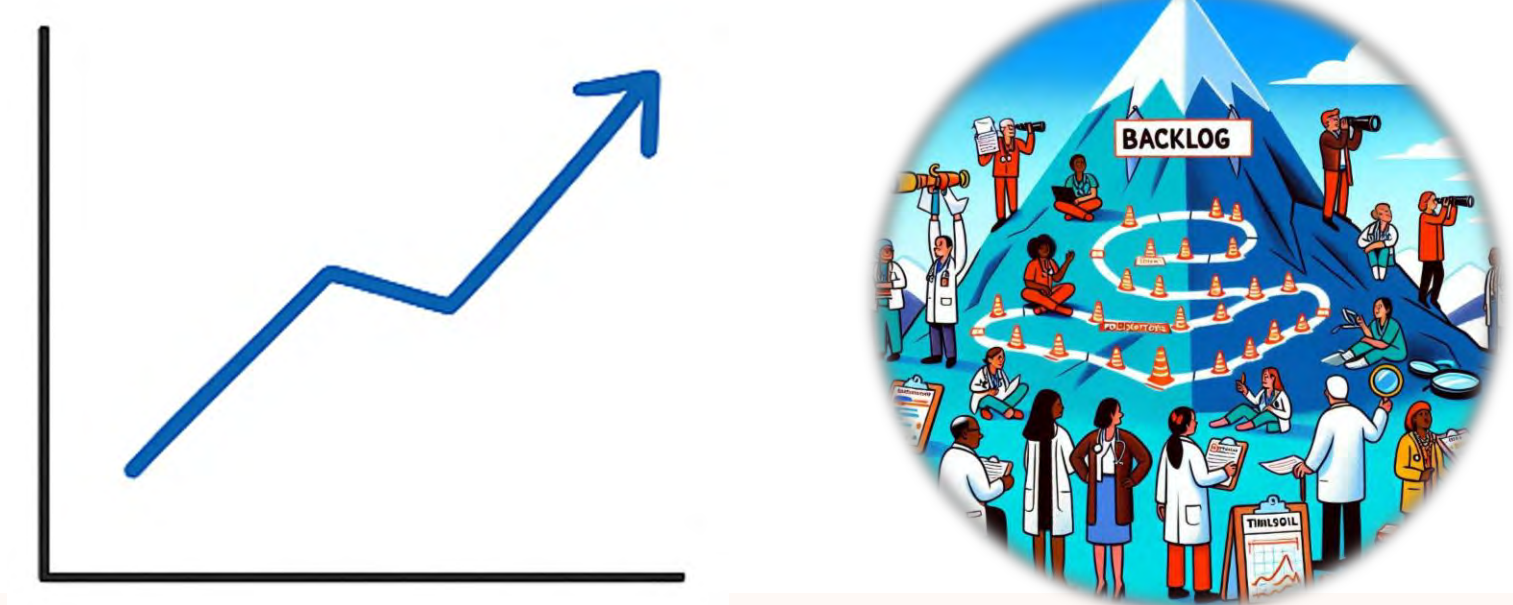# From Data to Decisions: Tackling NHS Backlogs with Data Science and Modelling

Syed Ahmar Shah, Chris Robertson, Karen Jeffery, Aziz Sheikh

Why are NHS Waiting Lists such a challenge?

- Delayed access to care affects millions
- Post-COVID pressures intensified system strain
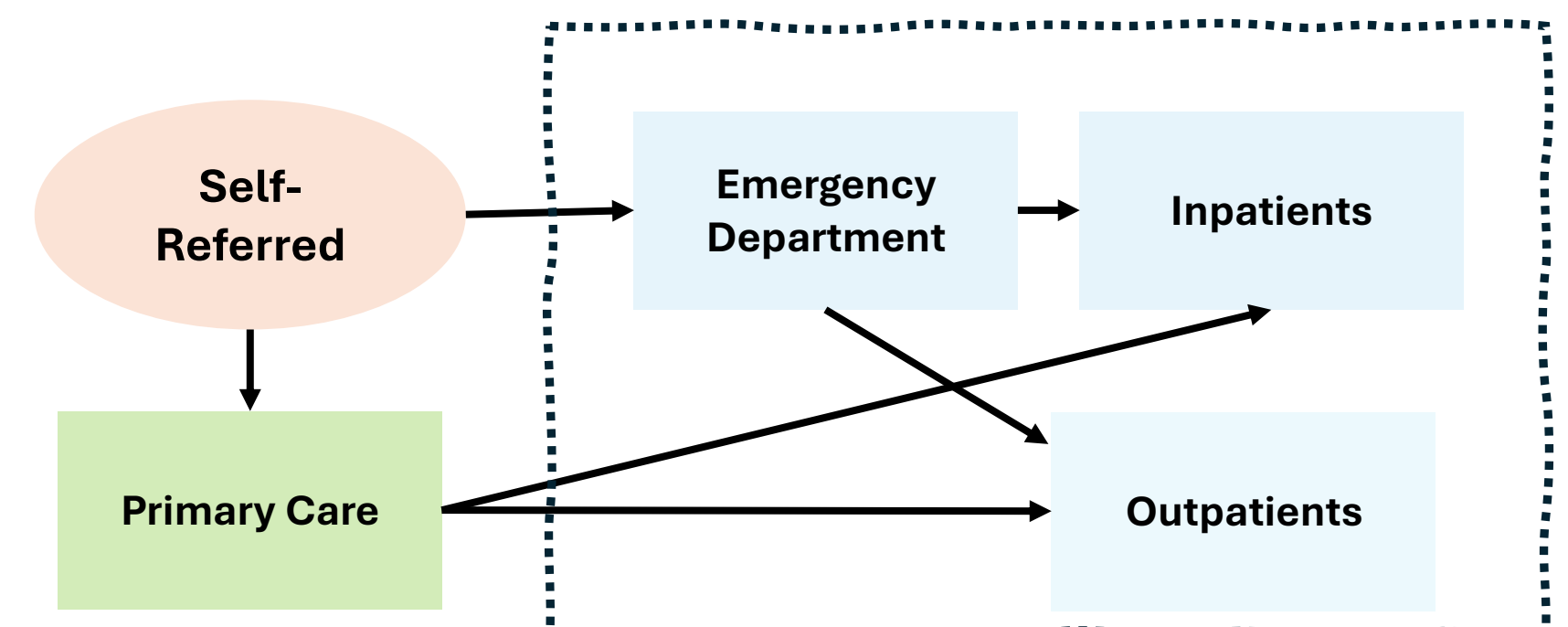- Policy responses need better data insights

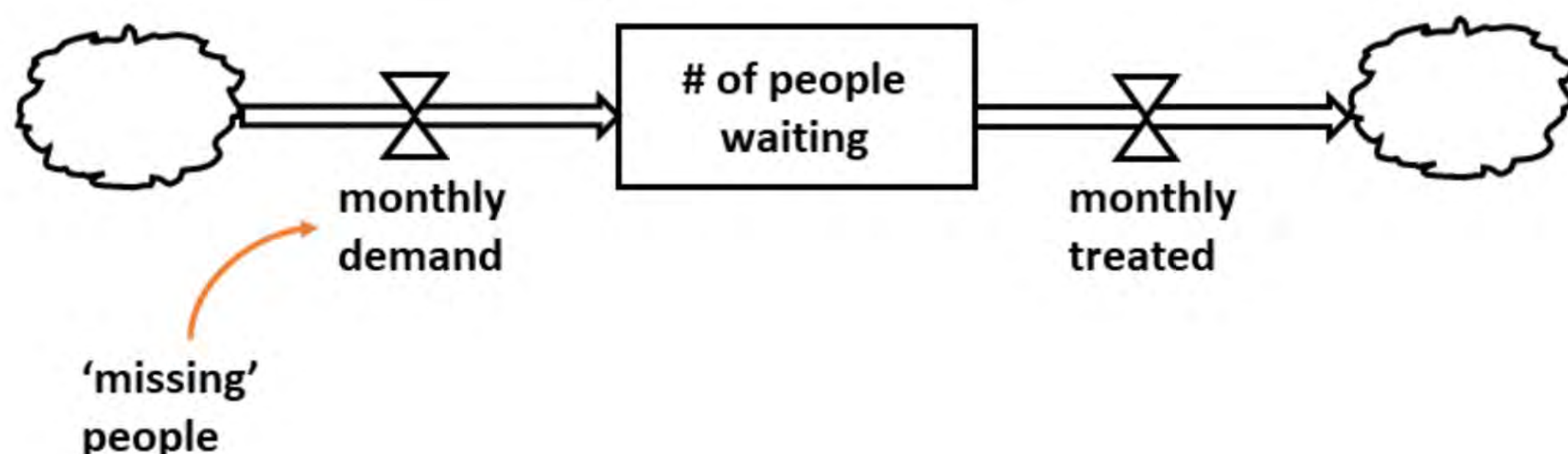## What kind of data did we use?

Referral to Treatment (RTT) Waiting Times

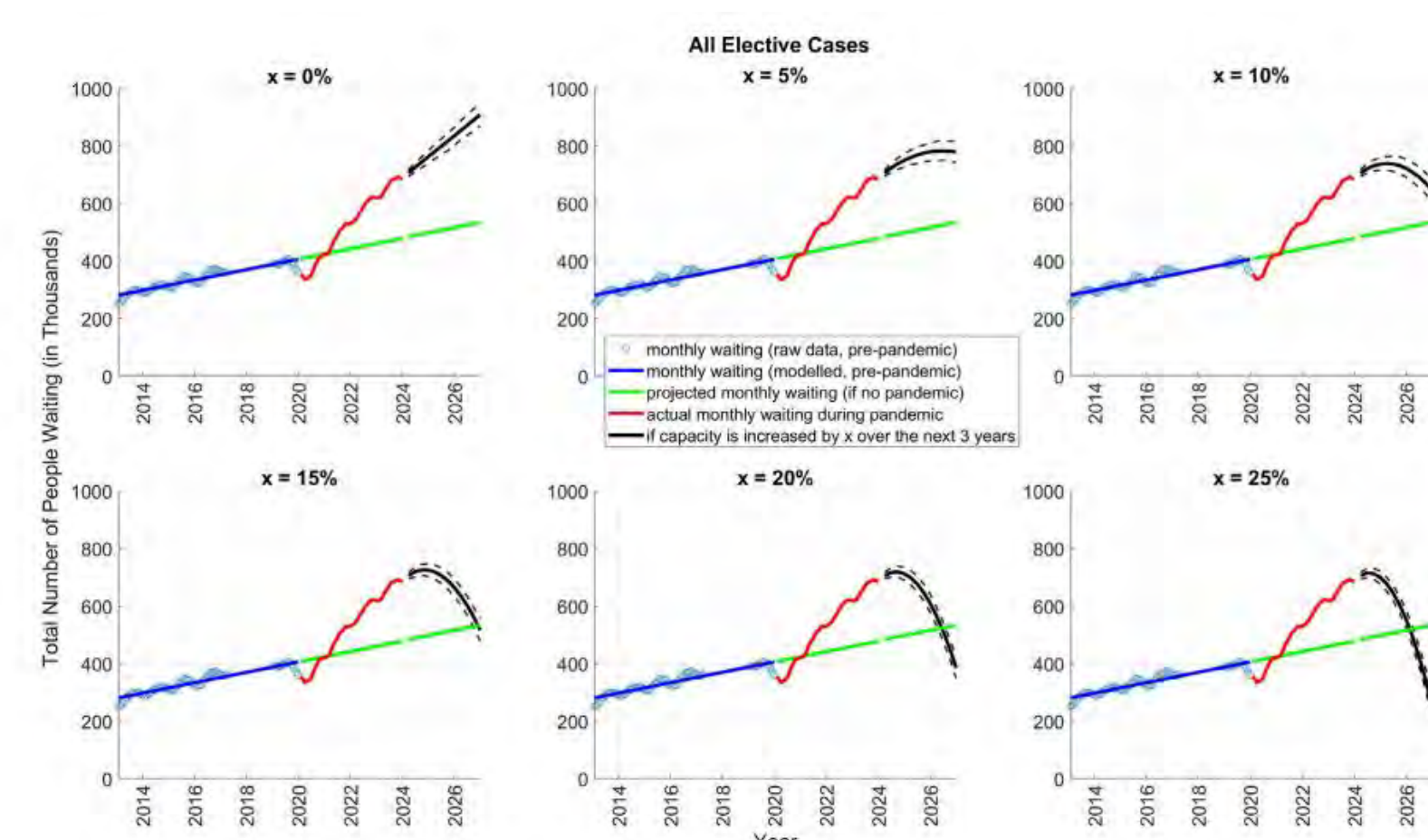NHS waiting times - stage of treatment

How do we turn data into insight?

- Statistical modelling to track and forecast demand
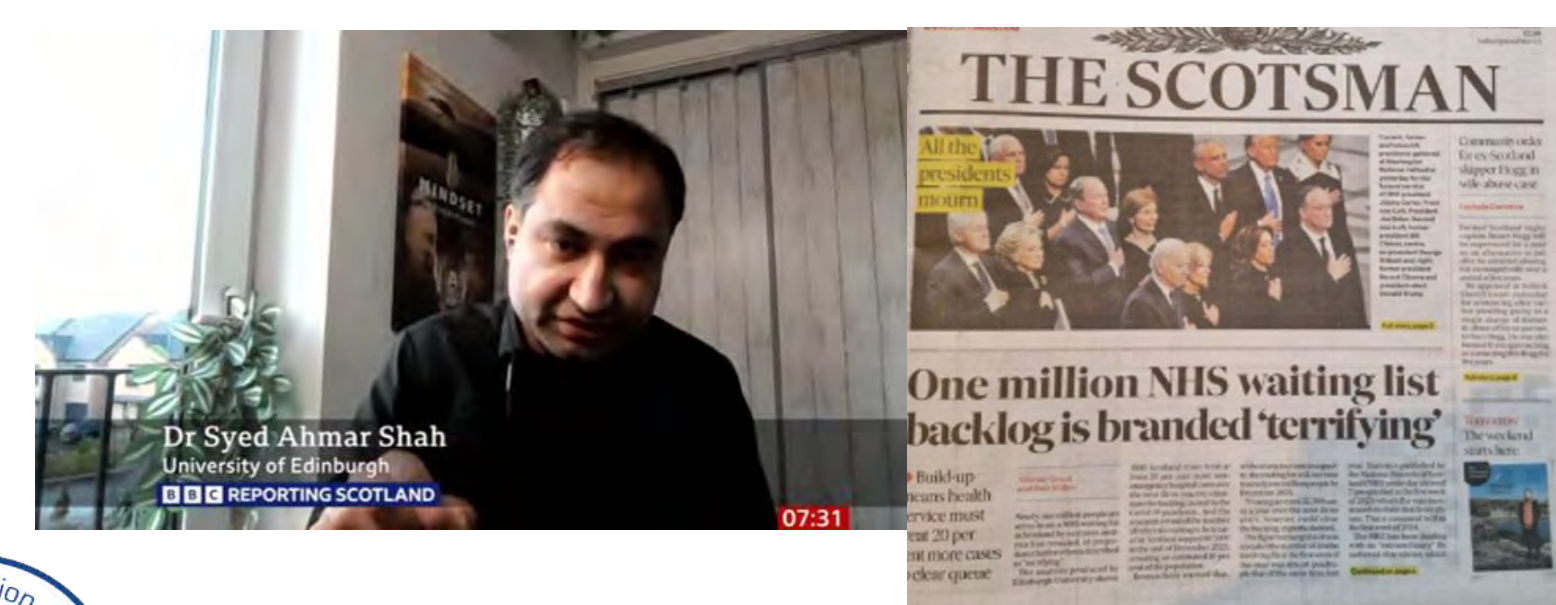- Machine learning to find patterns across time, region and specialties

What did we learn?

- A **persistent gap** between patient demand and treatment capacity was already growing **before the pandemic** — COVID-19 made it significantly worse
- **Recovery targets are not being met**, and there remains a **large gap** between what was planned and what has been achieved

What difference did it make?

- Published in The Lancet and The Lancet Regional Health – Europe
- Interviewed in national media
- Work cited in the House of Commons
- Used to inform capacity planning discussions