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PRIMARY CARE RESEARCH CENTRE

University of Southampton

2026 PhD opportunity

funded by NIHR School for Primary Care Research (SPCR)
and Primary Care Research Centre, University of Southampton

This award is offered at the Primary Care Research Centre, University of Southampton, one of nine Universities with SPCR

Within the Primary Care Research Centre at the University of Southampton, we have two PhD projects on offer, listed below. If you have other project ideas, we suggest you get in touch with the most suitable supervisor https://www.southampton.ac.uk/primarycare/about/people.page to discuss your project idea or contact Mark Lown M.Lown@soton.ac.uk with your idea.

Projects available

Project title:

Improving support for using saline sprays for respiratory tract infections

Proposed supervisor:

- Professor Paul Little (clinical and quantitative expertise)

Project contact: Professor Paul Little, P.Little@soton.ac.uk

Project description:

The Immune Defence (ID)trial[1,2] (n=13799; from the PGfAR RECUR programme) in individuals at higher risk from RTIs (those eligible for influenza vaccination) demonstrated that intervening in the upper airway using isotonic saline nasal spray reduced RTI illness days (by 20%) and days of normal activity lost. Those with self-reported asthma or COPD (n=1794) possibly benefitted more (25% fewer illness days; 10% fewer infections), but this was a post-hoc exploratory subgroup analysis. There was only moderate intervention adherence (particularly poor for preventive use), but the subsequent process analysis found key addressable issues that could maximise engagement/motivation and embed saline use in daily routines - which can also be bolstered by citing the powerful antiviral mechanism (epithelial cells use chloride, generating hypochloric acid, inhibiting viral replication[3,4]). Hypertonic saline is also likely to be more effective [3,4] than the isotonic saline ID used.[1,2] Thus the potential for saline sprays to help ease NHS winter pressures has not been fully realised. There are three key groups who could feasibly benefit from using saline, and in each group the advice and support would require modification:

1. People at highest risk with Asthma and COPD: these are prevalent chronic illnesses (respectively 5.7%, 6.7%). There are upper airways symptoms between exacerbations, and exacerbations are due to viral respiratory infections which further increase upper airways inflammation. 13% and 47% respectively have exacerbations annually in the UK- commonly

fuelling inappropriate antibiotic prescription [5,6] and resistance[7] - and are one of the commonest reasons for hospital admission.

2. The general population: reduced social distancing mid winter. Most adults in the general population have significantly reduced social distancing over Christmas/early January with high ARI viral exposure/incubation - ARIs commonly peaking in late December (for 2023/4 and 2024/5)[8,9] . Reported ARIs in the community strongly correlate with GP attendance and hospital admission (with a lag)[8], and a bounce back of hospital admissions in early January[10], contributing significantly to winter pressures.

3. NHS staff: The biggest rise in NHS staff sickness days in both primary care secondary care in the last few years is due to respiratory infections (a range of winter viruses, including COVID) (Nuffield Trust 2022). *Finding inexpensive strategies to prevent illness incidence and severe illness tailored to each of these three groups above could significantly reduce NHS winter pressures.*

Aim: To develop support materials to use saline in each of the three target groups.

Methods: The proposed research will include the following:

1. PPIE – community outreach with underserved groups
2. Qualitative studies. The advice for each group above will be optimised using the Person-Based Approach[11], ensuring advice is accessible, acceptable and inclusive. We will ensure variation in age, illness severity, gender, SES/deprivation indices, and ethnicity when interviewing: 1)15-20 adults with asthma or COPD.
   2) 15-20 people from the general population who have had ARIs during the Christmas/New Year period and 15-20 primary care health care staff who had time off due to ARIs in the previous winter. Interviews in each group will also be informed by both Normalisation Process Theory and the ReAIM framework[12].
3. Feasibility study. The participants in the above studies would be asked to use saline over one winter period (year 2) and re-interviewed to understand and further issues for use or implementation that require modification prior to wider implementation (year 3).

Training plan:

The training plan will be informed by an analysis of the academic needs of the PhD candidate carried out in the first month. Training will be directed towards helping the candidate develop as an independent researcher, as well as towards the needs of the PhD project. Depending on the experience of the candidate they will undertake a course on the use of the Person Based Approach. The formal taught postgraduate research training programme at the University of Southampton also includes research governance, study design, and transferable skills courses - including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The Fellow will also be able to access free on-line masterclasses on research governance, ethics, patient and public involvement and engagement, developed by leaders in the SPCR. The PhD candidate will also have access to informal mentoring and support.

References:

1. Dennison L, Williamson S, Greenwell K, et al. Patient perceptions of vulnerability to recurrent respiratory tract infections and prevention strategies: a qualitative study. *BMJ Open* 2022; **12**(4): e055565.
2. Little P, Vennik J, Rumsby K, et al. Nasal sprays and behavioural interventions compared with usual care for acute respiratory illness in primary care: a randomised, controlled, open-label, parallel-group trial. *Lancet Respir Med* 2024.
3. Ramalingam S, Cai B, Wong J, et al. Antiviral innate immune response in non-myeloid cells is augmented by chloride ions via an increase in intracellular hypochlorous acid levels. *Scientific reports* 2018; **8**(1): 13630.
4. Ramalingam S, Graham C, Dove J, Morrice L, Sheikh A. A pilot, open labelled, randomised controlled trial of hypertonic saline nasal irrigation and gargling for the common cold. *Scientific reports* 2019; **9**(1): 1015.
5. Denholm R, van der Werf ET, Hay AD. Use of antibiotics and asthma medication for acute lower respiratory tract infections in people with and without asthma: retrospective cohort study. *Respir Res* 2020; **21**(1): 4.
6. Stolbrink M, Bonnett LJ, Blakey JD. Antibiotics for COPD exacerbations: does drug or duration matter? A primary care database analysis. *BMJ Open Respir Res* 2019; **6**(1): e000458.
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8. Green RM, J; Rawlinson,C; Waller,E; Abdul Aziz, N; Watson,C; Dabrera,G. Monitoring influenza-like symptoms in the UK through participatory surveillance: insights from FluSurvey over two winter seasons (2023-24 and 2024-25) *medRxiv* 2026.
9. Martin LJ, Im C, Dong H, et al. Influenza-like illness-related emergency department visits: Christmas and New Year holiday peaks and relationships with laboratory-confirmed respiratory virus detections, Edmonton, Alberta, 2004-2014. *Influenza and other respiratory viruses* 2017; **11**(1): 33–40.
10. NHSEngland. Bounce back in winter viruses as NHS top doctor warns 'the worst is far from over' https://www.england.nhs.uk/2026/01/bounce-back-in-winter-viruses-as-nhs-top-doctor-warns-the-worst-is-far-from-over/, 2026.
11. Yardley L, Ainsworth B, Arden-Close E, Muller I. The person-based approach to enhancing the acceptability and feasibility of interventions. *Pilot and feasibility studies* 2015; **1**: 37.
12. Dalkin SM, Hardwick RJL, Haighton CA, Finch TL. Combining Realist approaches and Normalization Process Theory to understand implementation: a systematic review. *Implement Sci Commun* 2021; **2**(1): 68.

Project title:

Improving women's health and wellbeing through preventing recurrent UTI at all ages

Proposed supervisor:

- Professor Miriam Santer

Project contact: Professor Miriam Santer M.Santer@soton.ac.uk

Project description:

Background

Around 40% of women have at least one urinary tract infection (UTI) in their lifetime.[1, 2] Recurrent UTI is defined as two or more UTIs in the last six months or three or more in the last 12 months,[3] and affects approximately 6% of women.[4] Recurrent UTI has substantial impact on quality of life, including sleep, fatigue, anxiety or depression, relationships, and other activities, partly due to needing to be near a toilet,[5] and leads to substantial antibiotic use.[4]

International guidelines on non-antibiotic prevention of recurrent UTI offer conflicting guidance about preventative measures, particularly behavioural measures such as dietary and hygiene advice.[3] A recent review of systematic reviews of non-antibiotic interventions for recurrent UTI shows limited evidence, except vaginal oestrogen for menopausal women and methenamine Hippurate, and increased fluid intake for women with low intake.[6]

Currently it is impossible to give women with recurrent UTI evidence-based self-management information. Non-evidence-based guidance is confusing and unhelpful. The personal nature of hygiene advice appears to lead to women blaming themselves for infections.[5]

Aim

To improve women's health by exploring how best to support them in preventing recurrent UTIs through non-antibiotic approaches.

Methods and specific objectives

Proposed research will depend on the academic background and interests of the PhD candidate but may include the following:

1. Systematic review of qualitative research on prevention of recurrent UTI
2. Analysis of routinely collected data on recurrent UTI, with a particular focus on drug survival for preventative treatments such as vaginal oestrogen, methenamine Hippurate and antibiotics.
3. PPIE – particularly community outreach with underserved groups
4. Qualitative interview study with women about views, experiences and acceptability of behavioural and other measures to prevent recurrent UTI

5. Intervention planning and iterative development with think aloud interviews
6. Delphi study of clinicians around advice for behavioural measures to prevent recurrent UTI

Training plan

The training plan will be informed by an analysis of the academic needs of the PhD candidate carried out in the first month. Training will be directed towards helping the candidate develop as an independent researcher, as well as towards the needs of the PhD project.

The formal taught postgraduate research training programme at the University of Southampton includes epidemiology, statistics, research governance and study design. In addition transferable skills courses are offered including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The Fellow will also be able to access free on-line masterclasses on systematic reviews and meta-analysis, research governance, ethics, patient and public involvement and engagement, developed by leaders in the SPCR.

The PhD candidate will also have access to informal mentoring and support.

References

1. Foxman B. Epidemiology of urinary tract infections: incidence, morbidity, and economic costs. The American journal of medicine. 2002;113(1):5–13.
2. Butler CC, Hawking MK, Quigley A, McNulty CA. Incidence, severity, help seeking, and management of uncomplicated urinary tract infection: a population-based survey. British Journal of General Practice. 2015;65(639):e702–e7.
3. Kwok M, McGeorge S, Mayer-Coverdale J, Graves B, Paterson DL, Harris PN, et al. Guideline of guidelines: management of recurrent urinary tract infections in women. BJU international. 2022;130:11–22.
4. Sanyaolu L, Best V, Cannings-John R, Wood F, Edwards A, Akbari A, et al. Recurrent urinary tract infections and prophylactic antibiotic use in women: A cross-sectional study in primary care. British Journal of General Practice. 2024.
5. Sanyaolu LN, Hayes CV, Lecky DM, Ahmed H, Cannings-John R, Weightman A, et al. Patients' and Healthcare Professionals' Experiences and Views of Recurrent Urinary Tract Infections in Women: Qualitative Evidence Synthesis and Meta-Ethnography. Antibiotics. 2023;12(3):434.
6. Santer M, Miller S, Fraser S, Francis N, Lown M, Becque T, et al. Non-antibiotic interventions to prevent recurrent urinary tract infections in women: overview of systematic reviews of randomised controlled trials. Research Square pre-print, under review at BJGP. 2026.