Addressing Inequalities in Respiratory Emergencies Through Data-Driven Interventions

Verity Bellamy, Holly Wilcock, Ruth Crabtree and Dr. Martin Sutcliffe. Email: martin.sutcliffe@nhs.net or ruth.crabtree@nhs.net

Background

Respiratory related conditions, particularly Chronic Obstructive Pulmonary Disease (COPD), continue to drive significant demand on Yorkshire ambulance service and are inextricably linked to health inequalities and emergency service demand across the UK, disproportionately affecting the most deprived communities.

Ambulance services, often the first point of contact for patients in respiratory distress, hold a rich and largely untapped reservoir of data. Leveraging this data offers a powerful opportunity to inform targeted interventions, optimise care pathways, and ultimately improve outcomes for this high-risk population.

Objective

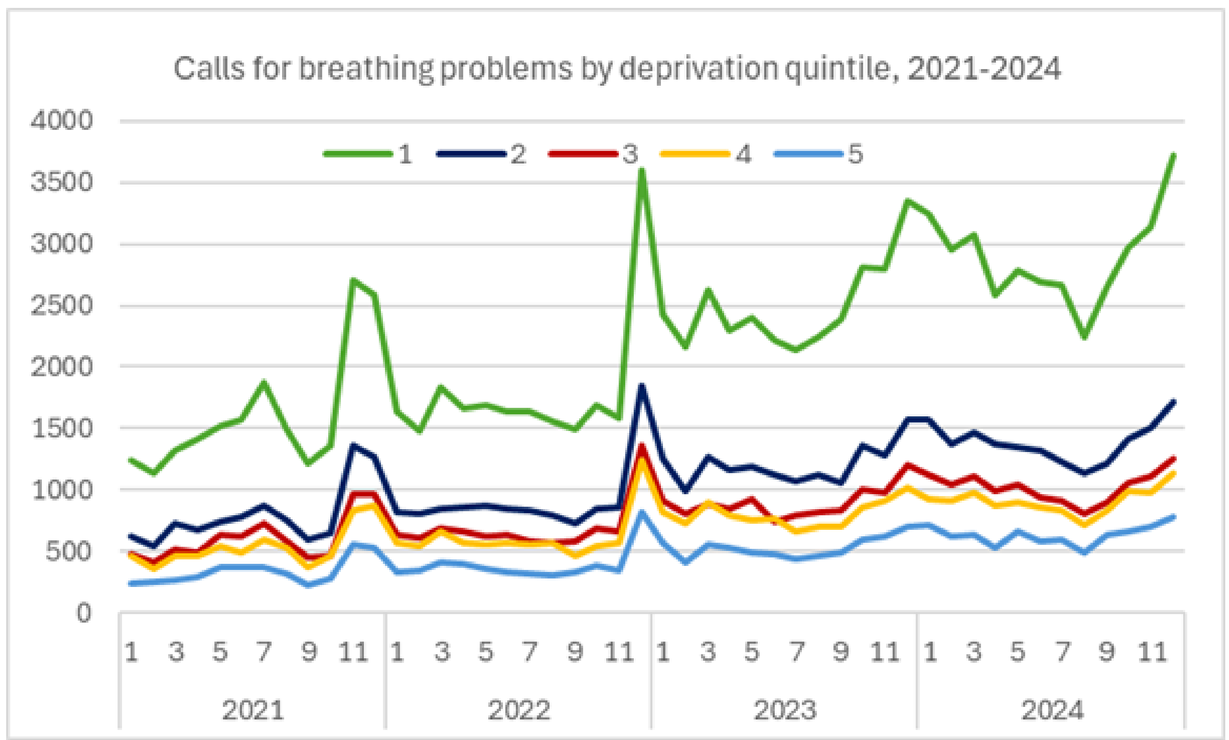
To examine trends in ambulance calls related to breathing problems, assess links to deprivation, and evaluate interventions aimed at reducing avoidable hospital conveyances.

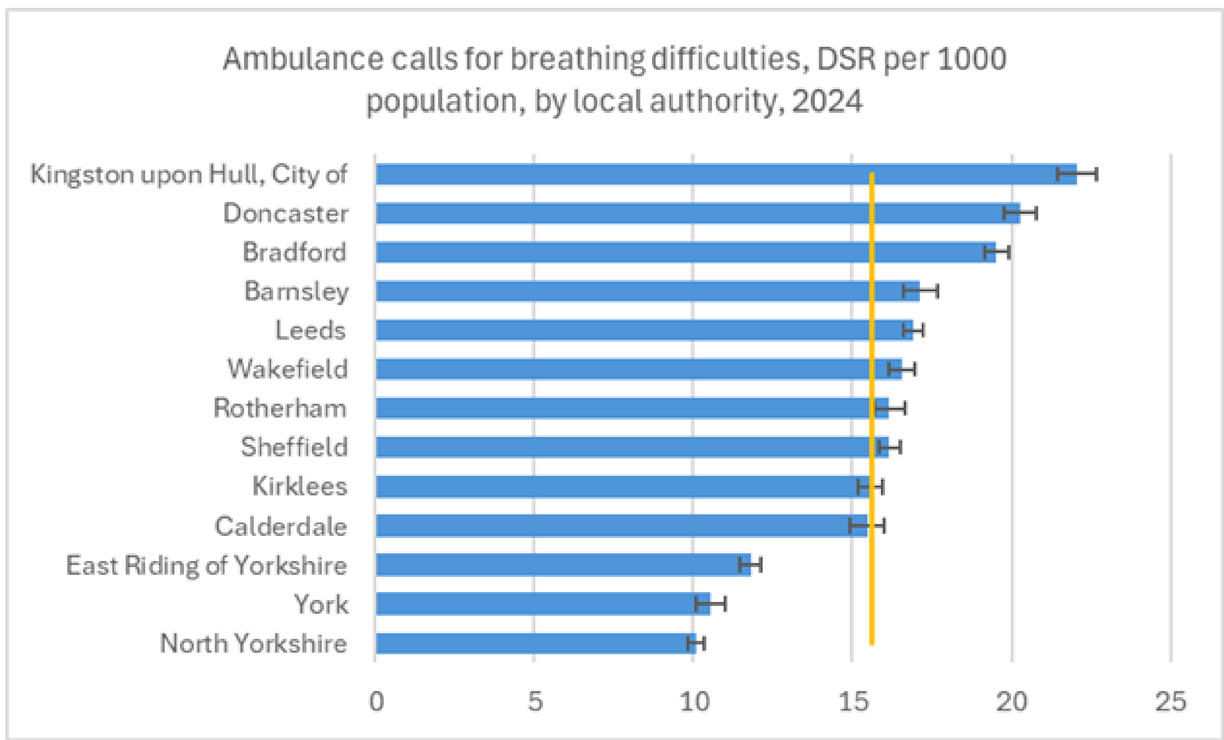
Methods

Retrospective analysis of Yorkshire Ambulance Service (YAS) data, focusing on 83,800 calls for breathing difficulties in 2024. Additional deep- dive analysis was conducted in Leeds using integrated care datasets to understand frequent ED attendances and outcomes.

Key findings

- Calls for breathing difficulties increased 78% since 2021, with clear winter spikes, particularly in the most deprived areas.
- 72% of all calls for breathing problems were conveyed to hospital. Under 18s were more likely to be conveyed than adults (82% compared to 71%) and under 5s were most likely to be conveyed (89%), although national guidance may bias crew behaviours.
- Analysis of the data through a health inequalities lens revealed that 41% of calls came from the most deprived quintile, compared to 9% in the least deprived.
- There is significant variation in the rate of calls by local authority, with the rate of calls in Hull more than twice that in North Yorkshire or York. This correlates with index of multiple deprivation scores.
- ED data showed high rates of low-acuity outcomes. Individual patient-level data analysis revealed an increase in ambulance usage over time indicating the potential to work more collaboratively to deliver more appropriate, preventative care for these individuals.





Next steps

A planned clinical audit will evaluate triage accuracy and the impact of specialist paramedics in urgent care (SPUCs) attending ambulance calls for breathing difficulties. Findings aim to inform more equitable and effective care for patients with respiratory complaints.

Conclusion

This work highlights the intersection of respiratory health, deprivation, and urgent care. By leveraging data and piloting new models of care, we aim to reduce inequalities and improve outcomes for patients with breathing difficulties.