



# SPYRO.ai

Digital Solutions for Respiratory Care

A respiratory monitoring platform to improve Asthma treatment

## PROBLEM

*"More than physically, I think it affects me mentally, where I would avoid doing physical activity for the fear of an attack happening"*

- Asthma patient

*"Avoiding personal triggers is important and you think you got it figured out, but there is always some surprises that can affect you"*

- Asthma patient

*"Compliance is often low and inaccurate for patient medications and treatment action plans. The app should help promote positive behavior in patients."*

- Seattle Children's Pulmonologist

Asthma is a global health concern and one of the most prevalent diseases in the world. It impacts 1 in 7 people and can dramatically restrict activities of daily life, up to debilitation and death.

Asthma is a highly individualized condition, with regards to triggers and treatments. The correlation of respiratory health measurements with physical and environmental factors can play a critical role in the personalization of care and treatment. Even non-traditional inputs like cough-counts and air quality can play a major role, if tracked. However, collection of this information is not common practice for care or treatment decisions due to a lack of technical tools.

Additionally, while doctors highly recommend effective self-management for asthma, there are few tools that allow patients to monitor and draw insights from their data.

## SOLUTION



## PROCESS

Using a design thinking approach and iterative development, we sought to better understand the problem and conditions that make effective asthma management challenging. In our secondary research, we focussed on understanding global health, emerging digital therapeutics, cough signal processing, and clinical research papers.

Next, we sought to understand the human element in the problem and how technology could play the best role in improving treatment of the disease. We consulted with a panel of medical experts from UW Medicine and Seattle Children's, engaging in multiple rounds of expert interviews and evaluation of our design. We also interacted with hundreds of asthma patients through surveys, interviews, and usability testing. Our final iteration is a prototype incorporating the feedback from our user evaluations and a full functional implementation of our system.



Our solution brings new forms of longitudinal data to physicians to inform their decisions about how they treat patients with asthma. In the long-term, this could be used to discover new insights about the disease and improve patient health over their lifetime.

