



# Sleep Cycle

Data introduction

# A unique high quality data set of 3 billion nights - enabling prediction of future demand

## What data is offered?

- **3 billion nights of anonymized sleep data**, totaling 21 billion hours captured longitudinally, and demographical data from over **150 countries**
- **A good distribution between gender and age groups and high data accuracy** based on machine learning
- Data on **neighborhood, city and country levels**. For example, **~80% of the UK population** can be represented



**Sleep Cycle in short**

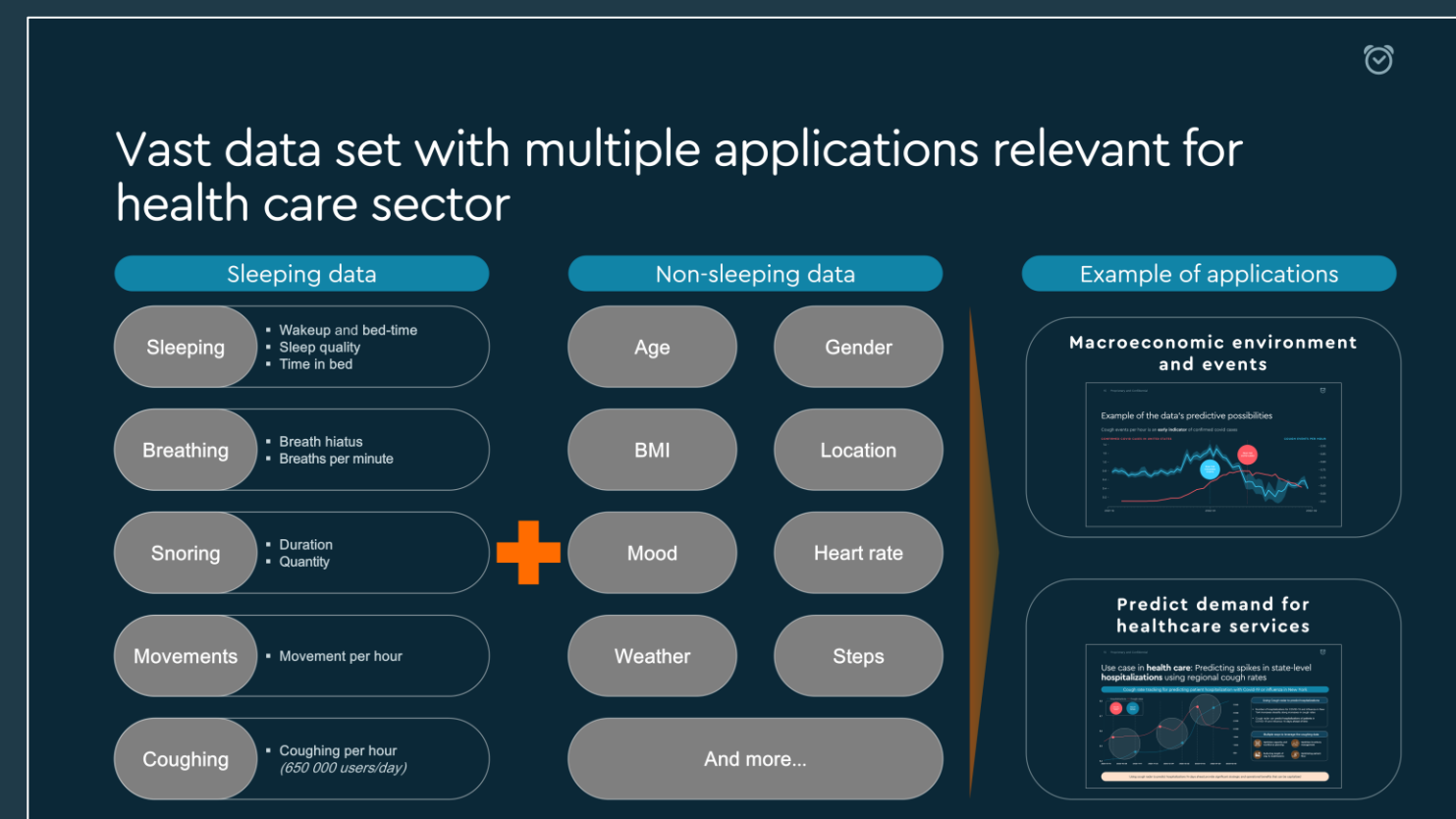
THE WORLD'S MOST POPULAR SLEEP HEALTH APP  
Founded in 2009 and publicly listed on Nasdaq Stockholm, Sleep Cycle is a leading tech company specialized in sleep analysis.

**PROPRIETARY AI PLATFORM**  
Sleep Cycle's machine learning model continually improves, providing users with patented features based on its unique and difficult-to-replicate technology.

**EXTENSIVE DATA ACQUISITION**  
Sleep Cycle uses patented sound analysis to track users' sleep health, processing over 300K hours of sleep data hourly from iOS and Android for precise and personalized results.

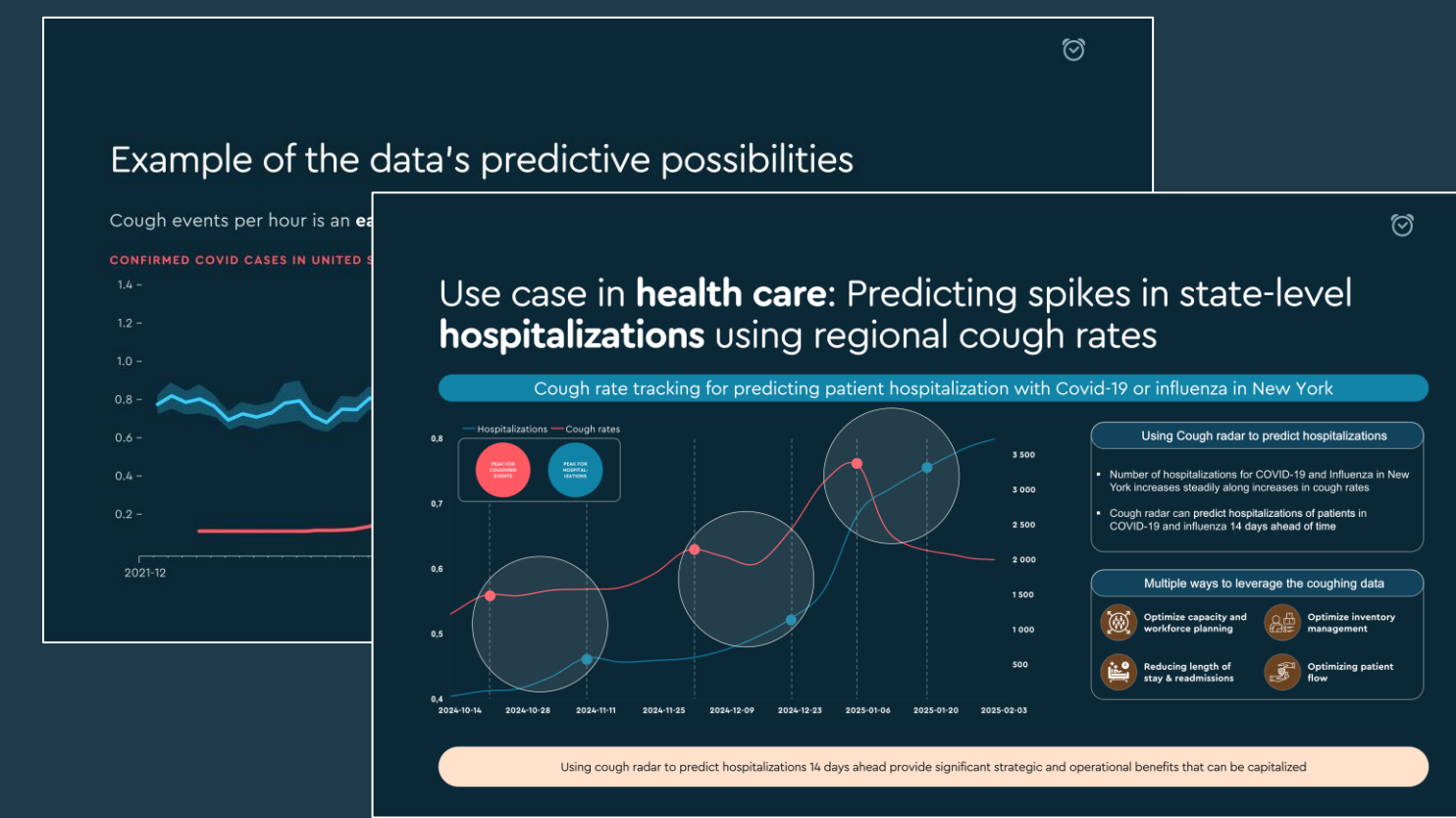
## What makes it unique?

- Historical data show development within **health and sleep** all over the world
- Data has been used in **academic articles** by Harvard, Oxford and Cambridge University
- Is an alternative **data set** not accessible through data brokers
- Enabling a **competitive advantage** for business predictions



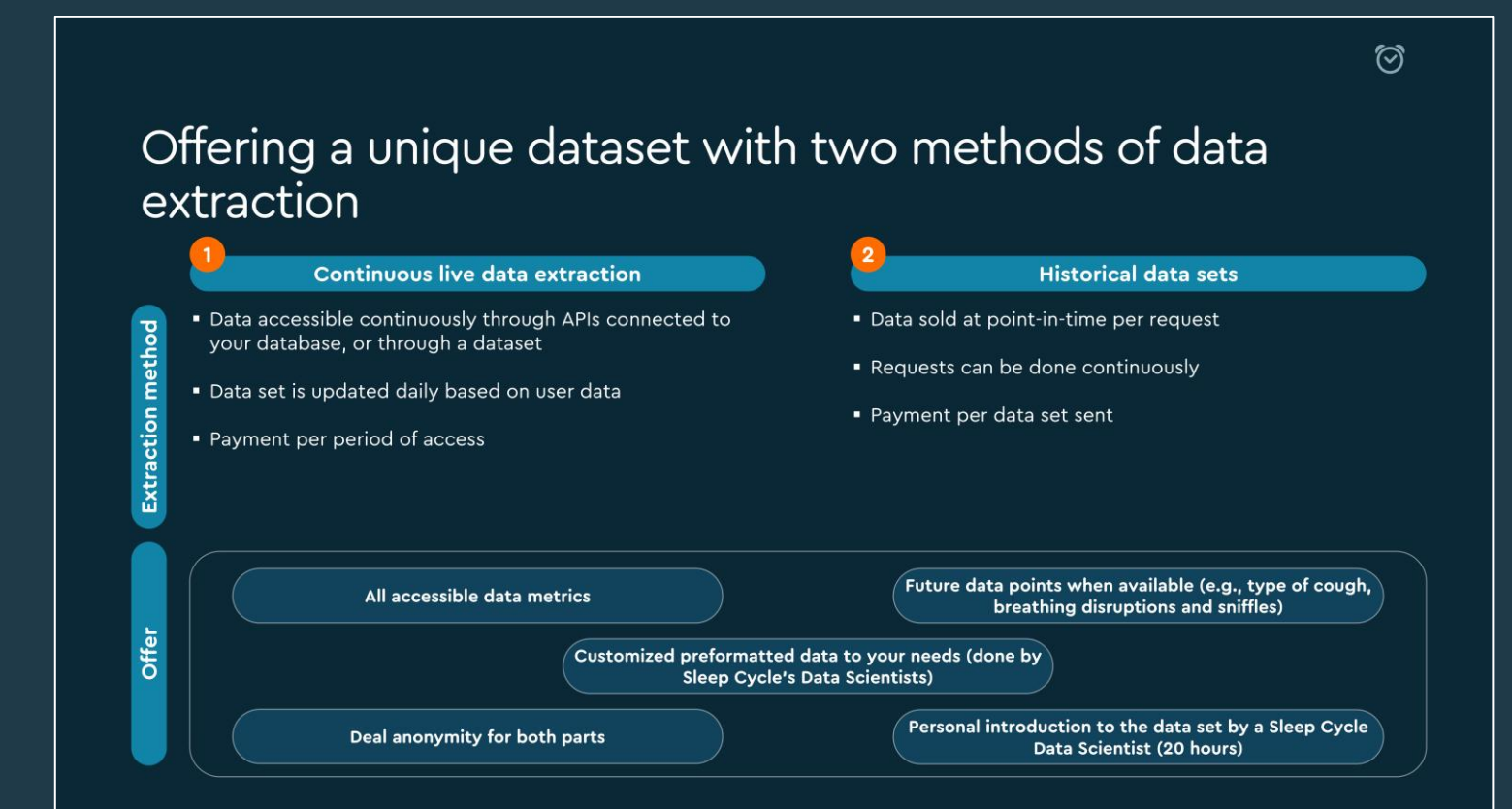
## How can it be applied?

- Quantifying differences in regions within health and sleep can help **understand underlying value drivers of products and services**
- **Predicting Covid-19 outbreaks** demonstrate the potential for predicting **large-scale events**
- Predicting the **demand of products and services** within multiple industries all over the world



## How is it received?

- **Continuous** data extraction, through API, with **real time updates daily**. Alternatively, or per request
- Access to **future data metrics**, such as **type of cough, breathing disruptions and sniffle** when/if developed
- **Possibility of demanding** other types data metrics
- **Introduction to the data set** with a **Sleep Cycle data scientist**





## TOP MARKETS

-  #1 United States
-  #2 Japan
-  #3 United Kingdom
-  #4 Germany
-  #5 France
-  #6 Australia
-  #7 Holland
-  #8 Brazil
-  #9 Canada
-  #10 Sweden

>180  
COUNTRIES

3.4 million  
MONTHLY ACTIVE USERS  
SOURCE: SENSORTOWER

3 billion  
NIGHTS OF DATA COLLECTED

## ACCESSIBLE ON ALL LEADING PLATFORMS



APPLE



GOOGLE



SAMSUNG\*



HUAWEI

# Sleep Cycle in short

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\*Sleep Cycles technology is natively embedded in Samsung Galaxy smartwatches



# Vast data set with multiple applications relevant for health care sector

## Sleeping data

### Sleeping

- Wakeup and bed-time
- Sleep quality
- Time in bed

### Breathing

- Breath hiatus
- Breaths per minute

### Snoring

- Duration
- Quantity

### Movements

- Movement per hour

### Coughing

- Coughing per hour  
(650 000 users/day)

## Non-sleeping data

### Age

### Gender

### BMI

### Location

### Mood

### Heart rate

### Weather

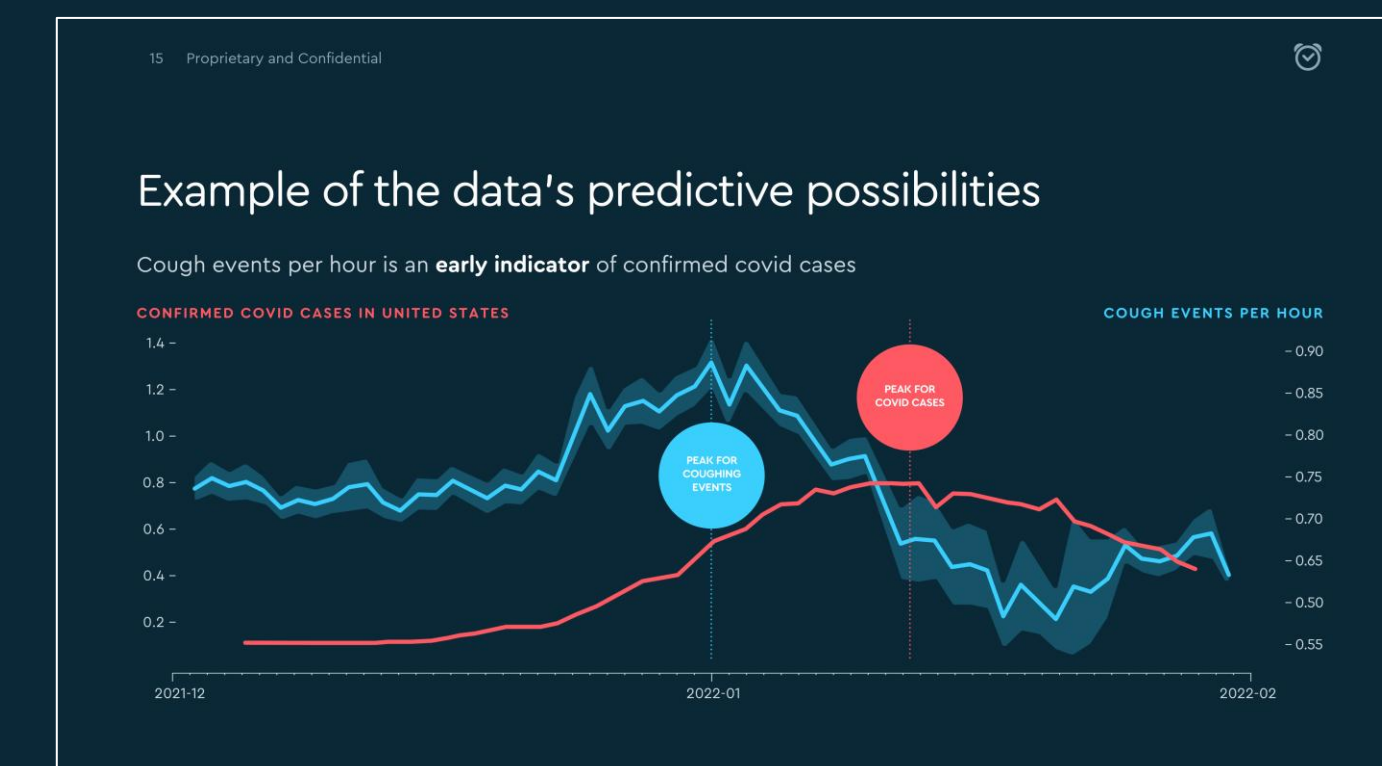
### Steps

And more...

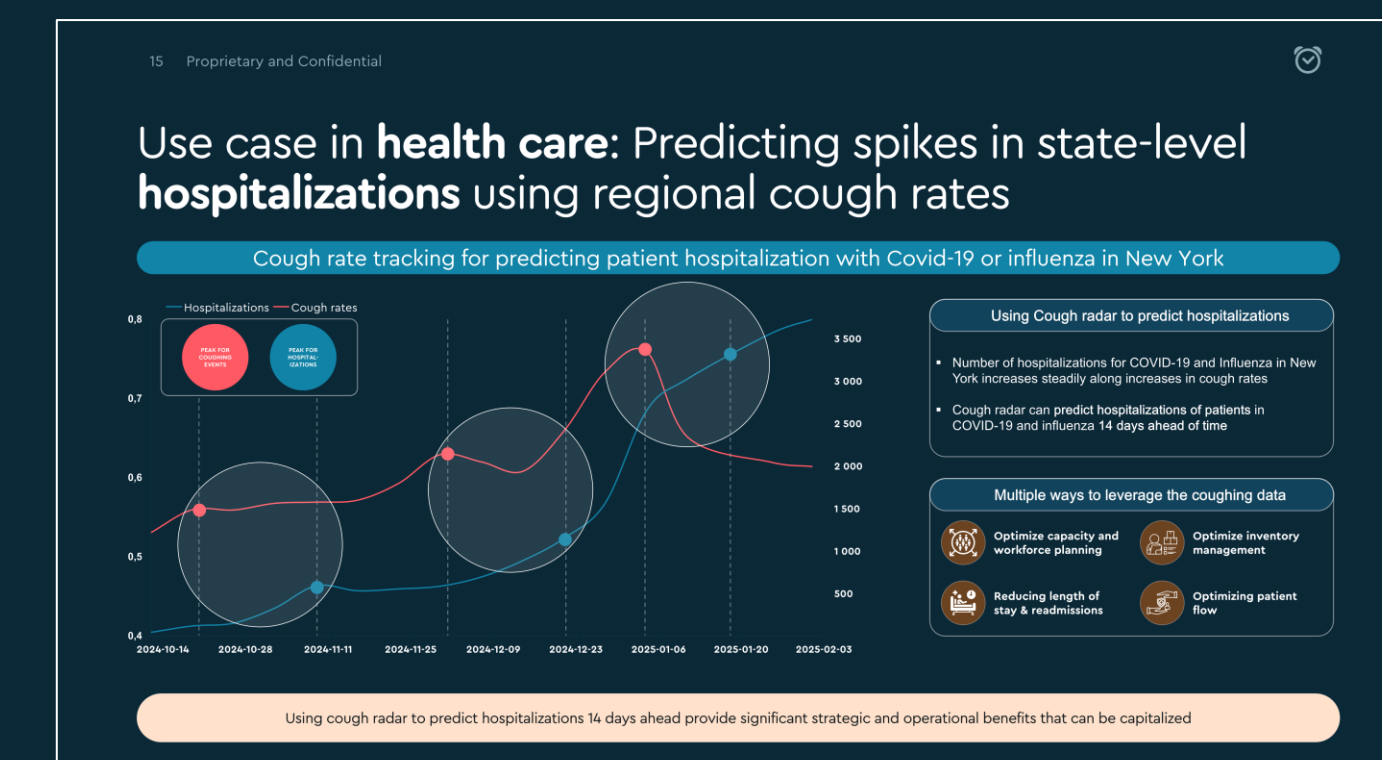


## Example of applications

### Macroeconomic environment and events



### Predict demand for healthcare services



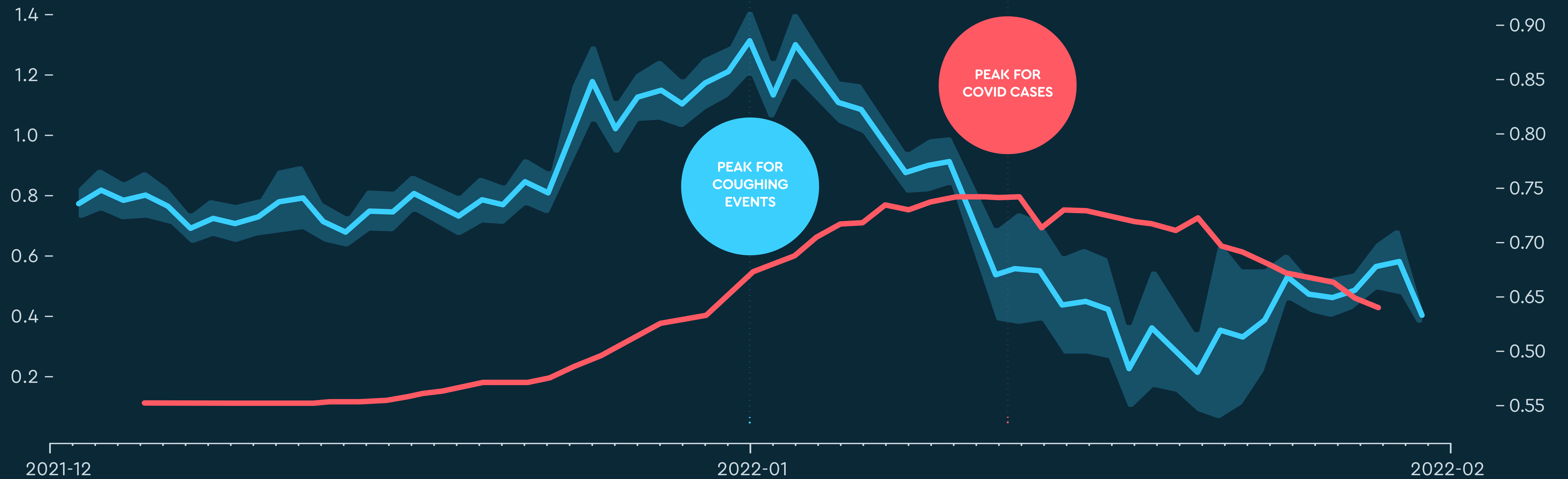


# Example of the data's predictive possibilities

Cough events per hour is an **early indicator** of confirmed covid cases

CONFIRMED COVID CASES IN UNITED STATES

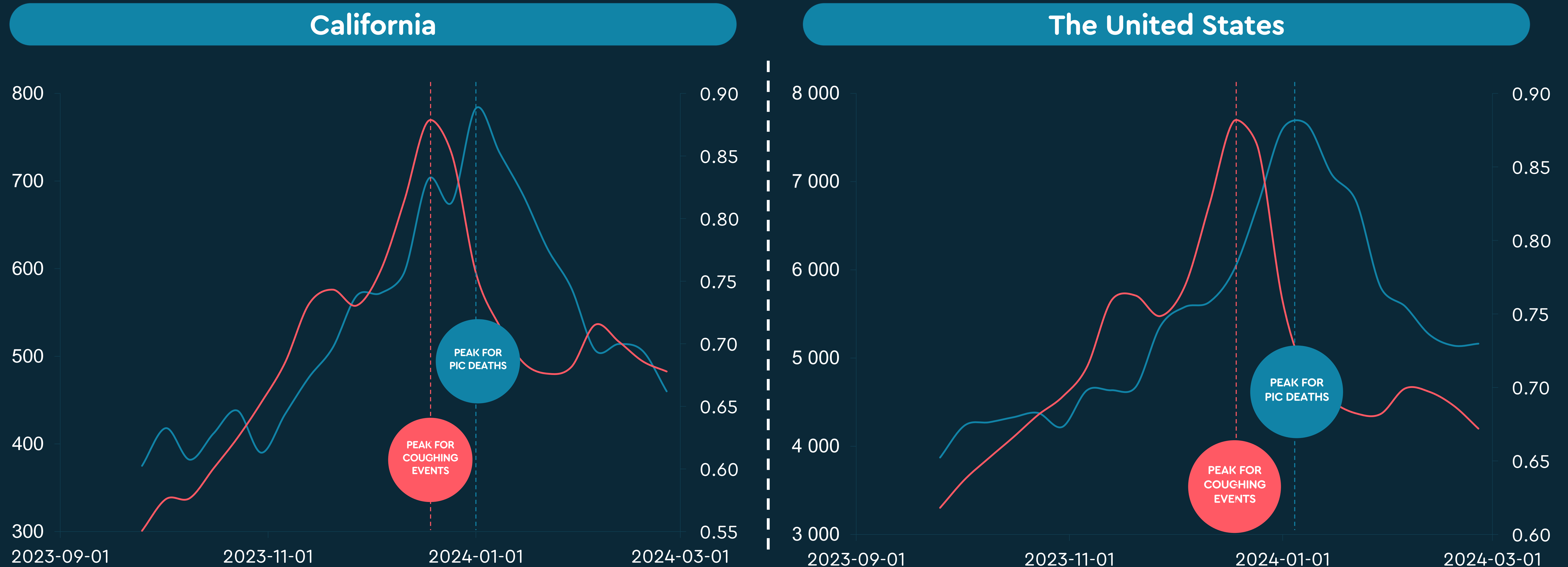
COUGH EVENTS PER HOUR





# Example of the data's predictive possibilities: Deaths in pneumonia, influenza and Covid-19

Cough events per hour is an **early indicator (~3 weeks)** of PIC deaths\* (Pneumonia, Influenza and Covid-19)

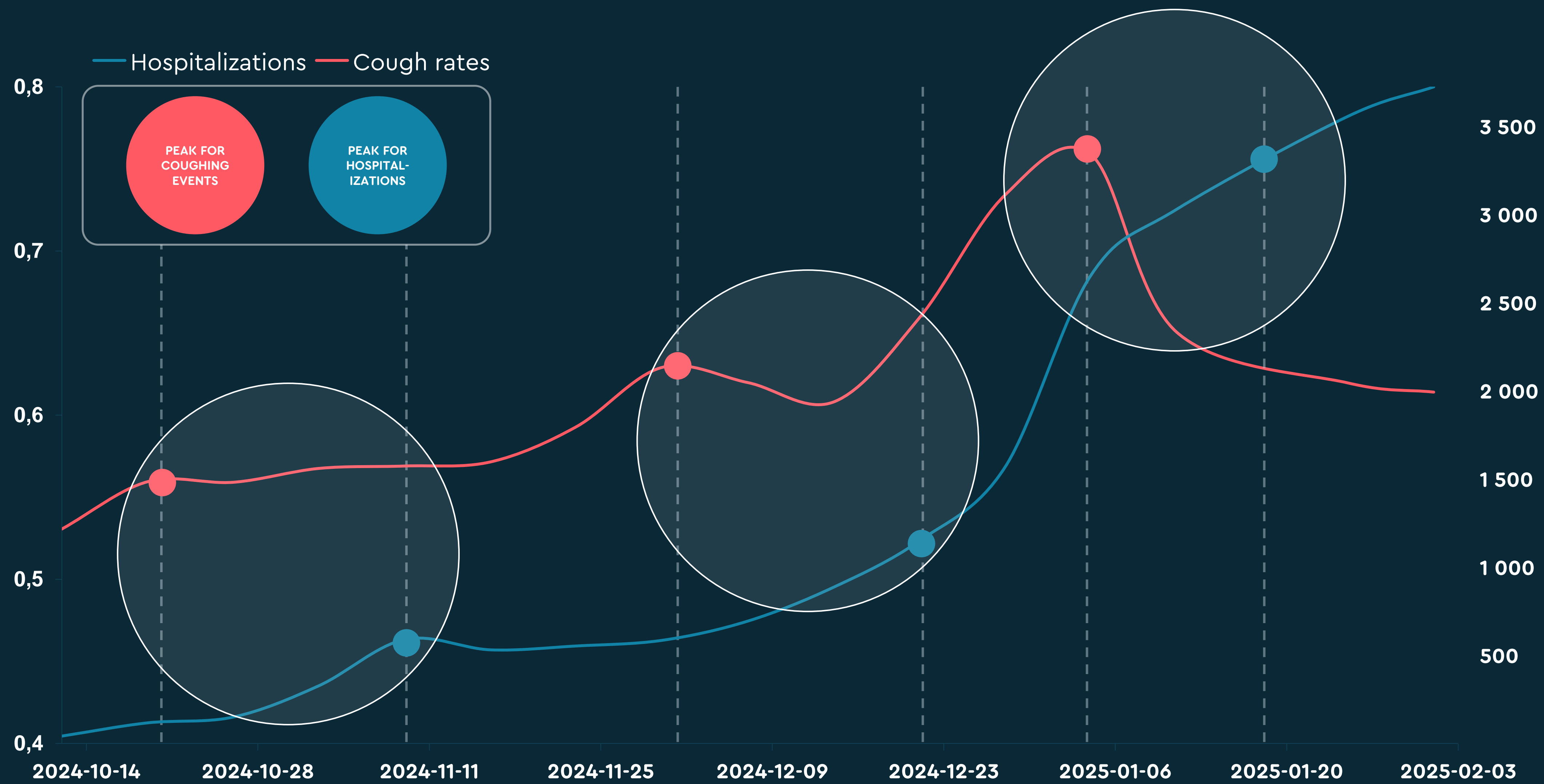


\*Weekly data from the Center of Diseases Control and Prevention



# Example of the data's predictive possibilities: Hospitalizations in Covid-19 and influenza

## Cough rate tracking for predicting patient hospitalization with Covid-19 or influenza in New York



### Using Cough radar to predict hospitalizations

- Number of hospitalizations for COVID-19 and Influenza in New York increases steadily along increases in cough rates
- Cough radar can predict hospitalizations of patients in COVID-19 and influenza 14 days ahead of time

### Multiple ways to leverage the coughing data



Optimize capacity and workforce planning



Optimize inventory management



Reducing length of stay & readmissions



Optimizing patient flow

Using cough radar to predict hospitalizations 14 days ahead provide significant strategic and operational benefits that can be capitalized



# Offering a unique dataset with two methods of data extraction

1

## Continuous live data extraction

- Data accessible continuously through APIs connected to your database, or through a dataset
- Data set is updated daily based on user data
- Payment per period of access

2

## Historical data sets

- Data sold at point-in-time per request
- Requests can be done continuously
- Payment per data set sent

Extraction method

Offer

All accessible data metrics

Future data points when available (e.g., type of cough, breathing disruptions and sniffles)

Customized preformatted data to your needs (done by Sleep Cycle's Data Scientists)

Deal anonymity for both parts

Personal introduction to the data set by a Sleep Cycle Data Scientist (20 hours)

# Sleep Cycle's Contacts



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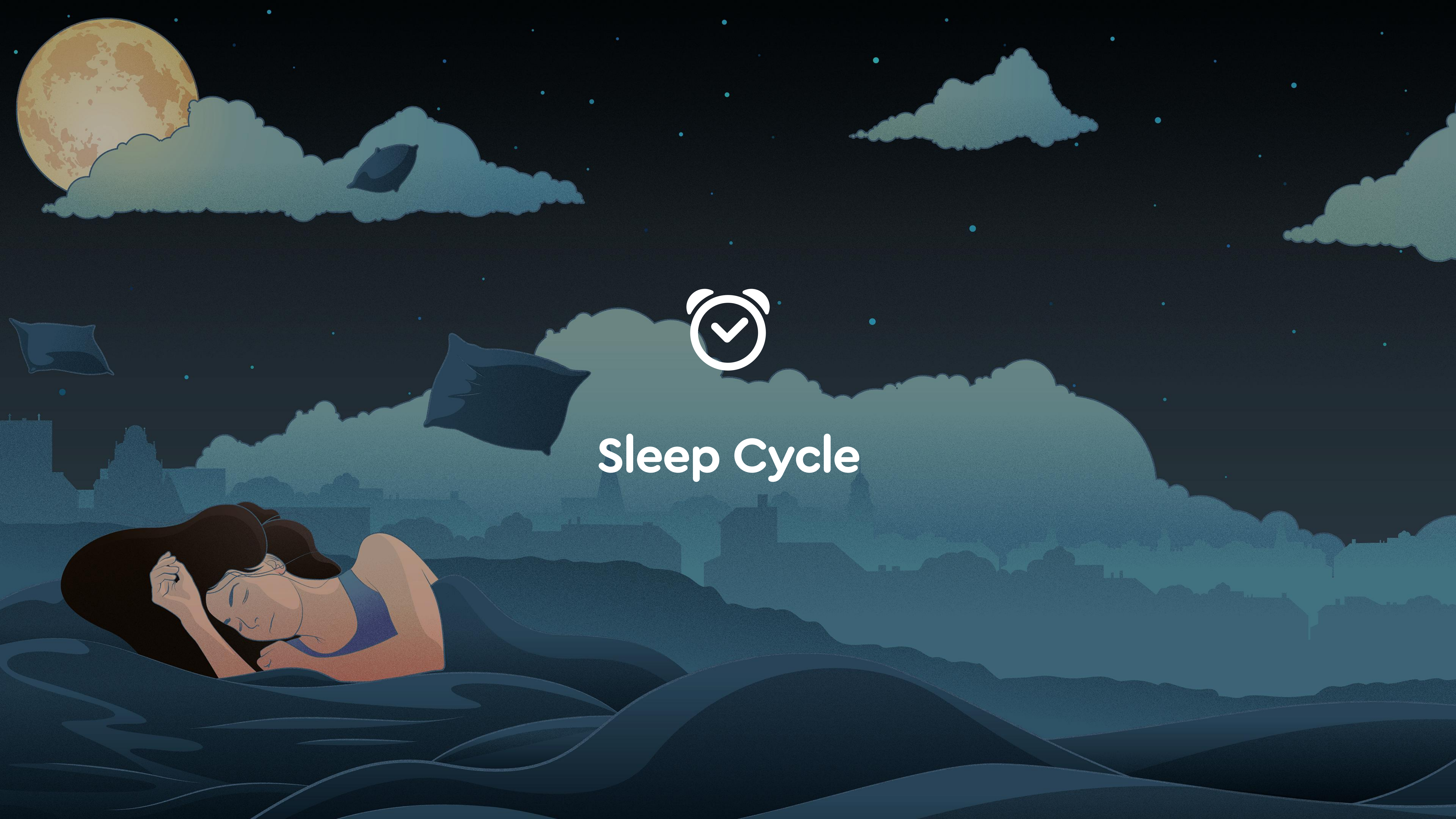
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