Care Research and supported by NIHR Research

4B.4 CREATIVE PIECE: Lost in translation

Presenter: Najma Ahmed

Co-authors:

Institutions: King's College London

Abstract

Our enquiry piece is titled Lost in Translation and this was inspired by observing the difficulties faced by non-English speaking patients in both the GP surgery waiting rooms and in the consultations. We were placed in a London GP for a year where the majority of patients were from Turkish, Polish and Somali backgrounds. In most of the consultations we'd seen, there would be some aspect of translation needed - whether that be from family members or requesting translation services. We decided to do two poems - one from a staff perspective and one from a patients. We also interviewed some patients and this gave us the insight to create these poems. Although the UK has free healthcare, the language barriers that exist mean that important information and understanding may be lost in the translation process. I believe our creative piece ties in with the themes of the conference because firstly, primary care generally across the UK experiences such issues and secondly, a language barrier and lack of understanding would prevent "living and dying well" and as such, is very important to highlight.

4B.5 A dynamic prediction model for early detection of colorectal cancer using routine blood test results from primary care

Presenter: Pradeep S. Virdee

Co-authors: Pradeep S. Virdee, Jacqueline Birks, Tim Holt

Institutions: Centre for Statistics in Medicine (NDORMS, University of Oxford, Oxford, UK), Nuffield Department of Primary Care Health Sciences (University of Oxford, Oxford, UK)

Abstract

Problem

Colorectal cancer is the fourth most common type of cancer in the UK. It develops gradually in the bowel lining. Around 55% of patients are diagnosed at a late stage (Stage 3 and 4), where likelihood of survival is reduced: five-year survival is 93% at Stage 1 versus 10% at stage 4. This highlights the importance of early detection. The full blood count (FBC) is a common blood test in primary care. Some FBC indices, including haemoglobin, mean cell volume, and platelet count, are known to change over time as the cancer develops. We built a dynamic prediction model that uses repeated FBC measurements of these three indices to identify risk of a colorectal cancer diagnosis two years in the future.

Approach

We performed a cohort study using FBC data from the Clinical Practice Research Datalink linked with colorectal cancer diagnoses from the National Cancer Registration and Analysis Service. We developed a multivariate joint model of longitudinal and time-to-event data for males and females separately. Using historical repeated FBCs over five years prior to baseline (last included FBC), age-adjusted trajectories in haemoglobin, mean cell volume, and platelet measurements informed two-year risk of colorectal cancer diagnosis,

using a Cox model. Model performance was assessed using Harrell's c-statistic for discrimination.

Findings

Due to the computational challenges of developing joint models, we used a random sample of 150,000 males and 150,000 females, of whom 0.4% (n=591) and 0.3% (n=438) were diagnosed with colorectal cancer two years after their baseline FBC, respectively. Simultaneous age-adjusted decreases in haemoglobin and mean cell volume and increase in platelets from the population trajectory (patients with no diagnosis recorded) increased the risk of diagnosis for both males and females (each $p<0.05$). The c-statistic was 0.749 (95% CI: 0.729, 0.768) for males and 0.736 (95% CI: 0.713, 0.759) for females.

Consequences

Our dynamic prediction model has the potential to utilise small changes in FBC indices occurring simultaneously over time to identify patients who need further investigation for colorectal cancer. Such changes can appear before overt symptoms occur, so the prediction model could facilitate earlier detection. Further model performance statistics will be presented, including plots of observed versus predicted probabilities for calibration.

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4B.6 Validation and Public Health Modelling of Risk Prediction Models for Kidney Cancer in UK Biobank

Presenter: Hannah Harrison

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Institutions: 1Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK 2Department of Surgery, University of Cambridge, Addenbrooke's Hospital, Cambridge, UK

Abstract

Problem

In the UK, kidney cancer is responsible for 4500 deaths annually. Although early detection is associated with improved survival rates, 25% of newly diagnosed kidney cancers are metastatic. One barrier to the introduction of a screening programme is the low population prevalence of kidney cancer. Population risk stratification could minimise harms to individuals and improve the efficiency of a screening programme. Stratification requires a model that accurately identifies individuals at high risk of undiagnosed kidney cancer. Although several models have been developed most have not been externally validated, and the benefits of incorporating them in a screening programme have not been assessed.

Approach

We identified phenotypic risk models in a recent systematic review and validated them in a large population cohort (UK Biobank) with 6-year follow-up. We assessed discrimination and calibration of the models for men, women and the whole cohort. We undertook a public health modelling analysis using the best performing models to estimate their accuracy in the UK population (individuals aged 40-70). We accounted for differences in demographics (age and sex) and kidney