

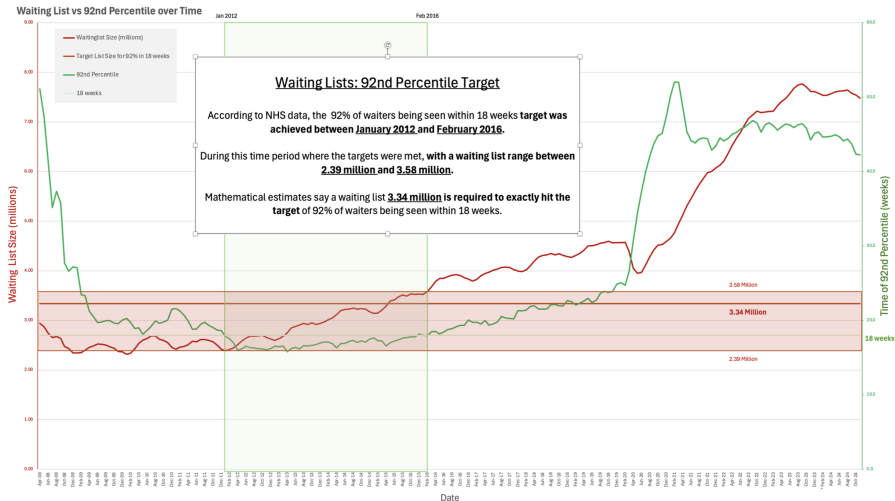
# Tabulating the NHS Waiting List

Neil Walton  
Durham University Business School  
[neil.walton@durham.ac.uk](mailto:neil.walton@durham.ac.uk)

Rhian Davis, Mohammed Mohammed  
The Strategy Unit

December 4, 2025

# Background



# Understanding Waiting Lists Pressures (2022)

**Paper link:** [medrxiv.org/2022.08.23.22279117](https://medrxiv.org/2022.08.23.22279117)

**YouTube explainer:** [youtu.be/NWthhW5Fgls](https://youtu.be/NWthhW5Fgls)

## Why this matters

- ▶ NHS waiting lists are under sustained pressure, with long delays for many patients.
- ▶ Operational managers must balance demand, capacity, and long-wait trajectories.

## What the paper does

- ▶ Introduces a queueing-theoretic framing of waiting-list pressures: treatment capacity, queue size, waiting times, and the stability condition.

# NHSRwaitinglist: waiting-list analysis

**What is it?** The R package `NHSRwaitinglist`, by the NHS-R Community, implements the queue-theoretic waiting-list methodology from Fong et al. (2022).

```
install.packages("NHSRwaitinglist")  
library(NHSRwaitinglist)
```

## Key capabilities

- ▶ Compute all key waiting-list statistics via `wl_stats()`.
- ▶ Simulate waiting-list scenarios using `wl_simulator()`.
- ▶ Create capacity plan using `wl_target_capacity()`.

## Further info / links

CRAN link — installation & documentation.

github website — worked examples, explanatory videos.

## Waiting Lists Must Halve

*From NHS England statistical press notice (Oct 10th), I believe we have around 450K RTT clockstarts a week. So this suggests the waiting list size should be*

$$7.2 * 450,000 = 3,240,000$$

*So current data suggests the waiting list should be 3,240,000 the current data suggests the waiting list is 7,600,000. I.e. the government needs to roughly half the waiting lists in the coming term to meet its target.*

### An advanced numerical model:

“The NHS waiting list in England must halve to reach waiting time targets” Wood, Fox, Morgan, Walton, 2025.

Morning Star; LBC; Independent; Telegraph; Spectator

# National Waiting List Conference

HDR UK Event

## Waiting List Conference 2026: From Backlog to Breakthrough

10 June 2026

Share this page [in](#) [twitter](#)



### Waiting List Conference: From Backlog to Breakthrough

We're excited to announce the NHS Waiting List Conference, taking place on 10–11 June 2026 — a landmark event dedicated to one of the NHS's most complex and urgent challenges: elective care waiting lists.

#### Start date

10 June 2026 9:00AM

#### End date

11 June 2026 5:00PM

#### Location

Wellcome Trust  
Gibbs Building  
215 Euston Road  
London  
NW1 2BE

#### Organised by

[Health Data Research UK \(HDR UK\)](#)

**Conference Site Link**



**Abstract Submission Link**

# The National Table



# Motivation

- ▶ NHS waiting lists have reached historically high levels.
- ▶ The underlying data are published, but not always easy to interrogate.
- ▶ Policy questions typically require slicing by:
  - ▶ organisation (trust / system),
  - ▶ specialty or treatment function,
  - ▶ type and duration of wait.
- ▶ Aim: build a single, transparent “National Table” that tabulates all NHS waiting lists in a way that is:
  - ▶ faithful to published data,
  - ▶ easy to explore,
  - ▶ reproducible,
  - ▶ informative for trusts and patients
  - ▶ **Quickly identifies bottlenecks and pressures.**

## Access the National Table



[neilwalton.github.io/](https://neilwalton.github.io/)



Strategy Unit Viewer Link

[github.com/The-Strategy-Unit/nhs-waiting-list-explorer](https://github.com/The-Strategy-Unit/nhs-waiting-list-explorer)

# The National Table

Idea: make previous outputs accessible, summarize national picture.

- ▶ Front-end: an interactive HTML table (published at [neilwalton.github.io/National\\_Table/](https://neilwalton.github.io/National_Table/)).
- ▶ Built around a single, long-format table of waiting-list counts by:
  - ▶ geography (e.g. trust / ICB / region),
  - ▶ specialty / treatment function,
  - ▶ But this is extensible to other dimensions if data permits.
- ▶ Idea: most questions about the waiting list can be expressed as filters and aggregations of this table.

# Structure of the table

- ▶ The table is organized into three key areas:
  1. **Size:** Queue Size, Target Q Size, Queue Ratio
  2. **Shape:** percentile\_92, % within 18 Weeks, Percentile Pressure
  3. **Improvement:** Queue Size Change, Relative Improvement in 18 Weeks, % Queue Size Change, Percentile Change, Load
- ▶ Rows correspond to combinations of:
  - ▶ organisation,
  - ▶ specialty / treatment function,
- ▶ The HTML interface exposes this table via an interactive React-style widget:
  - ▶ sort by any column,
  - ▶ filter on geographies / specialties / time,
  - ▶ focus on particular metrics or areas of interest.

## Example Calculations: Little's Law

$$N = \lambda W$$

- ▶  $N$  = average number in the system (waiting list size)
- ▶  $\lambda$  = average referral rate (new clockstarts per week)
- ▶  $W$  = average time in the system (average waiting time including removal without treatment)

Take  $W = 7.2$  weeks (for 92% treated within 18 weeks).

## Example Calculations: Pressure Calculation

$$Pressure = \frac{Percentile}{Target\ Percentile}$$

E.g. P2 target is 4 weeks. If 92nd percentile is 8 weeks then

$$Pressure = 2.0.$$

# Examples of use

## ▶ **Provider view**

- ▶ Select a trust or ICB.
- ▶ Track total list size and long-waiters over time.
- ▶ Compare specialties within that organisation.

## ▶ **Specialty view**

- ▶ Fix a specialty (e.g. orthopaedics).
- ▶ Compare organisations on: list size, long waits, completed pathways.

## ▶ **National view**

- ▶ Aggregate to system / regional / national level.
- ▶ Decompose changes in the national list into:
  - ▶ growth in demand (new additions),
  - ▶ supply (treatments / clock-stops),
  - ▶ accumulation of long waits.

# Implementation overview

- ▶ Code and configuration are hosted at:
  - ▶ [github.com/The-Strategy-Unit/nhs-waiting-list-explorer](https://github.com/The-Strategy-Unit/nhs-waiting-list-explorer)
- ▶ Pipeline (high level):
  1. Ingest published NHS waiting-list data.
  2. Clean and harmonise identifiers, dates and specialties.
  3. Reshape into a long, tidy table with one row per organisation–specialty–month–metric.
  4. Export for the HTML front-end (reactive table).
- ▶ Design principles:
  - ▶ fully reproducible from code,
  - ▶ minimal assumptions,
  - ▶ easy to extend with new metrics or geographies.



## Summary and next steps

- ▶ A single national view and ranking of the NHS waiting list.
- ▶ The HTML explorer turns this into a practical tool for:
  - ▶ analysts,
  - ▶ planners,
  - ▶ policy and operational teams.
- ▶ Next steps / open questions:
  - ▶ richer derived metrics (e.g. implied flows, clearance times),
  - ▶ additional geographies or specialties,
  - ▶ integration with modelling work or scenario tools.

## Abiding principles

Try to keep things simple, accessible, practical.

Holistic: Try as many avenues as possible in the hope something sticks!

Money is tight but people are generous with their time.

Thanks include (but are not limited to):

Shazaad Ahmad, Yingrae Chen, Rhian Davis, Matt Dray, David Foord, Paul Fenton, Kevin Fong, Seb Fox, Dan Gordon, Jacqueline Grout, Darren Griffiths, Thomas House, Amy Makawana, Mohammed Mohammed, Ozyr Mohammed, Lucy Morgan, Yasser Mushtaq, Chris Mainey, Michel Rigozzi, Peter Shakeshaft, Tom Smith, Zoe Turner, Richard Wood,

## Last slide: Get in touch!

Feedback welcome!

- ▶ What would you like to see added or changed?
- ▶ Would you like to collaborate on extending any of this work for your data needs?

**Thank you!**

neil.walton@durham.ac.uk