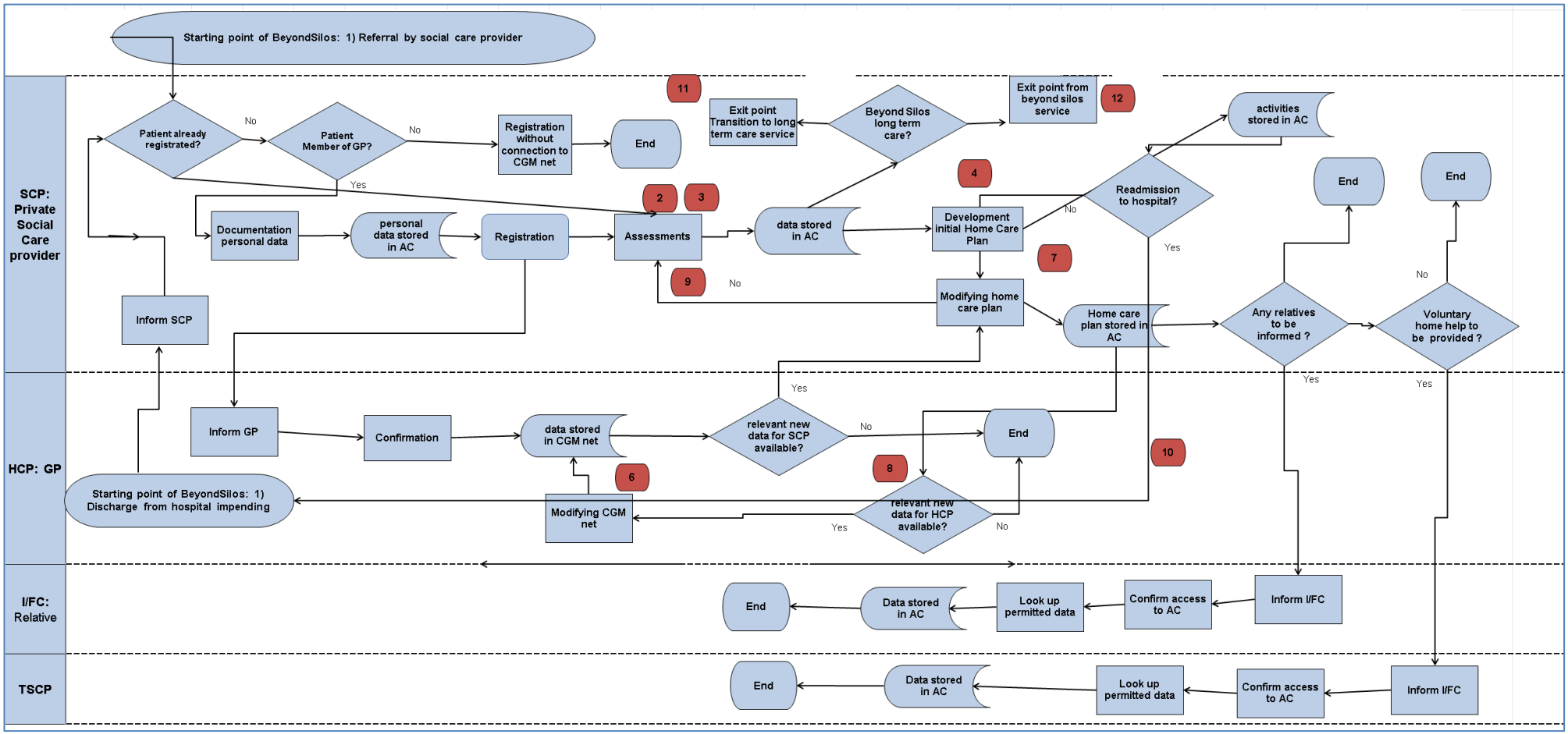
5.2 Service process model for integrated short-term home support after an acute episode (ICP-acute)

This section presents the service process model for integrated short-term home support after an acute episode. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 7: Stakeholder overview for ICP-acute in Kinzigtal

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	GP
SCP #1	Social care provider	Private social care provider
TSCP #1	Third sector care provider	
I/FC	Informal / family carer	

Figure 7: ICP-acute service process model in Kinzigtal



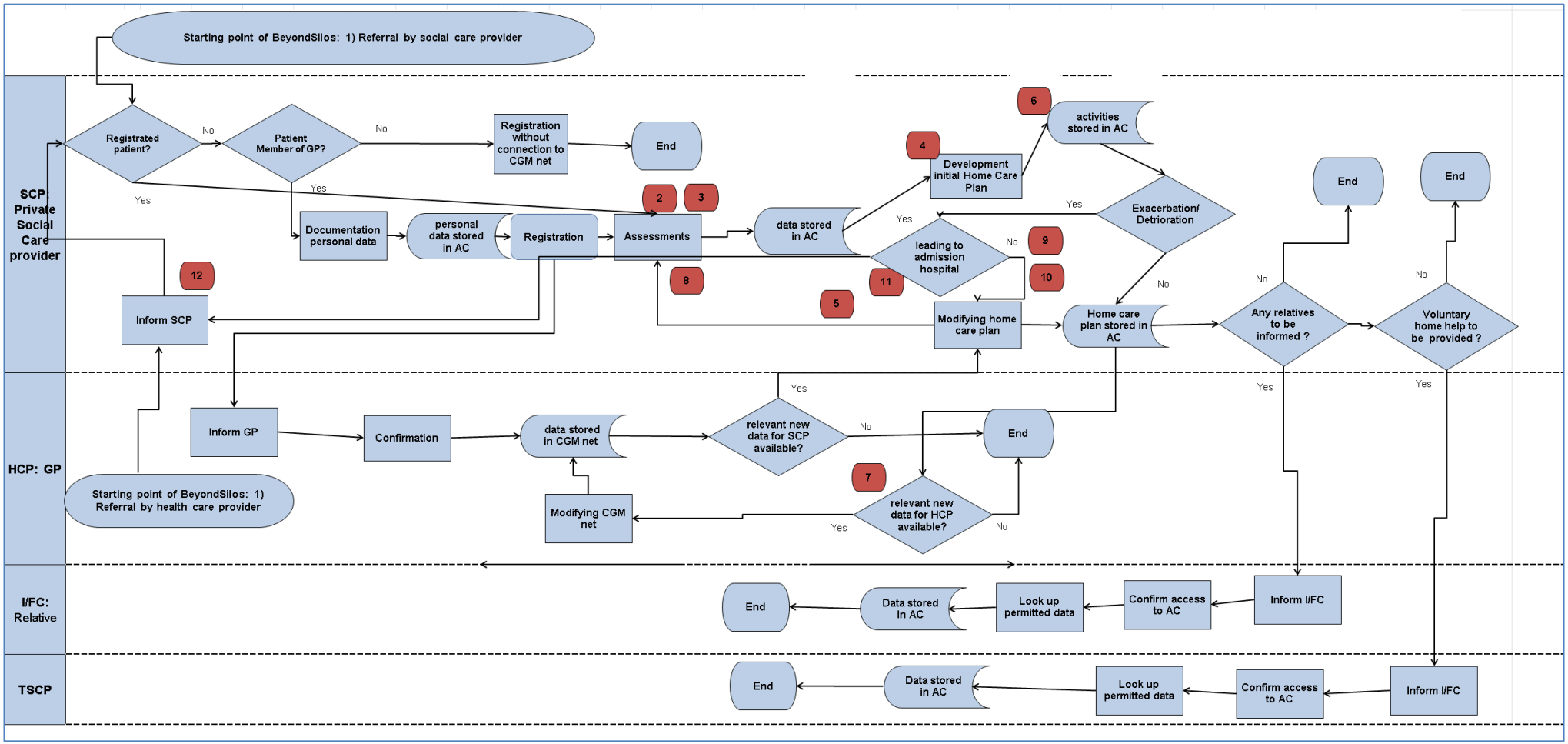
5.3 Service process model for integrated long-term home support (ICP-LTcare)

This section presents the service process model for integrated long-term home support. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 8: Stakeholder overview for ICP-LTcare in Kinzigtal

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	GP
SCP #1	Social care provider	Private social care provider
TSCP #1	Third sector care provider	
I/FC	Informal / family carer	

Figure 8: ICP-LTcare service process model in Kinzigtal



6 Northern Ireland pilot site – localisation of the two generic pathways and service process modelling

6.1 Local background to the two pathways

In Northern Ireland (NI), health and social care are integrated at an organisational macro level. The Health and Social Care Board (HSCB) commissions health and social care services for the population of NI. HSCB performance manages the Health and Social Care Trusts, who deliver services to citizens, and contracts with primary care providers (GPs, pharmacists, dentists and optometrists) to provide services.

In common with other regions across Europe, Northern Ireland is facing unprecedented economic and demographic pressures which impact on its ability to provide high quality, safe health and social care now and into the future.

Northern Ireland has one of the fastest growing populations within the UK. The Northern Ireland Statistics and Research Agency (NISRA) has projected the NI population to rise from 1.8 million in 2010 to nearly 2 million in 2025 - an increase of nearly 8%. They also project that over the same 15 year period, the numbers of people aged 65 and over will increase by 42% from 260,000 to 370,000. In contrast, the number of people of working age is projected to increase by only 1.4% from 1,109,000 to 1,124,000 in 2025.

The projected figures for the over-85 population show an even more dramatic increase. By 2025 the number of people aged 85 and over will have risen by 25,000 to 55,000 – an increase of 83%. The over-85 population will double by 2027 compared to 2010.

Coupled with an aging population, there is also an increased prevalence of long term (chronic) conditions; these factors have led to increased demand and over reliance on acute hospital beds. It is becoming more difficult to ensure clinical workforce supply, and there is a need to have better productivity and value for money.

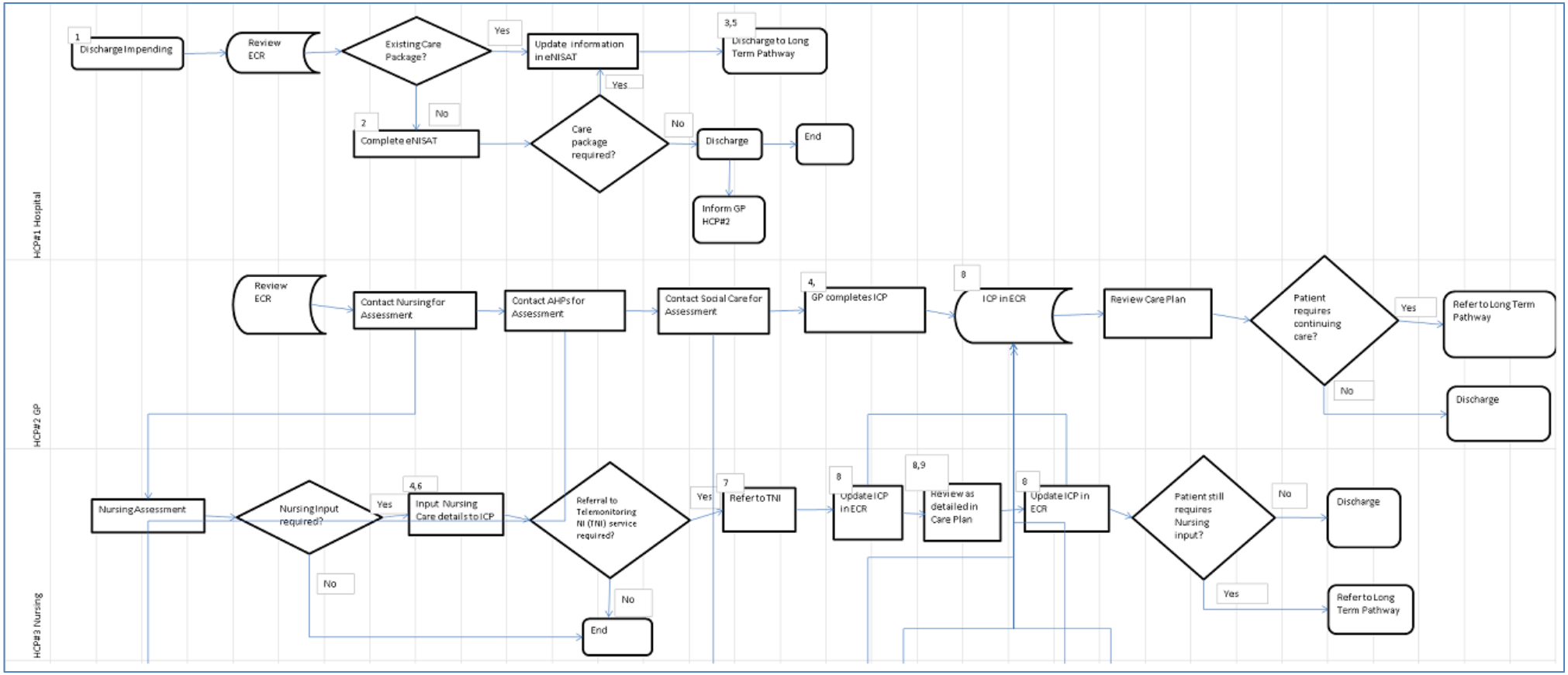
6.2 Service process model for integrated short-term home support after an acute episode (ICP-acute)

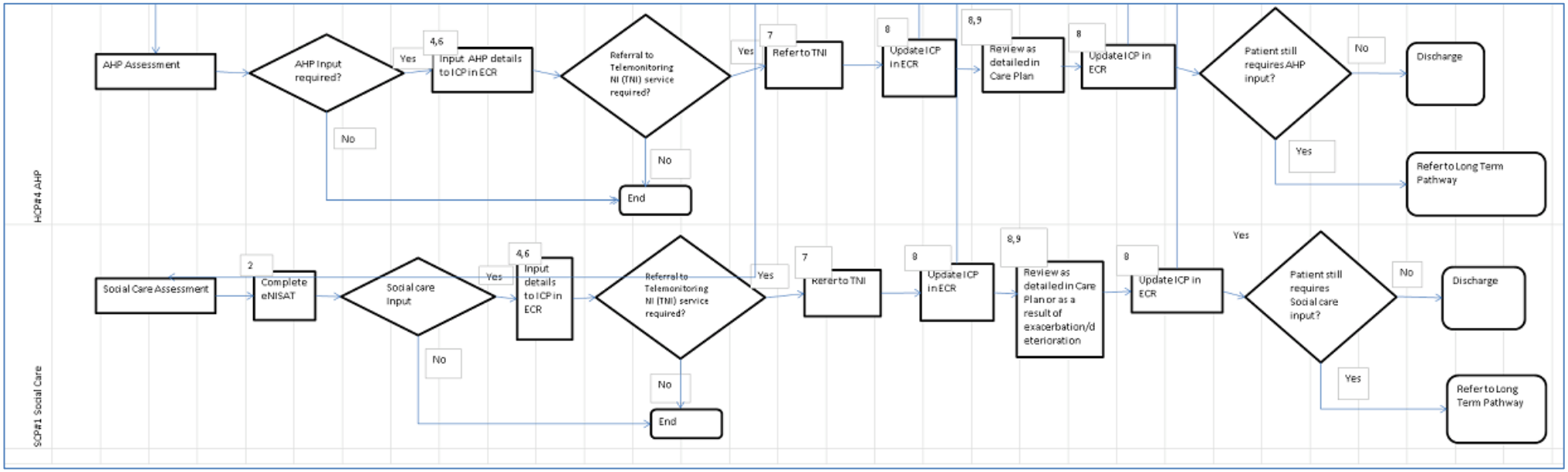
This section presents the service process model for integrated short-term home support after an acute episode. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 9: Stakeholder overview for ICP-acute in Northern Ireland

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital
HCP #2	Health care provider	GP
HCP #3	Health care provider	Nursing
HCP #4	Health care provider	AHP
SCP #1	Social care provider	Social care
I/FC	Informal / family carer	

Figure 9: ICP-acute service process model in Northern Ireland




HCP#4 AHP
AHP Assessment
AHP Input required?
Yes
No
4,6
Input AHP details to ICP in ECR
Referral to Telemonitoring NI (TNI) service required?
Yes
No
End
7
Refer to TNI
8
Update ICP in ECR
8,9
Review as detailed in Care Plan
8
Update ICP in ECR
Patient still requires AHP input?
No
Discharge
Yes
Refer to Long Term Pathway
SCP#1 Social Care
Social Care Assessment
2
Complete eNISAT
Social care input
Yes
No
4,6
Input details to ICP in ECR
Referral to Telemonitoring NI (TNI) service required?
Yes
No
End
7
Refer to TNI
8
Update ICP in ECR
8,9
Review as detailed in Care Plan or as a result of exacerbation/deterioration
8
Update ICP in ECR
Yes
Patient still requires Social care input?
No
Discharge
Yes
Refer to Long Term Pathway

6.3 Service process model for Integrated long-term home support (ICP-LTcare)

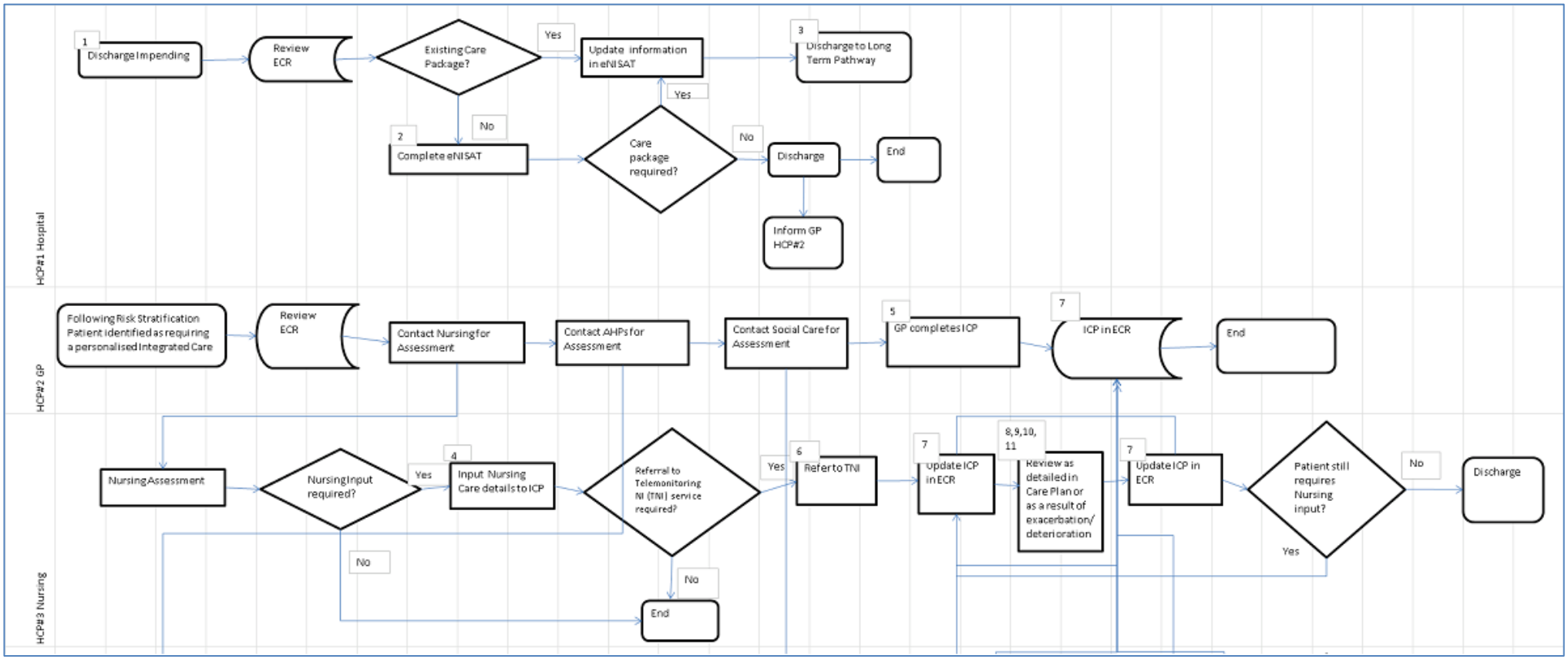
This section presents the service process model for integrated long-term home support.

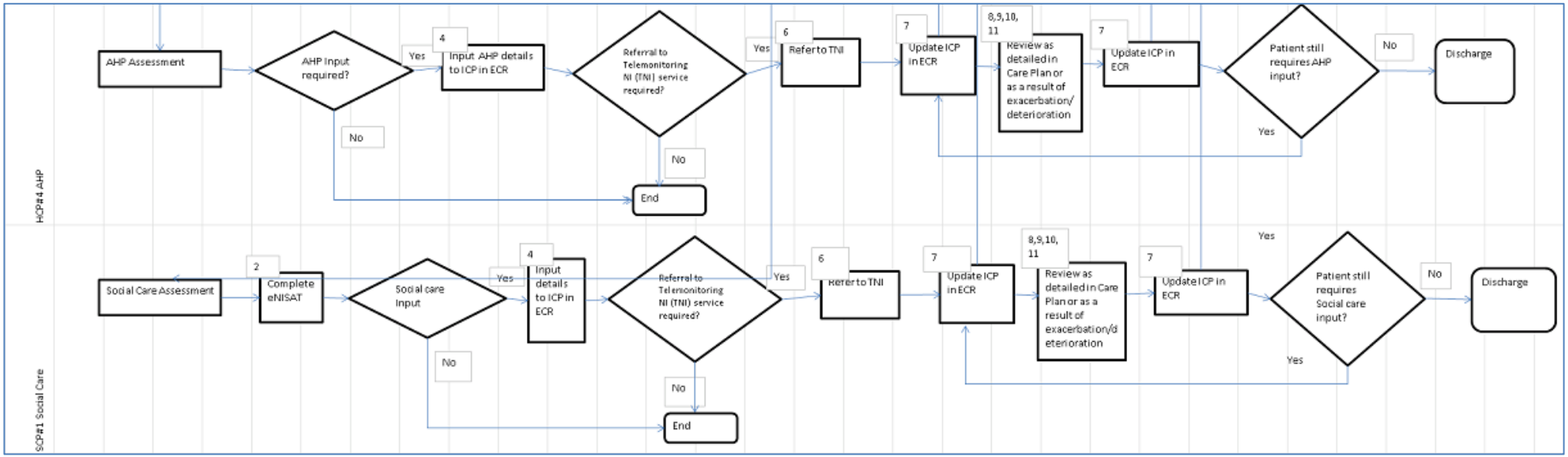
The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 10: Stakeholder overview for ICP-LTcare in Northern Ireland

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital
HCP #2	Health care provider	GP
HCP #3	Health care provider	Nursing
HCP #4	Health care provider	AHP
SCP #1	Social care provider	Social care
I/FC	Informal / family carer	

Figure 10: ICP-LTcare service process model in Northern Ireland




HCP#4 AHP
AHP Assessment
AHP Input required?
Yes
No
4
Input AHP details to ICP in ECR
Referral to Telemonitoring NI (TNI) service required?
Yes
No
End
6
Refer to TNI
7
Update ICP in ECR
8,9,10, 11
Review as detailed in Care Plan or as a result of exacerbation/ deterioration
7
Update ICP in ECR
Patient still requires AHP input?
Yes
No
Discharge
SCP#1 Social Care
Social Care Assessment
2
Complete eNISAT
Social care Input
Yes
No
4
Input details to ICP in ECR
Referral to Telemonitoring NI (TNI) service required?
Yes
No
End
6
Refer to TNI
7
Update ICP in ECR
8,9,10, 11
Review as detailed in Care Plan or as a result of exacerbation/d eterioration
7
Update ICP in ECR
Yes
Patient still requires Social care input?
Yes
No
Discharge

7 Sofia pilot site – localisation of the two generic pathways and service process modelling

7.1 Local background to the two pathways

Centre for Protection of Rights in Healthcare (CPRH) is an independent non-governmental and non-profit organisation working for public benefit. For seven years, CPRH has worked exclusively in the field of protection of rights in healthcare. Besides providing information, consulting and legal assistance to individuals and organisations, CPRH organised and implemented breast cancer screening programmes.

In the context of BeyondSilos, according to the Bulgarian legislation, CPRH cannot provide social and health services and assistance; we will therefore subcontract these activities alongside the development of the electronic integrated CR record.

Currently there is no electronic health record system installed in Bulgaria. A prototype system will be set up for piloting purposes in the project, and will be populates with data and shared between health and social partners.

Our objective is to validate that the provision of integrated social and health care through ICT innovation to the elderly population improves quality of life and is more efficient than the traditional way of service provision.

In Sofia region (as well as in the whole of the country), social services and social assistance are provided by governmental agencies or municipalities funded by the State budget. Social services are divided into two parts: institutional services (homes for elderly, homes for disabled); and community based services, especially personal assistant, social assistant, home helper. The only service financed by the municipality is home social patronage, providing mainly meals and home cleaning. People pay for institutional services, 70% from their incomes, or price of home social patronage.

Health services are provided at three levels: GP, outpatient specialised healthcare, and hospital care. Healthcare is funded by the National Health Insurance Fund (NHIF). All medical establishments for hospital care in Bulgaria are registered as commercial companies.

At the moment, there is no system to integrate social and health care for the elderly population in Bulgaria. This situation poses a great challenge to our pilot site, because besides implementation we will have to advocate for legislative changes to ensure wider deployment of the integrated services in the future.

So far we have the support of the Minister of Health, the Minister of Labour and Social Policy, and the Mayor of Sofia Great Municipality for the implementation of the BeyondSilos pilot. We believe that this institutional support, and involvement of the authorities in the early stages of project implementation, will foster successful deployment and will catalyse the legislative initiative.

After a hospital discharge, patients currently have the right of two control examinations at the hospital. In the discharge letter, the physician can prescribe patient rehabilitation services or personal support devices. Generally, the GP provides the post-acute follow up care to patients.

There are no integrated electronic health records or electronic social records for the patient. The GP, the outpatient specialist, and the hospital keep fragmented health data about the patient, sometimes in electronic format.

If the patient is eligible for social support services, he/she will also enter the system for social support at home. Social services will create (in accordance with the law) a social assessment of his/her status, also taking into account the health information which the patient will provide (from medical examinations, discharge letters).

There is little coordination and no integration between the health and social services provided to patients after a post-acute episode.

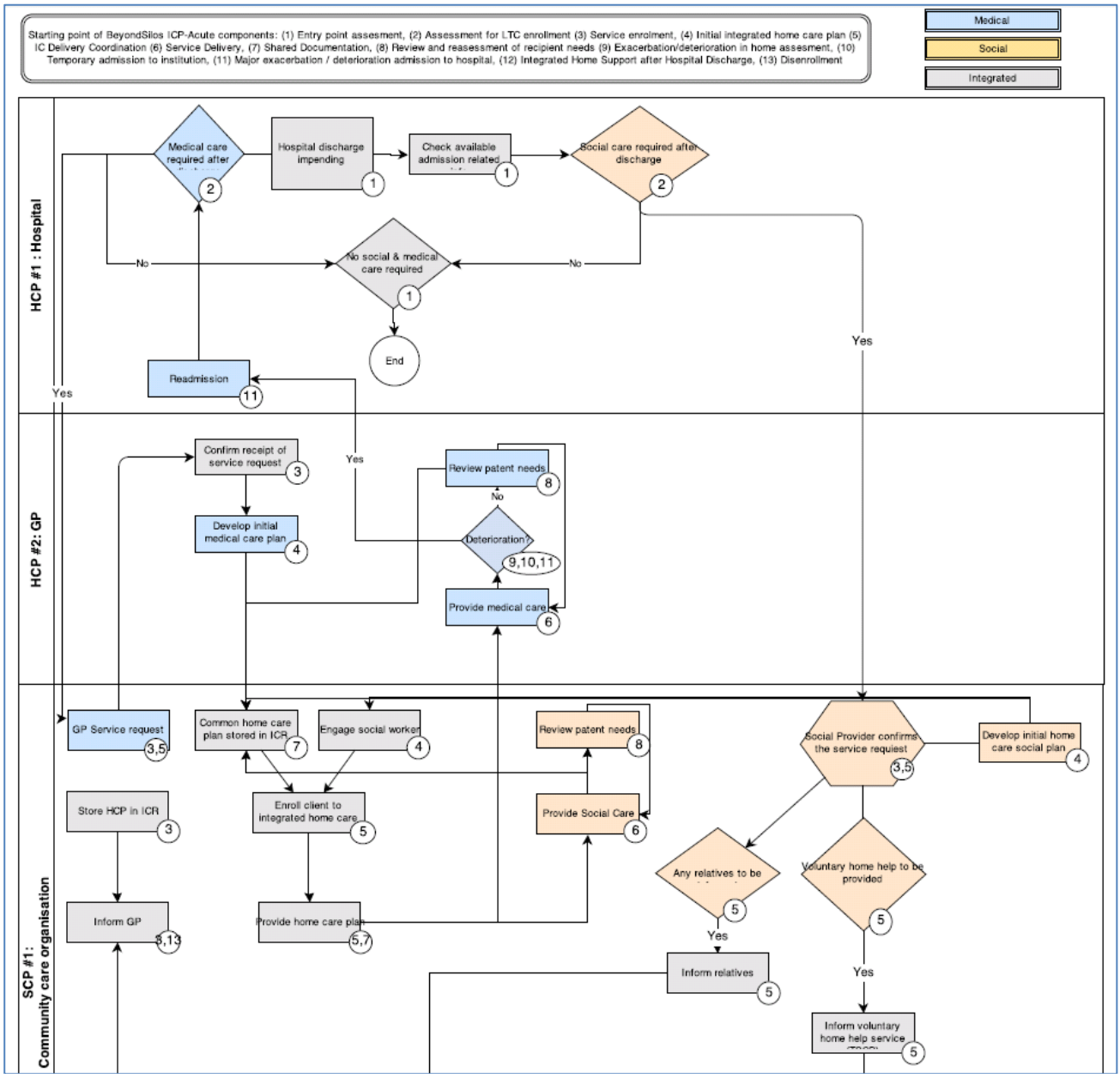
7.2 Service process model for integrated short-term home support after an acute episode (ICP-acute)

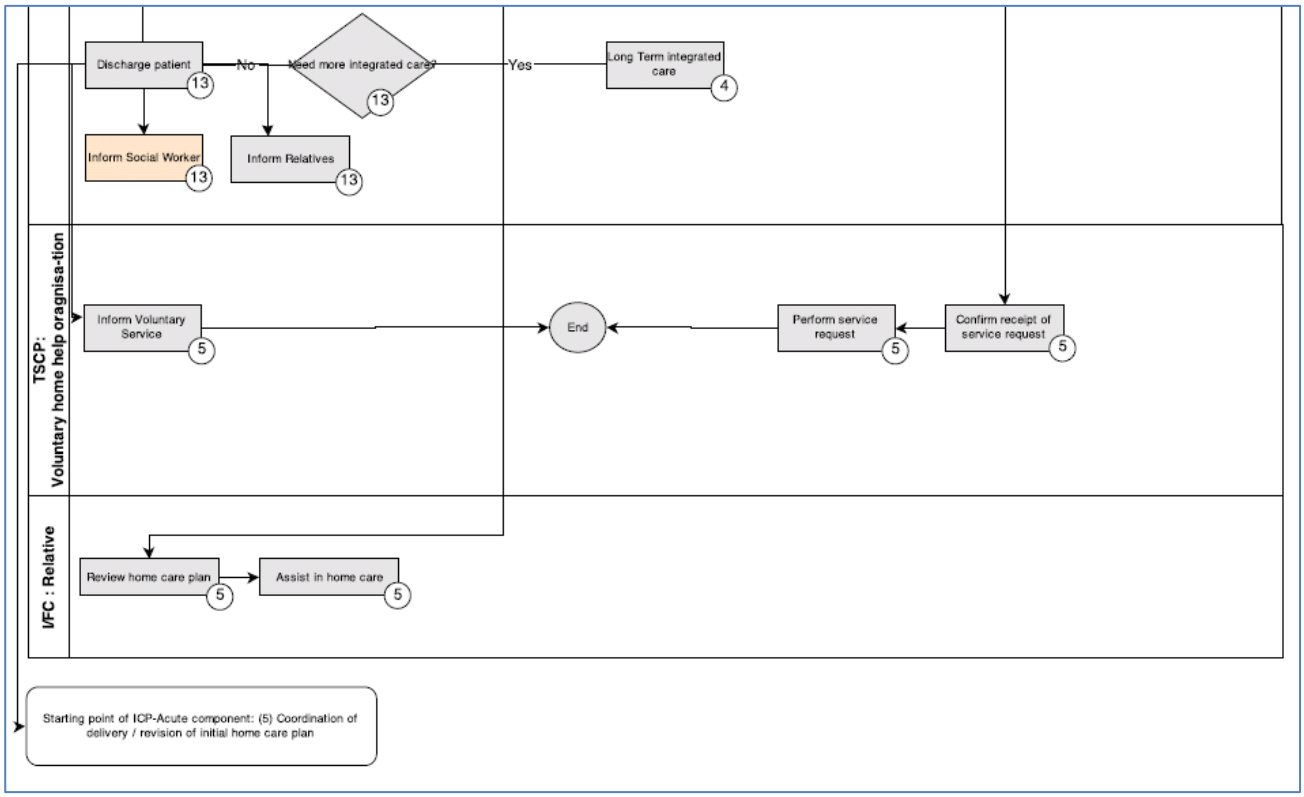
This section presents the service process model for integrated short-term home support after an acute episode. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 11: Stakeholder overview for ICP-acute in Sofia

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital
HCP #2	Health care provider	GP
SCP #1	Social care provider	Community care organisation
TSCP #1	Third sector care provider	Voluntary home help organisation
I/FC	Informal / family carer	

Figure 11: ICP-acute service process model in Sofia





7.3 Service process model for integrated long-term home support (ICP-LTcare)

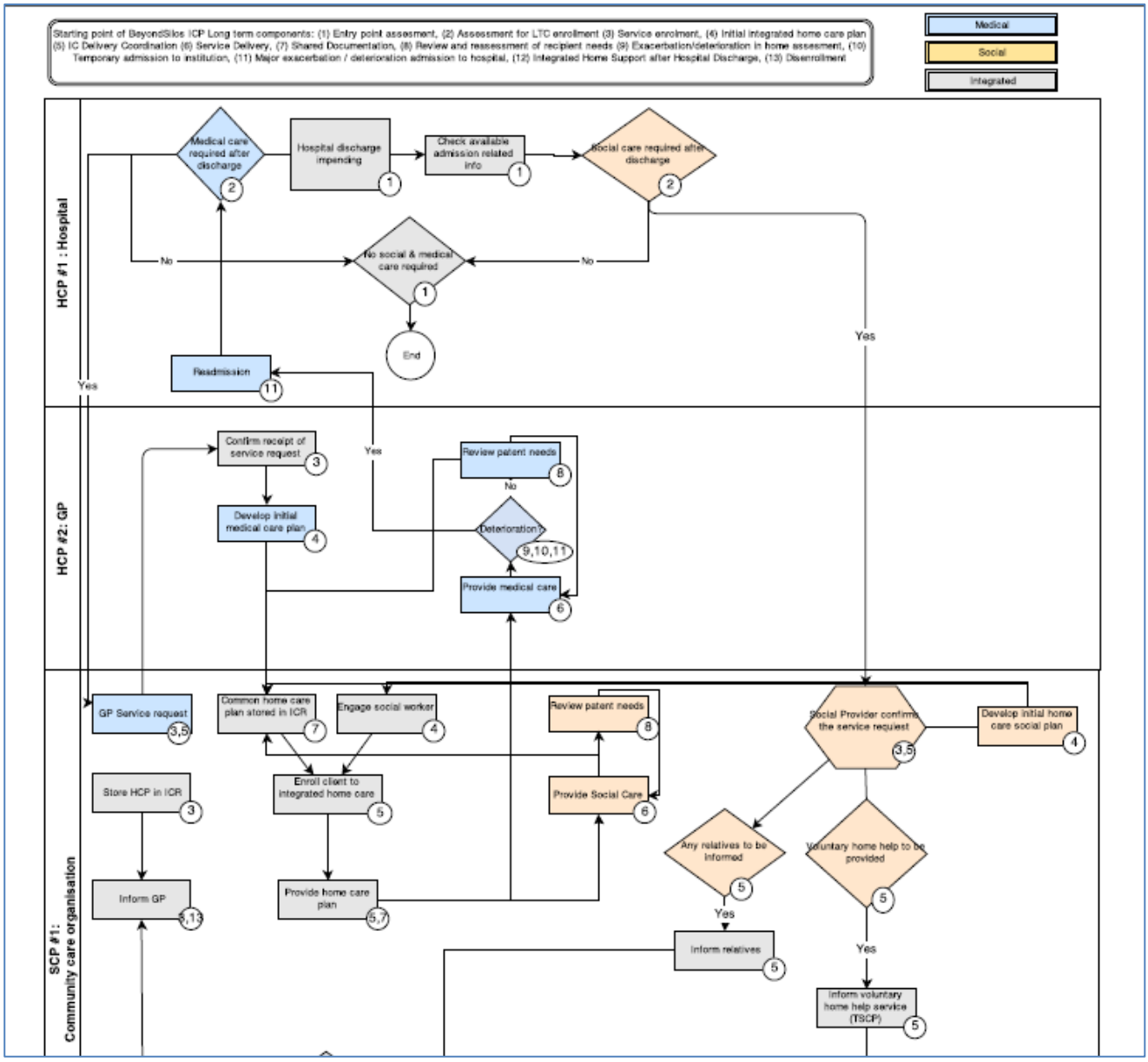
This section presents the service process model for integrated long-term home support.

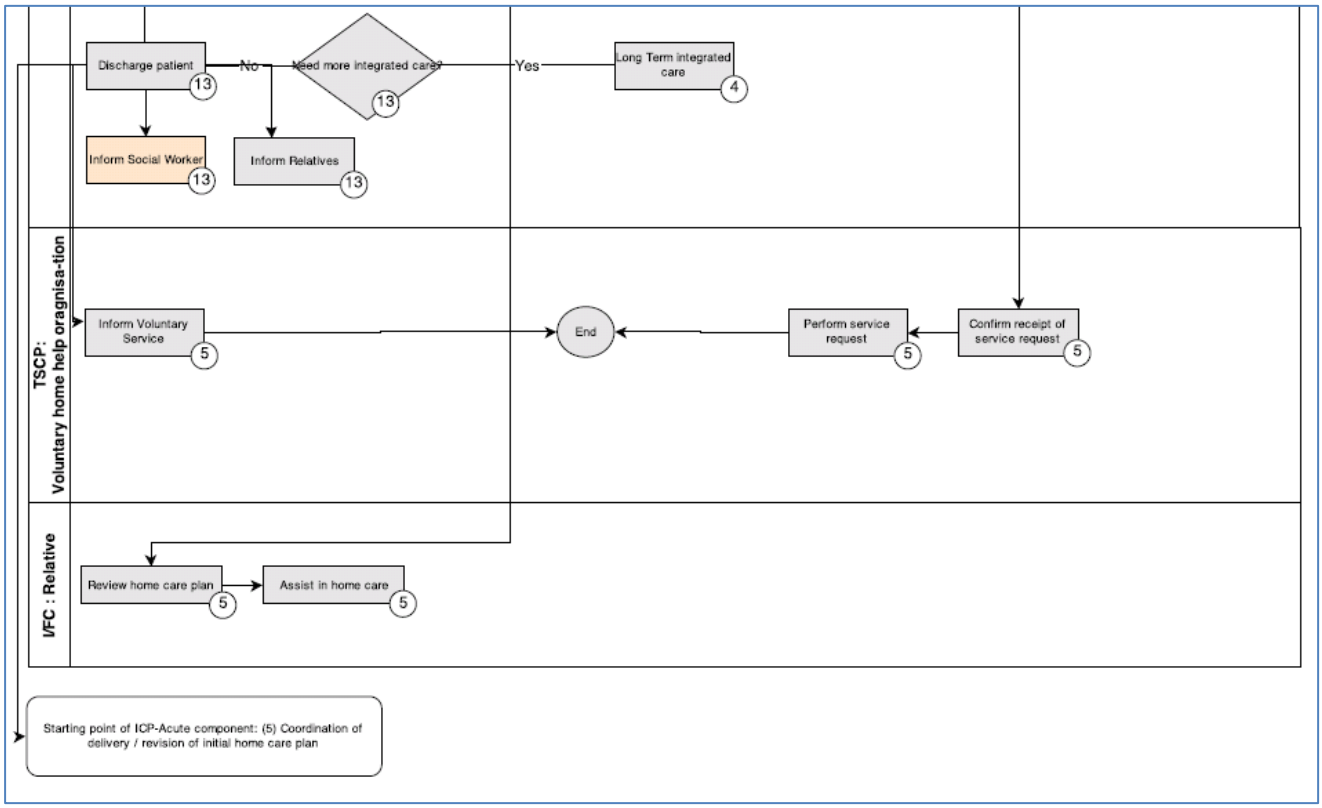
The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 12: Stakeholder overview for ICP-LTcare in Sofia

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP #1	Health care provider	Hospital
HCP #2	Health care provider	GP
SCP #1	Social care provider	Community care organisation
TSCP #1	Third sector care provider	Voluntary home help organisation
I/FC	Informal / family carer	

Figure 12: ICP-LTcare service process model in Sofia




Discharge patient
13
No
Need more integrated care?
13
Yes
Long Term integrated care
4
Inform Social Worker
13
Inform Relatives
13
TSCP: Voluntary home help oragnisa-tion
Inform Voluntary Service
5
End
Perform service request
5
Confirm receipt of service request
5
I/FC : Relative
Review home care plan
5
Assist in home care
5
Starting point of ICP-Acute component: (5) Coordination of delivery / revision of initial home care plan

8 València pilot site – localisation of the two generic pathways and service process modelling

8.1 Local background to the two pathways

The BeyondSilos services are organised around the Health Department Valencia-La Fe, belonging to the Comunidad Valenciana Regional Health Care System. This Health Department covers a geographical area located in the city of Valencia, and coordinates all the healthcare services provided in the territory, for all health levels (including primary care, GPs, secondary and tertiary care, hospitals and specialised healthcare centres). The health department is coordinated by a big hospital that manages all the care delivery in the geographical area. Primary care is directly managed by a primary care manager that belongs to the management structure of the Health Department.

The Region of Valencia (East Spain) is one of the 17 Autonomous Communities of Spain, located in central and south-eastern Iberian Peninsula. The Region is divided into three provinces (Alicante, Castellón and Valencia) and thirty-four counties. The largest city in the Region is its capital: Valencia. The Region of Valencia has 518 km of Mediterranean coastline and covers 23,259 km² of Spain (4.6% of Spain, eight) with 5.02 million inhabitants (2008) (10.6% of Spain, fourth). In the last few years, the concentration into the main cities and their metropolitan areas has grown considerably, especially in all the coastal cities. The Region's population is nowadays clearly urban and coastal, although also influenced by seasonal tourism. There are 13 towns with more than 50,000 inhabitants. Valencia is the capital and most populous city of the Autonomous Community of Valencia, and the third largest city in Spain, with a population of 814,208 people (2009).

All Spanish regional healthcare systems are divided into Health Care Area Units. Each autonomous region defines its own Health Care Area Units according to various demographic and geographic criteria. In Valencia region, there are 23 Health Care Area Units, called Health Departments. Each Health Department is composed of several primary care centres and one or more hospitals. In total, the region of Valencia has 28 hospitals and 500 primary care centres.

Each Health Department covers a specified geographic area and its population, receiving financial resources according to the population covered, following a capitation model. The financial resources are later adjusted according to three considerations:

- Number of family physicians per 10,000 inhabitants in the Health Area.
- Percentage of small towns in the Health Area.
- Percentage of population over 65 years old in the Health Area.

The health services in the Spanish public health system are free at the point of delivery for those citizens with coverage (basically all the population), with the exception of drugs prescribed outside hospitals, which must be co-paid by citizens, with different percentages depending on their income. There is no reimbursement scheme, as the system directly covers the costs of healthcare and no direct payment is made by users.

8.2 Service process model for integrated short-term home support after an acute episode (ICP-acute)

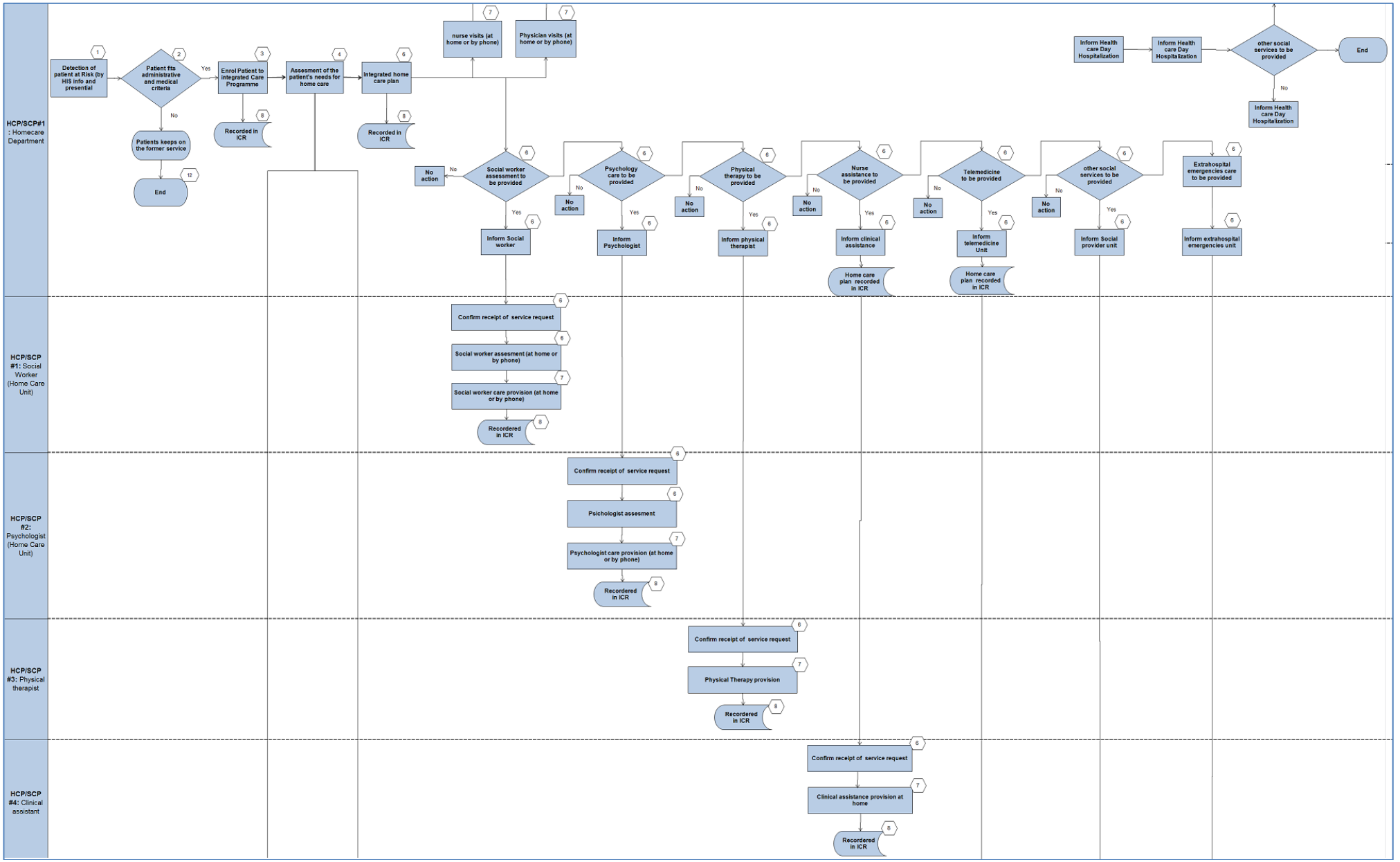
This section presents the service process model for integrated short-term home support after an acute episode. The table below presents the involved stakeholders within the care delivery model in the region.

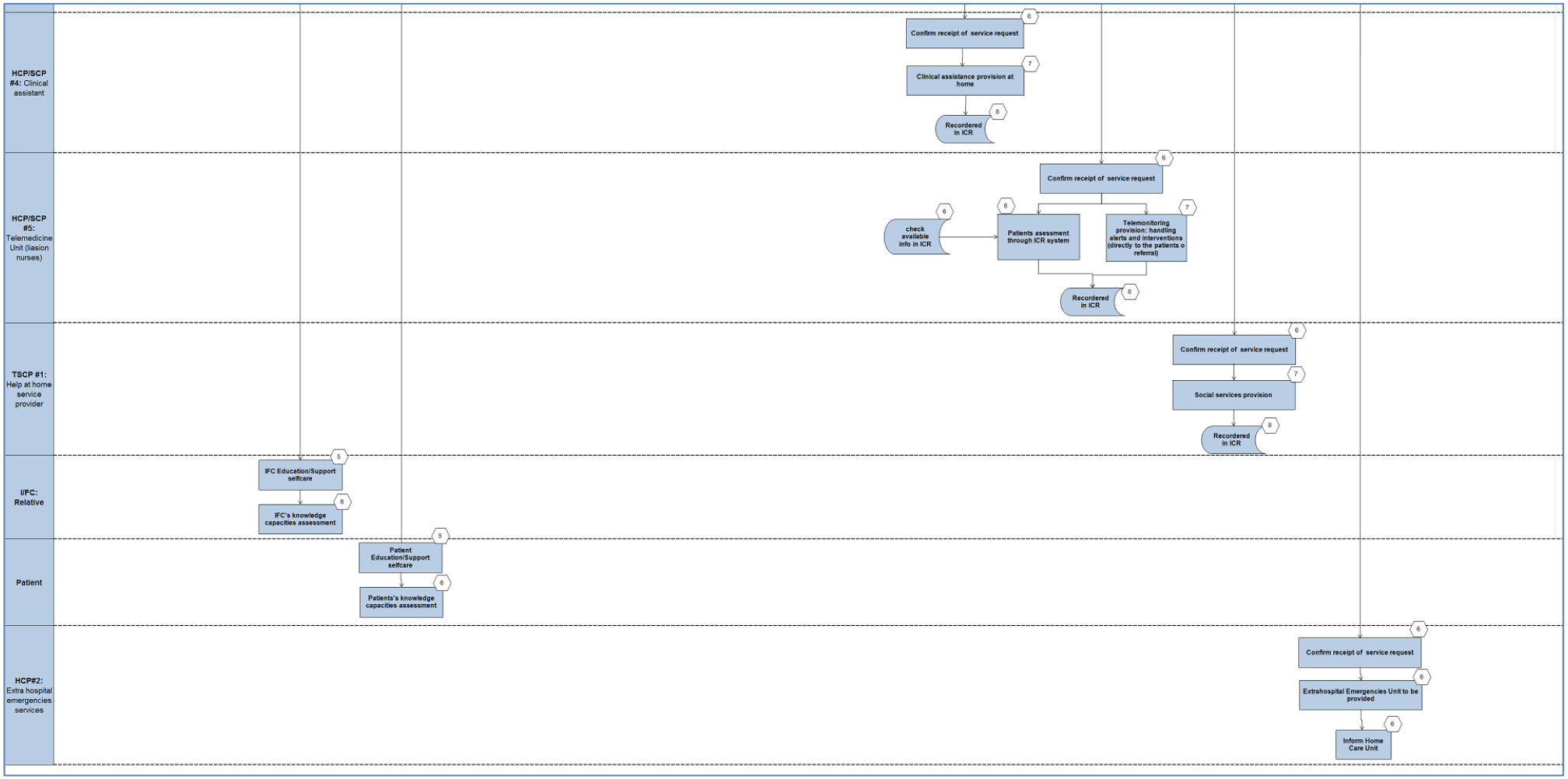
A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

Table 13: Stakeholder overview for ICP-acute in València

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP-SCP #1	Health care provider / Social care provider	Day hospital, ambulatory, surgery, nursing homes, others HaD, outpatient hospital
HCP-SCP #1	Health care provider / Social care provider	Hospital
HCP-SCP #1	Health care provider / Social care provider	Emergencies room (hospital)
HCP-SCP #1	Health care provider / Social care provider	GP
HCP-SCP #1	Health care provider / Social care provider	Physician / Nurses (Home Care Unit)
HCP-SCP #1	Health care provider / Social care provider	Social worker (Home Care Unit)
HCP-SCP #1	Health care provider / Social care provider	Psychologist (Home Care Unit)
HCP-SCP #1	Health care provider / Social care provider	Physical therapist
HCP-SCP #1	Health care provider / Social care provider	Clinical assistant
HCP-SCP #1	Health care provider / Social care provider	Telemedicine unit (liaison nurses)
SCP #2	Social care provider	Social providers or volunteers
HCP #2	Health care provider	Extra-hospital emergencies services
I/FC	Informal / family carer	

Figure 13: ICP-acute service process model in València


HCP/SCP#1 : Homecare Department
HCP/SCP #1: Social Worker (Home Care Unit)
HCP/SCP #2: Psychologist (Home Care Unit)
HCP/SCP #3: Physical therapist
HCP/SCP #4: Clinical assistant
Detection of patient at Risk (by HIS info and presential
Patient fits administrative and medical criteria
Yes
No
Patients keeps on the former service
End
Enrol Patient to integrated Care Programme
Recorded in ICR
Assesment of the patient's needs for home care
Integrated home care plan
Recorded in ICR
nurse visits (at home or by phone)
Physician visits (at home or by phone)
No action
Social worker assessment to be provided
Inform Social worker
Confirm receipt of service request
Social worker assesment (at home or by phone)
Social worker care provision (at home or by phone)
Recordered in ICR
Psychology care to be provided
Inform Psychologist
Confirm receipt of service request
Psichologist assesment
Psychologist care provision (at home or by phone)
Recordered in ICR
Physical therapy to be provided
Inform physical therapist
Confirm receipt of service request
Physical Therapy provision
Recordered in ICR
Nurse assistance to be provided
Inform clinical assistance
Home care plan recorded in ICR
Confirm receipt of service request
Clinical assistance provision at home
Recordered in ICR
Telemedicine to be provided
Inform telemedicine Unit
Home care plan recorded in ICR
other social services to be provided
Inform Social provider unit
Extrahospital emergencies care to be provided
Inform extrahospital emergencies unit
Inform Health care Day Hospitalization
Inform Health care Day Hospitalization
other social services to be provided
Inform Health care Day Hospitalization
End


HCP/SCP #4: Clinical assistant
HCP/SCP #5: Telemedicine Unit (liasion nurses)
TSCP #1: Help at home service provider
I/FC: Relative
Patient
HCP#2: Extra hospital emergencies services
Confirm receipt of service request
Clinical assistance provision at home
Recordered in ICR
Confirm receipt of service request
check available info in ICR
Patients assessment through ICR system
Telemonitoring provision: handling alerts and interventions (directly to the patients o referral)
Recordered in ICR
Confirm receipt of service request
Social services provision
Recordered in ICR
IFC Education/Support selfcare
IFC's knowledge capacities assessment
Patient Education/Support selfcare
Patients's knowledge capacities assessment
Confirm receipt of service request
Extrahospital Emergencies Unit to be provided
Inform Home Care Unit

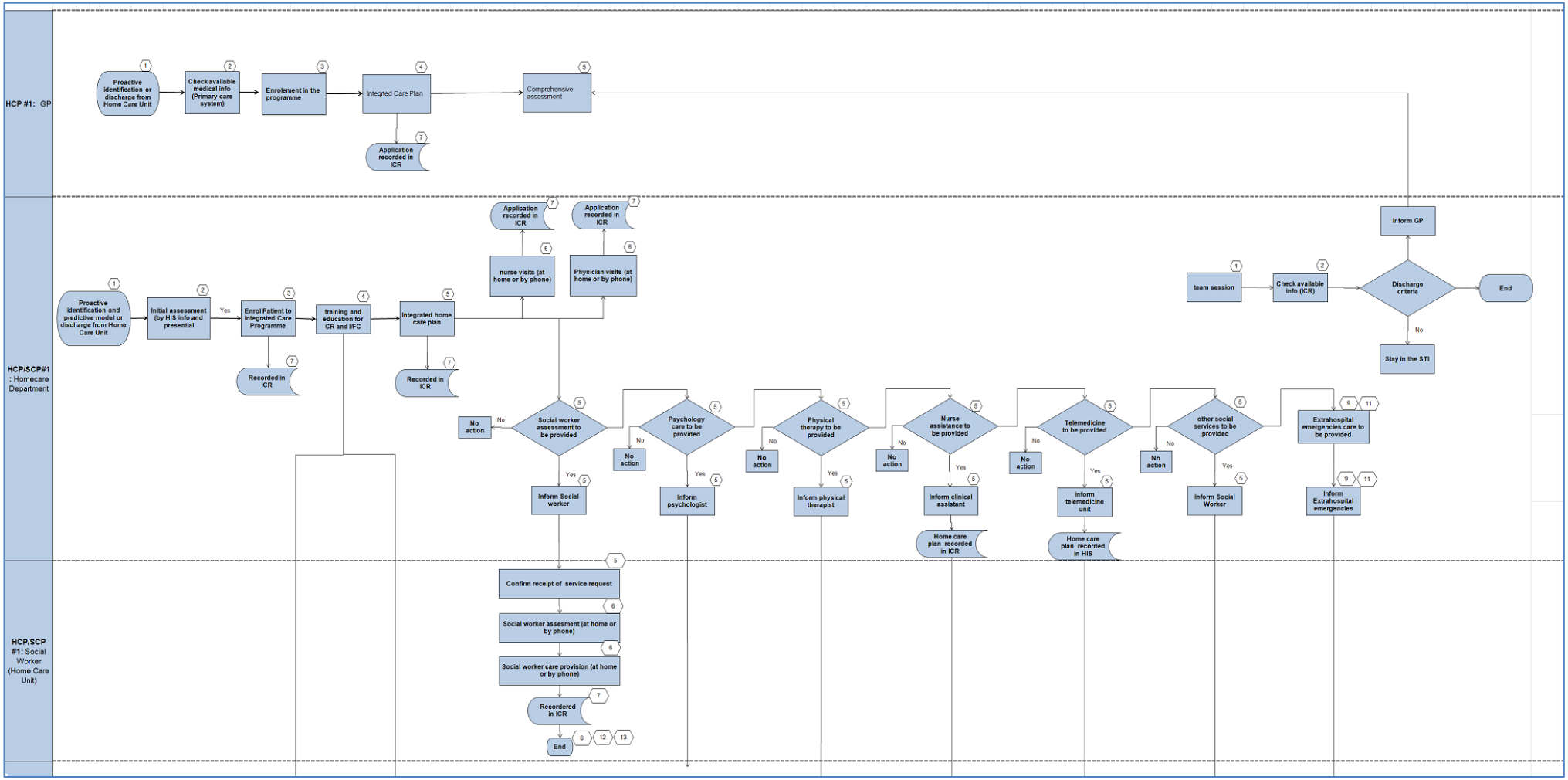
8.3 Service process model for integrated long-term home support (ICP-LTcare)

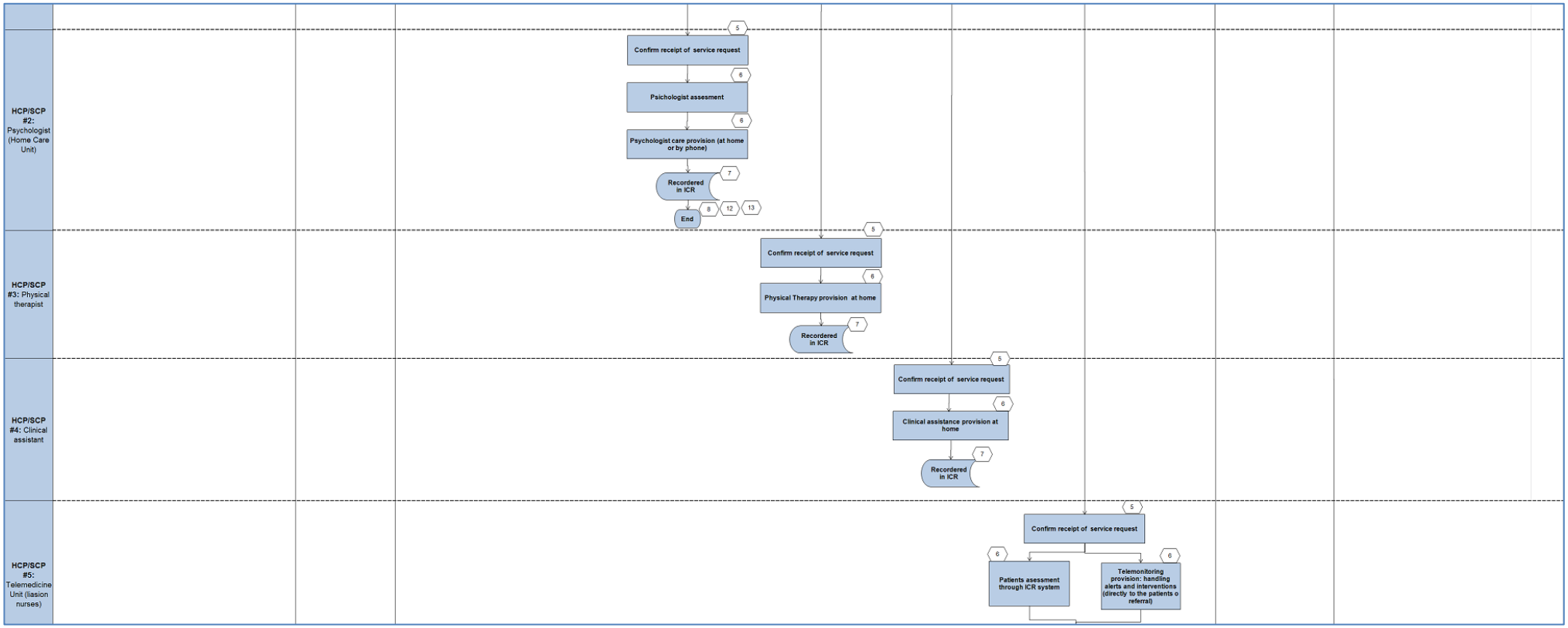
This section presents the service process model for integrated long-term home support. The table below presents the involved stakeholders within the care delivery model in the region. A generic definition of the stakeholders, namely actors, can be found at Appendix A, section A.4. In addition, the service process model also includes reference to the building blocks which can also be found in Appendix A, section A.3.

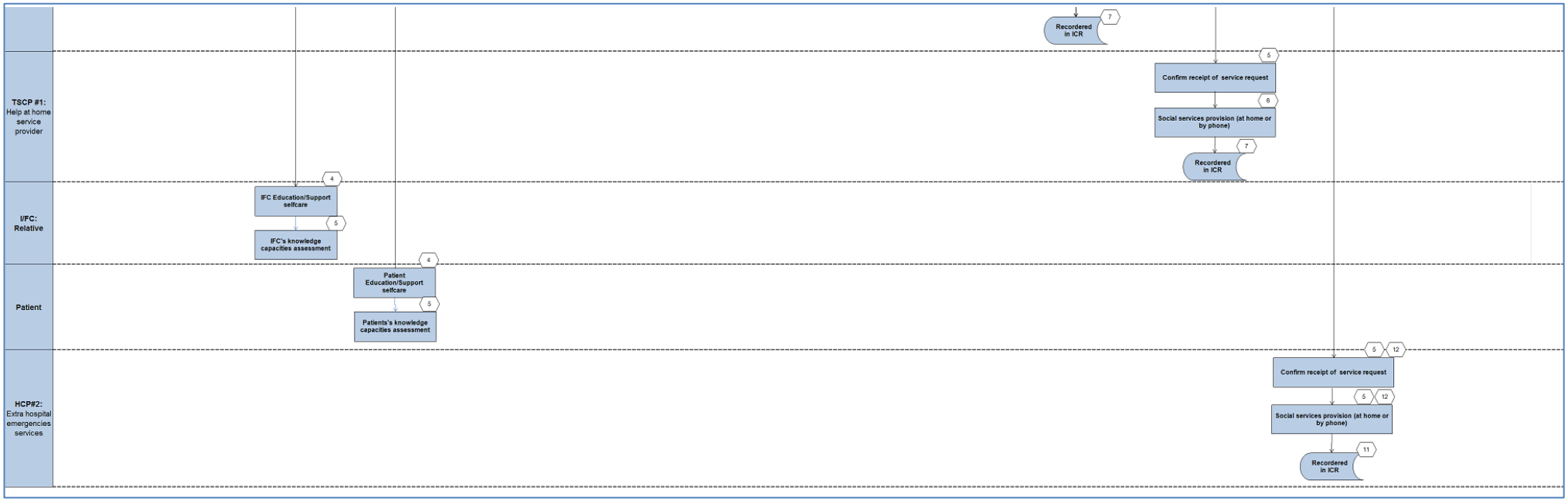
Table 14: Stakeholder overview for ICP-LTcare in València

Stakeholder short name	Type of stakeholder	Pilot site localisation
HCP-SCP #1	Health care provider / Social care provider	Day hospital, ambulatory, surgery, nursing homes, others HaD, outpatient hospital
HCP-SCP #1	Health care provider / Social care provider	Hospital
HCP-SCP #1	Health care provider / Social care provider	Emergencies room (hospital)
HCP-SCP #1	Health care provider / Social care provider	GP
HCP-SCP #1	Health care provider / Social care provider	Physician / Nurses (Home Care Unit)
HCP-SCP #1	Health care provider / Social care provider	Social worker (Home Care Unit)
HCP-SCP #1	Health care provider / Social care provider	Psychologist (Home Care Unit)
HCP-SCP #1	Health care provider / Social care provider	Physical therapist
HCP-SCP #1	Health care provider / Social care provider	Clinical assistant
HCP-SCP #1	Health care provider / Social care provider	Telemedicine unit (liaison nurses)
SCP #2	Social care provider	Social providers or volunteers
HCP #2	Health care provider	Extra-hospital emergencies services
I/FC	Informal / family carer	

Figure 14: ICP-LTcare service process model in València




HCP/SCP #2: Psychologist (Home Care Unit)
HCP/SCP #3: Physical therapist
HCP/SCP #4: Clinical assistant
HCP/SCP #5: Telemedicine Unit (liasion nurses)
5
Confirm receipt of service request
6
Psichologist assesment
6
Psychologist care provision (at home or by phone)
7
Recordered in ICR
8
12
13
End
5
Confirm receipt of service request
6
Physical Therapy provision at home
7
Recordered in ICR
5
Confirm receipt of service request
6
Clinical assistance provision at home
7
Recordered in ICR
5
Confirm receipt of service request
6
Patients asessment through ICR system
6
Telemonitoring provision: handling alerts and interventions (directly to the patients o referral)


TSCP #1: Help at home service provider
I/FC: Relative
Patient
HCP#2: Extra hospital emergencies services
IFC Education/Support selfcare
IFC's knowledge capacities assessment
Patient Education/Support selfcare
Patients's knowledge capacities assessment
Recordered in ICR
Confirm receipt of service request
Social services provision (at home or by phone)
Recordered in ICR
Confirm receipt of service request
Social services provision (at home or by phone)
Recordered in ICR

Appendix A - Collection of pilot site information

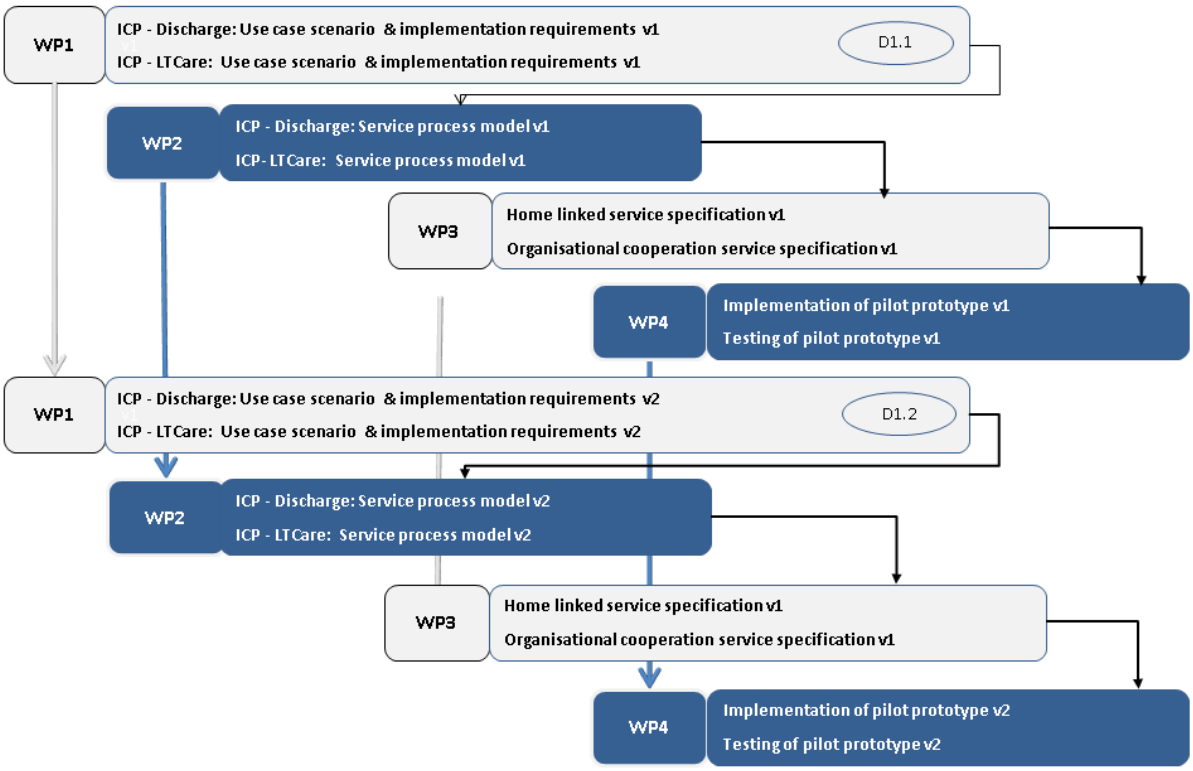
This section includes all the material provided to pilot sites to collect information in the two iterations forming the overall iterative design process.

- Section A.1 explains the process followed by the pilot sites in this work package WP2.
- Section A.3 provides a set of common modelling elements in order to identify all the steps making up the sequence of actions at each pilot site.
- Section A3 includes the revised version of the two generic pathways as defined in D1.2 BeyondSilos Pilot level Pathways, including the numbering for the different blocks, in order to achieve a better understanding of the contextualization of every pilot site. This section only includes the latest version of the generic pathways which was used for the second iteration.
- Section A.4 provides a description of the generic roles involved within the BeyondSilos service provision.

A.1 Overall approach within the work package

The pilot sites were provided with a briefing document at M2. That document explained the overall approach in order to achieve the objectives for that work package. The instructions started with a brief summary of the work to be conducted and the interdependencies with other work packages, as shown in Figure 15 below.

Figure 15: WP2 workflow and interdependencies with other WPs



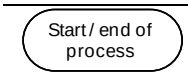
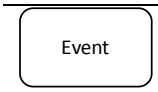
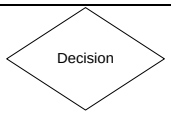
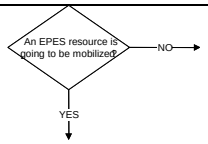
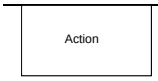
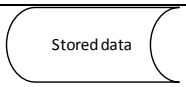
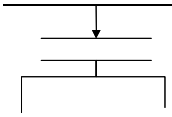
Afterwards, a short description was provided of what a service process model is, including a common set of modelling elements, and an example coming from the Aragón region from the SmartCare project.

Once the pilot sites provided their input, a review process of the generic pathways was conducted in the context of WP1. When that process was finished, the pilot sites were able to start the second iteration during M9 to provide the final input which has been finally included in this deliverable.

A.2 Common modelling elements

This is the common set of modelling elements provided to the pilot sites within the briefing document in order to gather as homogeneous input as possible.

Figure 16: Common modelling elements

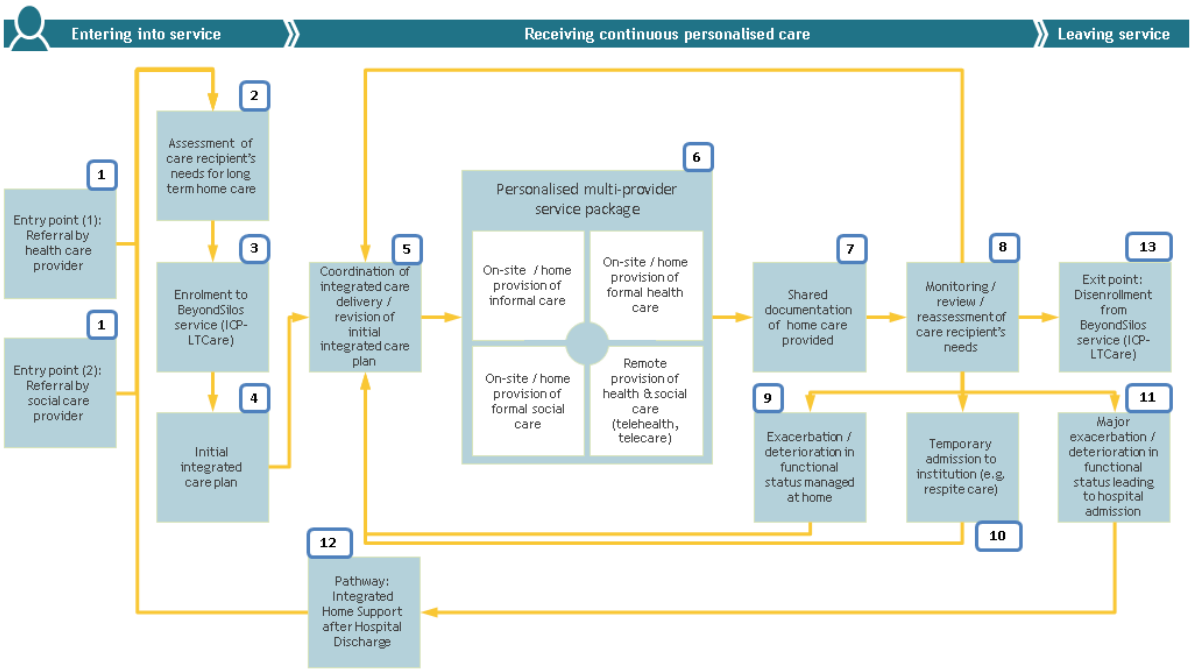
	A process start or end is shown with this icon.
	An event is shown with this icon
	This is the point of decision where normally two options are available. These two options in the flow chart are presented as follows.
	A “yes” and a “no” option always follow a decision icon.
	This icon shows an action that is undertaken.
	Use of stored data is shown with this event
	This is used when two actions / processes have to follow an event.

A.3 Revised version of the two generic pathways

For the better understanding of the overall approach followed within WP2, this section includes the reviewed version of the two generic pathways as defined in the BeyondSilos project. This version also includes the numbering of the different building blocks, and a short description of them. For further details, please refer to deliverable D1.2.

A.3.1 Reviewed generic pathway: Integrated long-term home care support (ICP-LTCare)

Figure 17: Generic integrated long-term home care support pathway (ICP-LTcare)



Description of blocks:

1. **Entry point:**

   Entry points into the BeyondSilos ICP-LTCare pathway may vary according to individual service users and pilot regions. Individual end users may for instance be referred to the BeyondSilos service by health or social care professionals already working with them in other contexts.

2. **Assessment of the service user's needs for integrated home care:**

   This step focuses on assessing the individual service user in relation to any home care needs they may have. This will usually be a systematic process which relies on pre-defined assessment criteria/procedures. These enable identification of health related needs as well as needs for other forms of home support. Implementation of this process is thus likely to require involvement of multi-disciplinary expertise. Generally, it should focus on client-specific risk factors and service outcomes that can be realistically anticipated from relevant professional perspectives for the individual service user.

3. **Enrolment into pilot services:**

   This element stands for the process by which individuals register to become a participant in the service to be piloted. Appropriate eligibility criteria, consent procedures, etc., need to be available and applied.

4. **Initial integrated home care plan:**

   This step focuses on an initial plan for joined-up provision of home support through the BeyondSilos service. It responds to the previously identified care needs in a holistic and integrated manner. The documentation of the plan is an analytical process of activity designed to establish a course of client care, potentially establishing priorities and selecting a course of action from identified alternatives. The results are documented in a systematic manner and set out inputs, delivery, management and organisation of service delivery to the home.

5. **On-going coordination on integrated care delivery/revision on the initial care plan:**

   This element focuses on on-going tracking of BeyondSilos users when they receive professional home care and/or informal support from different parties as identified in the initial care plan. It enables professional and informal carers to coordinate delivery of required care interventions, and to utilise all potentially available resources. The main aim is to effectively manage a system of targeted collaboration over time, thereby involving all relevant parties including the BeyondSilos service users themselves. A "link man" function (sometimes referred to as a case manager) may need to be established to ensure that any changing needs of the BeyondSilos users are identified. In response, the right mix of medical, social and informal care in line with user expectations is delivered. Beyond the involvement of health and social care expertise, a clear assignment of responsibilities is required when it comes to decision making on any care plan adaptations potentially required.

6. **Personalised multi-provider service package:**

   a) On site provision of formal health care and social care:

   This step focuses on coordinated performance of care-related measures through professional health and social care staff and informal carers in the older person's home. The range of tasks may require both medical interventions and/or non-medical custodial tasks and/or non-skilled care, such as assisting with activities of daily living such as dressing, bathing, and using the bathroom.

   b) On site provision of informal care:

   Beyond care provided by professional care staff, non-professional care may be provided by family members and/or other informal carers. This may include medical care tasks (e.g. taking vital sign measurements) or non-medical custodial tasks.

   c) Remote provision of care to the home:

   The remote exchange of data and/or electronic communication between the BeyondSilos service user and healthcare professionals is one example of remote provision of care. This may be necessary to assist in the diagnosis and/or management of a healthcare condition. Examples include blood pressure monitoring, blood glucose monitoring, and medication reminders. Potentially, remote transmission of patient information, e.g. symptom reports, to a clinician for expert diagnosis and/or management may be involved as well.

   On the other hand, remote care provision may include ICT-based services involving data exchange and/or electronic communications between the BeyondSilos service user and non-medical professionals (telecare). Here, examples include (active) push-button alarms and automatic (passive) monitoring of changes in an individual's condition or lifestyle, including emergencies, to manage the risks of independent living. The latter may require installation of one or more types of sensors in the service recipient's home, such as movement sensors, falls sensors, bed/chair occupancy sensors and the like.

7. **Integrated documentation of provided home care:**

   The documentation of any care-related measures performed for the patient needs to be available in an integrated manner. It serves as a basis for on-going decision-making within the overall care process between all involved carers.

   A number of aspects may deserve attention, such as the tailored presentation of information for the needs of healthcare professionals, social care professionals or informal carers. This may take the form of a client / patient summary. The eligibility for reimbursement of certain care acts is

another example. Documentation can also serve auditing purposes when it comes to the quality of care provided.

In addition to care interventions, documentation may also include information relating to various types of assessments performed at the point of care, e.g. fall risk assessment, periodic psychoactive summary, restraint needs assessment, pain assessment for those with communication barriers and the like.

8. **Control/reassessment:**

   This step focuses on systematically monitoring documented care interventions and related outcomes, with a view to enabling meaningful adaptation of the initial care plan over time.

9. **Exacerbation/deterioration in functional status managed at home:**

   When it comes to exacerbations of the chronic conditions, two different scenarios are being distinguished: On the one hand a minor deterioration of the health status or well-being of the patient will lead to the reassessment of their social and healthcare needs and changes in services provided accordingly. The main aim is however to keep the CR in their own home for as long as possible as this usually has a positive influence on the quality of life of the CR.

10. **Temporary admission or re-admission to an institutional setting:**

    Depending on the BeyondSilos service user's status, a temporary admission or re-admission into a stationary care setting may be required, e.g. a day care centre or respite care. After the CR has been discharged from the institutional setting, their social and healthcare needs will be reassessed and service delivery adapted accordingly.

11. **Exacerbation/deterioration in functional status leading to hospital admission:**

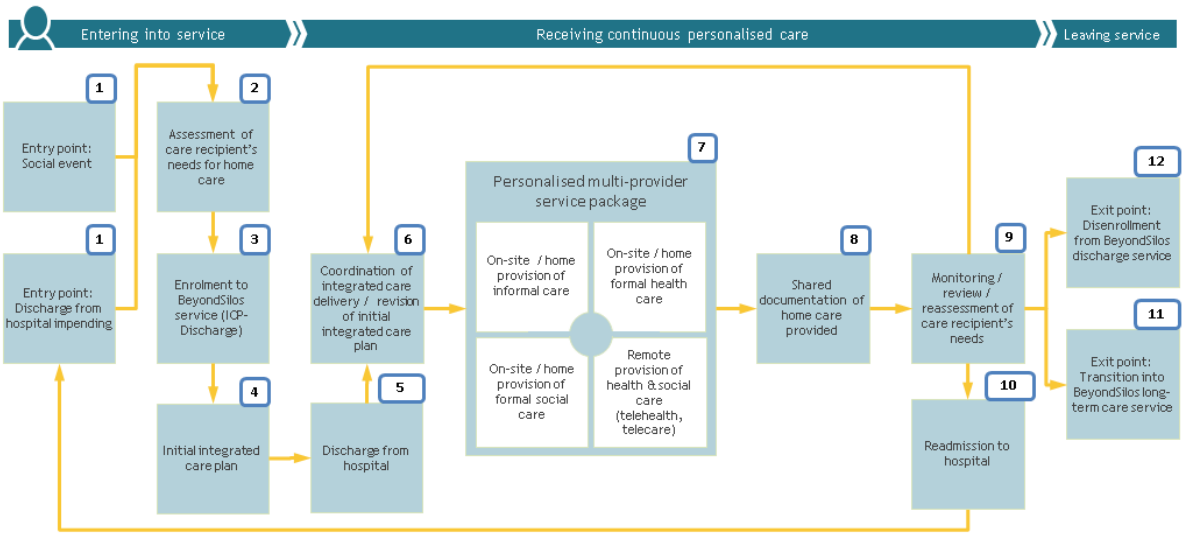
    On the other hand, exacerbations of the chronic condition(s) may lead to a temporary admission to a hospital in order to adequately help and support the CR. In this scenario, the CR will be transferred to the ICP-Short pathway.

12. **Exit point:**

    Exist points from the pathways may vary according to individual service users.

A.3.2 Reviewed generic pathway: Integrated short-term home support after acute episode (ICP-acute)

Figure 18: Generic integrated short-term home care support pathway (ICP-acute)



Description of blocks:

1. **Entry point**:

   Entry points into the BeyondSilos ICP-LTCare pathway may vary according to individual service users and pilot regions. Individual end users may for instance be referred to the BeyondSilos service by health or social care professionals already working with them in other contexts.

2. **Assessment of the service user's needs for integrated home care:**

   This step focuses on assessing the individual service user in relation to any home care needs they may have. This will usually be a systematic process which relies on pre-defined assessment criteria/procedures. These enable identification of health related needs as well as needs for other forms of home support. Implementation of this process is thus likely to require involvement of multi-disciplinary expertise. Generally, it should focus on client-specific risk factors and service outcomes that can be realistically anticipated from relevant professional perspectives for the individual service user.

3. **Enrolment into pilot services:**

   This element stands for the process by which individuals register to become a participant in the service to be piloted. Appropriate eligibility criteria, consent procedures, etc., need to be available and applied.

4. **Initial integrated home care plan:**

   This step focuses on an initial plan for joined-up provision of home support through the BeyondSilos service. It responds to the previously identified care needs in a holistic and integrated manner. The documentation of the plan is an analytical process of activity designed to establish a course of client care, potentially establishing priorities and selecting a course of action from identified alternatives. The results are documented in a systematic manner and set out inputs, delivery, management and organisation of service delivery to the home.

5. **Discharge from hospital:**

   In the case of the generic pathway ICP-acute, the coordination transition of the patient from the hospital or ER to the home is supposed to be critical to his/her health and well-being. Patients, family caregivers and professional care providers all play roles in maintaining a patient's health after discharge. Coordinated discharge planning is seen as a significant step towards an integrated overall care plan.

6. **On-going coordination on integrated care delivery/revision on the initial care plan:**

   This element focuses on on-going tracking of BeyondSilos users when they receive professional home care and/or informal support from different parties as identified in the initial care plan. It enables professional and informal carers to coordinate delivery of required care interventions, and to utilise all potentially available resources. The main aim is to effectively manage a system of targeted collaboration over time, thereby involving all relevant parties including the BeyondSilos service users themselves. A "link man" function (sometimes referred to as a case manager) may need to be established to ensure that any changing needs of the BeyondSilos users are identified. In response, the right mix of medical, social and informal care in line with user expectations is delivered. Beyond the involvement of health and social care expertise, a clear assignment of responsibilities is required when it comes to decision making on any care plan adaptations potentially required.

7. **Personalised multi-provider service package:**

   d) On site provision of formal health care and social care:

This step focuses on coordinated performance of care-related measures through professional health and social care staff and informal carers in the older person's home. The range of tasks may require both medical interventions and/or non-medical custodial tasks and/or non-skilled care, such as assisting with activities of daily living such as dressing, bathing, and using the bathroom.

e) On site provision of informal care:

Beyond care provided by professional care staff, non-professional care may be provided by family members and/or other informal carers. This may include medical care tasks (e.g. taking vital sign measurements) or non-medical custodial tasks.

f) Remote provision of care to the home:

The remote exchange of data and/or electronic communication between the BeyondSilos service user and healthcare professionals is one example of remote provision of care. This may be necessary to assist in the diagnosis and/or management of a healthcare condition. Examples include blood pressure monitoring, blood glucose monitoring, and medication reminders. Potentially, remote transmission of patient information, e.g. symptom reports, to a clinician for expert diagnosis and/or management may be involved as well.

On the other hand, remote care provision may include ICT-based services involving data exchange and/or electronic communications between the BeyondSilos service user and non-medical professionals (telecare). Here, examples include (active) push-button alarms and automatic (passive) monitoring of changes in an individual's condition or lifestyle, including emergencies, to manage the risks of independent living. The latter may require installation of one or more types of sensors in the service recipient's home, such as movement sensors, falls sensors, bed/chair occupancy sensors and the like.

8. Integrated documentation of provided home care:

The documentation of any care-related measures performed for the patient needs to be available in an integrated manner. It serves as a basis for on-going decision-making within the overall care process between all involved carers.

A number of aspects may deserve attention, such as the tailored presentation of information for the needs of healthcare professionals, social care professionals or informal carers. This may take the form of a client / patient summary. The eligibility for reimbursement of certain care acts is another example. Documentation can also serve auditing purposes when it comes to the quality of care provided.

In addition to care interventions, documentation may also include information relating to various types of assessments performed at the point of care, e.g. fall risk assessment, periodic psychoactive summary, restraint needs assessment, pain assessment for those with communication barriers and the like.

9. Control/reassessment:

This step focuses on systematically monitoring documented care interventions and related outcomes, with a view to enabling meaningful adaptation of the initial care plan over time.

12. Exit point:

Exist points from the pathways may vary according to individual service users.

A.4 Generic naming and description of the involved stakeholders

Care recipient (CR): This role category refers to older people who are ultimately supported by the service to be implemented.

Informal / family carers (I/FC): This category includes individuals (family members, but also friends, neighbours) providing social care, health care or other types of support to the older person (CR) on a regular basis.

Staff of social care provider (SCP): This role category refers to organisations providing formal social care, and their paid staff (categories). Depending on the country, these may include public and/or private service organisations.

Staff of healthcare provider (HCP): This role category refers to organisations providing formal healthcare, and their paid staff (categories). Depending on the country, these may again include public and/or private service organisations.

(Voluntary) staff of third sector care provider (TSCP): This role category refers to organisations providing support to older people separately from or complementary to the formal services mentioned above. Potentially, this category includes a wide range of actors such as self-help groups, volunteer organisation, charities and social enterprises. These may employ paid staff and/or rely on volunteers.

Appendix B – Lessons learnt

This section gathers all the input provided by the pilot sites regarding the experiences acquired within the work conducted in WP2. Mainly, the contributions refer to the development of the service process models as a contextualized version of the two generic pathways developed in WP1.

Pilot site	Lessons learnt by the pilot sites
Amadora	- Establishment of a clear workflow. - Homogenisation / standardisation of procedures. - Definition of roles and tasks among different stakeholders. - Identification of difficulties / risks / constraints. - A more clear identification of the added value of the integrated care.
Badalona	- The service process models turned out to be a great tool to translate the two generic pathways into the characteristics prevailing at Badalona's pilot site. In addition, it is a kind of work where Badalona feels very comfortable because we have a Clinical Transformation Office, which aims at studying in which way do the new / changed services do fit into the daily activities of the organisation and the professionals, and that is mainly what they do. So, even though such a task is very time consuming, the time spent is worth it in the long run, because it shows clearly which stakeholders are involved, what is the role of ICT, and what is the general workflow to be followed with all its specificities. That saves a lot of future discussions and extra work. - It was a good idea to develop two separate service process models because essentially, in the case of Badalona, the involved stakeholders are different. It is also interesting to separate complex processes into different parts because it eases the comprehension of them.
Campania	- To unpack a complex model into many simpler interventions. - Get ready before starting. The knowledge of the mechanisms already in place is necessary to avoid waste of time and resources in reinventing the wheel. - Keep it simple: try to avoid unnecessary levels of intervention. - Keep the final objective in mind.
HSCNI	- Initially the process of modelling the services was very complicated and time consuming, especially as, under the first iteration of our pathways, we thought that what we wanted to do was relatively simple. With the expansion of our service model to include an interactive Integrated Care Pathway however, the process has proved valuable as it forces you to consider all possible links and gaps. For HSCNI, the value of having two pathways has still to be proven as, in most cases, the only difference is in the length of time the person is in receipt of the service.
Kinzigtal	- Excellent tool to get a simple overview over different stages of a complex intervention. Especially for external staff who need to be involved and did not participate in the beginning of drawing service process model, it is easier to understand which actions are to be taken at the right time. - Challenge is not to add too many different steps in the picture. This may cause an overdrawn process which is not helpful to understand the pathways. On the other hand, important steps must be considered. - Service modelling is a very time consuming task, which for Kinzigtal especially in the early beginning was a very difficult work to do, because certain BeyondSilos service content for Kinzigtal pilot site was not quite far developed.

Sofia	- The process modelling helped us clarify the roles of the different stakeholders. We also managed to establish the set of activities we shall perform in order to satisfy the needs of the care recipient in an integrated way. We decided to use a uniform model for long-term and short-term care because the building block and the process sequence overlapped in our case. - We learned that the provision of integrated care must be done in a standardised manner following a uniform work flow of activities. The process model was also be a useful instrument to distribute and yet keep coherent the work done by our subcontractors. - The development of the process model of the pathways contributed to our planning of the integrated service intervention.
València	- The modelling of the pathways and its implementation in Hospital La Fe has permitted us to have a whole view about how BeyondSilos process could fit inside institution process. Also it permits us to identify in detail the stakeholders involved, identify the activities to be performed by each actor, and define clearly their activities. - Although building of process models was an important effort and we invested much time to develop both models, it was worthwhile. It helped us to understand better how increase synergies between social and health interventions.