

Electronic inhaler monitoring reduces hospitalizations, ER visits in patients with COPD

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In one of the first-of-its-kind studies, Cleveland Clinic researchers found that the use of electronic inhaler monitoring, in combination with a disease management program, is associated with reduced healthcare utilization in patients with chronic obstructive pulmonary disease (COPD).

COPD is a term applied to a family of diseases that includes emphysema, [chronic bronchitis](#), and emphysema due to alpha-1 antitrypsin deficiency.

The paper was published May 16 in the *Journal of Telemedicine and Telecare*.

Between October 2016 and May 2017, 39 patients who have COPD and had at least one hospitalization or emergency room visit during the year prior to enrollment took part in the study, led by Dr. Khaled Alshabani, Dr. Amy Attaway, Richard Rice RRT and Dr. Umur Hatipoğlu.

Patients were provided with electronic monitoring devices for maintenance and rescue inhalers for one year. The monitoring platform, provided by Propeller Health, connects a small sensor to a patient's existing inhaled COPD medication; the sensor then transmits data to the patient's smartphone, or data hub, delivering alerts and insights on medication adherence and usage trends. Alerts were then emailed to the

study team, giving researchers insights on patients' rescue and controller [medication](#) use.

The results showed a significant reduction in COPD-related [healthcare utilization](#) compared to the year prior to enrollment, from an average of 3.4 trips to the hospital to 2.2. There was also a reduction in all-cause healthcare utilization, but that was not statistically significant.

"We prescribe inhaled medications for patients with COPD all the time. It's really the cornerstone of their therapy, and when they return to the clinic we do ask them whether they're using their medications, but the reality is we never know how adherent patients are objectively," said Dr. Hatipoğlu, a Cleveland Clinic pulmonologist. "Electronic inhaler monitoring allows us to assess inhaler adherence at the point of care."

According to the American Lung Association, COPD is the third leading cause of death by disease in the United States. More than 11 million people have been diagnosed with COPD, but millions more may be undiagnosed. There is currently no cure for COPD.

More information: Khaled Alshabani et al, Electronic inhaler monitoring and healthcare utilization in chronic obstructive pulmonary disease, *Journal of Telemedicine and Telecare* (2019). [DOI: 10.1177/1357633X19850404](#)

Provided by Cleveland Clinic

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