Telecare of Mental Disorders (Basque Country experimentation site)

General information of the experimentation site

OSAKIDETZA is a Public Entity, the most important health service provider (89%) in the Basque Country.

- Population (2011): 2.183.615 inhabitants
  ≥65 years: 17.81%
- Life expectancy at birth (2009) 78,6 for men and 85,7 for women. The Basque Country's position is one of the highest in the world, after Japan and Hong Kong.
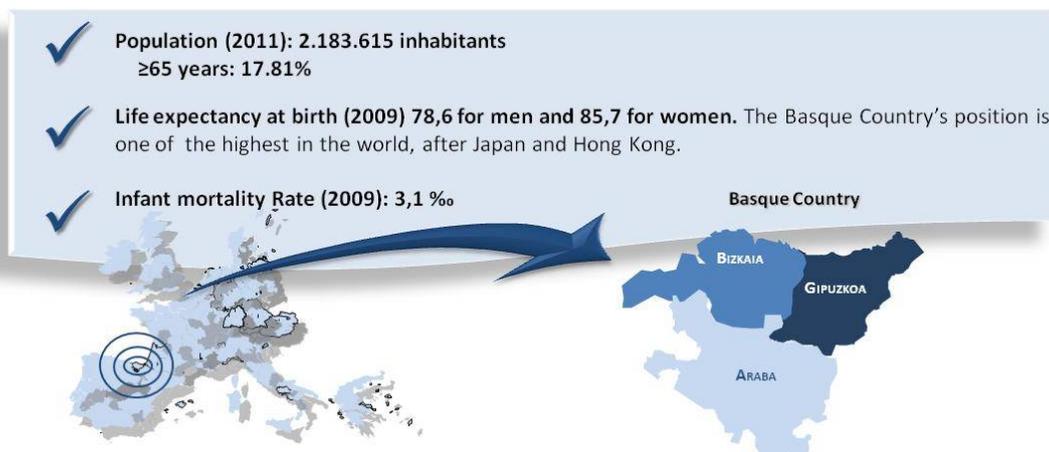- Infant mortality Rate (2009): 3,1 ‰

Figure 1: Main figures

OSAKIDETZA runs:

- 320 Primary Health Centers.

- 12 Acute Hospitals (4,278 beds) and 4 Chronic Care Hospitals (524 beds).

- Mental Health: Three regional networks with 4 psychiatric hospitals,777 beds) and 2 Contracted Long term Mental hospitals.

The response to the needs of people suffering from chronic illnesses has become the principal challenge faced by the Basque Health System. These pathologies have a multiple impact: (1) they represent a considerable restraint on life-quality, productivity and the functional state of people who suffer from them; (2) they exert a strong influence on morbidity and mortality rates; (3) and they accelerate the increase in health and social costs, which compromises the medium term sustainability of the healthcare system. To meet the challenge of chronicity the Basque Health System set up, in 2010, the "*Strategy to Tackle the Challenge of Chronicity in the Basque Country*[1] that provides a framework of action for the medium term transformation of the Basque Health System. This Chronic Patients Strategy aims to outline a new way of organizing care causing an impact on each and every aspect of the system (health results, satisfaction, patient and carer life quality, and sustainability).

This strategy is based on a *medium term vision*, which defines and describes the desired future situation, it describes the health care *policies* for chronic patients as guidelines for the successful fulfilment of this vision and includes a series of *strategic projects* which contribute towards generating and implementing the change to make the policies and the vision a reality in each one of its dimensions. OSAREAN Multichannel Centre is one of these strategic projects and aims to provide to patients, family members and professionals, the ability to access the health service remotely, using all currently available channels of interaction.

Description of the proposed use case scenario: Telecare of Mental Disorders

The aim of the proposed use case is to provide new, not available **"Telecare service based on advanced communication channels to treat, monitor and support people with mental disorders and their relatives"**.

Innovation and Constraints

The OSAREAN Multi-channel service centre is already providing different IT-health-care services to the population. FI technology can boost the existing technology and it will allow Osakidetza to create a new model of delivering e-health services. This use-case includes new ICT-based services in a health area that until now was partially hidden by other "more popular" chronic pathologies. Mental health is important because of its prevalence in our society and the implementation of the use case in the Basque Country will be useful not only to generate evidence on the clinical impact of the proposed solution but also to validate the proposed technological solution in addressing Mental Health.

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[1] A Strategy to Tackle the Challenge of Chronicity in the Basque Country:
http://cronicidad.blog.euskadi.net/descargas/plan/ChronicityBasqueCountry.pdf

The use case will interact with the already existing IT infrastructure. The main constraints are the need to keep the already in place IT infrastructure as it is and make the final solution interoperate with it without requiring any changes in it and the need to keep medical data in a private environment. These constraints should be properly addressed by FI STAR. OSAKIDETZA will provide its expertise in the implementation of OSAREAN to enrich FI STAR platform.
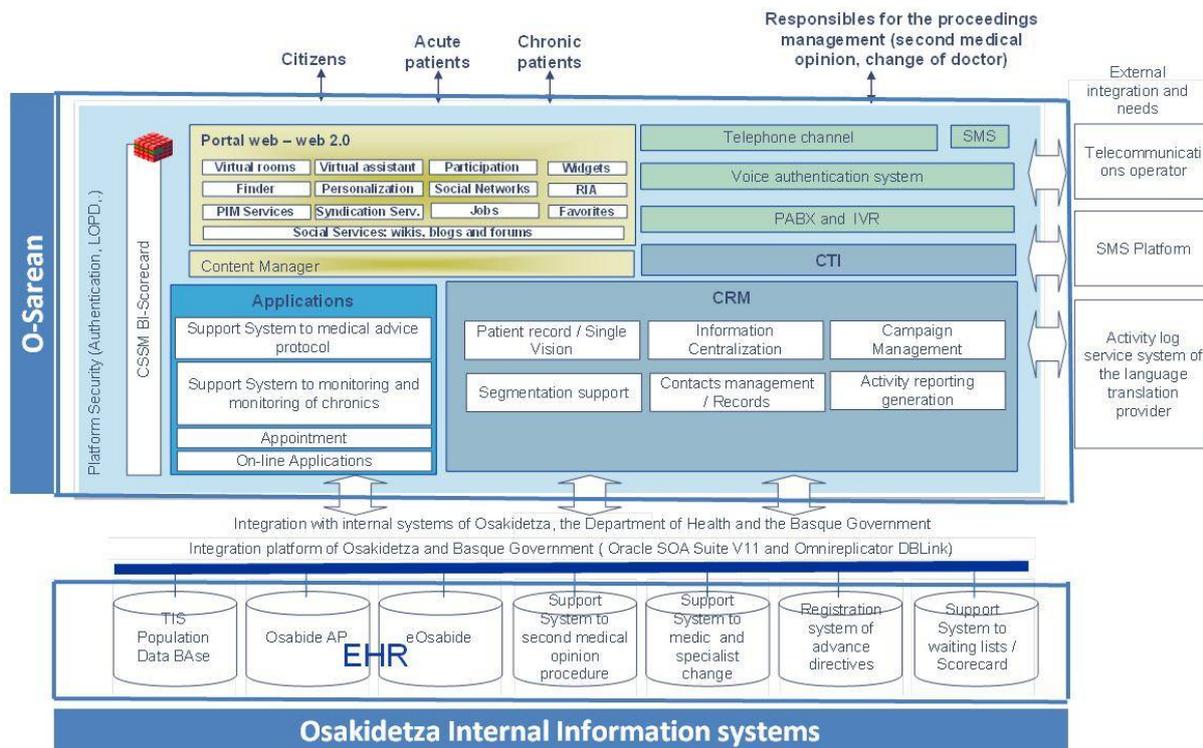

Figure 2: Existing IT infrastructure

The need of new services to support people with mental disorders

The importance of mental disorders is clear taking into account the epidemiological situation. Patients with mental disease represent between 15-20% of total population. The morbidity and mortality of patients with mental diseases is high, with a life expectancy of almost 10 years less than the general population, due especially to suicide, cardiovascular death and cancer. Cardiovascular risk is even higher in women with mental disorders. Mental disorders, especially the severe ones (schizophrenia, bipolar disorder and depression) begin usually in the adolescence and are chronic disorders. The diseases are associated also with cognitive symptoms, obesity and insomnia, and are related with difficulties in work, leisure and sexuality. Early and intensive treatment improves prognosis of mental disorders. Psychoeducational-psychological treatments and relevant information are methods that have been associated with improved prognosis.

The use of telemedicine can be useful as a complement to the usual treatment, helping patients to control their diseases, and helping the health provider, and specially helping the health professionals, via feed-back. Therefore, telemedicine can help to improve functionality and quality of life, but what is most important, bringing different services together (Service aggregation)might double the impact of IT technologies on the quality of the service, patient safety, patient and professional satisfaction, treatment adherence, accessibility, and in the end quality of life.

General description of the use case

Main characteristics of the proposed use case should be:

- One stop solution that Integrates services for treatment, monitoring and support for people with mental illness (and in specific areas their relatives or carers).

- Provides bidirectional interaction between patients and health services.

- Allow multi-device access to the solution (PC, Smartphone, tablet) / multi-channel access to the services (telephone, email, internet), including call centre run by specially trained nurses working 24X7.

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[2] OSABIDE is the Integrated Electronic Health Record (EHR).

- From the technological point of view the solution will deal with huge data files. Files that need to be highly secured and very much integrated within the existing EHR. In the use case we will be dealing with multimedia settings like video sessions, e-learning platform, instant messaging, etc.

- The solution should be ready to be scale up to other pathologies in the future (i.e. the specialists think that in this specific use case oriented to mental health disorders there are not specific devices that could be used to monitor patients status, anyway the solicitation should be somehow "IOT ready " to be able to scale it up to other chronic diseases that could require the utilization of monitoring devices). Our challenge is to make sure everything is geared towards the patient in order to get better clinical results. If the outcomes are as expected the same technological model of care may be transferred to various mental disorders as other chronic diseases.

The new telecare service for mental disorders will be in real time and bring different services together (Service aggregation). Below it is included a table with a brief description of the involved services and their potential functionalities.

Psychoeducation	Presents to the patient the required Psychoeducation material based on the evolution of his/her state. Collects information from the patient to evaluate his/her evolution in the Psychoeducation process. Requires access to specific questionnaires. Includes reminders. Could generate an automatic appointment (multi-channel) if the evolution of the patients is not as expected. Multi device access (PC, Smartphone, tablet). Relevant info should be integrated in the EHR.
State monitoring	Provides means to collect the required information, both quantitative (specific parameters) and qualitative (emotional status, feelings, etc.) parameters and information. Includes reminders. Requires access to specific questionnaires. Multi device access (PC, Smartphone, tablet). Relevant info should be integrated in the EHR.
Pharmacological treatment monitoring	Provides means to collect the information about medication intake. Includes reminders. Multi device access (PC, Smartphone, tablet). Relevant info should be integrated in the EHR.
Online psychotherapy	Online psychotherapy Provides means to support video based online psychotherapy. Allow individual and potential group access. Includes reminders. Multi device access (PC, Smartphone, tablet). Relevant info should be integrated in the EHR.
Feedback to the patient	Provides means to provide relevant information to the patient about the evolution of his/her disease, motivational messages, comments of his/her therapist, etc. Multi device access (PC, Smartphone, tablet). Relevant info should be accessed from the EHR.
Multichannel patient guidance	Provides means to support patients (and relatives /carers) to follow guidance in case of problems. Multi device access (PC, Smartphone, tablet), multichannel (including access to call centre).
Support	Provides means it this contribution to support patients (and relatives /carers) though social networks (relevant information, etc.). Multi device access (PC, Smartphone, tablet).

Trial execution and evaluation: Preparing Scale Up

The case of use will be directed to patients in treatment in OSAKIDETZA, due to mental disorders. The u**se case target group will involve 50-100 patients with mental disorders**.

One of the FI STAR key objectives is the technical validation of the FI STAR platform and the GE Enablers developed in Phase 1. OSAKIDETZA will go further and to be able to evaluate the real impact of the proposed solution in the provision of telecare services and prepare future scale up trials will set up as a clinical trial where the objectives will be: (i) to analyze the effectiveness of the telemedicine in patients with mental health disorders and (ii) to evaluate the efficacy of psychological treatments (psycho education), information and communication through the Internet, added to the usual pharmacological treatment, in the functionality of patients, and in the patients satisfaction. The process to be followed will be a randomized clinical trial simple blind evaluation. Patients will be assigned, in a randomized way, to treatment as usual (pharmacological and visits to

psychiatry) or to treatment as usual and psychological treatment via web. The principal objective will be to compare the % of patients that improve at least 10% in the FAST scale.

If, as expected, the results from the clinical trial support the positive impact of the introduction of the new Telecare services for mental disorders the results will prepare gradual scale up to the whole target population and scale up to other chronic diseases will be envisaged.