SPCR internships 2026 - project proposal

Supervisors:

Jacqueline Murphy (Postdoctoral Medical Statistician) & Annika Theodoulou (Researcher), Nuffield Department of Primary Care Health Sciences, University of Oxford

Project title:

An evidence synthesis of publicly available risk prediction tools to complement cancer screening

Project description:

Cancer screening programmes aim to identify cases of cancer or pre-cancer in the general population in order to prevent future disease or to improve treatment outcomes by detecting disease at an earlier stage. Recent advances in digital health innovations have resulted in a growing number of digital tools, including smartphone and web apps, which have the potential to benefit cancer screening by providing information about cancer risks directly to patients and the public [1, 2].

The aim of the project will be to synthesise existing evidence on digital tools designed to complement cancer screening programmes, focusing on tools that can be used by patients and the public and which incorporate a risk prediction component. The review will aim to summarise: 1) methods used to develop the risk prediction tools [3, 4], 2) predictive performance of the models [3], and 3) impact of the digital tools on the effectiveness of cancer screening. Depending on the number of articles identified in preliminary literature searches the project scope may be modified by restricting to selected cancer types, settings (e.g. country), or measures of impact. It is intended that the completed review will be submitted for publication.

The intern will be involved in all stages of the review including designing and performing literature searches, article screening, data extraction, and writing. The project will provide practical experience of evidence synthesis methodology and enable the intern to learn about digital health and risk prediction in the context of cancer prevention.

Eligibility:

This project would be equally suitable for either clinical or non-clinical applicants.

References:

[1] Westerlinck P and Coucke P. Review of interactive digital solutions improving health literacy of personal cancer risks in the general public. Int J Med Inform. 2021;154:104564.
[2] Lau J, Ng A, Wong GJ, Siew KY, Tan JKH, Pang Y, et al. How effective are digital technology-based interventions at promoting colorectal cancer screening uptake in average-risk populations? A systematic review and meta-analysis of randomized controlled trials. Prev Med. 2022;164:107343.
[3] Collins GS, Moons KGM, Dhiman P, Riley RD, Beam AL, Van Calster B, et al. TRIPOD+AI statement: updated guidance for reporting clinical prediction models that use regression or machine learning methods. BMJ. 2024;385:e078378.
[4] Moons KGM, Damen JAA, Kaul T, Hooft L, Andaur Navarro C, Dhiman P, et al. PROBAST+AI: an updated quality, risk of bias, and applicability assessment tool for prediction models using regression or artificial intelligence methods. BMJ. 2025;388:e082505.