**University of Leicester**

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| **Project Reference** | BRC Studentships |

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**Section 2 – *Project Information***

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| **Project Title** | ​Post-infectious bronchiolitis obliterans (PIBO) in Children – epidemiology, differences in care, and risk factors for poor outcomes, a mixed methods study​ |
| **Project Highlights:** | 1. | PIBO is a rare lung disease in children with a death rate as high as 10%. In the UK we do not know how many children get PIBO, who is more at risk, or how best to treat it. This study will try to answer these questions and improve how children with PIBO are cared for |
| 2. | The prospective PhD student will gain experience in epidemiological, data science, and systematic review methodology, protocol development, research governance, and communication of research findings |
| 3. | This PhD is supervised by a multidisciplinary team of experienced clinicians and researchers with expertise in clinical medicine, epidemiology, medical statistics, and qualitative methodology |
| **Project Summary**  |
| Post-infectious bronchiolitis obliterans (PIBO) is a rare complication seen in children following a respiratory infection. An abnormal response to the initial infection results in persistent inflammation of the airways (breathing tubes), leading to permanent damage and impaired lung function. PIBO can be a cause of significant morbidity, recurrent healthcare attendances, and poor quality of life, with mortality reportedly as high as 10% by three and a half years in non-UK studies. However, in the UK we do not know how many children get PIBO, who is more at risk, what treatments to use, at what dose, or for how long. The purpose of this PhD project is to address these questions using a combination of systematic review, qualitative, and data science methodologies. We aim to identify groups of children at higher risk of developing PIBO, those likely to have a poorer prognosis, and differences in treatment strategies currently used for PIBO in the UK. The project plan will consist of three parts:1. Systematic review to identify current evidence-based recommendations for PIBO management in children
2. Qualitative study (survey, semi-structured interviews, and workshops) of UK practice for the management of PIBO in children to explore:
	1. Diagnostic criteria
	2. Treatment strategies
	3. Follow up arrangements
	4. Research priorities
3. Epidemiological study using electronic health data from the Clinical Practice Research Datalink (CPRD) to:
	1. describe the prevalence, incidence and outcomes (inc. mortality) of children diagnosed with PIBO and how these differ between children from different ethno-socio-economic backgrounds
	2. identify predictors for poorer clinical outcomes, to include: mortality, more frequent hospital visits, prolonged oxygen requirement​

It is anticipated that the data from this study will identify gaps in knowledge and differences in care between hospitals, and emphasize the need for a joined up UK approach towards further research, patient registration, and treatment of PIBO in children; and to provide the supporting evidence for a future interventional study to identify the optimal treatment strategy for PIBO, reduce differences and inequalities in care, and improve long-term outcomes for this condition. |
| **References**                                                                                                                                        Flanagan F, Casey A, Reyes-Múgica M, Kurland G. Post-infectious bronchiolitis obliterans in children. Paediatr Respir Rev. 2022 Jun;42:69-78. doi: 10.1016/j.prrv.2022.01.007.Jerkic SP, Brinkmann F, Calder A, Casey A, Dishop M, Griese M, Kurland G, Niemitz M, Nyilas S, Schramm D, Schubert R, Tamm M, Zielen S, Rosewich M. Postinfectious Bronchiolitis Obliterans in Children: Diagnostic Workup and Therapeutic Options: A Workshop Report. Can Respir J. 2020 Jan 30;2020:5852827.​ |