**University of Leicester**

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| **Project Reference** | BRC Studentships |

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| **First Supervisor** | Dr Rachael Evans |
| **School/Department** | Respiratory Sciences |
| **Email**  | ​re66@le.ac.uk ​ |

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| **Second Supervisor** | Tom Yates |
| **School/Department** | Diabetes Research Centre |
| **Email**  | ​ty20@leicester.ac.uk ​ |

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| **Additional Supervisor** | Claire Lawson |

**Section 2 – *Project Information***

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| **Project Title** | ​​Identification, trajectory, and risk factors for physical inactivity after a hospitalisation from COVID-19: Association with Long Covid and newly acquired conditions  |
| **Project Highlights:** | 1. | Identify a target population with Long Covid for physical activity interventions  |
| 2. | Potential to directly inform NICE Long Covid living guidelines and to NHS-E for recommendations to clinical care |
| 3. | Opportunity to conduct research on the largest post-hospitalisation for COVID-19 study in the UK from the start of the pandemic |
| **Project Summary**  |
| **Background**: ​The majority of people post-hospitalisation for COVID-19 (PHOSP-COVID) do not feel fully recovered at one year post-discharge. Daily physical activity levels were not closely associated with the severity of acute illness at five months post-discharge indicating that other factors are involved, but patients describe reducing physical activity to avoid fatigue, breathlessness and post-exertional symptom exacerbation. Currently, the longer-term trajectory of physical activity and newly acquired long term conditions post-COVID is unknown. Similarly, health inequalities are likely an important factor developing Long Covid and newly acquired conditions post-covid, and physical inactivity is a likely mediator, but evidence is limited. **Research Plan**: ​This project will use the existing PHOSP-COVID cohort and will extend assessments to collect remote patient reported outcome measures and physical activity data at 4-5 years post-discharge (2024-2026). Control populations will be selected from UK biobank and the COVIDENCE study. Formal statistical analysis plans will be developed alongside the student, supervisors and collaborating teams (including statisticians).  Analyses will include:1. A trajectory analysis concentrating on 5-month to 1-year data, with further analysis in the students 3rd year using the longer term follow-up data. Risk factors for low and worsening physical activity will be identified. Trajectory and risk factors will be compared between Long Covid or not, and to control populations. An exploratory analysis around the association of major symptoms and physical activity levels will also be completed.
2. A mediated analysis to understand the relationship between physical activity levels and newly acquired conditions at 1 year+. Using linked GP records, the analysis for newly acquired conditions will be extended to 4-5 year​s post-discharge.
3. Measurement properties of the health related, quality of life and GP physical activity questionnaires will be validated using objective measures of physical activity (accelerometer) and responsiveness assessed in PHOSP COVID follow-up assessments.

 **Expected outcomes and impact**: ​The project will help describe a target population of people with Long Covid for physical activity interventions with a focus on health inequalities and make recommendations on how to identify these people in clinical care. ​The results will be disseminated rapidly for the NICE Long Covid living guidelines and to NHS-E to inform recommendations for clinical care.  |
| **References** |