How Technology supports Integrated Care
SmartCare implementation in Aragón, Spain

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Who we are:

• **The region: ARAGÓN**
  - 1.3 M inhabitants, (50% in the capital)
  - 3 provinces, 730 towns
  - Low density 27.8 inh/km²
  - 20.1% +65 (Spain 17.4%) year 2012

• **Servicio Aragonés de Salud (SALUD)**
  - Only healthcare provider for the region
  - Public body (regional government-dependent, budget dependent)
  - Committed with the universality of services (all services to all people) and the equal access to healthcare services for all citizens
  - Some data
    - Primary, Specialized and mental
    - 8 healthcare sectors, (Barbastro - smartcare coordinator)
    - 14 public hospitals
    - 118 care centres
    - 874 healthcare cabinets
    - 18872 employees at hospitals (2012), 1475M€ 2014-Budget
  - Methodology of piloting, assessment and deployment of services
Background

2003
HEALTH OPTIMUM
Information and Telemedicine System’s Plan
Provide SALUD with ICT infrastructure for the provision of telemedicine services
Teleconsultation + teleadvise

2008
DREAMING, CSV1, RESATER, STTIP
ICT Platforms for pluripathological profiles

2011
SUSTAINS
Empowerment e-health services

2014-
MASTERMIND
Other target groups
Mental health

2007-2008
ISPAMAT, REALTH
Enhanced teleconsultations & telemonitoring
AdHoc Solutions

2010
PITES
Involve social providers on the care provision by transfer of health competences

2013-
SMARTCARE
Integrated care Coordination of actors

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Starting point

• SALUD is the only healthcare provider on the territory
• Several social care providers at national, regional, local level.
• No coordination among actors
  – Duplication of services
  – Malfunction of the provision of services
  – Lack of patient’s security...
• Need to cooperate!
Objetives

• Smartcare OBJETIVES

- Provision of an INTEGRATED care by eliminating the actual attention silos
- Enhance the quality of the services of the providers’ service portfolio
- Enhance the process of provision of care services (avoiding duplicities, approaching services to users...)

- Improve the patient’s quality of life through early diagnose
- Encourage the patient empowerment by promoting the change of roles and the health self-management
- Optimization of the health, social and human resources and cost contention
- Sustainability of the Welfare and Health Systems
- Follow the strategic line of the Aragon Government for the unification of the Health and the Social Services Departments.

• HOW? Trough the

- Collaboration of agents to create a Care Plan and agenda
- Coordination of agents to provide this integrated care
- By sharing information (health & social data) to facilitate the provision of services on a secure and reliable manner
- ICTs support
Previous requirements

• Identification of care providers
• Establishment of strategic alliances
• Identification of the basket of services for each provider
• Analysis of each service delivered
  – Key factors to deliver an outstanding service
  – Minimum set of Information needed for a high quality service
<table>
<thead>
<tr>
<th>Type</th>
<th>Role</th>
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<tbody>
<tr>
<td>HCP</td>
<td>They provide health assistance to citizens including Primary, Specialized and mental Care and Emergencies</td>
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<tr>
<td></td>
<td>Includes GP, nurses, specialized healthcare professionals</td>
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<td></td>
<td>ICT Infrastructure. Same network, common DBs, management APPs + Intranet giving access to all information to all health professionals in all the territory.</td>
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<tr>
<td>SCP</td>
<td>Public and private social care providers with external funds</td>
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<td></td>
<td>Provide wide rage of social services</td>
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<td></td>
<td>Alliances signed</td>
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<tr>
<td>Informal carers</td>
<td>Provide all type care and support to citizens, performe any taks, helping with daily home tasks, cleaning, cooking, etc..</td>
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<td></td>
<td>Mainly relatives. Also neighbours, self-employees, etc..In some cases they can be remunerated by the user</td>
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<tr>
<td>Care receivers</td>
<td>Chronic elders over 65, with COPD, diabetes mellitus, Myocardial infarction, stroke history, CVA, Polypharmacy, non excluding comorbidities, AND with social needs</td>
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<tr>
<td></td>
<td>i.e, elders clubs, user's associations, etc..</td>
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</tbody>
</table>
## Services portfolio in SmartCare

<table>
<thead>
<tr>
<th>AFEDAB</th>
<th>Red Cross</th>
<th>SALUD</th>
<th>Other</th>
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<tbody>
<tr>
<td><strong>Patient</strong></td>
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<tr>
<td>Therapy centre</td>
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<td>Cognitive stimulation programs</td>
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<td>Reminiscence therapy</td>
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<td>Physiotherapy at home</td>
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<tr>
<td>Group and water physiotherapy.</td>
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<tr>
<td>Tracking status of the patient</td>
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<tr>
<td>Management of patients with GPS locators to disorientation</td>
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<tr>
<td><strong>Carers</strong></td>
<td></td>
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<tr>
<td>Shelter to families</td>
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<tr>
<td>Information, training, orientation programs</td>
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<tr>
<td>Assessment and social counselling</td>
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<tr>
<td>Assessment and home health counselling</td>
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<td>Legal advice</td>
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<td>Self-help group</td>
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<tr>
<td>School for carers</td>
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<tr>
<td>Breath center</td>
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<td>Support at home</td>
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<tr>
<td>Loan orthopedic material</td>
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<tr>
<td>Borrowed books and videos</td>
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<td>Newsletter</td>
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<tr>
<td><strong>Healthcare services in general</strong></td>
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<tr>
<td>Primary Care</td>
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<tr>
<td>Specialized Care</td>
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<td>Mental health</td>
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<td>Health Transportation</td>
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<td>Emergency transfers</td>
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<td>GP or nurse home assistance</td>
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<td>Remote telemonitorization</td>
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<td>Education programs in health issues</td>
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<td>Pain management</td>
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<td>Wound care</td>
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<td>forms filling to detect alert signs</td>
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<tr>
<td>Adherence to treatment programs</td>
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<td><strong>Management of the pharmacological treatments</strong></td>
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<td><strong>Assessment of the health status and needs of the patient</strong></td>
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<td><strong>Follow-up of treatment.</strong></td>
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<td><strong>Personalized dosage systems.</strong></td>
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<tr>
<td><strong>Personalized dosage systems</strong></td>
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<tr>
<td><strong>Adherence to treatment control</strong></td>
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<tr>
<td><strong>Progress and results control</strong></td>
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<tr>
<td><strong>Help to improve the efficiency of the Healthcare System and the Public Health of the efficiency</strong></td>
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<tr>
<td><strong>Dissemination of reliable information about medicines, auto-care and public health related issues</strong></td>
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<td><strong>Health promotion and disease prevention</strong></td>
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<td><strong>Education for health</strong></td>
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<tr>
<td>- Prevention services and activities</td>
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<tr>
<td>Advice and support to the national policies that encourage better health results</td>
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<tr>
<td>- Management programmes for chronic and poly-pharmacy patients</td>
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<tr>
<td>- Detection of problems related to the medicine use and its intervention</td>
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</table>

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Steps on the provision of integrated care

Identification of potential users → Assessment of requirements → Inclusion on the program → Care plan definition → Schedule of care

Initial and final evaluation → Periodic assessment → Documentation of the activity → Provision of services

2 use cases: early discharge and long-term
Ethics and Data Protection

Users
- Information sheet
- Consent Form
- Approved by the Aragon Ethics Committee for Clinical Research

Care providers
- Personal data Protection Legislation LOPD 41/2002, 15/1999, 994/199
Information Systems involved

**SALUD**
- Common ICT infrastructure for Primary Care & Specialized Care
- Same network, common DBs
- Salud IS:
  - EHR Viewer (Primary Care + Specialized Care patient data)
  - HIS: Scheduling & monitoring information apps
  - Departmental apps (PCH, LIS, RIS, telemonitoring portal, Patient’s surveys, e-prescription,
  - Videoconferencing system
- Help desk
- Telemonitoring kits

**SOCIAL**
- Social Services Recording IS
- Proximity Local App: Contact centre + agenda
- Citizens info databases

**Informal carers**
Proprietary systems/None/paper
Components

- What do we have in SmartCare?
  - Telemonitorization kits
  - Smartcare WebPortal
  - SALUD IS, telemonitoring portal
  - Social providers IS
Integrated Care IT Infrastructure

KEY ICT ELEMENTS

• Common identification of users in the health and social systems

• The collaborative environment
  – Shared patient minimum data set. (DB with social + health info)
  – Webportal stores the care plan, agenda and activity record
  – Integration of information with already existing IS

• Point of contact for users
## Smartcare key elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Identification of users</th>
<th>DB</th>
</tr>
</thead>
</table>
| Aim     | - Users have different ids on each provider  
          - Unification of criteria  
          - CIA, National id card, health number, name ... | - Identification of the services that are can be «integrated»  
          - Identification of the information connected based on these services  
          - Definition of the data (minimum data set), health and social, to be shared (with the aim of providing efficiency and quality to the services) |
| Solution | - CIA | - Health agenda, diagnoses, drug prescription and dose, contact persons data, constant signs ranges, recommendations, etc.. |
## Collaboration Framework

<table>
<thead>
<tr>
<th>Aim</th>
<th>Functionality</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Share information</strong></td>
<td>Patient’s general information (address..)</td>
</tr>
<tr>
<td></td>
<td>Health data</td>
</tr>
<tr>
<td></td>
<td>Social data</td>
</tr>
<tr>
<td></td>
<td>Contact people</td>
</tr>
<tr>
<td></td>
<td>Health Agenda</td>
</tr>
<tr>
<td></td>
<td>Ethics and Data protection</td>
</tr>
<tr>
<td><strong>Definition of the care plan</strong></td>
<td>Social and health assessment documents</td>
</tr>
<tr>
<td></td>
<td>Evaluation agents</td>
</tr>
<tr>
<td></td>
<td>Assessment of needs</td>
</tr>
<tr>
<td></td>
<td>Assessment of care providers</td>
</tr>
<tr>
<td></td>
<td>Integrated care plan and responsible agents</td>
</tr>
<tr>
<td><strong>Coordination of actors</strong></td>
<td>Agenda of integrated care</td>
</tr>
<tr>
<td></td>
<td>Care schedule</td>
</tr>
<tr>
<td><strong>Documentation of activity</strong></td>
<td>History of activities performed</td>
</tr>
</tbody>
</table>
Technology Key points

- The solution must be integrated with the already existing information systems
- Technological solution has to fit the context of the social providers (which may not dispose of IS)
- Solution must be accessible
- Solution must be secure
- Define the minimum functionality for v1.0 and elaborate a plan of functionality enhancements for future versions.
- Mobile solution to attend the process as a whole
- Must permit to register information as it is produced. Facilitate the registry of the programmed activity and by its responsible in real time
- Solution must adapt to the changes in the user’s requirements
- Automation of the agenda management. Periodic tasks. Ease the documentation of the activity
- Confidence
- Availability of Helpdesk
- Compliance with standards.
Training

- Participants and health professionals
- Near to the enrolment
- Taught by a healthcare professional
- Best practices manual and use of technology
- Provide with a technical point of contact to solve incidences (helpdesk)
Evaluation process

• At the end

• Several domains

• Based on questionnaires and activity records

• Not only final outcomes but also intermediate

• Methodologies
  – MAST
  – Assist
Video
Site status

- 57 patients are already enjoying from SmartCare’s long term pathway
  - 82.65 years old average
  - 3 towns
- 3 SALUD Primary Care healthcare centers participant
- 16 GP’s + 16 nurses
- 2 Red Cross Assemblies
- Barbastro’s Alzheimer Association (28 patients)
- Aragon Institute of Social Services (IASS)
- 35 social carers involved
- Help desk set (5 technical staff)
- Medical and social contact centers set (1 emergency nurse + 1 emergencies doctor + social agents)

<table>
<thead>
<tr>
<th>Expected Progress</th>
<th>End July</th>
<th>Expected . Y1</th>
<th>Expected end of project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Older people</td>
<td>57</td>
<td>50</td>
<td>300</td>
</tr>
<tr>
<td>Healthcare professionals</td>
<td>34</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Social care professionals</td>
<td>35</td>
<td>30</td>
<td>100</td>
</tr>
</tbody>
</table>

Pathological profile

- Hipertension 24%
- Polypharmacy 24%
- Diabetes Mellitus 10%
- Heart Failure 11%
- MI 7%
- CVA 10%
- ACxFA 10%
- COPD 4%

Already over the commitment for Y1!

ACXFA 10%
Thank you for your attention

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