



RESEARCH

INFORMATION

FLAMINGO (Flow of Admissions in children and young people): A MIXED METHODS STUDY



AIMS

1. To understand the flow of short stay (also called zero day) emergency medical admissions for children and young people using routinely collected NHS data in a mixed methods study.
2. To inform priorities for future interventions along paediatric referral pathways.



KEY FINDINGS

- The proportion of all admissions for any diagnosis which were zero day admissions varied between Health Boards
 - Standardisation of care pathways may reduce this regional variability
- 27% of zero day admissions were for children from communities in the lowest quintile of deprivation compared to 13% from the highest deprivation quintile
 - Interventions in deprived communities which improve engagement with primary care may reduce zero day admissions
- Admissions with respiratory infections dominated zero day admissions and were not substantially more or less likely to be admitted through in hours and out of hours Primary Care instead of Emergency Department
 - Interventions across all referral sources which improve competence and confidence in managing respiratory infections may reduce zero day admissions
- GP data were available for 19% of admissions
 - Availability of all GP activity for linkage studies would assist understanding of NHS activity
- Shared outcomes important to health professionals and parents included prioritising safety, relieving anxiety, and resolving uncertainty. Parents valued timely access to experienced paediatric staff. Health professionals acknowledged the need to improve system pathways for pre-hospital care and support for families within the community.
 - These stakeholder findings could inform transformation in NHS services



WHAT DID THE STUDY INVOLVE?

We linked data from 171,039 admissions of <16 year olds between 2015-2017 held on the Scottish hospital admissions database to information collected on the day of admission from referring clinicians in Emergency Departments (ED), in-hours primary care (GP) and out of hours primary care (OOH). The study was approved by the Public Benefit and Privacy Panel. Data were anonymised and were accessed in a secure environment. There were 92,229 zero day admissions (ZDA), i.e. when the child was admitted and discharged on the same day. We identified what the referral source was. We also examined the variation in ZDA across the Health Boards and deprivation categories. To understand the data from our linkage we interviewed 21 parents and 48 healthcare professionals from health boards selected for high, intermediate or low ZDA rates. In September 2021 we held an interactive event at Edinburgh Zoo where we invited participants and stakeholders to discuss the key findings from the study.



WHAT WERE THE RESULTS AND WHAT DO THEY MEAN?

Our study of the child's pathway to hospital found

- The referral source was identified in 54% of admissions (**figure 1**).
- Most of the missing referral source data is explained by GP data being unavailable and by the referral occurring the evening before the admission.
- A substantial number of children have more than one contact with referral sources on the day of admission
- A large proportion of ZDA were for upper and lower respiratory tract infections (**figure 2**).
- Seizures were usually referred by ED. For all other conditions there was no clear evidence for a single referral source
- The number of ZDA (standardised to population) varied across Health Boards (**figure 3**).

Figure 1. A flow chart showing the number of emergency admissions and their referral source

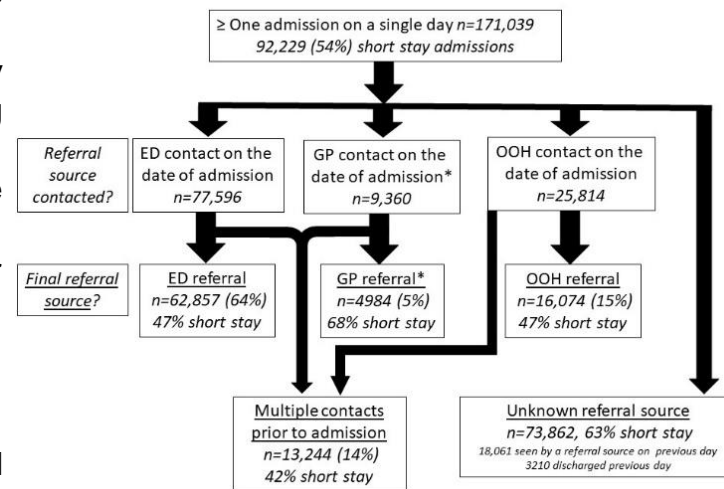


Figure 2. Pie chart showing the relative proportions of Zero Day Admission due to Lower (LRTI) and Upper Respiratory Tract (URTI) Infections and all other conditions

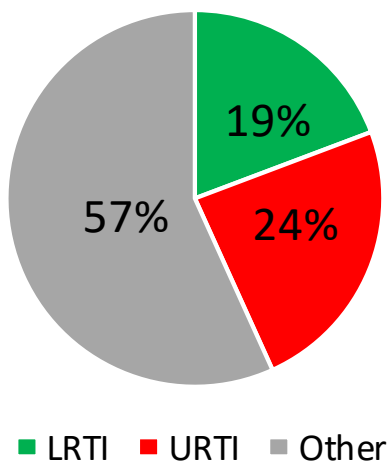
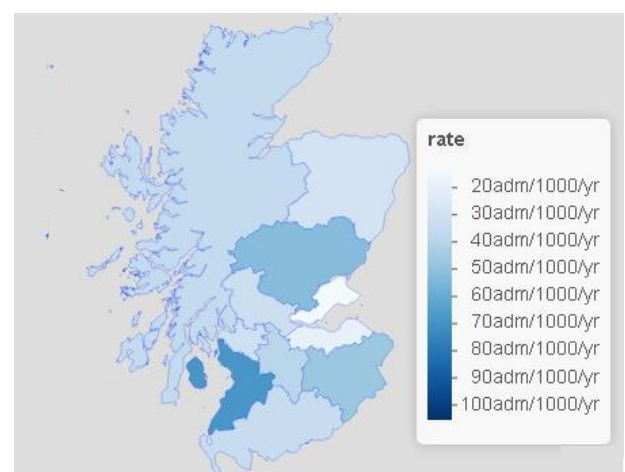


Figure 3. Zero Day Admission rate across Health Boards





WHAT IMPACT COULD THE FINDINGS HAVE?

Short term

- Plans for transforming NHS Scotland services for children and young people at the interface of community and hospital are underway and Flamingo findings are relevant.
- Our results could inform the design of future interventions aimed at improving pathways for care relevant to ZDA.

Longer term

- Our results could inform and support the Scottish Government's Health Improvement policy.
- Our methodology might be applied to other clinical specialties, e.g. care of the elderly.



HOW WILL THE OUTCOMES BE DISSEMINATED?

Throughout 2022 we will publish a series of articles in peer reviewed journals. These articles will describe different aspects of our mixed methods approach to inform the design of interventions which involve parents and a range of front line health professionals. We will present our findings at UK national conferences, e.g. Royal College of Paediatrics and Child Health. We will share our findings with relevant charities and patient organisations, e.g. Child Health Scotland. We will meet with Scottish Government and key stakeholders, e.g. child health commissioners, across the NHS to share our experiences in linking routinely acquired data and our quantitative and qualitative findings.



CONCLUSION

We used data routinely collected by the NHS and interviews with parents and health professionals to provide an in depth understanding of children's different potential pathways from home to an emergency hospital admission. Our findings can be used to inform future interventions and ultimately improve care pathways and outcomes that matter to families, society and the wider NHS



RESEARCH TEAM & CONTACT

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Additional Information

The project ran from Jan 2019 to Dec 2021 and was awarded £291,358

