**Funding Source:** Wellcome Trust

**Proposed start date:** 01.10.2024

**Eligibility:** UK applicants only

**Department/School:** Loughborough University, School of Sport, Exercise and Health Sciences. National Centre for Sport and Exercise Medicine

**Supervisors:** Prof. Nicolette Bishop ([N.C.Bishop@lboro.ac.uk](mailto:N.C.Bishop@lboro.ac.uk)), Prof. David Stensel ([D.J.Stensel@lboro.ac.uk](mailto:D.J.Stensel@lboro.ac.uk)), Prof. Alice Smith ([aa50@le.ac.uk](mailto:aa50@le.ac.uk)), Dr Nicola Paine ([N.J.Paine@lboro.ac.uk](mailto:N.J.Paine@lboro.ac.uk)), Dr Natalie Darko ([dd253@le.ac.uk](mailto:dd253@le.ac.uk))

**Project Title:** Influence of socioeconomic status, obesity and physical activity on seasonal influenza severity and flu vaccine antibody responses.

**Project Description:** The socioeconomic burden of influenza infection is considerable, resulting from large demand for primary care consultations, high numbers of hospital admissions, and illness absence from work and school. Severe influenza infections remain a major cause of death among vulnerable people over winter. Flu vaccinations provide protection from severe infection, but the protective response is lower in obesity and in those with an inactive lifestyle. Socioeconomic inequalities in flu vaccine uptake are known, but the influence of socioeconomic status on vaccine antibody responses for those who have had the seasonal flu vaccine is unknown. This is despite lower socioeconomic status being associated with higher incidence of obesity and a less active, more sedentary lifestyle. This PhD will investigate the relationships between socioeconomic status, obesity and physical activity on seasonal influenza severity and flu vaccine antibody responses. The project will integrate clinical assessments, quantitative laboratory-based measures of vaccine efficacy and qualitative methods to assess public perception of proposed strategies to improve vaccine responses. The successful candidate will be based in the National Centre for Sport and Exercise Medicine (NCSEM) at Loughborough University, working within the lifestyle theme of the NIHR Leicester Biomedical Research Centre and supported by leading experts in the field. .

**References:**

1. Watkinson RE, et al. Evaluating socioeconomic inequalities in influenza vaccine uptake during the COVID-19 pandemic: A cohort study in Greater Manchester, England. PLoS Med. 2023 20(9):e1004289, 2023.

2. Fragaszy EB, et al. Effects of seasonal and pandemic influenza on health-related quality of life, work and school absence in England: Results from the Flu Watch cohort study. Influenza other respir viruses, 12(1), 171–182, 2018.

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5. Neidich SD, Increased risk of influenza among vaccinated adults who are obese. Int J Obesity 41(9), 1324–1330, 2005.

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9. Gidlow C, et al. A systematic review of the relationship between socio-economic position and physical activity. Health Ed J, 65(4), 338-367, 2006.

10. Paudel S, et al. Do associations of physical activity and sedentary behaviour with cardiovascular disease and mortality differ across socioeconomic groups? A prospective analysis of device-measured and self-reported UK Biobank data. Brit J Sports Med 57(14), 921–929, 2023.

11. Cheetham NJ, et al. Antibody levels following vaccination against SARS-CoV-2: associations with post-vaccination infection and risk factors in two UK longitudinal studies. Elife 12:e80428, 2023.

12. Lai KY, et al. The associations of socioeconomic status with incident dementia and Alzheimer's disease are modified by leucocyte telomere length: a population-based cohort study. Sci Rep. 13(1):6163, 2023.

**Funding details:**

*Students on this programme will be supported by a generous funding package. This will include:*

* *Postgraduate research fee waiver at standard College of Life Sciences UK rates for three years of the PhD*
* *Wellcome Trust stipend covering your salary for all three years of the PhD*
* *Research grant for training, research and travel costs*

**Entry requirements:**

Applicants are required to hold/or expect to obtain a UK Bachelor Degree 2:1 or better in a relevant subject. UK Bachelor Degree 2:2 may be considered, subject to approval from the Dean of the Doctoral College.

The University of Leicester [English language](https://le.ac.uk/study/research-degrees/entry-reqs/eng-lang-reqs) requirements apply where applicable.

This programme is open to:

* allied health professionals
* nurses
* midwives
* junior doctors
* general practitioners

Fellows recruited to the programme must be practicing healthcare professionals and be registered with a national professional regulatory body (e.g. the General Medical Council, Health and Care Professions Council) in the UK/Republic of Ireland.

Medical graduates must be registered on a UK/Republic of Ireland specialist training programme or must be a registered GP.

All fellows must have completed their undergraduate degree and be registered with the relevant professional body.

**Application advice:**

For full application advice, please go to: <https://le.ac.uk/study/research-degrees/healthcare-inequalities/application-help>.

To apply, please go to: <https://le.ac.uk/study/research-degrees/funded-opportunities/leicestershire-healthcare-inequalities-improvement-dtp>

With your application, please include:

* Full up to date CV
* Personal statement of 700 words (excluding references). For detailed instructions on what we will be looking for in your personal statement and your CV, please review the guidance here: <https://le.ac.uk/study/research-degrees/healthcare-inequalities/application-help>. **Please do not exceed the word limit, as your application may be delayed.**
* Degree Certificates and Transcripts of study already completed and if possible transcript to date of study currently being undertaken
* Evidence of English language proficiency if applicable
* In the reference section please enter the contact details of your two academic referees in the boxes provided or upload letters of reference if already available.
* A filled out Widening Participation Questionnaire

In the funding section please specify that you wish to be considered for **Wellcome Trust LHII DTP**

In the proposal section please provide the name of at least one or at most two of the projects you are interested in (please indicate title and name of supervisor). The first project you list will be taken to be your preferred choice.

Upload the Widening Participation form (found on the above link) to the proposal section

**Project / Funding Enquiries to:** [**lhiip@leicester.ac.uk**](mailto:lhiip@leicester.ac.uk)

**Application enquiries to** [**pgradmissions@le.ac.uk**](mailto:pgradmissions@le.ac.uk)

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