Medical Xpress

Telemedicine holds out hope for better disease management

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Credit: AI-generated image (disclaimer)

The EU CHROMED project has been researching telemedicine care models for chronic diseases, offering the benefits of early diagnosis and treatment alongside a reduction in the socioeconomic burden.

Lung diseases such as chronic bronchitis and emphysema, collectively

referred to as COPD (Chronic Obstructive Pulmonary Disease), affects around 5 % of the global population. According to the World Health Organization (WHO), COPD is the third leading cause of death globally with over 3 million people dying of COPD in 2012 (6 % of all deaths). Additionally, it has been calculated that it carries a financial burden on health services of 2.1 trillion US dollars. With the elderly population in developed countries ever increasing, these statistics are likely to grow.

The CHROMED project was set up to assess the benefits for elderly patients of adopting a health and lifestyle self-monitoring system at home. These patients were suffering from a combination of COPD and comorbidities, such as Chronic Heart Failure and Sleep Disordered Breathing (SDB), severely compromising their quality of life. CHROMED builds on a previously successful at-home patient monitoring project, CHRONIOUS.

Putting the system into practice

CHROMED was conducted as an international, multi-centric, randomised control trial (RCT) over a 9 month period. It involved 312 patients across five European countries: the United Kingdom, Sweden, Estonia, Spain and Slovenia. The participating care organisations of these countries all had pre-existing systems in place for age-related disease management.

To cater for the multifaceted nature of the diseases under scrutiny, the technological architecture of the CHROMED system was modular and multi-device. It was comprised principally of three elements. Firstly, the Home Patient Monitor (HPM) was a touch screen device which collected the data. It shared 3G connectivity with additional devices and by functioning as a gateway for these devices, patients were reminded of monitoring activities and care givers were able to give remote patient support. At the end of daily monitoring, data was sent to a central server

and automatically analysed against clinical algorithms to determine any necessary courses of action. The online CHROMED platform, routinely accessed by clinical staff, highlighted any causes for concern on a per patient basis. These alerts enabled care staff to follow up with patient phone calls to determine the best therapeutic action.

The research was divided into two phases. Phase A (May 2013-July 2013) was a feasibility study in three pilot centres (Uppsala, Lincoln and Barcelona) testing data quality and identifying any technical or training issues to be addressed. Phase B - the trial phase - (October 2013-March 2016) saw the enrolment of 312 patients to the study, 154 to the monitored group and 158 to the control group. The trial period itself was split into two monitoring phases (RUN 1 and RUN 2), each lasting nine months.

The control group were asked to complete a paper based questionnaire, submitted at the end of the study, whilst the monitored group submitted physiological readings daily, which included respiratory indices using RESMON PRO FULL, and for patients with cardiac comorbidities, cardiac measurements using the Medic4all device.

Improved quality of life for patients at a reduced cost to healthcare services

Despite the scale and complexity of the study CHROMED was able to get reliable data from over 90 % of the monitored days of the study. Patient acceptance of the technology was high, whilst study dropout rates were low. Overall, CHROMED demonstrated proof of concept for getting unsupervised lung function measurements outside of laboratories, and so offers opportunities for the better management of lung diseases.

Based on analysing data from the study, which included looking at

hospital admission rates and duration, the study concludes that applying CHROMED solutions across EU healthcare systems would result in significant cost savings with an optimisation of resources and improved quality of life for patients. The study recommends clinical practices looking specifically at rolling out the system to high-risk patients with a history of hospitalisations.

More information: For more information, visit www.chromed.eu/

Provided by CORDIS

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