



QResearch News Update Spring 2023

In this edition

- New tool uses existing health records to predict people's risk of developing lung cancer
- Ethnicity, COVID-19 and glucose-lowering medications.
- Dysmenorrhoea case-control study
- QResearch shines light on neuropsychiatric COVID 19 complications
- COVID-19 and blood cancer
- QResearch team awards

New tool uses existing health records to predict people's risk of developing lung cancer within the next 10 years

A team of researchers from the University of Oxford and the University of Nottingham (funded by INNOVATE & CRUK UK) have developed a new tool, called 'CanPredict', able to identify the people most at risk of developing lung cancer over the next 10 years, and put them forward for screening tests earlier, saving time, money and, most importantly, lives.

Dr Weiqi Liao (pictured), lead author on the publication and a data scientist in the Nuffield Department of Primary Care Health Sciences, University of Oxford, said: 'Our tool, CanPredict, works by examining existing patient health records, so it could be run on a per GP surgery basis or nationally, automatically and objectively prioritising patients and alerting their GPs that they might benefit from further screening.'



To develop the new tool the researchers used two separate sets of health record data. Using the [QResearch Database](#) (which, in total, contains the anonymised health records of over 35 million patients, spanning all ethnicities and social groups across the UK) to identify 13 million people aged between 25 to 84 among whom 73,380 had a diagnosis of lung cancer. They then looked back through their health records to identify common factors which might be used to statistically predict their risk of developing the cancer. Factors such as smoking, age, ethnicity, body mass index, medical conditions and social deprivation (and others) were considered as part of the analysis.

Next Issue

We hope that you are enjoying our newsletters. We think that they are a great opportunity to feature some of the wide-ranging projects that have been enabled by access to QResearch data.

To feature your research news here, please email Claire Meadows at

pa-Julia.hippisleycox@phc.ox.ac.uk

Professor Julia Hippisley-Cox, senior author and Professor of Clinical Epidemiology and General Practice and the Nuffield Department of Primary Care Health Sciences, University of Oxford, said: 'Improving early diagnosis of lung cancer is incredibly important both for the NHS but especially for patients and their families. anonymised data for research without whom this would not have been possible.'

Professor Fergus Gleeson, co-author of the study and Professor of Radiology in the Department of Oncology at the University of Oxford, said:

Around 48,500 people are diagnosed with lung cancer each year in the UK. In its early stages, there are usually no obvious signs or symptoms, and it can go undetected for some time. Using a technique called low-dose computerised tomography (CT) for lung cancer screening we can catch this disease and treat it earlier, and that improves people's outcomes.

The researchers plan to make the tool publicly available for use, subject to further funding for implementation in day-to-day practice and to ensure Medicines and Healthcare Products Regulatory Agency (MHRA) medical device compliance.

[Ethnicity and risks of severe COVID-19 outcomes associated with glucose-lowering medications: A cohort study](#)

QResearch team researchers on this project included Dr Defne Saatci and Dr Ash Clift (pictured).

During the early phases of the COVID-19 pandemic, diabetes became associated with a poorer prognosis, with an approximately three-fold increased risk of a COVID-19 death in those with diabetes compared with those without. In an effort to understand this association, there was an increasing interest in the role of glucose-lowering medications on the risk of COVID-19 outcomes, given their pharmacological differences and potential direct effect on shared immunometabolic pathways

Alongside the role of diabetes, multiple large observational studies also showed higher risks of COVID-19-related hospitalization, intensive care unit admission and death in people from ethnic minority populations

Although poor glycaemic control has been linked to a higher risk of death in people with COVID-19 and studies have reported several potential mechanisms through which DPP-4i, SGLT-2i, GLP-1RA or MF may increase or lower the risk of COVID-19 complications,^{4,9,10} current evidence does not suggest a large excess in the absolute risk of COVID-19 mortality in relation to specific glucose-lowering medications.⁵ Moreover, two randomized controlled trials in hospitalized patients with type 2 diabetes and COVID-19 indicate no difference in clinical improvement comparing the DPP-4i linagliptin to standard care,¹¹ and in organ dysfunction or death comparing the SGLT-2i dapagliflozin with placebo.

This study was funded by the Medical Research Council . The full published paper can be seen [here](#)



[Exploring the interface between adolescent dysmenorrhoea and endometriosis: a protocol for a cohort and nested case-control study within the QResearch Database](#)

Dr Sharon Dixon, an NIHR doctoral fellow, (pictured) writes in this [newly published paper](#)

Dysmenorrhoea affects up to 70%–91% of adolescents who menstruate, with approximately one-third experiencing severe symptoms with impacts on education, work and leisure. Dysmenorrhoea can occur without identifiable pathology, but can indicate underlying conditions, including congenital genital tract anomalies or endometriosis. There is a need for evidence about the management and incidence of dysmenorrhoea in primary care, the impact of treatments in adolescence on long-term outcomes and when to consider the possibility of endometriosis in adolescence.

Understanding more about which adolescents with dysmenorrhoea to refer for further investigations is critical to improving care journeys. Knowing more about the impacts of treatment with hormonal medications in adolescence is also crucial to inform guidance for adolescents, their families and health professionals who look after them.

The aims of this project align with health policy within the Women's Health Strategy which reinforces the need for awareness and resources to support menstrual well-being and care for those with endometriosis. This approach will bridge and add to existing literature, which does not focus on the primary care interface crucial to accessing care in the UK health system.

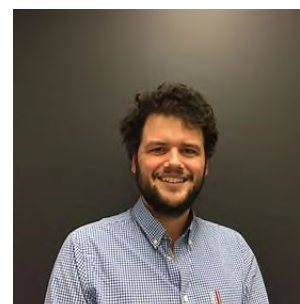


[Pre-existing Neuropsychiatric Conditions and Associated Risk of Severe COVID-19 Infection and Other Acute Respiratory Infections—a QResearch Study](#)

Dr Tom Ranger (pictured) writes in this [newly published paper](#) from a Wellcome Trust funded study.

As COVID-19 becomes endemic, it is critical to understand which medical conditions and treatments may predispose to more severe disease. Furthermore, understanding whether neuropsychiatric conditions contribute to a generalized increase in risk for acute respiratory illness or whether this risk is disease specific is important for ongoing management of individuals and health systems. This study aimed, therefore, to evaluate the associations of pre-existing neuropsychiatric conditions and treatments with COVID-19 outcomes compared to those with SARI.

Findings from the current cohort study suggest that people with neuropsychiatric conditions and/or associated pharmacological treatments have an associated increased risk of severe outcomes from COVID-19 infection and other SARIs.



About QResearch

QResearch is a large consolidated database derived from the anonymised health records of over 35 million patients.

The data currently come from approximately 1500 general practices using the EMIS clinical computer system.

The practices are spread throughout the UK and include data from patients who are currently registered with the practices as well as historical patients who may have died or left.

Historical records extend back to 1989, making it one of the largest and richest general practice databases in the world.

Founder Julia Hippisley-Cox is based at Nuffield Department of Primary Health Sciences, Medicine Sciences Division, University of Oxford.

www.qresearch.org

QResearch Team Members Win Prizes For Presentations

QResearch Research Fellow Emma Copland scooped a Best Presentation Prize at the SW SAPC in March 2023. Emma (pictured). Her work primarily focuses on uptake, safety and effectiveness of COVID-19 vaccination in different groups across the UK population.

Dr Defne Saatci won the award for Best Lay Summary at the CRUK Oxford Centre Symposium for her lay summary on "Identifying early symptoms associated with a diagnosis of childhood, adolescent and young adult cancers: a population-based nested case-control study".



Uptake of COVID-19 vaccination in people with blood cancer: Population-level cohort study of 12 million patients in England

Dr Jennifer Hirst writes in this newly published QResearch paper

People with haematological malignancies are at increased risk of severe outcomes from COVID-19 including hospitalisation and death. Non-cancerous blood disorders, such as sickle cell disease, may also be linked to poor outcomes following severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.

Individuals aged 12 years and above on 1st December 2020 (immediately prior to start of the UK COVID-19 vaccination programme), who were eligible for vaccination and were registered with a general practice contributing data to the QResearch database, were included in the analysis. The study period was from 1st December 2020 to 11th April 2022, the latest date for which linked data was available at the time of the analysis.

The results were presented in this poster at SWSAPC conference in Birmingham in March (south west regional conference for the society of academic primary care)

