Telefonica E- Health

Remote Patient Management Services

EXECUTIVE SUMMARY
COMPANY OVERVIEW
• **Customer Name**: Telefonica
• **Industry**: Telecommunications
• **Location**: Spain, Global
BUSINESS CHALLENGE/OPPORTUNITY
• Deliver end-to-end managed services for remote patient management targeted at patients suffering from chronic diseases and involving condition monitoring, care coordination, and self-care.
NETWORK SOLUTION
• The service integrates hardware, software, devices, communications and clinical and educational material with decision support.
BUSINESS RESULTS
• The business model is in its early stage of development. Combined pilots show reduced admissions, costs, and mortality rates.

Overview

Using the significant opportunity presented by connected health, a key component of the "Industrial" Internet, Telefonica is working with a multitude of vendors, health agencies, and academic institutions to set up and deliver a remote patient management system targeted at chronic patients involving monitoring, self-care and care coordination targeted at reducing mortality, admissions, and costs.

Service Innovation

Telefonica is involved in a number of different remote patient management programs, all having common criteria in terms of goals, service offerings and solution designs, and approaches (see Table 1). The service has a dual focus on monitoring and self-care and patient education for patients with chronic diseases (type 2 diabetes, COPD, cardiac problems, hypertension) which includes:

• Telemonitoring functionality (monitoring devices, symptom reporting) to deliver early warnings of worsening symptoms and prevent hospital re-admissions.

• Teleintervention (patient education, video conferencing with nurses, proactive disease management) to provide a much better planned and coordinated regime of evidence-based care.

The service integrates monitoring information and interactions with electronic health records (EHR) and involves co-creation, designing, deployment, and management with partnerships with hospitals, doctors, social services, and health agencies (see Figure 1).

Table 1.   Overview of Remote Patient Management Programs

Program	Overview (Results Listed in Success Metrics Section)
I-Cor (2010–Present)	Telemonitoring of patients with chronic heart failure (CHF) at Hospital Del Mar in Barcelona. Managed end to end service using existing hospital nurses to manage patients remotely. Positive KPIs.
TELEMAC (May 2013–Present)	The Catalan Institute of Health (ICS) launched a telemonitoring pilot across 5 health centers in Barcelona for 191 patients with multiple chronic conditions. Managed end to end service including telemonitoring and self-care. Positive KPIs.
Valcronic (April 2011–Present)	The Valcronic program was set up by Telefonica and Valencia Health Agency to improve care for patients with a variety of chronic diseases, including diabetes, high blood pressure and chronic obstructive pulmonary disease (COPD) for an initial group of 500 patients. Preventative program based on the control of chronic diseases via telemonitoring and self-care using educational health content. Positive KPIs.
REMPARK	Joint project between Telefonica, University Politècnica de Catalunya (UPC) and the Quirón Teknon hospital on development of a monitoring system for patients with Parkinson's disease. In April 2015, announced results of the trial monitoring 40 Parkinson's patients in Spain, Italy, Ireland and Israel. Involves a sensor, smart-phone and algorithms designed to pick up symptoms running on Telefónica's remote management platform.

Figure 1.   Service Details

The service relies on hardware, software, devices, communications and clinical/educational material and decision support in the following categories:

Monitoring equipment including personal devices	• Variety of monitoring devices depending on condition e.g. glucose meter, digital scales • Tablet and/or smart-phones
Patient portal and clinician interface	• Single portal with simple graphical user interface for data entry, video-conferencing sessions and educational material • Clinician portal displaying clinical data with facility to initiate video-conferencing sessions with patient
Training videos and educational material	• Training videos to educate patients on how to navigate information pathways, enter data and use devices • Clinical education material on their health conditions specific to them
Video-conferencing sessions	• Remote and secure facility for video-sessions between hospital/care centers and patients at home
EHR integration and clinical alerts	• Patient data normally integrated with electronic medical record used by hospital/primary care team • Clinical alerting system which notifies staff if patients are at risk of deterioration
Risk stratification and decision support	• Programs deploy risk stratification tools to categorize patients – can be both paper-based and digital • Decision support material & tools developed to support clinical staff in triaging/supporting patients

Opportunities

Like other countries, Spain is struggling to contend with the growing number of (often elderly) patients with chronic conditions. They are placing unsustainable demand on healthcare systems, which are already stretched in terms of resources and funding. For example:

- In Spain, 5 percent of patients over 45 have chronic heart failure (CHF).
- The Valencia Health Agency estimates that 6 percent of the adult population has a chronic disease, and that chronic diseases account for between 70 percent and 80 percent of total health expenditure. Chronic patient care accounts for 80 percent of visits to primary care and 60 percent of hospital admissions, and in addition the high consumption of drugs (Spanish Department of Health, 2012).

A number of regional healthcare systems are attempting to develop sustainable remote care management programs for such patients with the following goals:

- Reduce avoidable hospital re-admissions.
- Improve mortality rates and the quality of clinical care by more proactive treatment.
- Reduce overall costs of chronic disease management.
- Improve the patient experience by enabling care at home and empowering patients with self-care tools and tailored health education material.

Telefonica sees considerable opportunity in the long term in remote patient care and is seeking to position itself as playing a central role in delivering remote patient management as a managed end-to-end service. It regards its position as a strongly embedded supplier to many Spanish healthcare organizations as a critical factor.

Challenges

There are a number of challenges facing health agencies and hospitals involved in the remote patient management and technology suppliers and partners, such as Telefonica:

- The funding of remote management programs is in its infancy with significant variation between regions.
- Successful services are dependent on care redesign and significant collaboration from other organizations, including primary and community care, that is, across the ecosystem.
- Complications remain with consistent and coordinated use of patient IDs.
- Some organizations encounter resourcing constraints as most of the existing small-scale programs rely on existing, not additional, staff.
- Programs are dependent on progress in healthcare policy, funding changes and legislation.

This can often be slow and vulnerable to political change. The underlying challenge is that while remote patient management will certainly play a much larger role in patient care in the future, the pace of change is slow. Suppliers are dependent on large-scale programs for success, because programs are generally priced on a per patient per month subscription.

Strategic Partnerships

In parallel with its remote patient monitoring programs, Telefonica is embarking on commercial partnerships with multiple healthcare companies. In April 2015, Telefonica signed an agreement with Oximesa, one of Spain's leading providers of home care respiratory equipment. They will work together on developing new end-to-end telemedicine services for the care of chronic patients. Telefonica will provide its Population Health Management and Remote Patient Management platforms. Oximesa will provide health professionals to help run the service and staff call centers.

In January 2015, Telefonica announced that it will be launching a mobile telecare service (Te Acompagna) in partnership with SARquavitae, one of Spain's leading providers of elderly care services. The solution consists of a simple mobile device with a Movistar configurable SIM card to suit different users. It includes an alarm and alerting service and monthly outreach interactions managed by SARquavitae from a 24-hour care center. The pay-as-you-go (PAYG) service costs EURO€23.75 (approximately US$26) per month including a value-added tax (VAT).

Telefonica is also active in European initiatives aimed at supporting effective collaboration, standardization and support for emerging connected health technology and solutions.

The two main alliances are:

1. CHRODIS: A European collaboration incorporating 60 partners from national and regional departments of health and research institutions from 26 member states. Chrodis members work together to identify, validate, exchange, and disseminate good practices about chronic disease care. The focus is on health promotion, primary-care prevention with a focus on management of diabetes and chronic condition.

2. The GSMA (Groupe Speciale Mobile Association) Connected Living Program, the mHealth State of the Nation 2015 which is designed to identify and understand the successes and challenges in deploying large scale commercial mHealth solutions.

> "The doctors participating in this project believe Rempark to be a big step forward in managing Parkinson's disease. We intend to keep investing and working on the sensor so that we can release it commercially as soon as possible and ensure that it's compatible with EU regulations on primary healthcare devices. We know what we've got to do to succeed. This is a very possible scenario, depending on funds and extended pilot test."
>
> **— Joan Cabestany, Professor, Polytechnic University of Catalonia (UPC)**

Monetization

The funding and monetization of remote patient management programs is complex. For pilots and initial programs, many have received EU funding, some have received regional health agency funding, and Telefonica has also contributed some investment. For commercial launches and wider deployment, the service must be added to the official service catalog used by hospitals.

The fledgling business model contains the following revenue streams:

- Initial implementation and consultancy fees.
- A subscription model with Telefonica paid to deliver a managed service on a PAYG basis per patient per month. The amount varies depending on the patient and condition. It could be up to EURO€100 per month (almost US$112 per month). This is the model in place for the iCOR program in Hospital Del Mar which telemonitors chronic heart failure (CHF) patients.

Success Metrics

Several clinical evaluations of the remote management programs are shown here. Overall, the results have been positive (see Figure 2):

- Reduction in the number of emergency primary-care visits (for example, 52 percent for Valcronic)
- Reduction in mortality rates (for example, 34 percent for iCOR)
- Reduction in re-admission rates (for example, 43 percent for iCOR and 3 percent for Valcronic)
- Reduction in care costs (for example, 68 percent per patient for iCOR and 13 percent for Telemac)
- High levels of patient satisfaction (for example, 95 percent for iCOR and 98 percent for Telemac)

Figure 2.   Clinical Evaluation Results for iCOR program in Barcelona
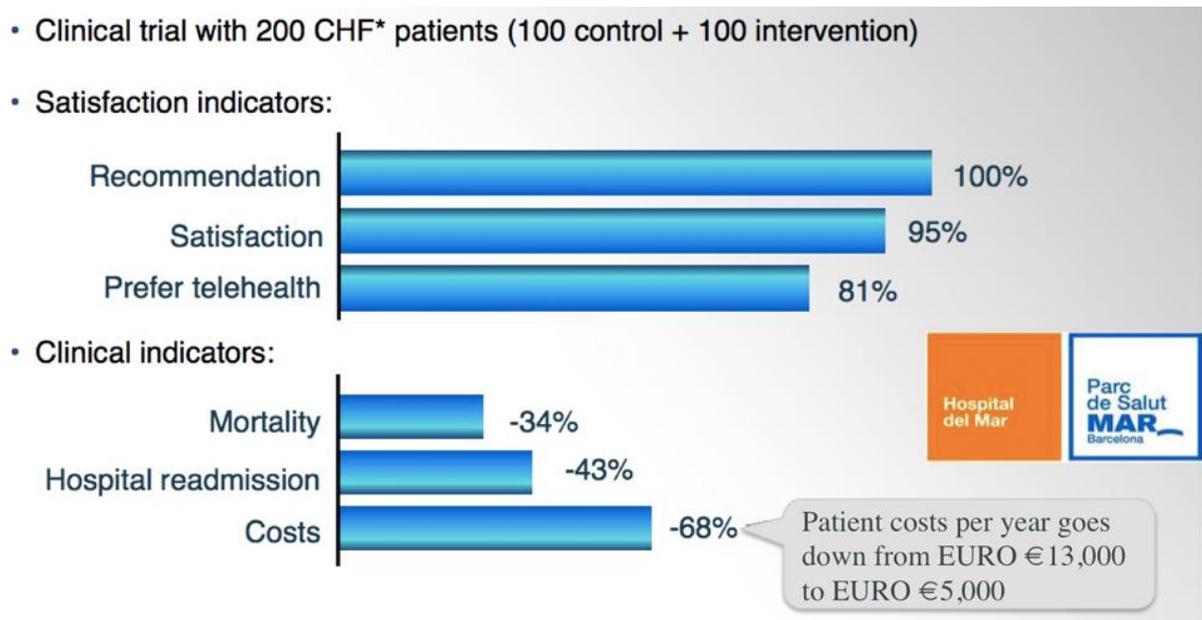
* CHF: Congestive Heart Failure

Source: iCor Project with Parc de Salut Mar, Spain.

http://clinicaltrials.gov/ct2/show/NCT01495078?term=iCor&rank=1

For More Information

For more information about Telefonica, visit www.telefonica.com/en/home/jsp/home.jsp.

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