

# Implementing Telemonitoring in the Portuguese National Health System

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## Introduction

The Portuguese Ministry of Health decided to increase the use of Telemedicine and Telemonitoring in the Portuguese National Health System (Pt-NHS). To help the project implementation a working group (GTT – Grupo de Trabalho da Telemedicina/ Telemedicine Working Group) was created under the Commission for Clinical Informatics, gathering specialists from all over the country with the mission of preparing the implementation projects and helping to disseminate them. On March 2013, the government decree 3571/2013 was published on the Portuguese official journal [1] regarding telemedicine adoption. Besides general rules and funding definitions for telemedicine, it announces and determines for the first time an official national telemonitoring project regarding Chronic Obstructive Pulmonary Disease (COPD). Besides lung diseases, dermatology, cardiology where also identified as targets in the program

## Defining the COPD Telemonitoring Program

For Pt-NHS COPD telemonitoring program, some assumptions were previously made. It was set to run in 5 hospitals, which received special line

of funding to be evaluated yearly based on clinical and cost-efficiency targets attainment set from the start. From the north to the south and for each hospital, one different company was going to be assigned. Each hospital would have to enroll 15 patients for a yearlong program, at the end of which clinical outcome, results and quality of the program would be analyzed. The project was funded by the government, and supported by the Shared Services of the Ministry of Health (SPMS) the governmental agency for eHealth ([www.spms.min-saude.pt](http://www.spms.min-saude.pt)).

Based in scientific research regarding COPD telemonitoring [2-5] the patient selection criteria, monitoring conditions and program objectives were defined.

The project aims were to: i) Raise the quality of services provided to citizens, making them feel continuously monitored in their illness; ii) Reduce at least 2 annual admissions for health degradation of the patient; iii) Reduce 3 episodes of exacerbation with visit to the Emergency Room (ER) per patient in the program; iv) to follow continuously patient conditions allowing timely reaction to postpone/prevent the possible clinical deterioration..

Having in mind that the hospitals involved are public hospitals, contracts were centrally developed and ran by SPMS.

The involved hospitals were: One hospital from the northern part – Hospital de Viana do Castelo (Unidade Local de Saúde do Alto Minho), two in the central part – Hospitais da Universidade de Coimbra (Centro Hospitalar Universitário de Coimbra) and Hospital Pero da Covilhã (Centro Hospitalar Cova da Beira), one in the Alentejo Region; Hospital de Portalegre (Unidade Local de Saúde do Alto Alentejo) and one in the Algarve Region – Hospital de Faro (Centro Hospitalar do Algarve).

Fifteen patients were selected in each hospital by the attending physician, on the basis of the previous COPD history. Patients with severe disease were chosen.

Five companies were involved in the project: Altran Portugal, Hope Care SA, Linde Portugal Ltda, Tunstall Ibérica S.A. and Vitalmobile Health Inc.

Suppliers assume both the responsibility regarding the monitoring devices and the process to gather information and to transfer it to the health team.

Each patient was supplied in his/her house with the following devices: Blood pressure measuring device, pulse oximeter, thermometer, pedometer, heart rate monitoring device, Mobile phone. The supplier was responsible for device installation and maintenance during the project.

Hospital health teams were actively involved in the patients follow up, but also in their teaching about the use of the monitoring devices, about when to contact and regarding other project conditions, namely: Monitoring

of data generated by equipment installed at the patient homes and parameterized in a personalized way; Daily analysis of the data and timely response to the device generated alerts; Telephone contact with the patient, for any treatment correction; Priority routing for external consultation or emergency whenever needed.

## Results

Although the project has only been in place for one year, preliminary results are positive and inspiring. A survey done to patients and health professionals demonstrated that they are satisfied with the process and recommend the use of it. Although the global final results are not yet available, due to the late start in one of the hospitals, interim analyses also showed that a reduction on hospital admissions and ER, more evident in some hospitals than in others, other studies achieved similar conclusions [6] The project has been granted an additional year of continuation by the funding authority, in much the same conditions.

## Conclusion

Home telemonitoring appears to have a positive effect in reducing respiratory exacerbations and hospitalisations and improving quality of life in COPD patients. Patients felt more secure and more connected to the health care team and strongly support their use. However, as a recent systematic review [7] demonstrated “the evidence of its benefits is still limited and further research is needed to assess the effectiveness of home telemonitoring in COPD management, as there are still few studies in this area”. At Portugal, on the Pt-NHS, the use of disease telemonitoring at the patients home is going to be further expanded for more diseases and more patients, and is part of a global overarching strategy for telemedicine/telemonitoring services adoption as mainstream medicine.

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