

University of Leicester
AIM studentship project 2026

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Section 2 – Project Information

Project Title	Exploring Care Pathways in Children with Respiratory Disease Prior to Critical Care Admission: A Data-Driven Approach
Project Summary	
<p>Each year, around 18,500 children are admitted to paediatric intensive care units (PICUs) across the UK and Ireland, with many emergency admissions due to respiratory conditions such as bronchiolitis. Some children may experience multiple healthcare interactions before reaching PICU, yet these care trajectories remain poorly defined or understood.</p> <p>This PhD will use large-scale linked datasets (including Clinical Practice Research Datalink, Hospital Episode Statistics, and the Paediatric Intensive Care Audit Network) to explore how children interact with healthcare services prior to PICU admission. The focus will be on respiratory disease, with particular attention to patterns of GP visits, emergency department attendances, and hospital admissions prior to PICU admission.</p> <p>Using advanced statistical methods such as multistate modelling and sequence analysis, the project will identify pathways and risk factors associated with PICU admission. It will also examine inequalities in access and outcomes, including differences by ethnicity and socioeconomic status.</p> <p>The findings from this PhD will inform opportunities for earlier intervention and improved recognition of deterioration, contributing to safer paediatric care. This is a data-driven project suited to candidates with strong quantitative skills and an interest in child health. The student will benefit from high quality supervision from the Universities of Leicester and Nottingham.</p>	
References	
<p>1: Paediatric Intensive Care Audit Network, State of the Nation 2024: https://www.picanet.org.uk/annual-reporting-and-publications/</p> <p>2: Mitchell H; Seaton SE et al. Contribution of ethnicity and deprivation to paediatric critical care outcomes in the UK, 2008–21: a national retrospective cohort study. Lancet Child and Adolescent Health (online first)</p>	