

A diagnostic window of opportunity

Seven studies examining GP healthcare use before cancer diagnosis in the UK and Australia

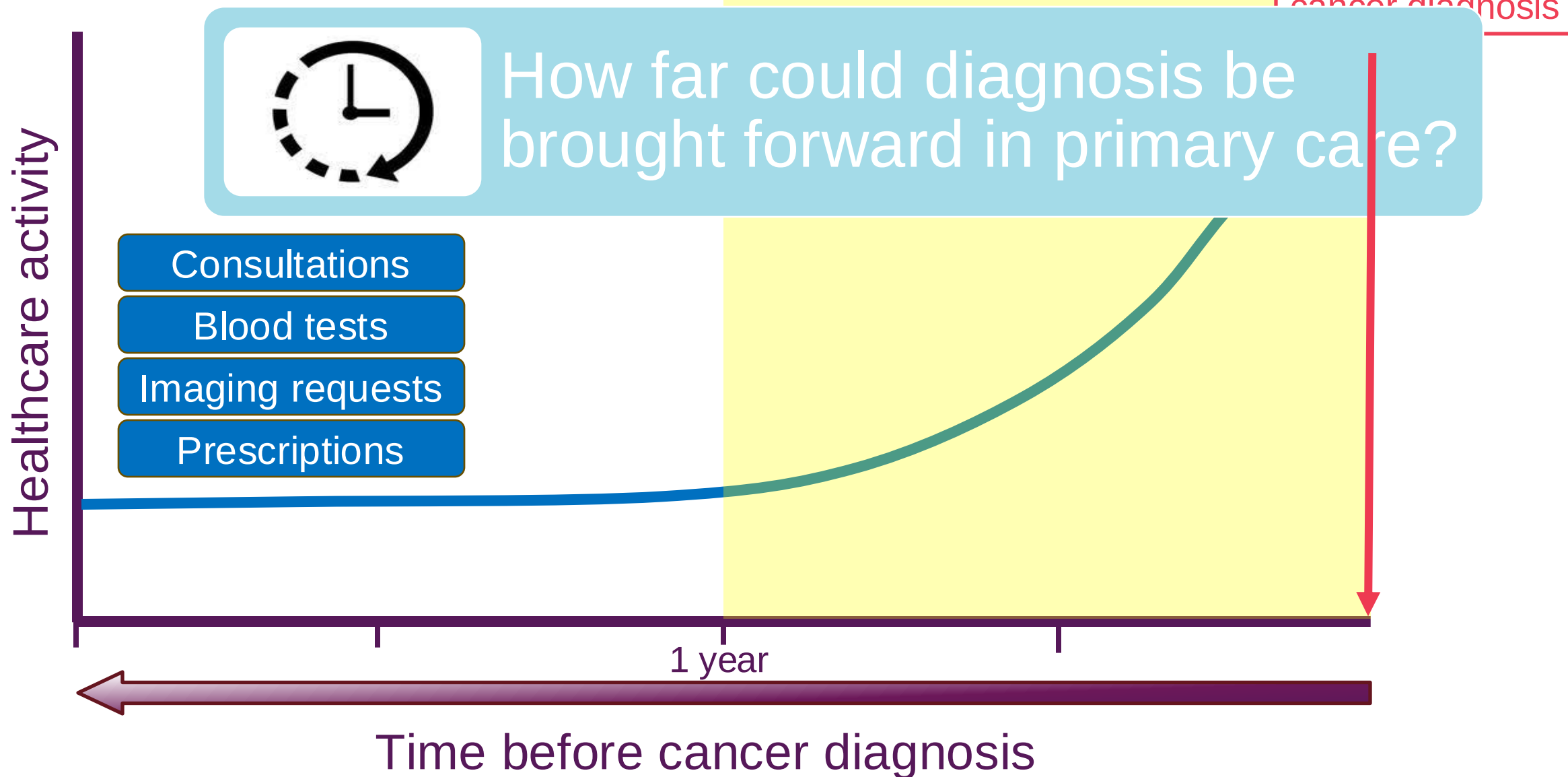
Dr Meena Rafiq
Academic GP and Senior Clinical Research Fellow



@DrMeenaRafiq



Diagnostic windows



Methods for measuring diagnostic windows

Contents lists available at [ScienceDirect](#)

Cancer Epidemiology

journal homepage: www.elsevier.com/locate/canep

Does changing healthcare use signal opportunities for earlier detection of cancer? A review of studies using information from electronic patient records

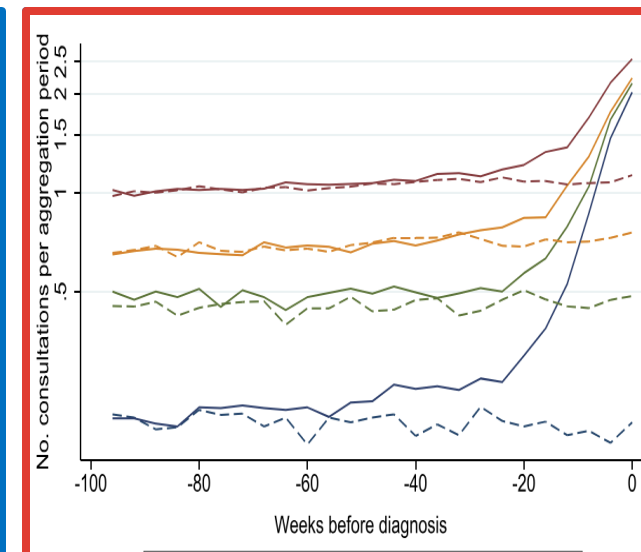
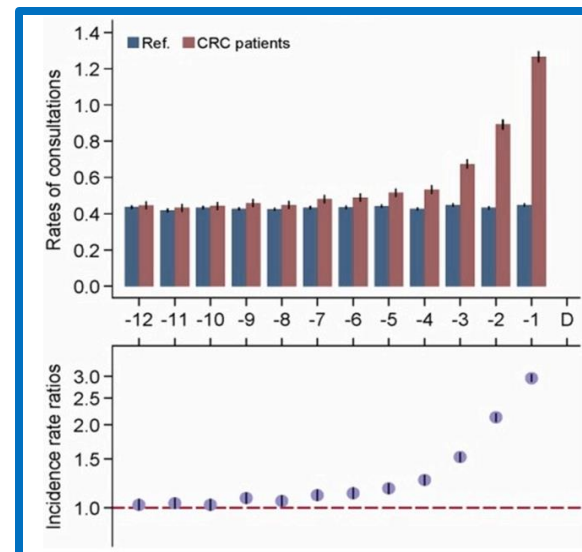
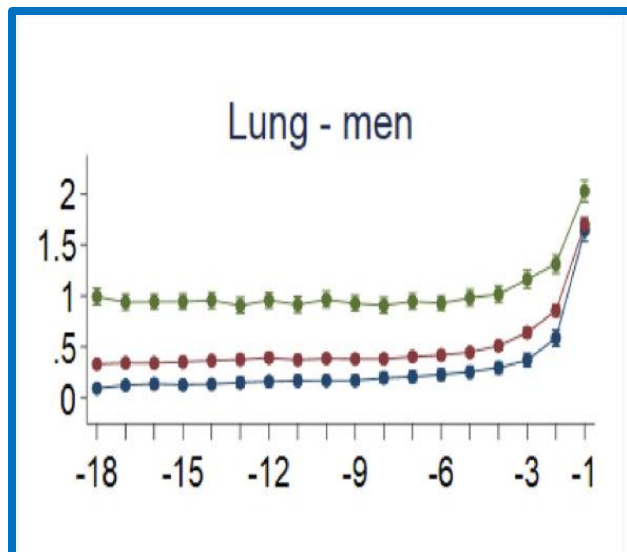
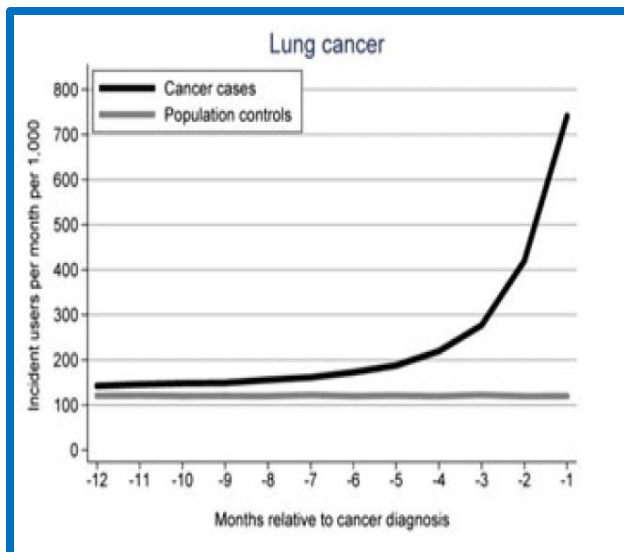
Becky White^{a,*}, Cristina Renzi^a, Meena Rafiq^a, Gary A. Abel^b, Henry Jensen^c, Georgios Lyratzopoulos^a

Visual estimation

Significant difference

Significant difference

Statistical modelling



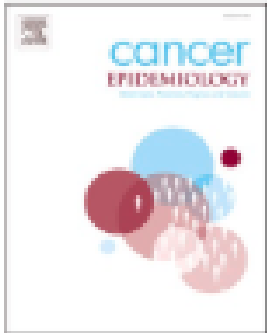
Statistical modelling of inflection point



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Cancer Epidemiology

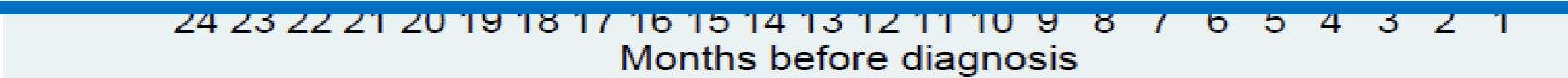
journal homepage: www.elsevier.com/locate/canep



Examining methodology to identify patterns of consulting in primary care for different groups of patients before a diagnosis of cancer: An exemplar applied to oesophagogastric cancer

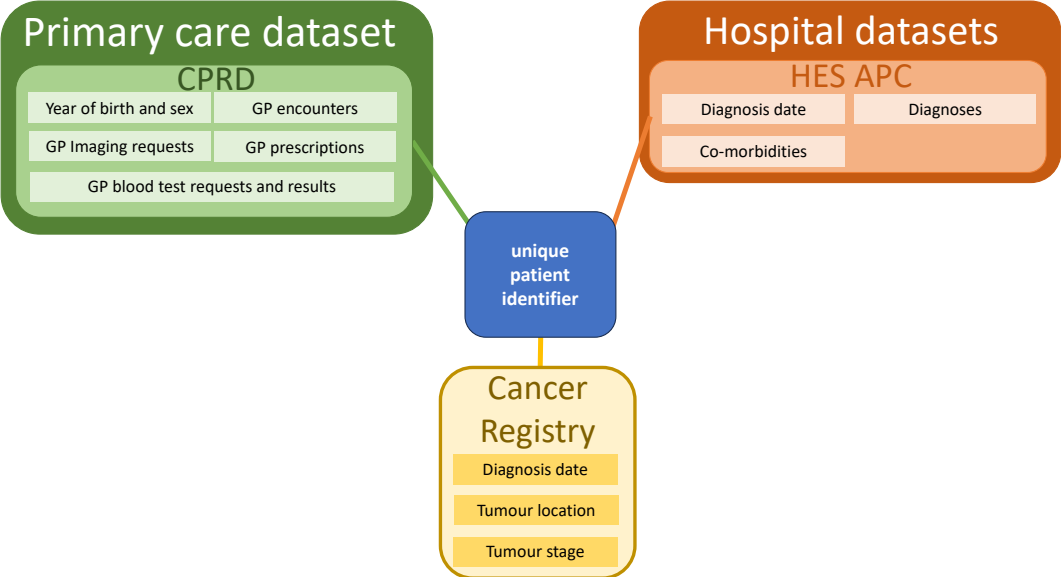
Sarah Price, Bianca Wiering*, Luke T.A. Mounce, Willie Hamilton, Gary Abel

Medical School, College of Medicine and Health, University of Exeter, St Luke's Campus, Heavitree Road, Exeter EX1 2LU, UK

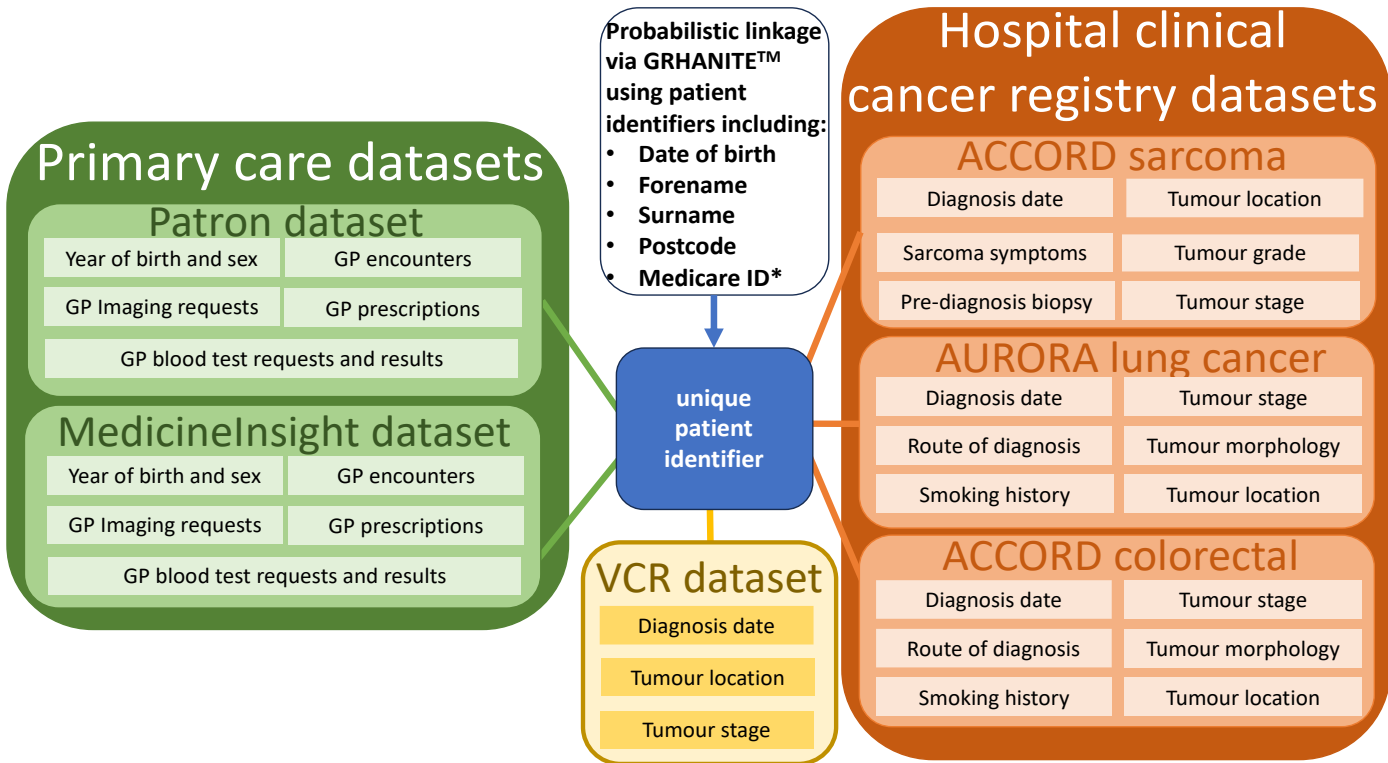


Datasets

UK



Australia





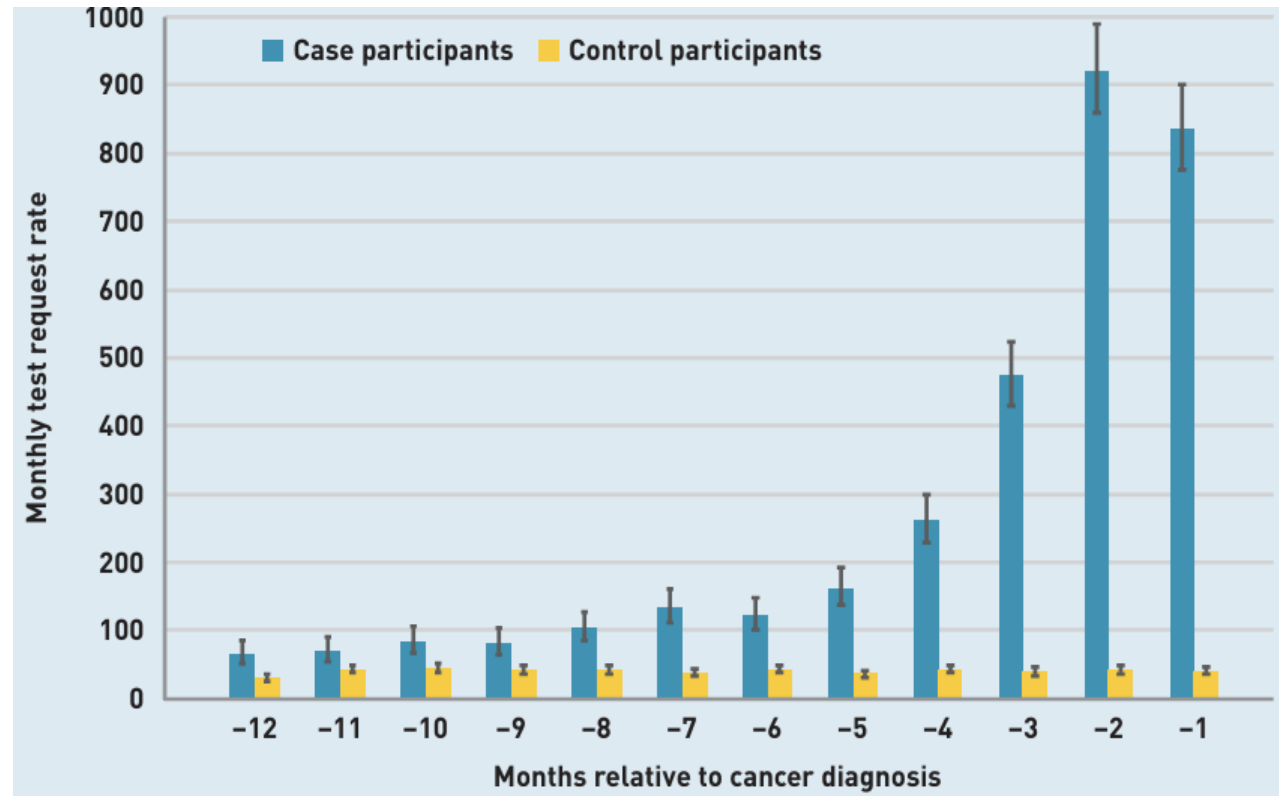
Hodgkin lymphoma

GP blood test requests

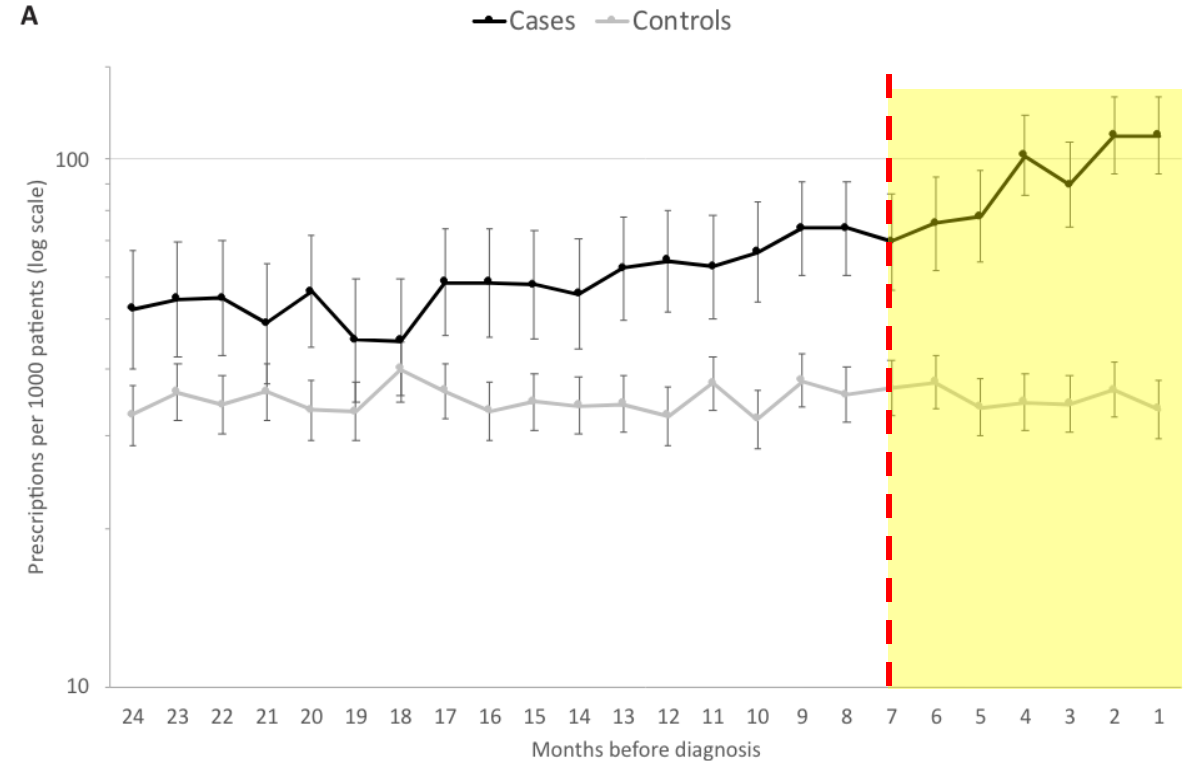
CPRD

HES

GP steroid prescriptions



A



Rafiq et al. BJGP 2022

Rafiq et al. Cancer Epi 2022

GP blood test requests – 12m

GP steroid prescriptions – 7m

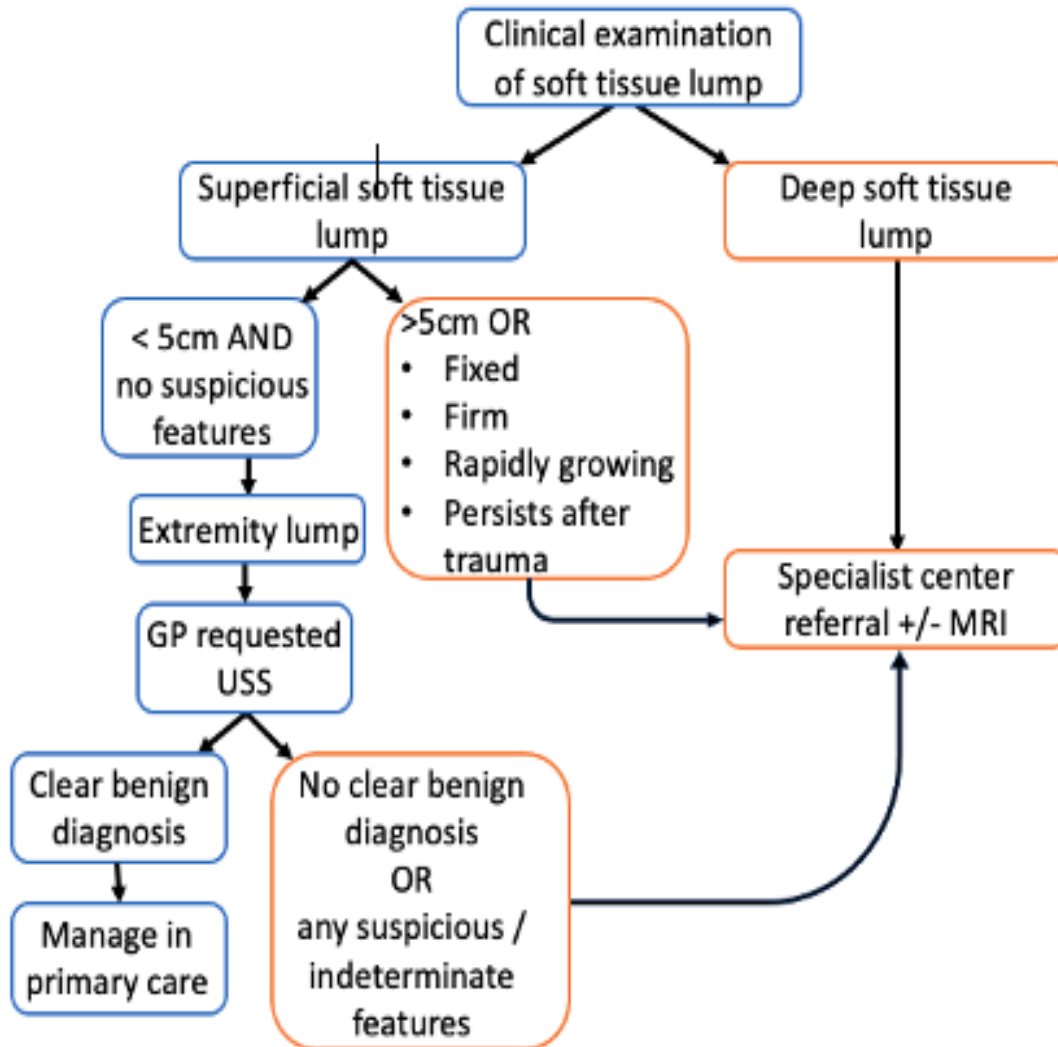
Sarcoma

Patron

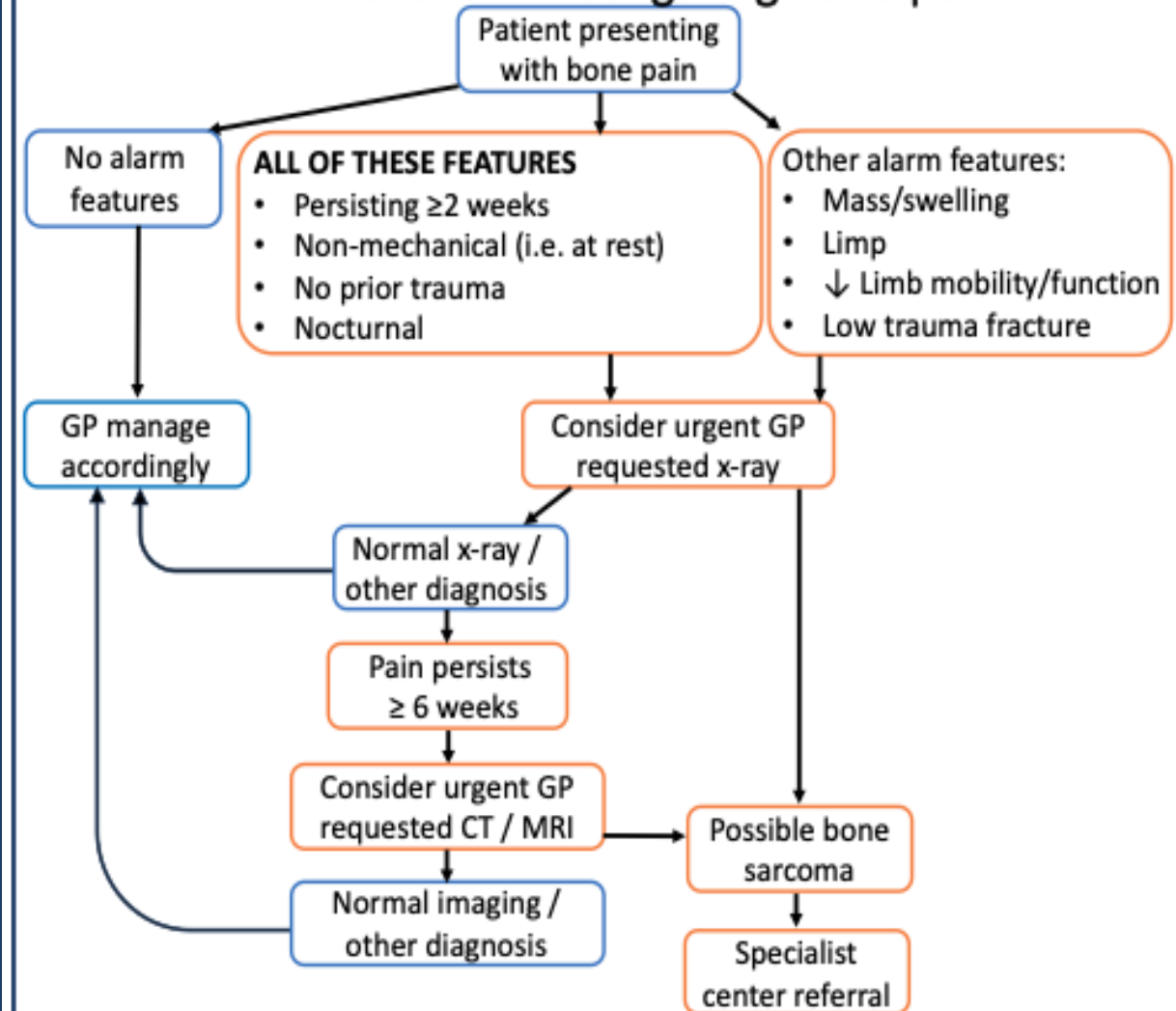
MedicineInsight

ACCORD

Recommendations for investigating soft tissue lumps



Recommendations for investigating bone pain





Lung and Colorectal

Patron

MedicineInsight

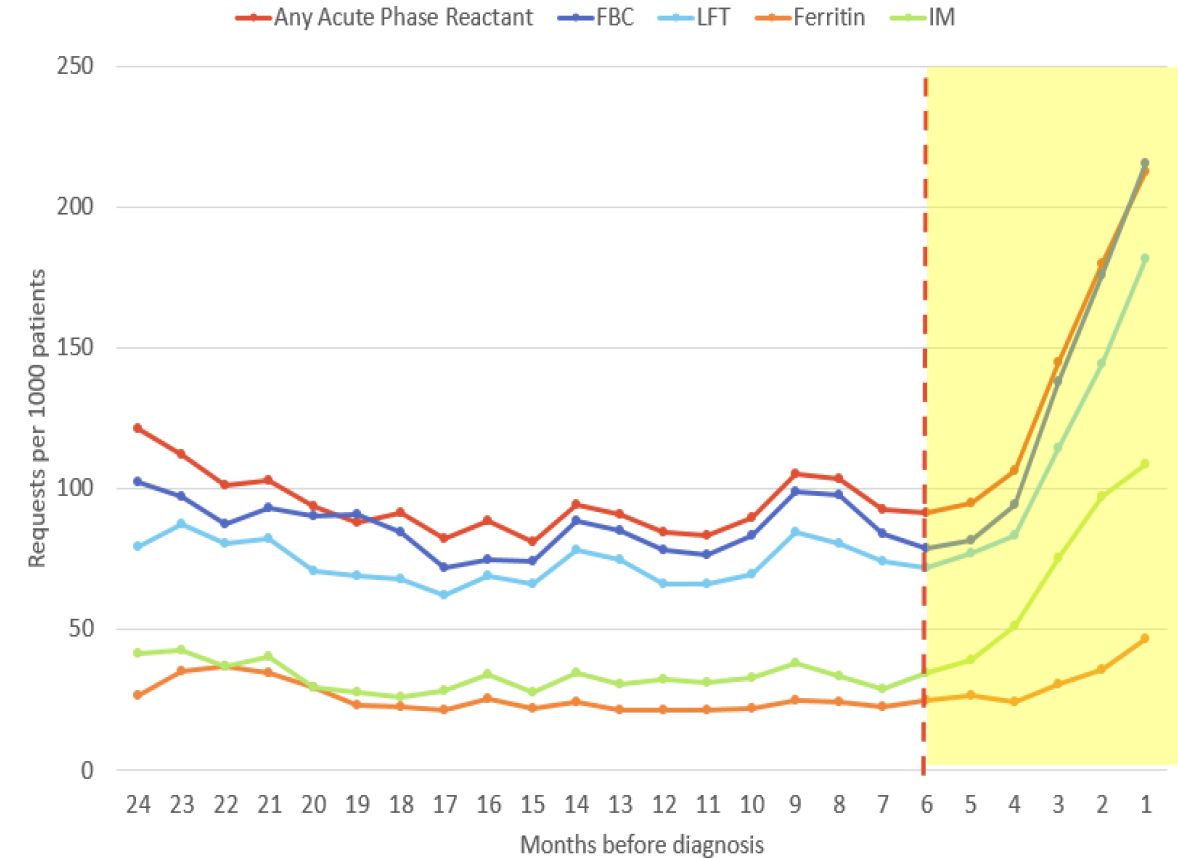
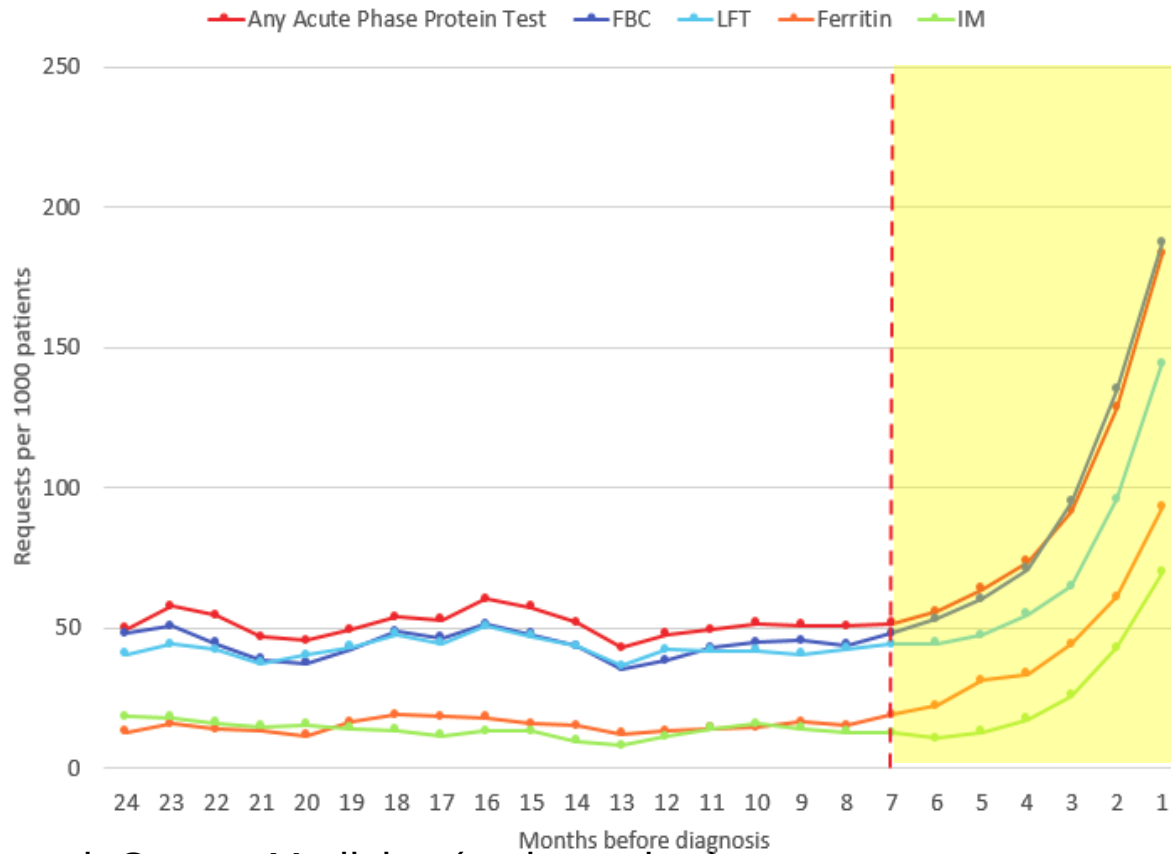
ACCORD

AURORA

GP blood test requests

Colorectal cancer

Lung cancer



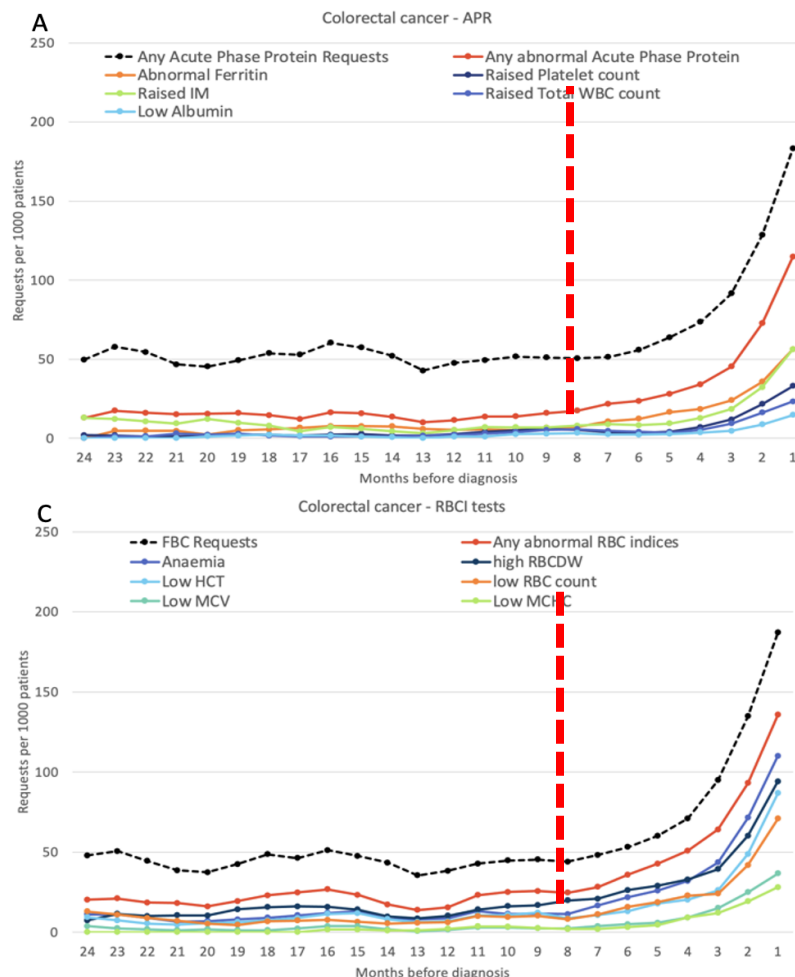
Rafiq et al. Cancer Medicine (under review)

GP blood test requests – 7m

GP blood test requests – 6m

Blood abnormalities before cancer diagnosis

Colorectal cancer

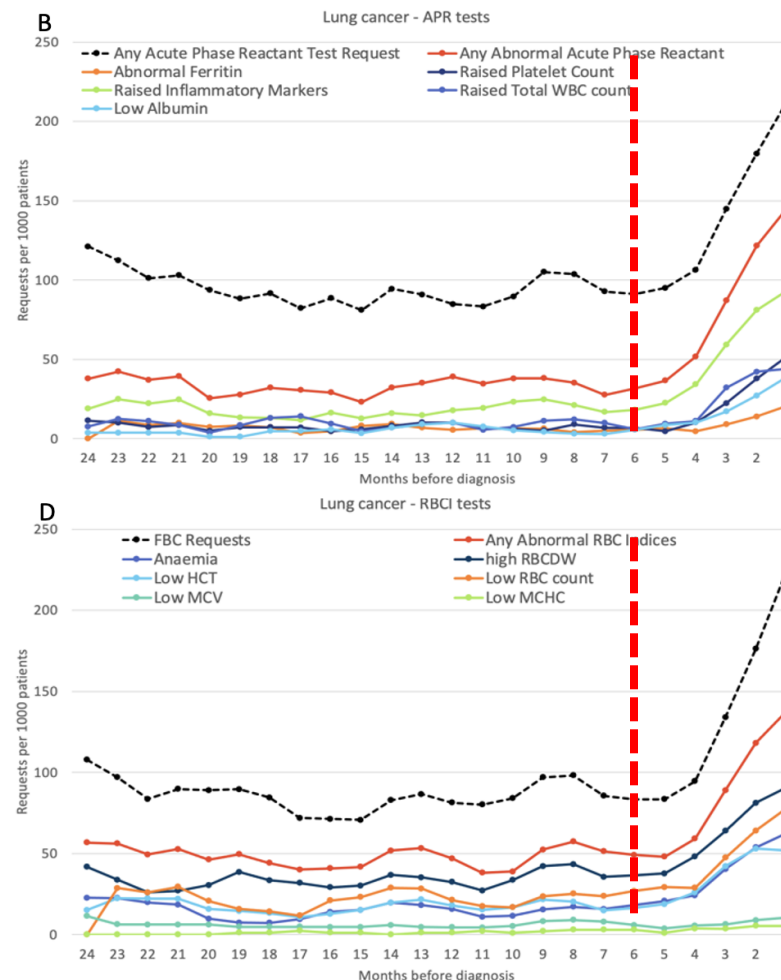


Acute Phase Reactants

Red blood Cell Indices

Blood test abnormalities increase from 8m before CRC and 6m before LC

Lung cancer



LC and CRC have distinct blood test signatures pre-diagnosis

↑ CRP

↑ ESR

↓ Albumin

↑ ↓ Ferritin

↑ Platelet

↑ WBC

Anaemia

↑ RBCDW

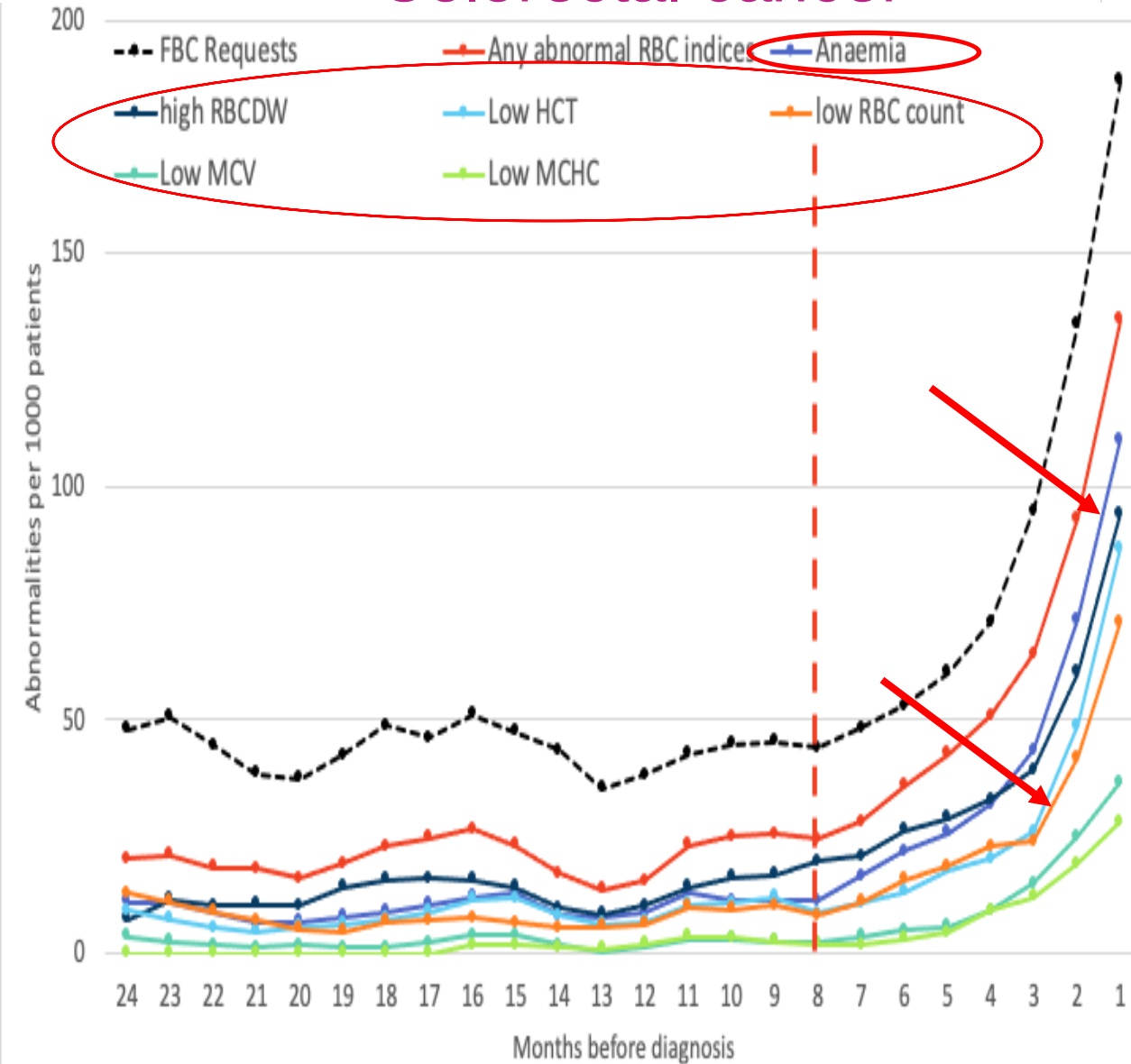
↓ RBC

↓ HCT

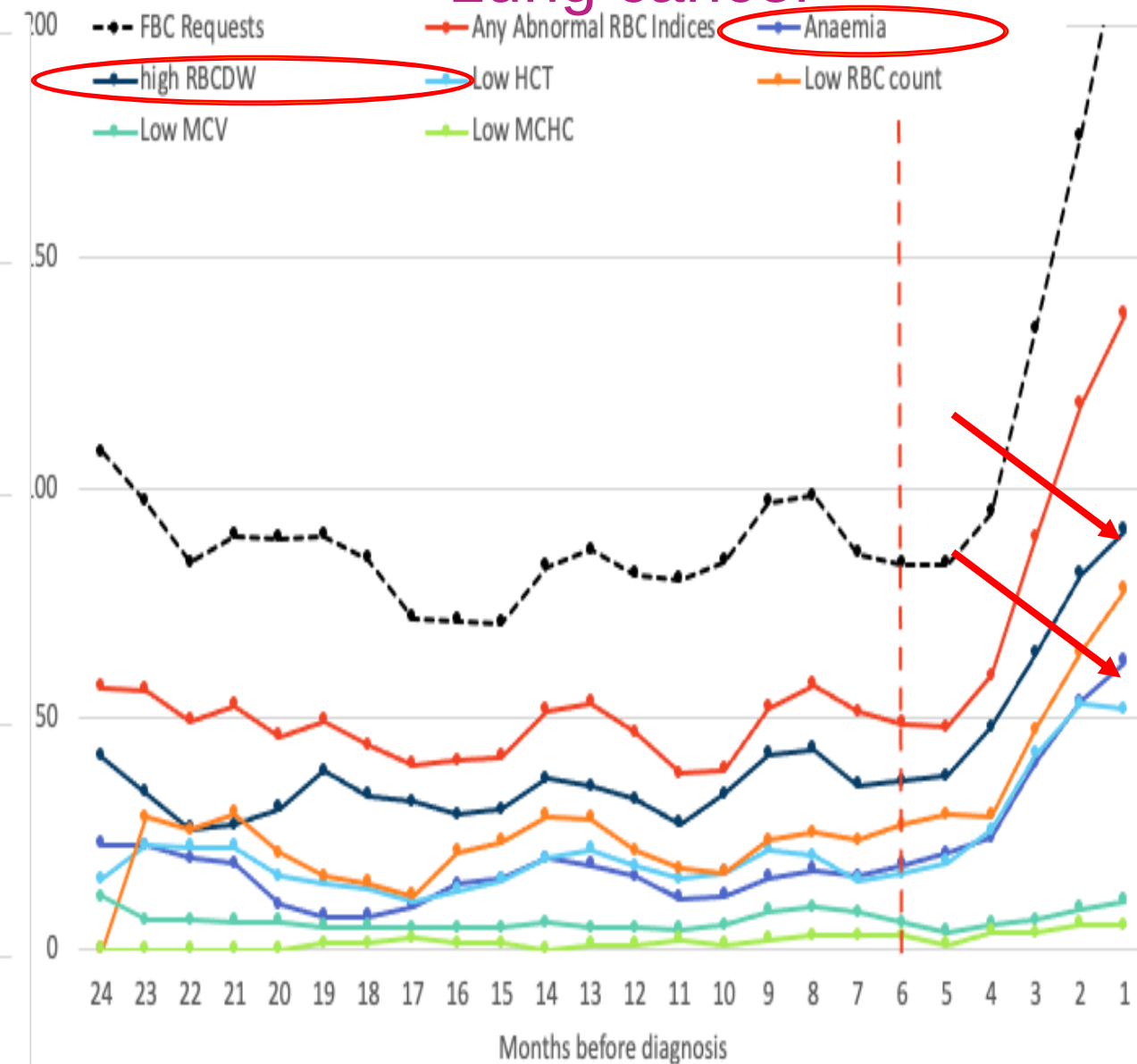
↓ MCHC

↓ MCV

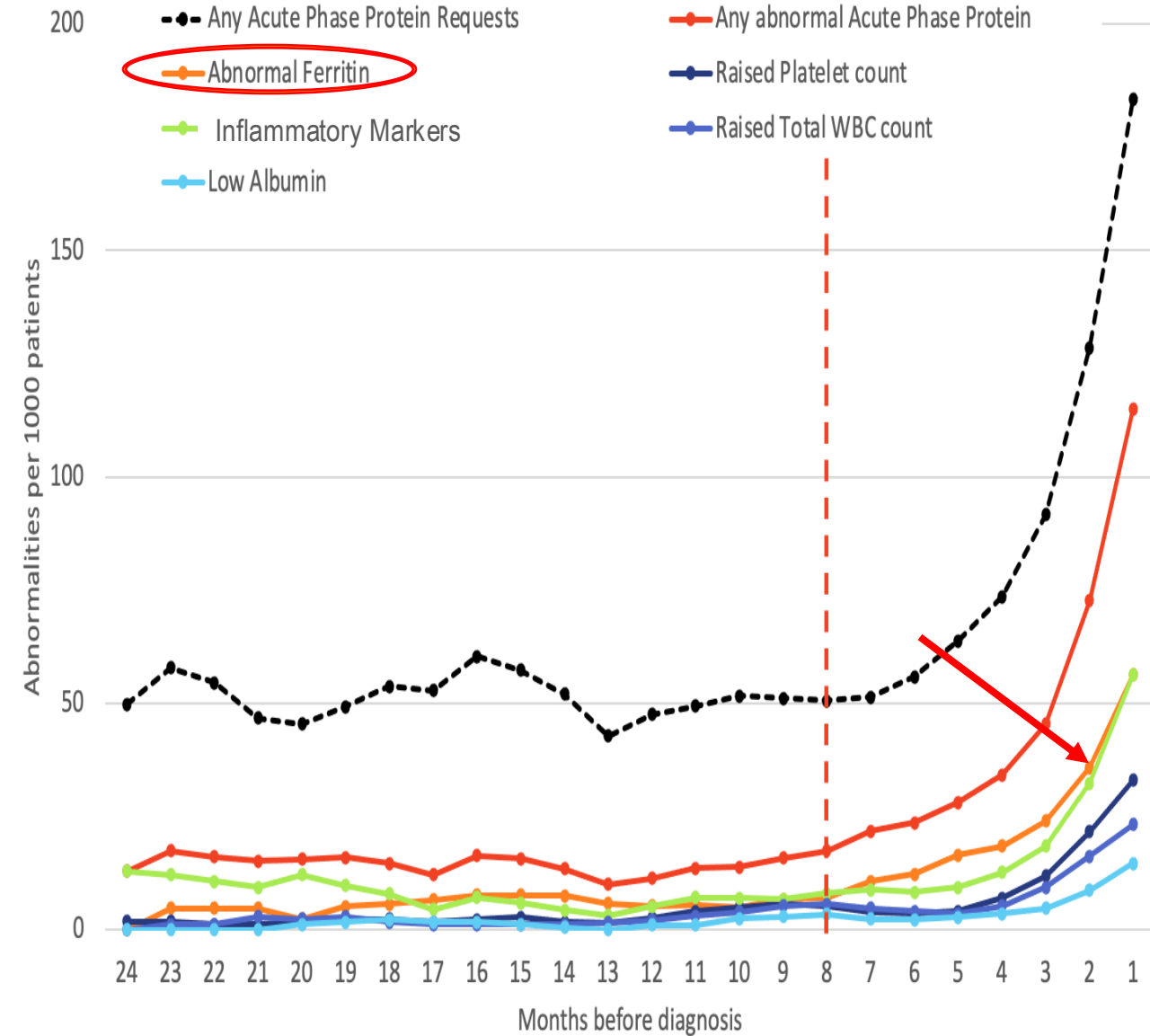
Colorectal cancer



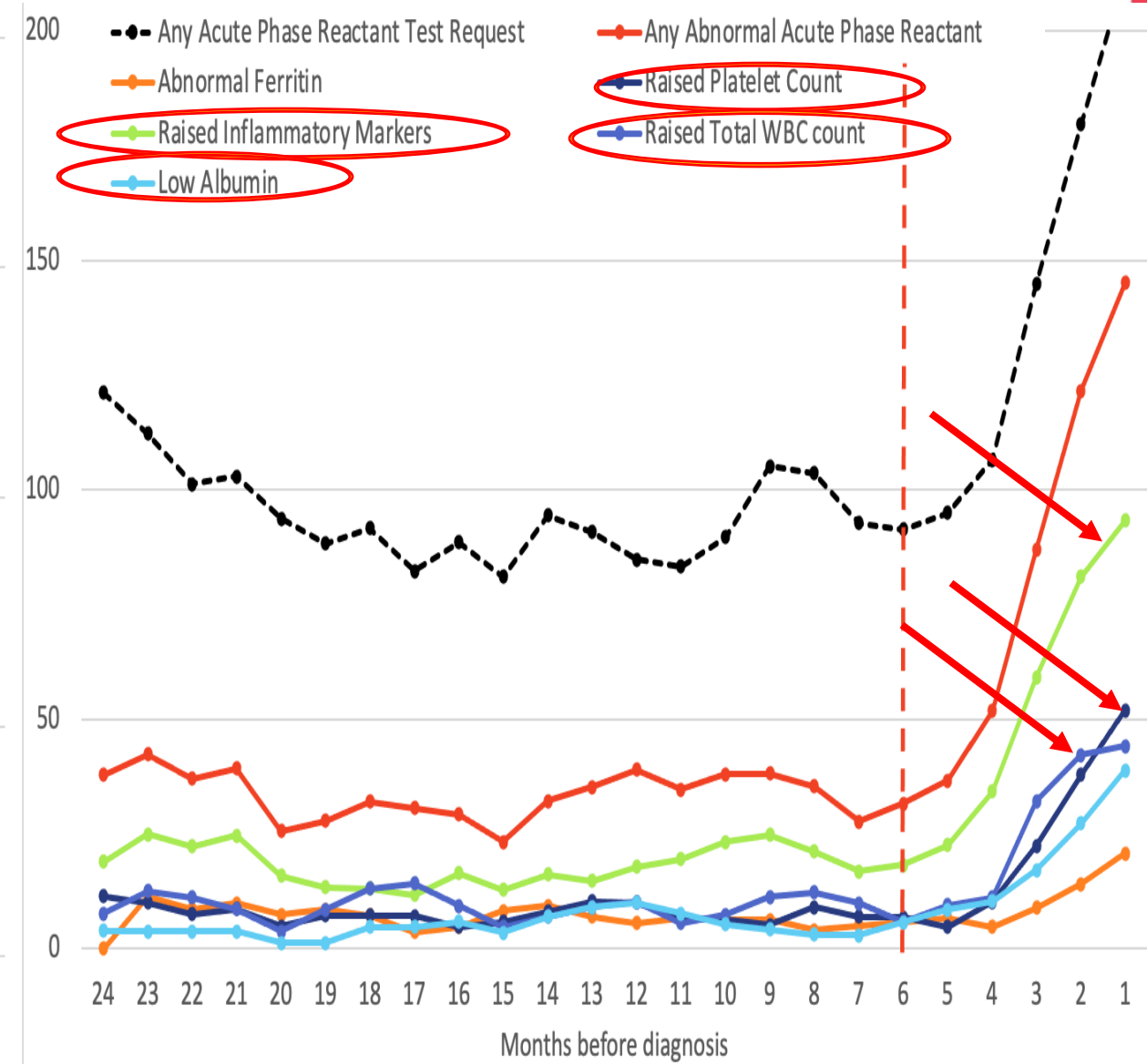
Lung cancer



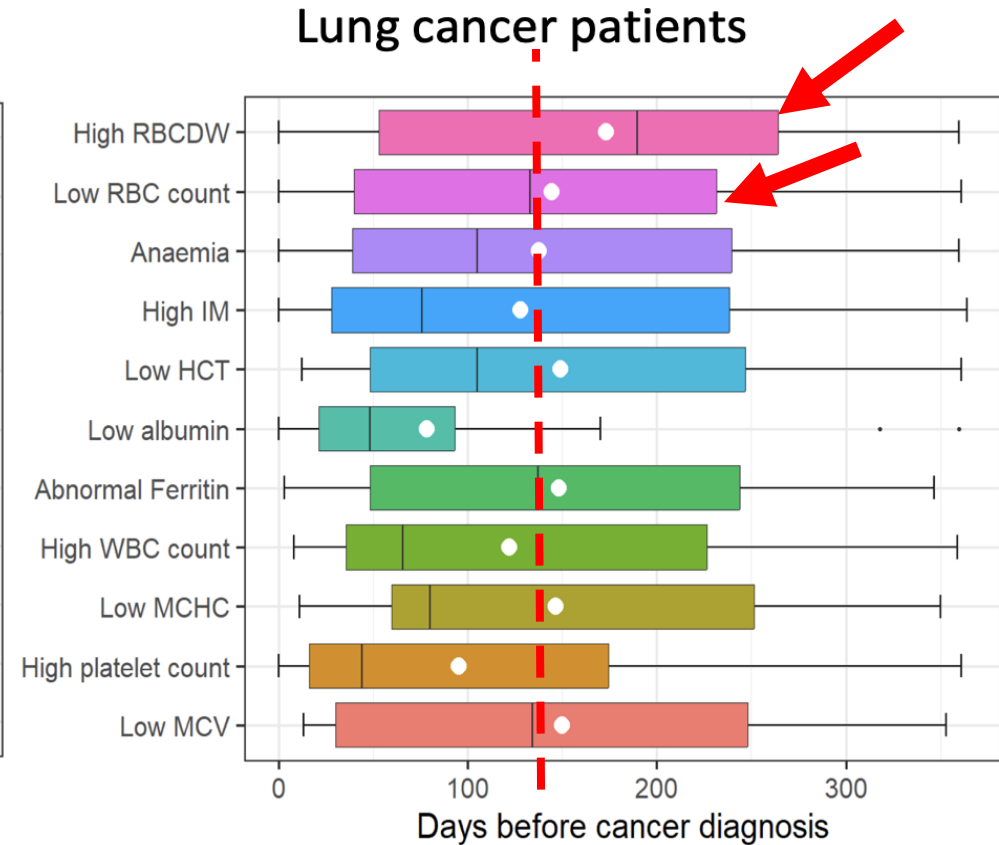
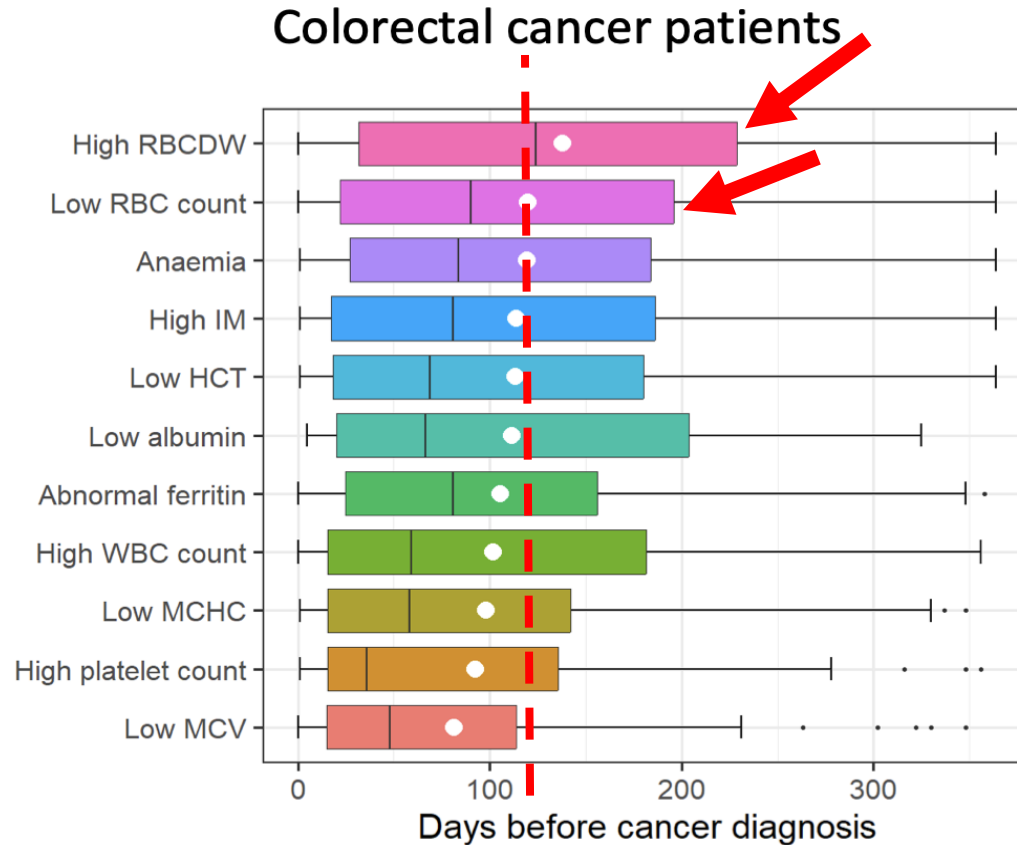
Colorectal cancer



Lung cancer



Average timing of abnormal blood test results before cancer



Many abnormalities occur before / in the absence of anaemia

For both LC and CRC the earliest abnormality was RBCDW

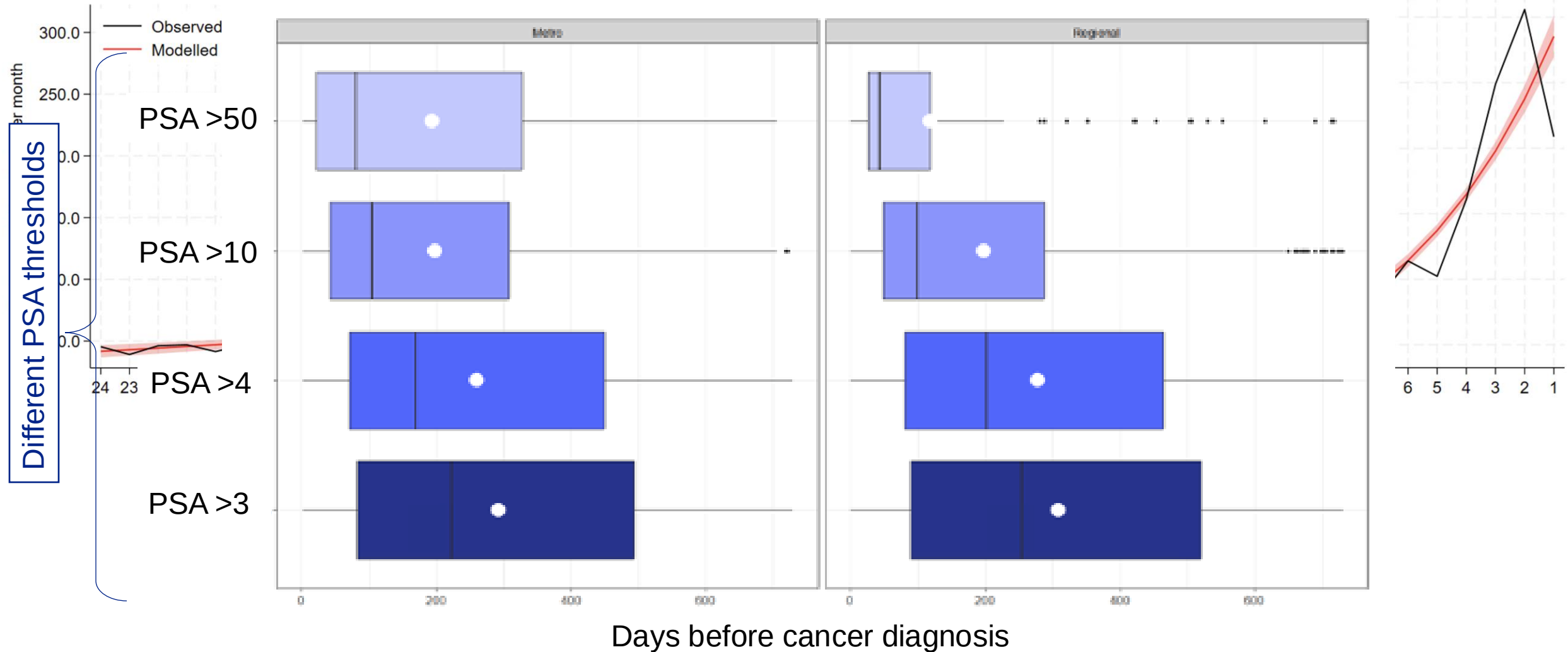
Many often overlooked RBCIs are early signals of cancer

Prostate cancer

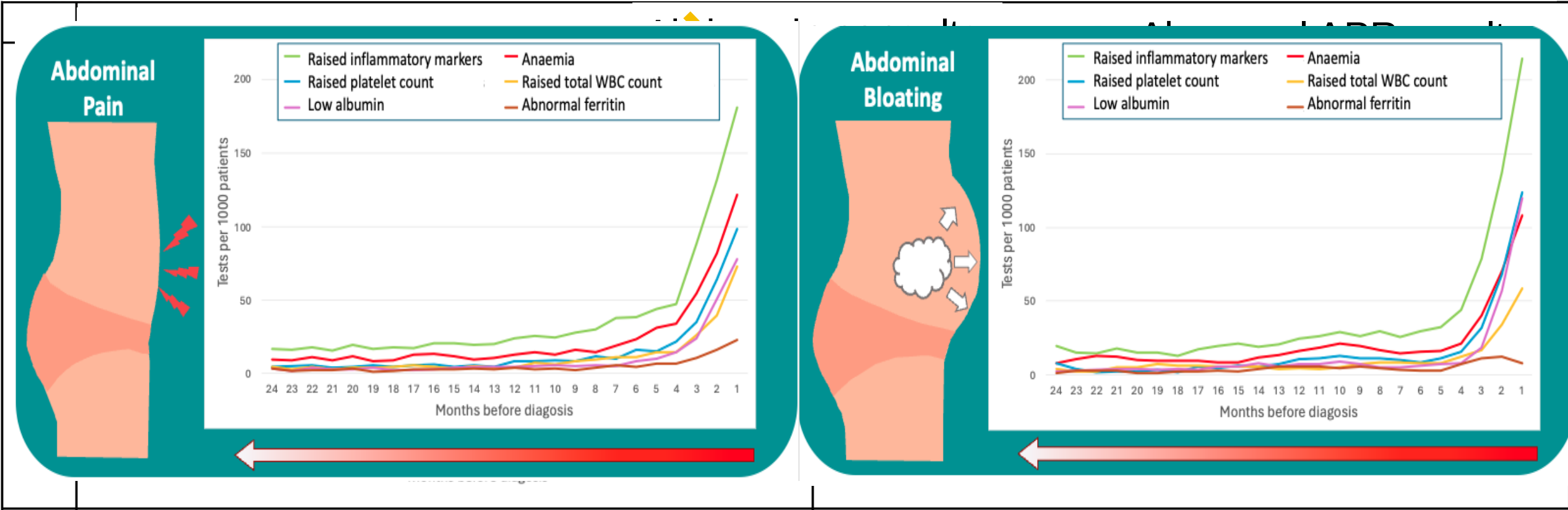
Patron

VCR

Figure 2: Average number of days before prostate cancer diagnosis when first abnormal PSA GP blood test was detected (defined as PSA >3)



Diagnostic windows in symptomatic patients



Rafiq et al. BJC (under review)

GP consults
increase in
both

GPs preferentially
testing patients with
cancer

Increased blood test
abnormalities in
patients with cancer

-  1st diagnostic window studies in Australia and for several cancers
-  Cancer patients presenting to GP several months pre-diagnosis
-  Potential opportunities for expediting cancer diagnosis
-  Identified early blood test markers of cancer – RBCI
-  Detectable before / in absence of anaemia
-  Differentiate patients with NSS who have cancer
-  Combine with other information in GP record