Case Study: COPD

Determine high-impact clinical markers with person-generated health data (PGHD)



Combining activity and behavioral-related data can predict exacerbations in Chronic Obstructive Pulmonary Disease (COPD) patients

Challenge

The objectives were to explore the ability to classify COPD patient segments based on both clinical and behavioral markers as well as understand the changes to digital measures that took place around an exacerbation requiring hospitalization.

Solution

Approximately 3,000 individuals with both claims data and activity tracker data were recruited through the Evidation mobile app to participate in this study. Participants were required to be at least 18 years old and to have had a COPD diagnosis within the last 11 years. Of the 3,000 participants, the mean age was 56, and 70% were female.

Researchers were granted access to one year of participants' retrospective claims data. Using this data, as well as data from participants' wearable devices, they conducted pre-and post-analyses of key variables in the window around acute exacerbation events. In addition, researchers used machine learning models to classify patients' medication habits and disease states.

Results

Throughout the study, active wearable users showed substantial changes in their tracking activity in the near-hospitalization period. Researchers were able to develop an algorithm to predict exacerbations - based upon machine learning - that accurately identifies significant behavioral signals in the 14 days leading up to hospitalization.



ENGAGE

With over 4.5 million members on the Evidation app, we can quickly collect and permission data from targeted cohorts



IDENTIFY

Our proven methods uncover key information about disease state and quality of life not captured by traditional RWE

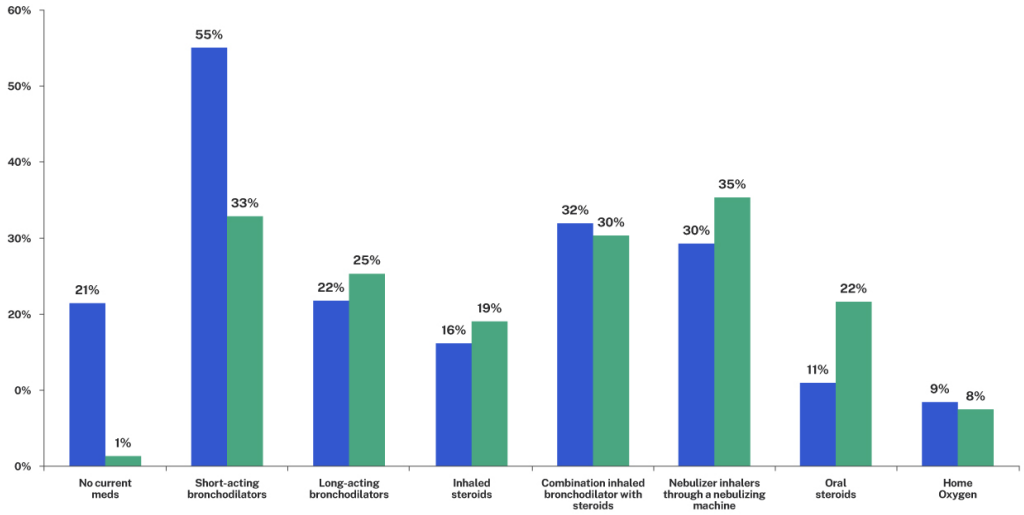


EVALUATE

We provide actionable insights and information that can help patients get the right care faster

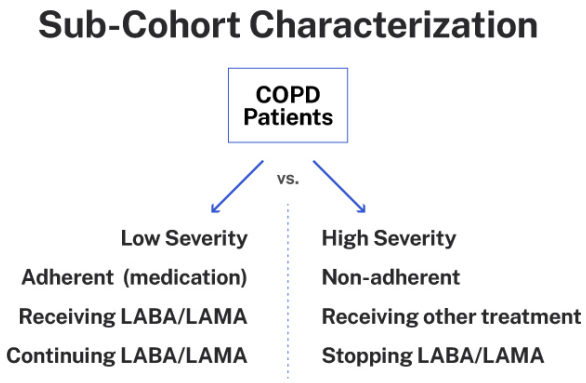
Individuals with an exacerbation within the previous month are generally on more advanced medication

This discovery suggests that data collection and disaggregation can help providers get in front of worsening symptoms in COPD patients.



Activity and behavioral-related data show potential to be used in determining a wide range of high-impact clinical markers

This finding highlights the importance of engaging directly with COPD patients and integrating passive data into the care plan. Early identification of patients' disease state and progression becomes achievable, allowing for optimal intervention and supporting the vision of value based care.





Evidation's mission is to empower everyone to participate in better health outcomes.

We measure health in everyday life and enable anyone to participate in ground-breaking research and health programs. Built on a foundation of user privacy and control over permissioned data, Evidation's platform is trusted by millions of individuals—generating data with unprecedented speed, scale, and rigor.