

Study shows benefits for COPD patients using digital health application

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Early intervention facilitated by a digital health application for reporting symptoms of Chronic Obstructive Pulmonary Disease (COPD) provides key benefits for patients, according to the results of a Temple-led, two-year clinical study.

COPD is a serious chronic respiratory disease that is often characterized by flare-ups, called acute exacerbations, in which the patient may experience increased coughing, mucus, shortness of breath, wheezing, and a feeling of tightness in their chest. If exacerbation symptoms are not detected and treated in a timely fashion, they can escalate, leading to repeated trips to the emergency department, hospitalizations, disability, and a diminished quality of life.

The Pennsylvania Study of COPD Exacerbations (PA-SCOPE), led by Gerard J. Criner, MD, FACP, FACCP, Founding Chair of the new Department of Thoracic Medicine and Surgery at Temple University School of Medicine, and Director of the Temple Lung Center, revealed that COPD patients who used a digital health application to report their daily symptoms and received same-day treatment recommendations from their [health care provider](#) experienced fewer and less severe COPD exacerbation symptoms, which led to an improvement in daily symptom control, lung function, and activity status.

The digital health application allows COPD patients to report their respiratory symptoms and peak expiratory flow measurements, which were assessed by a computer algorithm and compared with initial values

to achieve a symptom deviation score - a measure of how serious the symptoms are relative to the patients' baseline metrics. Scores in excess of a predetermined threshold were reviewed by a nurse and referred to a physician who prescribed treatment. The application allowed [health care](#) providers to initiate treatments that were optimized for individual patients' symptoms on the same day that COPD symptoms worsened.

"Previous studies at other sites have questioned the efficacy of various telemedicine solutions in COPD patients, but those studies have not used a solution that enables same-day treatment in response to worsening patient [symptoms](#)," says Dr. Criner, who served as the principal investigator of the study. "We have been studying digital health solutions for COPD symptom management for over a decade and are pleased that the improvements we have seen in our patients in response to early identification and intervention has been documented in this clinical study."

The study also revealed an encouraging degree of reporting compliance by moderate to severe COPD patients who used the digital health application, as evidenced by the high rate of daily symptom reporting sustained over a prolonged period.

While the study failed to enroll the number of patients needed to show either a mortality benefit or reduction in hospitalization days prior to the end of study funding, results were in the predicted direction. "Future studies are needed with greater numbers of [patients](#) enrolled to be able to address that outcome, and additional research is already underway with that aim," says Francis Cordova, MD, Medical Director of the Lung Transplantation Program at Temple University Hospital, and lead author on the study.

The technology employed in the study is a precursor to the solution currently offered by Temple University spin-off company HGE Health

Care Solutions. "The clinical research being conducted at Temple continues to reveal the ability of telemedicine and digital solutions to provide meaningful, measurable results for COPD symptom management," said Michael J. Markus, PhD, CEO of HGE. HGE's application is also supported by Temple's recently launched Center for Digital Health.

Provided by Temple University

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