

Home monitoring of COPD patients could lead to fewer hospital admissions

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New technology enables patients to self-test to find out whether the disease has progressed.

Many COPD patients find it burdensome having to travel to a hospital for check-ups and being frequently hospitalised.

Research now shows good results for a device that enables patients to monitor the disease at home.

The Resmon Pro DIARY device can help the most seriously ill patients stay at home longer and also reduce the number of hospital admissions.

“Our research shows that Resmon Pro can help the most seriously ill patients,” says Paolo Zanaboni, a researcher at the Norwegian Centre for E-health Research.

Along with Italian colleagues and researcher colleague, Trine Bergmo, he has evaluated the effects of the technology.

The investigation is part of a large EU project.

Home breathing test

Normally COPD patients have to go to a hospital for a breathing test, known as spirometry, where they take a deep breath and forcefully exhale all the air in their lungs to allow health personnel measure how strong and hard they can exhale.

Spirometry cannot be performed alone, as health personnel have to evaluate the good execution of the exhalation manoeuvre. This can be awkward for patients who have to monitor themselves at home.

“Resmon Pro is less demanding, as patients do not need to do the large breathing movements. They can self-test at home in their living room,” says Zanaboni.

Describes the symptoms for the patient

The objective of the device is to prevent the disease from progressing.

A common problem for COPD patients is that they often experience the symptoms of progression too late, as it can be difficult to describe the symptoms of progression with words. Instead of having to express how they are feeling, the device measures the patient’s actual condition.

“When the patient breathes into the device, the machine measures the level of airway obstruction and other

variable related to lung function and compares the results with previous measurement to evaluate the presence of a trend of worsening. It will be written in black and white if the disease has progressed,” says Zanaboni.

Most seriously ill patients

The study was conducted with 312 patients, who were randomly divided into two groups.

In addition to COPD, the patients had several other diseases, such as chronic heart failure, sleeping problems or high blood pressure.

These cases are slightly more complex than those with just COPD. The degree of severity of the patients’ disease ranged from moderate to severe. There are four degrees of severity. Those with the ‘mildest’ diagnosis were not included in the study.

Patients in the home monitoring group had to use the machine daily. The measurements were analysed automatically thanks to innovative algorithms and results sent to the hospital and researchers that used the data to treat the patient. Patients in the control group received the normal follow up only.

Health personnel alerts

If the values fell when the patients breathed into the device, health personnel were alerted. This allowed them to determine whether the patient’s condition was about to deteriorate. They called the patient and asked him/her to take or not to take their medication, and recommended potential hospitalisation based on the test results.

“The aim was to find out if the patient was deteriorating at an early stage, as often the patient is not aware of this,” explains the researcher.

“The earlier patient deterioration is detected, the easier it is to treat the patient. This promotes a more speedy recovery, which reduces the number of hospital admissions.”

Fewer hospital admissions

The technology was effective for the most seriously ill patients, who were frequently admitted to hospital earlier. In the future it will therefore be most effective to use the device on the group of patients who have been admitted to hospital many times. And for this group, the researchers saw a great reduction in the number of new hospital admissions.

These patients were admitted to hospital less often and for a shorter period of time, which in turn, reduced hospital costs.

The technology tested in the study was a prototype. It has now been patented and sold to many European countries, but not yet to Norway. The researchers hope it will come here so that Norwegian COPD patients can receive better help.

“Costs can also be reduced, as the technology leads to fewer hospital admissions. Of course, it will cost money to operate these devices, but it will make a considerable difference to the most seriously ill COPD patients,” says Zanaboni.

 [A new device can help the most seriously ill patients with COPD stay at home longer and also reduce the number of hospital admissions. \(Photo: Shutterstock\) \[5\]](#)

 [Paolo Zanaboni, from the Norwegian Center for E-Health research. \(Photo: Norwegian Center for E-Health research\) \[6\]](#)

 [A new device can help the most seriously ill patients with COPD stay at home longer and also reduce the number of hospital admissions. \(Photo: Shutterstock\) \[7\]](#)

Fact box

Facts about the project

- Evaluates the effects of Resmon Pro, which aims to support elderly patients suffering from Chronic Obstruction Pulmonary Disease (COPD).
- Has been running for almost for four years.
- Randomised controlled study with 312 patients.
- The patients came from six hospitals in five countries. Two in England, and one in Spain, Sweden, Estonia and Slovenia.
- Home monitoring was conducted for nine months.
- One group used Resmon Pro and the control group received normal follow up.

[Norwegian centre for E-health research \[8\]](#)

[Walker, P. P. et alia: Telemonitoring in COPD: The CHROMED Study, a Randomized Clinical Trial. American Journal of Respiratory and Critical Care Medicine. \(2018\) \(summary\) \[9\]](#)

[Mali A. Arnstad \[10\]](#)

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