

# A Digital Health Solution for Continuous, Long-Term Cough Monitoring



## Accurate Cough Measures in Clinical Research are Important

Cough is a significant symptom in many disease areas that negatively impacts patients' quality of life and often correlates with disease progression and prognosis<sup>1,2</sup>. It is increasingly recognized as a clinically meaningful endpoint in studies supporting regulatory submission across development phases. Cough frequency can be highly variable from day to day<sup>3</sup> and brief snapshots may miss trends or reflect a misleading trajectory over time. Patient-reported cough severity and objective measures of cough frequency have shown only modest correlation<sup>3</sup>, and self-reported cough is susceptible to a high placebo effect<sup>4</sup>.

Until now, obtaining accurate measures of cough was a challenge, limiting the development of new treatments and our ability to improve care and patient outcomes. With our combined solution:

- Accurately measure cough using a detection model that shows near-perfect agreement with ground truth (Lin's CCC = 0.97)
- Objectively evaluate symptom severity (complement subjective PROs)
- Assess responses to treatment in acute and chronic conditions
- Detect exacerbations early and track progression over time

## Features and Benefits



### MULTISENSOR DATA COLLECTION FOR NOVEL INSIGHTS

Our combined solution allows researchers to leverage Hyfe's validated cough detection algorithms alongside Ametris' industry leading digital measures for physical activity, sleep, and vital signs for a comprehensive view of cough.



### PRIVATE AND SECURE COUGH DETECTION

Detected cough events are confirmed with AI models and feature extraction onboard the ActiGraph LEAP<sup>®</sup> device. This means audio recordings are not stored or transferred, protecting the privacy of study participants.



### LONGITUDINAL, CONTINUOUS MONITORING

Cough is variable over time and can vary substantially between patients. Continuous cough monitoring over days, weeks, or months captures precise and information rich data about cough patterns that otherwise may have gone undetected with traditional assessments.



### LOW BURDEN, EASY TO USE, SCALABLE SOLUTION

The ActiGraph LEAP's fit-for-purpose, patient-centered design is worn on the wrist, supporting passive data collection and automated remote data uploads. Our scalable cloud platform and end-to-end support enable seamless deployment and near real-time data access.

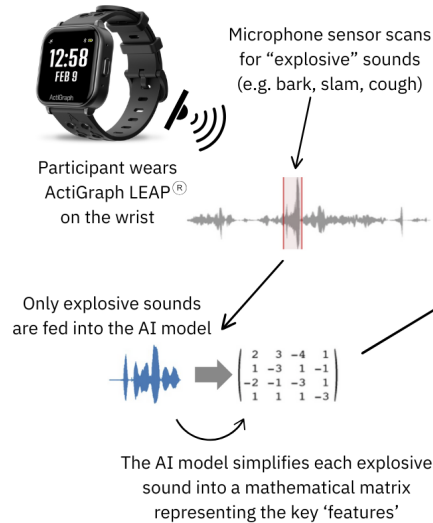
## HOW IT WORKS

# AI-Powered, Digital Cough Monitoring Solution

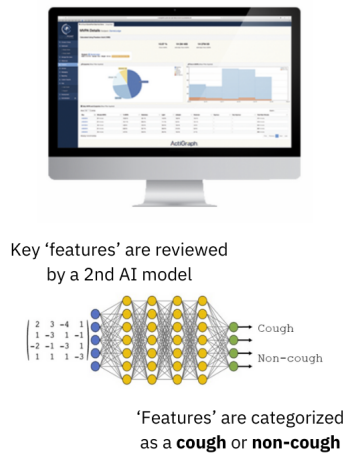
Capture continuous, objective data with the FDA-cleared, multisensor ActiGraph LEAP, leveraging Hyfe's validated AI algorithms for monitoring cough<sup>5</sup>. Participants wear the wrist-worn ActiGraph LEAP, which uses on-device algorithms to detect and timestamp coughs. Data is aggregated into digital measures of cough count or cough patterns such as bouts. The original audio data is discarded to fully preserve patient privacy.

## AI-Powered Cough Detection

### Peak Detection and Feature Extraction

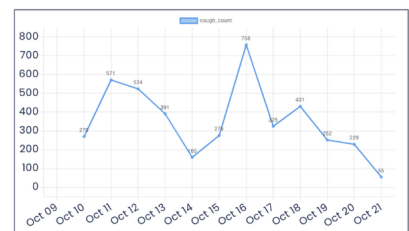


### Cough Classification



### Aggregate Cough Measure

Each cough is time-stamped to generate longitudinal, continuous cough frequency data



Contact Ametris to learn more about how we can support your study with continuous cough monitoring

## REFERENCES

1. Khor et al. Am J Respir Crit Care Med. 2024 Oct 15;210(8):1035-1044.
2. Choate et al. Chronic Obstr Pulm Dis. 2020 Jan;7(1):49-59.
3. Lee et al. Lung. 2023 Dec;201(6):555-564.
4. Eccles. Lung. 2019 Dec 13;198(1):13-21.
5. Chaccour et al., Sci Rep. 2025 Jan 6;15(1):880.