

# Objective monitoring detects more patients with coughs than monitoring tools based on patient self-reported symptoms

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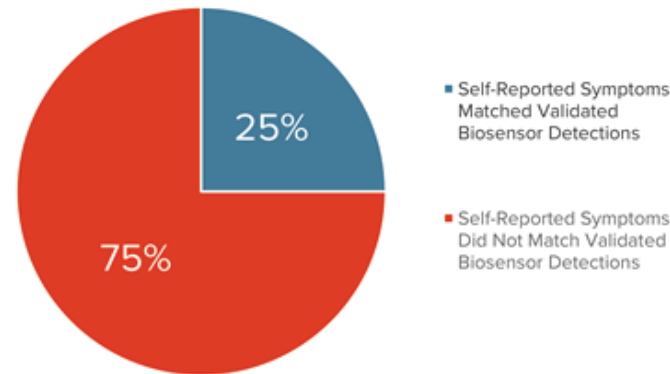
## Background

- Patient self-reported symptoms are commonly used to track patient health trajectories in clinician trials and in clinical practice.
- The DETECT (Digital Engagement and Tracking for Early Control and Treatment) Health Study is a mobile application based nationwide study by researchers at Scripps Research to evaluate if remotely tracking individualized changes in physiology can detect early viral infections.<sup>1</sup>
- In this sub-study of DETECT, we hypothesized that objective cough tracking would detect more patients with coughs than cough tracking via self-reported symptoms.

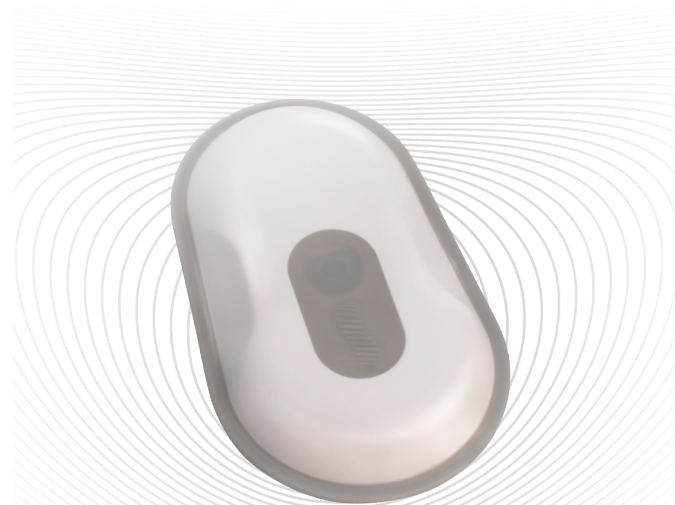
## Methods:

- The DETECT Health Study recruited adults in the United States who had joined the DETECT study by downloading a smartphone app.<sup>1</sup> This sub-study enrolled 30 adults within the DETECT study population between December 2021 through February 2022.
- Participants were instructed to self-report respiratory symptoms via digital surveys. Concurrently, participants had 16 hours of baseline continuous cough monitoring using the RESP™ Biosensor (Strados Labs, Philadelphia, PA), an FDA-cleared wearable device.
- If participants developed symptoms of respiratory infection, including fever, chills, coughs, body aches, headache, or sore throat, they underwent further cough monitoring by self-applying the RESP™ Biosensor.
- The RESP™ Biosensor collected digital stethoscope readings that were validated by clinicians trained in auscultation. Self-reported symptoms were compared to RESP™ detected coughs.

A Comparison of Self-Reported Cough Symptoms vs Validated RESP™ Biosensor Cough Detections



Percentage of 16 Participants



## Results

- All 30 participants provided baseline RESP™ Biosensor reading but only 16 participants self-reported presence or absence of symptoms.
- Of these 16 participants, 11 had coughs captured by RESP™ but did not self-report cough. 1 patient self-reported cough at baseline but none were detected during 16 hours of continuous monitoring.
- 6 participants developed respiratory symptoms during the study and had additional cough monitoring. All 6 participants had coughs captured by the RESP™ Biosensor, but only 2 patients reported coughs as one of their symptoms.

## Results

- Objective cough quantification using the RESP™ Biosensor is more reliable than patient self-reporting. Self-reporting by 75% (12/16) of participants did not match objective cough monitoring
- More participants (30 vs 16) provided cough data using the RESP™ Biosensor than using a digital survey.
- 67% (4/6) of participants who developed respiratory symptoms did not self-report coughs despite having coughs captured by the RESP™ Biosensor.
- Strados Labs' RESP™ Biosensor provides clinically useful data that could be used in addition to or in replacement of patient-self reporting. Objective cough monitoring may be more reliable than patient self-reporting in detecting early symptoms for disease surveillance.

## References:

Jennifer M Radin et al, The Lancet Digital Health, 2022, Volume 4, Issue 11, e777-e786. [https://doi.org/10.1016/S2589-7500\(22\)00156-X](https://doi.org/10.1016/S2589-7500(22)00156-X).