



# Emergency department activities across Scottish health boards: an analysis of patient attendance, waiting time, and hospitalisations (2015–2023)

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## 01 Introduction



- The emergency department (ED) is an essential part of healthcare systems, delivering immediate clinical and paraclinical care to individuals injured in accidents and incidents (Ajami et al., 2012). In the ED, every second and minute is crucial for patient outcomes (Spechbach et al., 2019).
- Patient attendance, waiting time and hospitalisation constitute key components of ED management (Spechbach et al., 2019).
- In the United Kingdom, the goal for all member states is to ensure that 95% of patients are either admitted, discharged, or transferred from A&E departments within four hours (RCEM, 2021).
- Assessing the performance of EDs in NHS Scotland health boards compared to national standards (95%) and identifying areas that require improvement in ED organisation is crucial. This process helps public health officers and hospital heads develop strategies to enhance healthcare outcomes.

## 02 Objectives



- Specific aim 1:** Evaluate trends in waiting times and patient attendance in emergency departments throughout Scottish Health Boards from 2015 to 2023.
- Specific aim 2:** Identify variations in emergency hospitalisations across different Scottish health boards over the years.

## 03 Methodology



Datasets

Tools Used

ScotPHO Dataset

Visualisations

R-Studio

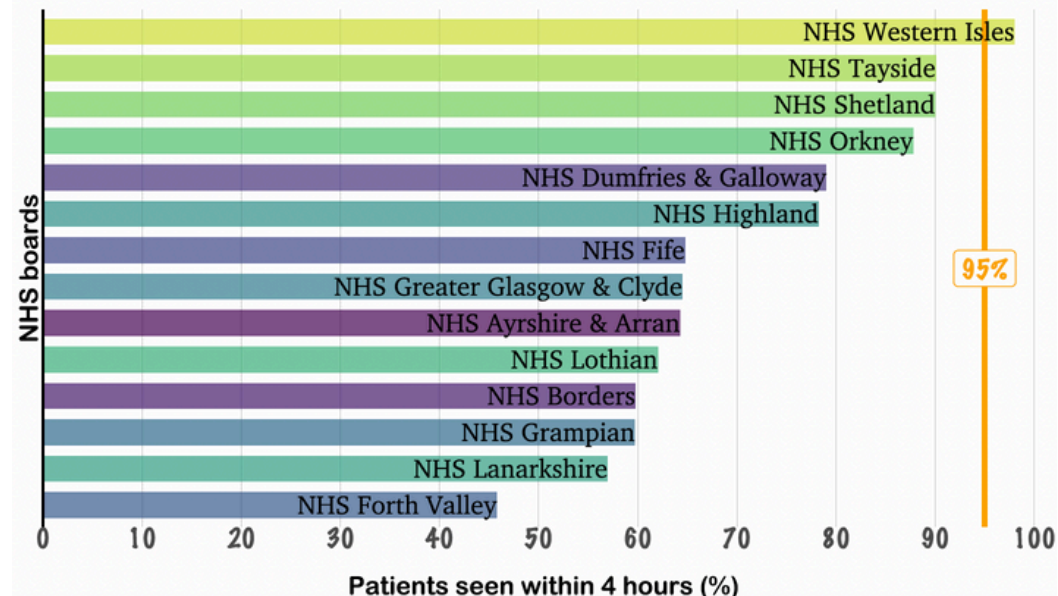
Markdown File

## 04 Results



### Scottish ED performance

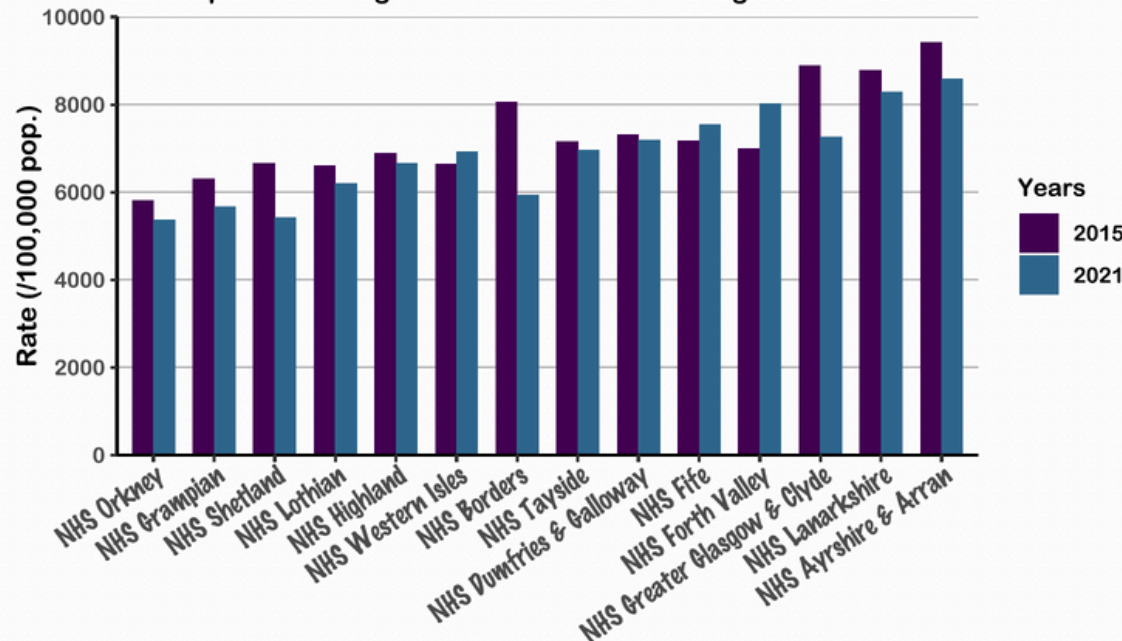
ED attendances seen within 4 hours in 2023 VS national standard (95%)



Graph 1. ED attendances seen within 4 hours in 2023 vs national standard (95%). Only the NHS Western Isles health board achieved the goal of 95% of patients being seen within 4 hours, while NHS Forth Valley failed to reach even 50%.

### Scottish health boards

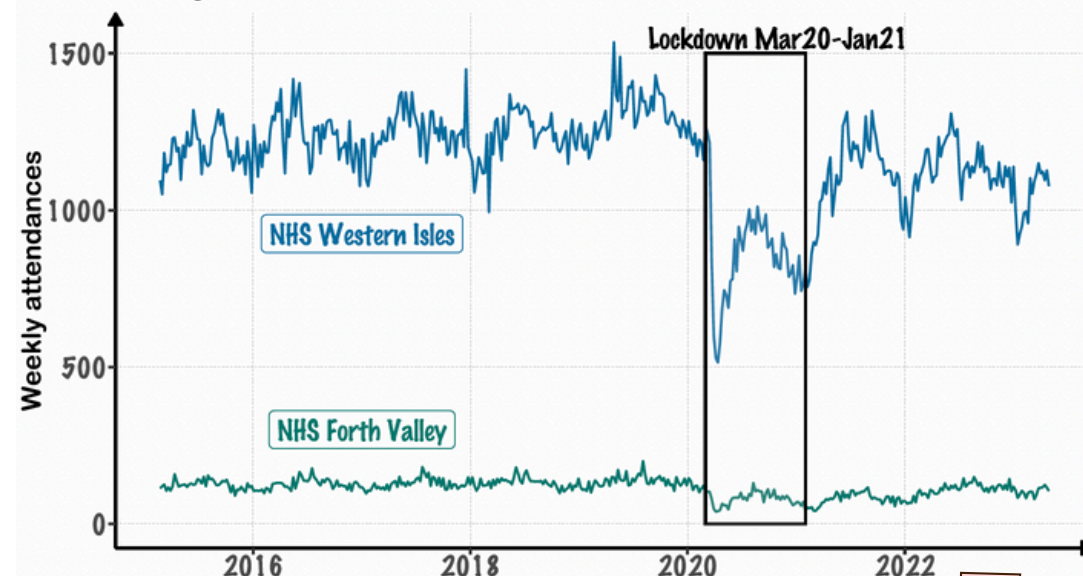
ED hospitalisation age-sex standardised rate registered in 2015 and 2021



Graph 2. ED hospitalisation age-sex standardised rate registered in 2015 and 2021. In 2021, most NHS boards had decreased ED hospitalisation rates compared to 2015, except for NHS Western Isles, NHS Fife, and NHS Forth Valley, which saw increases.

### NHS Western Isles vs NHS Forth Valley

Weekly ED attendances from 2015 to 2023



Graph 3. shows weekly ED attendances from 2015 to 2023. NHS Western Isles consistently had higher attendance levels, with a significant drop during COVID-19 lockdowns. Meanwhile, NHS Forth Valley's attendance remained stable with a slight decline during the lockdown.

## 05 Discussion



- The ED is essential for assessing hospital efficiency, particularly through patient wait times, which impact satisfaction and service quality (Spechbach et al., 2019).
- Our visualisations reveal that most Scottish health boards (13/14) failed to meet national ED waiting time standards. While ED admissions and hospitalisations dropped during COVID-19 lockdowns, they have not yet reached pre-COVID levels, likely due to increased use of NHS 24 services (NHS 24, 2024).
- Challenges:**
  - Data from two different organisations may vary in collection methods, potentially leading to biases and standardisation issues that complicate comparisons and could affect public health decisions. The audience should be aware of the misleading conclusions this may cause. Standardising data collection can help mitigate these issues.
  - The NHS Performs dataset collects weekly data from 2015 to 2023, while the ScotPHO dataset offers yearly data as a 3-year rolling average, age-sex standardised per 100,000 population. The difference in frequencies and formats may complicate integration and analysis, introducing potential biases and standardisation issues that make direct comparisons difficult. Standardising and aligning data over time makes it easier to compare and understand trends, helping in decision-making.

## 06 Conclusion



Emergency Departments in NHS Scotland require performance improvements, with only one board meeting the UK's 95% standard. Strategies to address this include increasing staff, investing in training for triage and treatment, and using technology to manage patient flow and information through a multisector approach.

### References

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- NHS 24 (2024) Facts about NHS 24. Available at: <https://www.nhs24.scot/about-nhs-24/facts-about-nhs24/> (Accessed: 10 December 2024).

- Royal College of Emergency Medicine (2021) 'Delayed hospital handovers: Impact assessment of patient harm'.
- Spechbach, H. et al. (2019) 'Patients' time perception in the waiting room of an ambulatory emergency unit: a cross-sectional study', BMC Emergency Medicine, 19(1), p. 41. Available at: <https://doi.org/10.1186/s12873-019-0254-1>.