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- eHealth Innovation Centre, EIC
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# REMOTE MONITORING OF COPD IN VENETO REGION, ITALY



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## REMOTE MONITORING OF COPD

Chronic Obstructive Pulmonary Disease (COPD) is one of the leading causes of morbidity and mortality worldwide, and it creates a great clinical, social and economic burden. The main problems associated with COPD are periodic worsening of symptoms, decline in quality of life, frequent exacerbations, use of healthcare services and consequent increase in costs. Telemonitoring can contribute to improve the management of COPD, as it allows the patient to have a more controlled follow-up, within the comfort of his/her home environment, and possibly reducing his/her use of healthcare facilities.

### SELF-MONITORING OF COPD

In Veneto Region, a unique technological platform has been developed for the delivery of both telecare and telemonitoring services to elderly chronic patients. Telemonitoring is a health service that allows the clinician to keep patients' health conditions under control thanks to the continuous remote monitoring of their vital signs. Telecare, a Social service which has been running for more than 20 years in Veneto Region, is designed for 24/7 real time detection of emergency situations occurring at the elderly home. The integration of the two services guarantees the complete remote management of the chronic

patient according to his/her needs, facilitating the continuity of care outside the hospital settings.

### *Telemonitoring system*

Patients with COPD are equipped with a portable wristclinic device able to measuring a complete set of vital signs, such as heart rate, pulse-oxymetry and respiratory rate. The medical sensor is wireless coupled with a home gateway device that registers data and transmits them automatically to an external database located in a Regional eHealth centre, where a group of trained operators keeps the information constantly under review. The telemonitoring architecture is based on a web-service platform, based on HL7 standard, that allows clinicians to check their patients' data, simply by accessing the dedicated web-portal.

### *The Regional eHealth centre*

The eHealth centre plays a key role in the remote monitoring of these patients, as it is the point of connection between the patient's home and the main health system actors. Clinical data from telemonitoring and social data from already existing telecare converge together in the eHealth platform. These data are viewable by the health professional in the hospital, by the General Practitioner, and by the Social Services operators.

The centre operators are trained to:

- Check if the patient sends telemonitoring data according to the protocol established by the lung specialist.
- Manage the "alert" in the case when parameters out of range.
- Connect the patient with the clinician.
- Alert telecare assistance to the patient in case of emergency (and intermediation with ER services).
- Make scheduled control calls to monitor patient life conditions, administer standard questionnaires, and monitor COPD symptoms through the COPD Assessment Test.

### NURSE MONITORING FOR COPD

In the Venetian area, some COPD patients are already followed under a specific nursing homecare assistance programme. This telemonitoring service is centred around the role of the nurse, who visits the patient at home. He performs an arterial blood test analysis, using a POCT (Point of Care Testing) device and a laptop for the transmission of test results to the lung specialist.

## THE RENEWING HEALTH PROJECT

These telemonitoring services are evaluated in the context of RENEWING HEALTH, a research project co-funded by the European Commission that involves nine European Regions, with the overall aim to assess how innovative telemedicine solutions for chronic patients impact the health care environment.

In Veneto Region, the study is carried out under the technical and organisational coordination of Arsenà.IT (Veneto Research Centre for eHealth Innovation).

Six Local Health Authorities have been involved in the recruitment of 750 COPD patients who will be randomised into an intervention and a control group. Both will be followed during 12 months with the described telemonitoring services and the usual outpatient practice. The study will be used to determine the benefits of the telemonitoring service compared to usual care in terms of improved clinical outcomes and health related quality of life, economic and organizational impact, and acceptability by patients and health professionals.

The resulting evidence will be the necessary basis for the decision regarding large scale deployment of telemonitoring solutions in the Veneto Region.