Ca-PRI
The Cancer and Primary Care Research International Network

Cancer in Primary Care Research International (Ca-PRI) Conference 2025

Abstract booklet

MANCHESTER CANCER RESEARCH CENTRE

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Contents

Information in the Ca-PRI 2025 abstract booklet is up to date as of 01/04/2025

Welcome from the co-chairs

We are so pleased that the Ca-PRI conference has come to Manchester, a city with a rich and distinguished legacy in cancer research.

From the pioneering work at The Christie Hospital in the early 20th century — where the 'Manchester Method' of radium treatment revolutionized radiation therapy — to landmark clinical breakthroughs such as the first trial of Stilboestrol (diethylstilbestrol) for breast cancer in 1944 and the introduction of Tamoxifen in 1970, Manchester has long been at the forefront of cancer innovation.

Today, this legacy continues through the Manchester Cancer Research Centre (MCRC), part of the International Alliance for Early Cancer Detection, and home to the Cancer Research UK Manchester Institute. The Paterson Research Building brings together Europe's largest concentration of scientists, doctors, and nurses dedicated to cancer research, while the Cancer Research UK National Biomarker Centre stands as another crowning achievement. Manchester's growing focus on primary care and cancer research within the Division of Population Health, Health Services Research & Primary Care underscores its ongoing commitment to progress.

With such a remarkable history, Manchester is a fitting venue for Ca-PRI 2025. We are thrilled that Dr Sam Merriel and the local organising team have delivered a sold-out conference — further proof that Ca-PRI continues to thrive and grow.

However, while our network flourishes, significant challenges remain. Around the world, disparities in cancer outcomes between the wealthy and disadvantaged are widening. In the UK, both the NHS and many universities face pressing financial crises. Globally, we are navigating an era of political and economic uncertainty, with threats to international collaboration and academic freedom.

Now, more than ever, networks like Ca-PRI play a critical role in countering these challenges — advocating for primary care's essential role in improving cancer outcomes and supporting colleagues facing difficult circumstances. As a research community, our strength lies in unity, collegiality, and cross-border collaboration. By standing together, we can meet these challenges with resilience and a shared sense of purpose.

We are confident that Ca-PRI 2025 offers one of our strongest academic programmes to date, thanks to the dedication of the local organising team and the ongoing support of the Ca-PRI Executive. We are incredibly grateful to all our delegates for their commitment to Ca-PRI and again extend our heartfelt thanks to Cancer Research UK for their generous support in sponsoring this event.

Enjoy the next few days — immerse yourself in ground-breaking research, forge new connections, and, most importantly, have fun!

Prof. David Weller and Dr Christine Campbell

Co-chairs of Ca-PRI

Greetings from the organising committee

The 2025 Ca-PRI conference is the biggest meeting Ca-PRI has held since it was established in 2008.

This year's conference accepted 220 scientific abstracts reporting on the latest research aimed at improving outcomes for patients across the cancer continuum from prevention, screening and early diagnosis to treatment, survivorship and end of life care.

We are delighted to be able to present these groundbreaking abstracts in the Ca-PRI 2025 Conference Abstract Book.

The theme for Ca-PRI 2025 ('Inequality, Innovation and Interdisciplinary care') was chosen by the conference organising committee to reflect some of the major challenges and opportunities in global primary care cancer control and the crucial contribution that world-leading researchers in our host city of Manchester have made in the field. One recent example is the development and evaluation of targeted lung health checks in clinical trials conducted in Manchester which have informed the commissioning of lung cancer screening by the UK National Screening Committee.

Ca-PRI 2025 would not be happening without the huge effort that has been put in by the conference organising committee and I want to thank them for volunteering their time to help plan and deliver this meeting. I also want to thank the Manchester Cancer Research Centre for their generous support for bringing Ca-PRI 2025 to Manchester.

Ca-PRI 2025 is a truly international conference. This year's delegation includes a diverse range of academics, clinicians, patients, cancer charities, members of the public, healthcare policymakers and service leaders. We have attendees joining us from four different continents representing the spectrum of early career researchers to those establishing their independence and international experts in cancer research.

We hope you will take the opportunity to build your research networks and establish new collaborations to continue to drive primary care cancer research forwards.

Once again, welcome to Manchester. We trust you will thoroughly enjoy your time in this vibrant cosmopolitan city and hope you will leave inspired to carry on your own endeavours to improve care for patients with cancer.

Dr Sam Merriel

GP and Lecturer, The University of Manchester

Chair, Ca-PRI 2025 Organising Committee

Ca-PRI 2025 theme

Cancer Innovation, Cancer Inequalities, and Interdisciplinary Care

mcrc.manchester.ac.uk/capri2025

Oral abstracts

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The impact of mental health conditions on symptom attribution, help-seeking and attitudes towards diagnostic testing for potential ovarian cancer symptoms: An online vignette study

Presenters: Sophia Harmer[1], Christian von Wagner[1], Bettina Friedrich[1], Jose M Valderas[2], Rupert Payne[3], Samuel Merriel[4], Gary Abel[3], Georgios Lyratzopoulos[1], Cristina Renzi[1]

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Background: Mental health conditions may be associated with delayed cancer diagnosis. Evidence is scant regarding their influence on the attribution of potential ovarian cancer (OC) symptoms, help-seeking and willingness to undergo diagnostic testing.

Aims: This study aimed to explore if anxiety and/or depression influence patients' symptom attribution, intended help-seeking, and attitudes towards diagnostic testing when experiencing potential OC symptoms.

Methods: A total of 1839 women aged 40 and above (889 with mental health conditions, of which 644 had anxiety and 691 had depression) received two online vignettes: one describing red-flag OC symptoms (unexpected vaginal bleeding/discharge, pelvic and back pain), the other describing vague OC symptoms (persistent bloating, more frequent urination, difficulty eating). The subsequent survey included questions on symptom attribution, intended actions and willingness to undergo diagnostic testing. We examined the association between mental health conditions and these three outcomes using multivariable logistic regression models (one model per outcome).

Results: Having anxiety and/or depression was associated with lower odds of attributing vague OC symptoms to cancer (adj. OR=0.79; 95% CI 0.66-0.96). Regarding intended actions, women with anxiety and/or depression were less likely to report that they would mention red-flag OC symptoms (adj. OR=0.70; 95% CI 0.56-0.88) or vague symptoms (adj. OR=0.79; 95% CI 0.64-0.98) if seeing a nurse for another reason. Additionally, women with anxiety and/or depression were more likely to dismiss vague OC symptoms as something not to worry about (adj. OR=1.25; 95% CI 1.00-1.57). Having anxiety and/or depression was also associated with a lower likelihood of being willing to undergo a transvaginal ultrasound when experiencing red-flag symptoms (adj. OR=0.63; 95% CI 0.41-0.96) or a rectovaginal exam when experiencing vague OC symptoms (adj. OR=0.78; 95% CI 0.61-0.99).

Implications: The results highlight several mechanisms that would lead to delayed OC diagnosis among women with anxiety and/or depression. Further research is needed to understand if there is a direct association between mental health conditions and delayed OC diagnosis. Appropriate interventions for women with anxiety and/or depression might be needed to raise awareness of vague OC symptoms, support help-seeking and encourage diagnostic testing for earlier OC diagnosis.

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Predicting prostate cancer by combining Prostate Specific Antigen (PSA) test results with Genetic Risk Scores (GRS)

Presenters: Jingzhan Lu[1], Ge Chen[2,3], Michael N. Weedon[1], Samuel W. D. Merriel[4], Sarah E. R. Bailey[2], Harry D. Green[1]

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Background: Prostate cancer (PCa) is the second most common cause of cancer death in males in the UK, accounting for 27% of all new cancer cases in UK men. As a serological test, the PSA test is simple, convenient and inexpensive, and, therefore, is widely used in clinical settings. However, PSA testing is limited by high false positive rates and up to 15% false negative results. Genetic risk scores (GRS), which quantify an individual's genetic risk, have a similar efficacy to PSA tests in predicting PCa.

Aims: We aimed to assess the improvement in predictive accuracy if GRS is used in conjunction with the PSA test in primary care.

Methods: GRS for PCa were derived using 269 known risk variants reported in Conti et al's., (2021) cross-ancestry genome-wide meta-analysis. These variant weights were used to build GRS in the UK Biobank (UKB) a cohort of 500,000 individuals with linked electronic healthcare records and genetic information. We also assessed whether there was any GRS increased predictive power beyond the combination of PSA value from primary care, and adjusted for age. UKB participants with a diagnosis of PCa up until 2022/01 and recorded pre-treatment PSA were included (N = 9,208). PSA values measured after treatment were excluded.

Results: Among the 13,888 men in the UKB diagnosed with PCa, 6,514 had PSA records and GRS data available. The baseline model including GRS, PSA, and Age achieved the best results with an AUC = 0.811. The original GRS had an AUC = 0.698, and the GRS was significantly improved by incorporating PSA values: giving an AUC = 0.794. Adding Age to the GRS resulted in a modest improvement (AUC = 0.754). The PSA and Age models (AUC =0.771) performed better than PSA alone (AUC = 0.753). The combination of GRS, PSA, and Age consistently showed the highest predictive accuracy across all ethnicities in UKB.

Implications: Combining the GRS and PSA together provides a stronger possibility of determining the likelihood of PCa, accelerating diagnoses and reducing false-positive rates. The replication study in ProtecT (a large PCa and PSA cohort study with N= 82,429) is ongoing. A plan to calibrate the GRS in different populations using All of US (a similar dataset to UKB with 50% non-white ethnicity) will expand the generalisability of our study to a wider population. This study will help improve detection accuracy in symptomatic individuals.

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Understanding attributes relevant to anticipated uptake of lung cancer detection tests: a discrete choice experiment

Presenters: Stefanie Bonfield[1], James Buchanan[1], Suzanne E Scott[1], Evangelos Katsampouris[1], Stephen H Bradley[2], Stephen W Duffy[1], Fiona M Walter[1], Samantha L Quaife[1]

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Background: Individuals at risk of lung cancer are offered chest x-rays and low-dose computed tomography (CT) scans. Those experiencing socioeconomic deprivation are less likely to engage with tests and more likely to be diagnosed with late-stage disease. Emerging tests for lung cancer biomarkers such as blood and breath sample tests could be positioned to triage referral for imaging tests. However, the way that novel tests would work in practice and the impact of their implementation on inequalities in participation is unknown.

Aims: To use a discrete choice experiment to explore which attributes relevant to existing and emerging early lung cancer detection modalities are important for anticipated uptake among individuals at higher risk.

Methods: Individuals (n=599) were recruited using an online recruitment platform. They were eligible to participate if they were UK based, aged 40-years and over, and had a household income below £50,000. Design of the discrete choice experiment was informed by a literature review, qualitative interviews, current practice, expert consultations and think-aloud interviews with public and patient representatives.

Participants were presented with 12 choice tasks that varied by the way they were feeling (their normal self, breathless for 3 weeks, cough for 3 weeks, cough for 8 weeks), test location (GP surgery, mobile unit in a supermarket, hospital), travel time (15, 45, 90 minutes), type of test (breath test, blood test, chest x-ray, chest CT scan) and what the test is used to look for (lung and heart conditions, signs of multiple types of cancer, signs of lung cancer). In each choice task, participants were asked whether they would have the test or not, providing a measure of anticipated uptake.

Results: Preliminary findings from a mixed effects logistic regression revealed that across choice tasks, the test scenario was the most important attribute influencing the decision to test. Anticipated uptake was lower in scenarios where individuals were feeling their normal self and higher in scenarios where they were experiencing symptoms (cough or breathlessness) and for a longer duration. Anticipated uptake was also higher when the test location was a GP surgery or hospital, or the test was a chest x-ray, and lower when the location was a mobile unit parked in a supermarket or the test was a blood test.

Implications: Attributes relevant to emerging early lung cancer detection modalities could influence participation. New modalities should be carefully positioned in cancer pathways to avoid exacerbating existing inequalities.

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Barriers to consulting for symptoms of possible colorectal cancer in rural populations: a questionnaire survey

Presenters: Emily Haworth[1], Linda Sharp[1], Jennifer Deane[1], Christina Ellwood[2], Greg Rubin[1], Peter Murchie[3], Sara Macdonald[4], Lorraine Angell[5], Christina Dobson[1]

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Background: Urban-rural disparities in cancer survival are well-documented, but the underlying causes remain unclear. Prolonged diagnostic intervals may contribute to more advanced disease at diagnosis and, hence, poorer survival.

Aims: To understand the barriers to consultation for symptoms of possible bowel cancer amongst rural residents.

Methods: A stratified random sample of 3,400 eligible patients (aged ≥40 years, capacity to consent) from four rural GP practices. The survey collected data on demographics, bowel symptoms, healthcare engagement, and responses to statements on barriers to accessing healthcare. A community sample was purposively selected to capture experiences of symptomatic individuals who had, and had not, consulted.

Chi-square tests assessed relationships between socio-demographic characteristics (age, sex, rurality, deprivation (IMD), employment, education) and (i) presence/absence of bowel symptoms in previous 8 weeks and (ii) whether consulted following bowel symptoms. Statements were grouped into three domains: individual level barriers (IL), primary care barriers (PC), and contextual/system barriers (CS). Participants' responses to questions within each domain were summed and an average score calculated, adjusted for number of questions in the domain; a higher score indicated more barriers.

For those who had experience bowel symptoms, mean domain scores were compared across socio-demographic and practice characteristics (size, distance) using ANOVA.

Results: 722 surveys were returned (response rate = 21%). 37% reported bowel symptoms in the previous 8 weeks, with older respondents most likely to consult. 58% of those aged 75+ consulted about symptoms, versus 23% of those <60 ($p<0.001$).

Rural category and deprivation were significantly associated with IL barriers, with respondents from the least rural ($p<0.001$), and less deprived ($p<0.001$) areas scoring highest. No significant associations were found with sex, employment, or education. Higher PC barrier scores were significantly associated with rural category ($p<0.001$), IMD ($p<0.001$), and sex ($p=0.008$), with females, residents from less rural and less deprived areas reporting higher scores. Higher CS barriers were reported from least rural areas ($p<0.001$), less deprived ($p<0.001$), female ($p=0.046$), employed ($p<0.001$), and younger ($p<0.001$). Larger GP practices reported higher scores across all three barrier categories, but no association was found between barrier scores and distance to primary care.

Implications: The study provides insights into the relationship between rurality and help-seeking behaviours for cancer symptoms. It underscores the interplay of rurality, practice size, deprivation, and early consultation behaviours. Continuity of care and strong GP-patient relationships may play a key role in encouraging timely presentation for rural populations.

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Breaking Barriers: Empowering Cervical Cancer Screening with HPV Self-Sampling for Sex Workers and Formerly Incarcerated Women in Toronto

Presenters: Mandana Vahabi[1,2], Jenna Hynes[3], Josephine Wong[4], Kimberly Devotta[1], Natasha Kithulegoda[4], Aisha Lofters[5]

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Background: Although cervical cancer (CC) is highly preventable through appropriate screening methods like the Papanicolaou (Pap) test, which enables early detection of malignant and precancerous lesions, access to such screening has not been equitable across social groups.

Sex workers and people with records of incarceration are among the most under-screened populations in Ontario. Little is known about the acceptability and feasibility of HPV self-sampling (HPV-SS) as an alternative cervical cancer screening method for these groups.

Aims: This online, community-based mixed-methods pilot study aimed to address this knowledge gap.

Methods: Eighty-four under- and never-screened sex workers and ex-prisoners aged 25–69 years and residing in the Greater Toronto Area, were recruited by community peer associates. Participants completed an online survey and viewed short videos about CC and screening with Pap and HPV-SS. Those who opted for HPV-SS conducted the test at one of two collaborating organizations.

Results: The median age of participants was 36.5 years. Most had limited knowledge about CC and screening. Approximately 13% identified as non-binary, and 5% as two-spirit or trans men, with the majority having completed secondary education.

Of participants, 88% chose HPV-SS, and one-third tested positive for high-risk HPV types. The ability to self-sample without judgment from healthcare providers was noted as a key advantage. However, there was a need for training on proper HPV-SS techniques.

Implications: To improve cervical cancer screening among sex workers, increasing awareness through participatory community co-creation of sexual health education is essential. Additionally, offering HPV-SS as a screening option is crucial, given its demonstrated acceptability and feasibility within this population, many of whom lack a primary care provider and face discriminatory attitudes in healthcare settings.

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The role of general practice in cancer recurrence detection: a Danish national cohort study

Presenters: Kasper Grooss[1,2], Linda Aagaard Rasmussen[1], Alina Falborg[1], Larissa Nekhlyudov[3], Anette Fischer Pedersen[1,4], Kaj Sparle Christensen[1,2], Peter Vedsted[1,5]

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Background: General practitioners (GPs) detect cancer recurrences (CRs) between specialised visits or after ended follow-up. However, knowledge of CR detection in general practice remains scarce.

Aims: We aimed to assess the GP's role in CR detection and examine the time from the first relevant consultation to diagnosis (diagnostic interval) for diagnostic pathways that begin in general practice.

Methods: We conducted an observational, national cohort study using survey data linked to register data. We identified patients diagnosed with CR of melanoma, lung, breast, colorectal, bladder, ovarian, or endometrial cancer January 2022 to May 2024. The patients' GPs were invited to provide details of the diagnostic pathways. Quantile regression was used to estimate median diagnostic interval differences.

Results: A total of 1,053 CR patient cases were included. Of these, 36% were detected in general practice, 46% in oncology follow-up, and 19% elsewhere; 70% were detected while in active oncology follow-up and 30% after follow-up ended. The diagnostic pathway involved an initial consultation in general practice for 437 (42%) patients, and GPs initiated diagnostics for 336 (77%).

A total of 327 (75%) presented symptoms of CR in general practice. When GPs initiated diagnostics based on symptoms, the crude median diagnostic interval was 48 days.

However, when GPs did not initiate diagnostics despite symptom presentation and diagnostics were instead initiated outside of general practice, the median diagnostic interval extended to 74 days (95% CI: 58 to 89 days). Notably, when GPs initiated diagnostics without patients presenting symptoms of CR, the median diagnostic interval was reduced to 16 days (95% CI: 1 to 30 days).

Implications: More than one third of CRs were detected in general practice, with GPs initiating diagnostics for eight out of ten patients consulting them. However, some patients experienced longer diagnostic intervals. The results highlight the necessity for GPs' active and continuous involvement in cancer survivor care.

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To refer, or not to refer for suspected cancer? A qualitative study with General Practitioners in England

Presenters: Amy Chinner[1], Samuel Merriel[2], Sarah Morgan-Trimmer[1], Annette Swinkels[1], Sarah Dean[1], Willie Hamilton[1], Georgios Lyratzopoulos[3], Gary Abel[1], Bianca Wiering[1]

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Background: National Institute for Health and Care Excellence (NICE) guidelines specify which symptoms/signs GPs in England should consider for a USC referral; NG12. However, research suggests that less than half of patients who present to primary care with symptoms included in NG12 are referred. It is currently unclear why this discrepancy occurs.

Aims: We aimed to explore the processes and factors underpinning GPs' decision-making regarding USC referrals for patients presenting with symptoms included in NG12.

Methods: Interviews were conducted with 28 GPs from 20 practices across two NIHR Clinical Research Network (CRN) areas: Greater Manchester and South West Peninsula.

The interviews contained two sections, 1.) consultation vignettes with a "think-aloud" approach (GPs discussed their approach while viewing 4/24 staged videos of consultations where no decision is made, half with symptoms included in NG12), 2.) semi-structured interviews to further explore decision-making.

Interviews were analysed using a thematic qualitative approach employing deductive and inductive coding, underpinned by a critical realist perspective.

Results:

Vignettes: When patients presented with symptoms included in NG12 (total 54 viewed), GPs most often chose a USC referral as their next step. However approximately 1/3 of the time USC referral was not chosen, most commonly when patients presented with rectal bleeding (7) or iron deficient anaemia (5).

GPs instead proposed faecal immunochemical testing (FIT) suggesting that FIT would provide them with decisive information about symptom causation, and so next steps, or that it was a prerequisite for referral.

Other symptoms where a USC referral was not initially suggested included: dysphagia (2), post-menopausal bleeding (1) and breast lump (1). Instead, GPs required further information or tests due to the symptoms not fully fitting a cancer picture, the symptoms indicating an alternative diagnosis, or to better incorporate the patient's ideas, concerns and expectations.

Semi-structured Interview: GP decision-making was influenced by factors in 5 areas: The GP role, Avoiding Negative Consequences, Organisational Constraints, Sources of Information and General Attitudes to Guidelines. GPs identified multiple factors that influence USC referral from the individual level (e.g. cognitive biases, uncertainty tolerance, guideline familiarity) to the systemic level (e.g. defensive vs learning culture, continuity of care, healthcare system pressures, and local referral forms not matching national guidance).

Implications: This study highlights key factors impacting on GP decision-making for practice and policy stakeholders to consider when aiming to increase USC referrals in primary care in line with national guidance.

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Exploring the barriers and facilitators to attending cancer testing appointments for patients with anxiety and/or depression

Presenters: Laura Gill, Eve Kingston, Elizabeth Shephard, Anne Spencer, Sarah Price

University of Exeter, Exeter, United Kingdom

Background: Pre-existing anxiety and/or depression confers a higher 30-day mortality after cancer diagnosis and lower odds of diagnosis via an urgent referral route (Exeter research, manuscript in preparation). Anxiety and/or depression may present barriers to attending cancer testing appointments, leading to poorer outcomes.

Aims: Preliminary exploration of the attitudes, needs, and priorities that people with anxiety or depression consider when deciding to attend urgent referrals for cancer tests.

Methods: People (n=24) with anxiety and/or depression were recruited from five rural, urban or coastal general practices in the Southwest Clinical Research Network. Semi-structured interviews used hypothetical scenarios to explore decision-making around appointment attendance. Interviews were transcribed and coded deductively and inductively in NVivo drawing on the 14 domains of the Theoretical Domains Framework (TDF) capturing determinants of behaviour to support intervention design. Results were synthesised narratively.

Results: Six important TDF domains emerged as barriers or facilitators to appointment attendance, acting within a meta-theme of how an individual's experiences and situation influence their decision-making. Personal Identity could reinforce decisions to attend appointment or be a barrier.

Knowledge (of cancer itself, of cancer testing or the logistics of attending) could reassure or exacerbate anxiety about attendance. Social influences, particularly support while waiting for the appointment, were important to people. Some stated they would need someone to support them through the process, whereas others felt they would be better on their own.

Beliefs about consequences and current emotions were linked with fatalistic tendencies and increased chances of non-attendance.

Additionally, the Environmental context highlighted barriers such as taking time off work, getting to the appointment (including parking) and the waiting room environment. How the referral was communicated was important (Resources), including the mode (letter or phone call) and the amount of detail provided.

Inductive themes of Avoidance arose, along with continuity of care and Responsibilitisation (namely, shifting responsibility from healthcare to the individual with many saying they would have good intentions to attend).

Implications: Anxiety and/or depression influence decision-making around urgent referral attendance in variable and nuanced ways. Barriers and facilitators to attendance ranged from lack of social support to attend the appointment, emotions and avoidance, as well as previous experiences of hospital appointments in general or cancer referrals. The study lays the groundwork for developing interventions that could help to facilitate the uptake of referrals within the initial referral letter through to attending the referral.

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A Qualitative Systematic Review with Thematic Synthesis on Ethnic Chinese Informal Migrant Caregivers' Experiences in Caring for Someone with Cancer

Presenters: Mengxue Xia, Lisa O'Leary, Carol Gray-Brunton

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Background: With advancements in cancer detection and treatment, survivorship rates are increasing worldwide. This shift has extended the role of informal caregivers—family members, friends, and community members—who provide essential support to cancer survivors throughout their journey. However, informal caregivers often face unrecognized burdens, particularly among migrant populations, where cultural and language barriers can complicate caregiving responsibilities. Understanding these caregivers' experiences is critical to developing inclusive healthcare systems that support diverse caregiving needs in oncology.

Aims: This systematic review aimed to explore the experiences of Chinese migrant informal caregivers in providing care for individuals with cancer within international healthcare settings. It sought to understand how cultural values influence caregiving practices and to identify challenges encountered in international healthcare systems.

Methods: A systematic search was conducted on November 28, 2023, across six databases: APA PsycArticles, APA PsycInfo, CINAHL with Full Text, ERIC, MEDLINE, and Exploring Race in Society. Using keywords like "Chinese migrants," "Informal caregivers," and "Cancer," this review focused on English-language studies offering qualitative insights into Chinese migrant caregiving in oncology. Eight studies met inclusion criteria and were quality-assessed using the CASP checklist. Data were coded and synthesized following Thomas and Harden's (2008) thematic synthesis approach.

Results: The thematic analysis identified a cyclical relationship among four main themes: Culture, Caregiving, Distress, and Unmet Needs. Cultural values, particularly filial piety, significantly shaped caregiving roles, positioning caregivers as emotional gatekeepers. This role often heightened caregiver distress, especially in healthcare environments lacking accommodations for traditional cultural practices. In response to these challenges, caregivers frequently turned to culturally familiar solutions, such as Traditional Chinese Medicine (TCM) or family support networks, to cope with psychological strain. These findings underscore the importance of developing culturally aligned support systems to reduce caregiver distress and enhance caregiving outcomes.

Implications: The findings underscore the need for culturally inclusive oncology care that acknowledges the unique challenges faced by Chinese migrant caregivers. Integrating culturally sensitive support mechanisms, such as services that respect the caregiver's gatekeeping role or incorporate TCM practices, could improve caregiver engagement and resilience. Training healthcare providers to recognize and address cultural influences on caregiving can foster more compassionate and effective care environments. Future research should expand on these insights to include other migrant communities, contributing to a globally informed approach to cancer caregiving.

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Implementing symptomatic faecal immunochemical testing: findings from a qualitative interview study with practitioners

Presenters: Christina Dobson[1], Adam Biran[1], Colin Rees[1,2], Willie Hamilton[3], John Whelpton[1], Linda Sharp[1]

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Background: Faecal Immunochemical Testing (FIT) is a core step in the management of patients presenting in primary care (PC) with symptoms of possible colorectal cancer (CRC). Symptomatic patients with a positive FIT (≥10µg Hb/g faeces) qualify for urgent suspected cancer referral. FIT-negative patients are typically managed in PC or referred through routine pathways. Little is known about practitioners' experiences of implementing symptomatic FIT, and potential implementation issues, after its rapid national roll-out during the pandemic.

Aims: To explore practitioners' experiences with symptomatic FIT, identifying perceived benefits, disbenefits and implementation issues with potential to inform future service improvements.

Methods: Semi-structured interviews were conducted remotely with 30 professionals from a range of specialties. An iterative topic guide ensured consistency of topic coverage across interviews, while still allowing freedom to explore novel topics that arose. Pseudo-anonymised transcripts were coded by two researchers and were analysed thematically.

Results: Symptomatic FITs introduction was generally regarded positively by practitioners across the suspected CRC pathway. It was felt to increase confidence in clinical decisions for some PC practitioners and was seen by practitioners across the pathway as more effectively targeting definitive investigation to patients at greatest risk of CRC. Symptomatic FIT was, however, associated with additional workload, predominantly in PC. There was concern regarding potential over-use of FIT, increasing the burden of false-positive investigations for both patients, and endoscopy units.

There were concerns that introducing symptomatic FIT may have introduced, or exacerbated, diagnostic delays for cancer and benign disease. Uncertainties existed regarding appropriate strategies for testing and management of patients with active rectal bleeding, appropriate safety-netting of patients with negative FIT results, and the value, and timing, of repeat FIT. Many GPs stated that they would welcome further guidance around these areas of uncertainty.

Implications: Symptomatic FIT has generally been well received by practitioners and integrated into suspected CRC pathways. However, our participants' perceptions of potential disbenefits including the over-use of symptomatic FIT and diagnostic delays for benign disease suggest a need for thorough monitoring and evaluation of intended and unintended consequences. Guidance for primary care practitioners about utilisation of symptomatic FIT in patients with active rectal bleeding, and the use of repeat FIT as a safety-netting tool would also be valuable.

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Empowering Patients in Primary Care: Rapid Access to One-Stop Clinic for Symptomatic Breast Lumps

Presenters: Melanie McInnes[1], Erica Gadsby[1], Piotr Teodorowski[1], Carina Hibberd[1], Juliette Murray[2]

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Background: Breast cancer is the most common cancer in women worldwide. Timely diagnosis and treatment for patients with symptoms of a breast lump is crucial, not only for improving clinical outcomes but also patient experience. Meeting referral-to-treatment targets for suspected cancer remains a significant challenge. This study focuses on the implementation and evaluation of an innovative breast cancer pathway designed to streamline the referral process and reduce the time from referral to diagnosis for patients presenting at primary care with a breast lump in NHS Forth Valley (Scotland).

Aims: To understand the experiences of patients and staff affected by the new breast cancer pathway.

Methods: Set within a hybrid effectiveness-implementation study design, we undertook a mixed-methods evaluation of a new breast cancer pathway. Patient data was collected through a bespoke online survey (N = 155), and semi-structured interviews (N = 9).

Clinical and non-clinical staff (N = 8), participated in an interview about their experience of the pathway. Interviews were analysed thematically in NVivo 20. Data was further enriched by informal observations and field notes. Four patient contributors with lived experience of cancer were involved in the project and contributed to the study design and analysis.

Results: The majority of participants (99.3%) reported feeling happy to receive a direct referral and were satisfied with their care, from receiving their referral to arrival at the breast clinic (94.1%). Three key themes shed light on the factors influencing patient and staff trust in the pathway. Communication and understanding of the referral process: Both patients and staff emphasised the importance of clear, timely communication about the referral process, which played a crucial role in fostering confidence in the pathway.

Accountability and responsibility: Shared responsibility among healthcare providers, along with clear accountability for ensuring timely referrals and coordinated care, reassured patients and contributed to their trust in the system. Empowering patients: Patients reported feeling a higher degree of autonomy which reduced uncertainty and anxiety, and enabled them to make informed decisions about their health.

Implications: The rapid access pathway provides a promising solution for improving cancer diagnostic pathways in primary care, offering quicker access to specialised care without the need for GP referral. This approach increases capacity for GPs and enhances patient outcomes by decreasing diagnostic delays; thus, improving patient satisfaction. Expanding such models across other cancer types could further support early diagnosis and more efficient care delivery.

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Are non-cancer diagnoses potential missed opportunities to start testing for and diagnosing pancreatic cancer? An observational study using linked primary and secondary care records

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Background: Pancreatic cancer, typically diagnosed at an advanced stage, has a 1-year survival of <30%. Its presenting features include jaundice, abdominal, epigastric or back pain, constipation, diarrhoea, fatigue, nausea or vomiting, or weight loss. This study explores whether incident non-cancer diagnoses presenting with these features represent missed opportunities to test for, and diagnose, pancreatic cancer.

Aims:

• To quantify associations between incident non-cancer diagnoses and pancreatic cancer diagnosed within 1 year.

• To explore whether incident non-cancer diagnoses are associated with patient harm, by comparing cancer stage and diagnosis route in people with and without initial non-cancer diagnoses.

Methods: A case-control design used observational data from patients aged ≥40 with pancreatic cancer coded in England's Cancer Registry (2012–2018) with linked primary care data from Clinical Practice Research Datalink (CPRD) Aurum. Cases were matched 1:1 on birth year, sex and general practice with controls without pancreatic cancer. Differential diagnoses of pancreatic cancer features were collated from BMJ Best Practice and NICE Clinical Knowledge Summaries. CPRD records of case-control pairs were searched for codes denoting incident non-cancer diagnoses in the year before the Cancer Registry diagnosis date. Conditional logistic regression, adjusting for smoking, obesity, ethnicity, and Cambridge Multimorbidity Score, estimated associations between non-cancer diagnoses and pancreatic cancer.

A cohort study used logistic regression, adjusting additionally for age and sex, to estimate associations between incident non-cancer diagnoses, stage at diagnosis, and urgent suspected cancer (USC) referral route to diagnosis in pancreatic cancer patients.

Results: The study included 17,559 adults (50% cases, mean age 72.5 (SD 11.4) years, 49.7% male; stage: 55.8% advanced, 14.9% early and 29.3% missing). Of the 34 incident non-cancer diagnoses tested, 15 were associated with pancreatic cancer; notably, diabetes (odds ratio 10.15, 95%CI 7.44-13.85), upper-gastrointestinal diagnoses (i.e. gastro-oesophageal reflux disease, dyspepsia, gastritis: 6.92, 5.54-8.65), pancreatitis (34.69, 13.40-89.77), diverticular disease (2.63, 1.85-3.74), cholelithiasis/choledocholithiasis (5.73, 3.38-9.71), anorexia/bulimia nervosa (22.08, 7.08-68.91), gastroenteritis (2.46, 1.47-4.12), cholangitis/cholelithiasis (4.47, 2.21-9.07), and irritable bowel syndrome (4.95, 1.95-12.53).

Advanced-stage disease was associated with upper-gastrointestinal diagnoses (odds ratio 1.57, 95%CI 1.25-1.96).

Patients were less likely to be diagnosed via the USC route after incident pancreatitis (0.41, 0.25-0.65), cholelithiasis/choledocholithiasis (0.55, 0.34-0.89), atrial fibrillation (0.50, 0.27-0.96), stroke (0.41, 0.17-0.96), and cholangitis/cholecystitis (0.13, 0.04-0.40).

Implications: Incident diagnoses of upper gastrointestinal conditions (gastro-oesophageal reflux disease, dyspepsia, or gastritis), pancreatitis, cholelithiasis/choledocholithiasis, cholangitis/cholecystitis, atrial fibrillation, or stroke may represent missed opportunities in the pathway to pancreatic cancer diagnosis.

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Red herrings and mixed signals: how does an 'interim' diagnosis affect cancer diagnosis?

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Background: The undifferentiated nature of patients' symptoms is a significant hurdle for primary care professionals to manage the drive for earlier cancer diagnosis. A third of those diagnosed with cancer report receiving an 'interim' non-cancer diagnosis, before being referred for cancer investigations. This study focuses on the patient perspective of 'interim' non-cancer diagnosis as a potential missed diagnostic opportunity in the pathway to cancer diagnosis.

Aims: This study aimed to explore patients' experiences of receiving an interim diagnosis prior to referral for investigation of suspected cancer. This includes the impact of an interim diagnosis on patient decision-making regarding re-consultation and ongoing care, and the process through which an interim diagnosis changed to referral for suspected cancer.

Methods: We conducted a secondary qualitative analysis, using an 'amplified approach' in which multiple datasets are combined to draw new insights. We identified seven qualitative datasets collected since 2015 from interview studies which included patients referred to cancer pathways or diagnosed with cancer. Transcripts were selected for analysis if the patient: presented to primary care with symptoms; and received an interim non-cancer diagnosis; and were referred to a cancer investigation pathway. Patient journeys were summarised, charted and analysed using framework analysis. PPIE collaborators were involved throughout this process.

Results: Included transcripts covered patient experiences of referral or diagnosis of brain, colorectal, lung, prostate and urological cancers.

Preliminary findings suggest interim diagnoses may arise and be challenged in different ways, which may form part of the differential diagnosis process. These present unique opportunities and difficulties to overcome delays to cancer investigation.

For example, individuals considered to be at low risk of cancer reported symptoms being dismissed or linked to lifestyle factors (e.g. exercise-related pain), requiring multiple contacts over time before a cancer referral was considered. Attributing symptoms to common conditions (e.g. a cold) led some individuals to delay re-consultation as they believed there would be no benefit.

Patients actively queried interim diagnoses when: they felt their symptoms had been poorly understood; knowledge of their own bodies was disbelieved; or when they felt they had been given inappropriate investigations or ineffective treatment. While patients recognised the difficulty of deciding when common symptoms required onward referral, clinician responsiveness to their concerns built trust in their care, regardless of outcome.

Implications: This analysis has identified opportunities to mitigate potential delays in diagnosis associated with interim non-cancer diagnoses.

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"(Not) Lost in Transition" – Effect of an Intervention Connecting Cancer Survivors with Primary Care on Primary Care Utilization and Patient-Reported Outcomes

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Background: Cancer survivors need comprehensive, coordinated care across primary care (PC) and oncology because of their high burden of chronic conditions and long-term complications from cancer treatments. Although PC is ideally suited to integrate care for all conditions, survivors frequently remain disconnected from their PC homes during active cancer treatment.

Aims: To describe the effect of a system-level intervention that connected or reconnected survivors seen in oncology to PC (Project CONNECT) on PC utilization and patient-reported outcomes.

Methods: The study was conducted at Parkland Health, an urban, integrated health system serving medically underserved patients in the southern United States. Parkland provides oncology care centrally and PC in community health clinics. A quasi-experimental, pragmatic trial included a patient registry and a nurse coordinator embedded in oncology, who identified eligible patients (Stage I-III breast or colorectal cancer with ≥1 chronic condition) and connected them to PC.

Number of PC visits during the year after cancer diagnosis were compared for patients in the intervention group to a retrospective usual care group of patients using multiple regression analyses adjusted for number of visits in the year before diagnosis and patient characteristics. Patient-reported outcome was measured using the Picker Care Coordination subscale, assessed through baseline, 6- and 12-month surveys. Co-variate adjusted generalized estimating equations estimated change in score.

Results: Of 2,662 eligible survivors (570 intervention, 2092 usual care), mean age was 56 years, 80.2% were female, 16.8% were White, 35.3% were Black, and 42.0% were Hispanic. Just over a third were uninsured, 19.7% were enrolled in Medicaid, and 34.5% in Medicare. 96.3% of intervention patients had ≥1 PC visit during the year after diagnosis compared to 73.5% of UC patients (p<0.001).

The intervention group had on average 5 more PC visits than usual care group (adjusted □=4.89, p<.001). In a subsample of 294 intervention patients, patient-reported care coordination improved significantly (adjusted □=-0.06 [-0.01, -0.11]). At 12 months compared to baseline, a higher proportion of survivors reported never/rarely being given confusing or differing information about their health or treatments (62.2% vs. 71.2%) and very often/often knowing who was in charge of their care (89.2% vs. 95.5%).

Implications: Connecting cancer survivors to primary care utilizing a patient registry and a care coordinator increased primary care utilization and enhanced patient-reported care coordination. Thus, a relatively simple care delivery intervention can bridge oncology and primary care, especially for medically underserved survivors living with multiple chronic conditions.

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Levelling the playing field: a longitudinal, qualitative study identifying 'stress-points' in the healthcare system and potential solutions for people affected by incurable head and neck cancer

Presenters: Catriona Mayland[1,2], Ada Achinanya[1], Madeleine Harrison[1], Val Bryant[3], Sheila Payne[4], David Hamilton[5], Linda Sharp[6], Joanne Patterson[7]

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Background: Head and neck cancer (HNC) incidence is higher amongst people experiencing socio-economic deprivation and associated with poorer survival. Health literacy issues limits the ability to navigate healthcare services. Patients with incurable disease may present with complex needs in primary care and, due to an unpredictable disease trajectory, may require emergency care/hospitalisation even in the last months of life. This impacts on quality of life and is costly to healthcare services.

Aims: To understand multi-perspective views about experiences of healthcare services over time for incurable HNC patients and the staff who treat them and identify solutions for improvement.

Methods: A prospective, longitudinal qualitative study involving three regional HNC centres in North England. Patient representatives informed study conception, design, participant-facing materials, and analysis.

Patients: Maximum variation sampling of incurable HNC adult patients, recruited from hospital outpatient clinics, based on factors influencing experiences (e.g., distance from cancer centre, deprivation, lives alone). Patients participated in up to three serial interviews (every 4 four months); family caregiver interviews were conducted if patient too unwell/died.

Staff: Purposive sampling of healthcare professionals (HCP), based on role, specialty, and care setting, for online focus groups.

Picker's 'Principles of Patient-Centred Care' informed topic guides; analysis conducted using framework approach.

Results: Eighteen patients (male=16, 10=<65 years, 17=White British), 6 family carers (5=spouse, 1=child) and 24 HCPs (female=22, 19=White British, including doctors, nurses and allied health professionals) participated in 44 interviews and 4 focus groups.

Variability was recognised regarding timely access to obtaining medication. This often reflected a disconnect in communication between hospital and community settings, compounded by issues relating to systems and processes. Challenges were recognised managing crisis at home with patients expressing uncertainty about who to call. Despite recognition that advance care planning was imperative to anticipate emergencies, emergency admission was perceived as unavoidable.

Means to improve health literacy included having central points of contact including GPs or clinical nurse specialists. Embracing integration, hybrid and cross-boundary ways of multidisciplinary working; and diversifying methods of communication to include more digital means e.g., Apps, alert systems, were seen as ways to overcome challenges.

Implications: In keeping with Picker's Principles focused on care continuity and access to reliable advice, solutions need to focus on ways of bridging information gaps between hospital, community, and palliative care. Improved system navigation, personalised for individual preferences, may help promote equity in care access.

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External validation of a CA125 and age-based prediction model (Ovatools) for ovarian cancer detection in primary care: a population-based cohort study

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Background: In the UK, over 7,000 women are diagnosed with ovarian cancer (OC) each year. Most (67%) have late-stage disease which contributes to a poor 5-year survival rate of 45%. The National Institute for Health and Care Excellence (NICE) advocates CA125 testing in women in primary care with symptoms of possible OC, and pelvic ultrasound if CA125 is ≥35U/ml. However, cancer probability varies markedly with CA125 level and age, so an age- and CA125-based model (Ovatools) was developed to support risk-based triage in CA125-tested women.

Aims: This study aimed to externally validate Ovatools and explore implications of using 1-2.9% risk to trigger primary care ultrasound and >3% risk to trigger urgent referral.

Methods: This retrospective cohort study used primary care and cancer registry data on CA125-tested women in England. The primary outcome was invasive OC within 12 months of CA125 (2011-2017). OC risk was estimated, using published model parameters, and discrimination (Area Under the Curve, AUC) and calibration were calculated. Accuracy at ≥1% and ≥3% risk was compared against CA125 ≥35U/ml. The additional ultrasounds and urgent referrals that would take place through this pathway were estimated.

Results: 342,278 women were included, 0.63% were diagnosed with OC. Ovatools performed well (AUC=0.95) with excellent calibration. A ≥1% Ovatools threshold was more sensitive than CA125 ≥35U/ml (87% vs 84.9%) but less specific (92.4% vs 93.6%) with similar Positive Predictive Values (PPV). A ≥3% threshold was less sensitive (77.8%) but highly specific (97.7%) with a high PPV (17.6%).

Applying the proposed Ovatools thresholds in place of CA125 ≥35U/ml, 17% more women would qualify for further investigation (ultrasound or referral) and 1 in 90 of these women would have OC while only 1 in 1000 not qualifying for further testing (risk <1%) would have OC. Of the high-risk group (≥3%) who qualify for direct urgent referral, 1 in 6 would have OC.

Implications: Ovatools showed excellent performance on external validation. The model could be used to select women at high risk for urgent cancer referral and those at 'low but not no-risk' for primary care ultrasound, in line with commonly used NICE risk thresholds.

This approach would result in fewer false negatives, which are associated with greatly prolonged diagnostic intervals, and could expedite diagnosis in both low- and high-risk groups. Given the additional testing and referrals in the proposed pathway, a health economic evaluation (underway) is needed to assess cost and benefits.

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Co-design of the Structured Personalised Assessment for Reviews after Cancer (SPARC) Intervention

Presenters: Rosalind Adam[1], Lisa Duncan[1], Sara MacLennan[1], Louise Locock[1], Anne E. Kiltie[1,2], Leslie Samuel[1,3], Peter Murchie[1]

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Background: The number of people living with and beyond cancer is increasing. These individuals often experience unmet needs including distressing symptoms such as pain and fatigue, psychological symptoms, and financial toxicity. Multimorbidity is common after cancer. Primary care systems must adapt to manage the increasingly complex needs of those living with and beyond cancer, and with limited resources. Digital technologies could be used to meet some of these demands, but there is a risk that poorly designed technologies could increase burden for patients and clinicians. One approach is to involve patients, caregivers and other key stakeholders in designing digital solutions.

Aims: The aim of this study was to co-design patient facing digital technologies to improve outcomes for people who have received potentially curative treatment for cancer.

Methods: Two co-design workshops were held with patients, clinicians (including oncologists, general practitioners and nurses), digital/computing science experts, and third sector representatives. At workshop one, problems and gaps in care were identified and intervention ideas were generated. At workshop two, a prototype intervention was discussed and refined. All workshop activities were audio-recorded, transcribed and data were analysed using content analysis.

Results: The workshops were attended by 43 people: 26 at event one, and 23 at event two (six attended both events). Cancer was described as a deeply personal experience and human relationship-based care was valued by all. Participants expressed that any technological innovation must enhance care delivered by humans, rather than replace personalised care from clinicians. Being discharged from hospital follow-up was compared to "falling off a cliff". Patients were uncertain about the role of primary care after hospital discharge and found it difficult to access primary care clinicians. Participants suggested that cancer should be considered as a chronic disease and receive similar regular follow up to other long-term conditions. Suggestions were given for digital intervention design and how the intervention should be operationalised.

Implications: We co-designed the Structured Personalised Assessment for Reviews after Cancer (SPARC). This digital asynchronous consulting tool covers core domains from the Cancer Survivorship Framework to standardise the content of high-quality cancer reviews in primary care. SPARC could be completed by patients prior to a cancer or chronic disease management review in primary care. SPARC can automatically sign-post patients to self-management resources, identify those without problems who do not need a review, and can help prioritise problems. The tool will now be tested in primary care.

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Preparing healthcare providers and the public for Multi Cancer Early Detection (MCED) blood tests: towards equitable implementation through co-creation

Presenters: Delyth Price[1], Richard Adams[1], Kate Brain[1], Julie Hepburn[2], Rashmi Kumar[3], Laura Marlow[4], Uju Ogbonna[1], Fiona Wood[1], Harriet Quinn-Scoggins[1]

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Background: Multi-cancer Early Detection blood tests (MCEDs; blood tests to analyse cancer related signals – often through searching for fractions of cancer DNA and biomarkers in the blood) are gaining traction in the UK, and globally, and have the potential to accelerate cancer early diagnosis. However, there is a lack of evidence on the information and communication needs of healthcare providers (HCPs), policy makers and the public regarding MCED blood tests, particularly for underrepresented groups. Understanding these needs, and developing evidence-based interventions and communication strategies to address them, will be critical for equitable and informed implementation of MCED blood tests in the future, and to ensure that they do not increase existing inequalities.

Aims: To identify the information and communication needs of HCPs, policy makers and diverse members of the public for MCED blood tests, with a focus on health equity.

Methods: A series of in-depth qualitative studies will be conducted from November 2024 – April 2025, underpinned by the Socioecological Framework. An iterative co-creation approach across four parallel phases will be used to:

1) identify the information and communication needs of diverse members of the public, with a focus on variation in ethnicity, socioeconomic background and region across the UK, regarding MCED blood tests (n~40/eight focus groups),

2) identify the information and communication needs of HCPs and policy makers regarding MCED blood tests through key informant interviews (n~25),

3) establish a stakeholder consortium to advise on-going phases of the current study and co-create future intervention development and evaluation based on study findings

4) synthesise findings and map them against the Socioecological Framework to co-create a set of recommendations for a future communication strategy focusing on health equity.

Interview and focus group recruitment sample size is based on the concept of information power. Data will be transcribed verbatim and analysed thematically.

Results: Preliminary results from key informant interviews, public focus groups and insights from the stakeholder consortium will be shared.

Implications: Outputs will build a platform for future research to develop, implement and evaluate interventions to address information and communication needs of HCPs, policy makers and the public for equitable and informed uptake and delivery of MCED blood tests. Results will be disseminated nationally and internationally via peer-reviewed journal publication(s), policy briefing(s) and co-created public facing materials.

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The SCRIPT trial: a randomised controlled trial of a polygenic risk score to tailor colorectal cancer screening in primary care

Presenters: Sibel Saya[1], Patty Chondros[1], Adrian Laughlin[1], Matthew Thoenig[1], Rachel Brooks[1], Georgia Ramsay[1], Madeline Luke[1], Floriy La Rocca[1], Lucy Boyd[1], Mairead McNamara[1], Michelle King[1], Shakira Onwuka[1], Richard de Abreu Lourenco[2], Antonio Ahumada-Canale[2], Malcolm Clark[3], George Fishman[4], Julie Marker[4], Cheri Ostroff[4], Erika Spaeth Tuff[5], Richard Allman[5], Fiona Walter[6], Daniel Buchanan[1], Ingrid Winship[7], Jennifer McIntosh[1], Finlay Macrae[7], Mark Jenkins[1], Jon Emery[1]

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Background: Polygenic risk scores (PRS) can predict an individual's risk of colorectal cancer (CRC) enabling tailoring of screening. This genomic risk assessment can feasibly be delivered in general practice as a complex intervention, including both risk-appropriate screening recommendations and interventions to increase CRC screening uptake.

Aims: This trial aimed to determine whether the SCRIPT intervention results in more risk-appropriate CRC screening after 12 months in individuals attending general practice, compared with standard cancer risk reduction information.

Methods: The SCRIPT intervention consists of a CRC PRS, risk- tailored screening recommendations and a risk report for participants and their GP, delivered in general practice. Patients aged between 45 and 70 inclusive, attending their GP, were approached for participation. For those over 50, only those due for CRC screening were eligible to participate. The primary outcome was risk-appropriate CRC screening after 12 months. For those in the intervention arm, risk-appropriate screening was defined using family history and PRS-derived risk; for those in the control arm, it was defined using family history and national screening guidelines.

Timing, type and results of the previous screening were considered in both arms. Objective health service data captured screening behaviour. Secondary outcomes included cancer-specific worry, risk perception, predictors of CRC screening behaviour, screening intentions and health service use at one-, six-, and 12-months post-intervention delivery.

Results: Two hundred and seventy-six participants were randomised to the intervention or control arms, stratified by general practice, using a computer-generated allocation sequence. Two participants were excluded after randomisation, and one withdrew all data. Overall questionnaire response rates were 87% at one month, 79% at six months, and 75% at 12 months.

Consent for objective CRC screening behaviour data was high, with 240/276 (87%) consenting to data from four sources (GP records and three administrative datasets capturing bowel screening and colonoscopies) and a further 32/276 (12%) providing consent for data from three sources. Full trial results will be presented, including the impact of the intervention on CRC screening behaviour, cancer-specific worry, risk perception, and screening intentions.

Implications: The SCRIPT trial will provide evidence for how population risk-stratified CRC screening could be implemented in general practice to not only recommend the right screening for an individual's risk but to encourage adherence to and uptake of risk-appropriate CRC screening.

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'Is that it?': Evaluation of a co-produced filming project with Polish and Romanian women to raise awareness, and increase uptake of, cervical screening

Presenters: Emily Lunn, Helen Roberts, Joanne Cairns

Hull York Medical School, Hull, United Kingdom

Background: There are widespread inequalities in cervical screening uptake, particularly among younger women aged 25-49 years and minoritised groups. In Hull, the lowest uptake rates are just over 40%, and lower rates are predominantly seen in general practices with higher numbers of migrant populations such as Polish and Romanian.

Aims: This project addressed an unmet need to improve cervical screening uptake in the UK among Polish and Romanian women. The aim of this project was to co-produce a short film to raise awareness of cervical screening among Polish and Romanian, in collaboration with women who had previously taken part in our research. 11 women (8 Polish, 3 Romanian) were involved in this project, including 2 women who had a dual role as interpreters, and all but one had taken part in the previous research.

Methods: We partnered with a local community arts organisation, ArtLink Hull, and FlyGirl Films to run a series of co-production workshops, followed by two filming days between November 2023 and May 2024. A film launch took place in June 2024 at Hull Truck Theatre, which brought together a range of stakeholders. The project evaluation comprised feedback collected at the film launch, testimonials from collaborators, film metrics and promotion of the film within general practices and community settings.

Results: The project has seen many benefits, namely increased awareness and screening behaviour with more Polish and Romanian women attending cervical screening in Hull. Beyond the immediate aims of the project, there have been other benefits for the women personally, including improved wellbeing, confidence, and new skills. The women who were involved also felt empowered. Furthermore, the project strengthened existing partnerships and has led to further research collaborations.

Implications: Health promotion through creative methods, such as film, could help to raise awareness of the importance of cervical screening in saving lives. The film has been shown in general practices across Hull and there has been a noticeable increase in engagement with cervical screening There is potential for the film to be promoted in general practices across the UK, and to reach other minority groups who are disengaged with cervical screening.

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Burden of Tracheal Bronchus and Lung Cancer in the WHO Western Pacific Regions (1990–2021): Estimates from the Global Burden of Disease 2021 Study

Presenters: Claire Chenwen Zhong, Junjie Huang, Martin CS Wong

The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background: Tracheal bronchus and lung cancer represent significant threats to public health and impose a considerable burden on nations globally.

Aims: This study aimed to evaluate the impact of bronchus and lung cancer within the WHO Western Pacific regions from 1990 to 2021.

Methods: Data on tracheal bronchus and lung cancer were sourced from the 2021 Global Burden of Disease study, focusing on countries within the WHO Western Pacific regions. We utilized annual case data and age-standardized rates to analyze the incidence, mortality, and disability-adjusted life-years (DALYs) associated with tracheal bronchus and lung cancer, stratified by age and gender. Total percentage changes were calculated to assess trends in incidence rates, mortality, and DALYs.

Results: In 2021, the estimated incidence of tracheal bronchus and lung cancer in the WHO Western Pacific regions was approximately 1.15 million (95% uncertainty interval [UI]: 0.96-1.36 million), resulting in about 0.99 million deaths (95% UI: 0.82-1.16 million) and 22.4 million DALYs (95% UI: 18.4-26.6 million).

China reported the highest incidence burden, followed by Japan and South Korea, with a similar ranking observed for deaths and DALYs; however, Vietnam ranked third for DALYs. The age-standardized incidence rate of bronchus and lung cancer demonstrated an overall increase from 1990 to 2021, with a total percentage change of 0.27 (95% UI: 0.01-0.55).

In contrast, the age-standardized mortality and DALYs rates remained relatively stable, showing total percentage changes of 0.09 (-0.13 to 0.35) and -0.01 (95% UI: -0.22 to 0.25), respectively.

Additionally, there was a consistent rise in the proportion of patients over 70 years old regarding incidence, mortality, and DALYs. Smoking was identified as the primary contributor to DALYs in the WHO Western Pacific regions (62.2%), followed by air pollution (24.2%) and occupational hazards (10.9%).

Implications: This study underscores the growing burden of bronchus and lung cancer in the WHO Western Pacific regions. China, Japan, and South Korea are particularly affected, highlighting the necessity for targeted interventions in these high-risk areas.

Future efforts should prioritize preventive measures and interventions aimed at reducing the burden of bronchus and lung cancer, especially in regions and countries with significant risk factors. By comprehensively addressing these issues, we can work towards mitigating the impact of bronchus and lung cancer and enhancing health outcomes in the WHO Western Pacific regions.

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Incidence, Risk Factors, and Trends of Vaginal Cancer: A Global Analysis from 1990 to 2020

Presenters: Claire Chenwen Zhong, Junjie Huang, Martin CS Wong

The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background: Vaginal cancer is a rare malignancy, accounting for only 2% of all gynecological neoplasms. Its rarity limits extensive epidemiological research, leading to a lack of comprehensive evaluations regarding risk factors among specific populations across various regions worldwide.

Aims: Understanding these factors is essential for effective prevention and intervention strategies.

Methods: This study utilized a retrospective observational design, collecting data from multiple sources, including the Global Cancer Observatory, Cancer Incidence in Five Continents Plus, Global Burden of Disease, World Bank, and the United Nations. Data on individuals diagnosed with vaginal cancer were analyzed to calculate age-standardized rates (ASR) for different regions and age groups.

Both multivariable and univariable linear regression analyses were performed to assess associations between risk factors and the incidence of vaginal cancer. Trend analysis was conducted using joinpoint regression, and the average annual percentage change (AAPC) was computed to quantify temporal trends.

Results: In 2020, there were 17,908 newly reported cases of vaginal cancer (ASR = 0.36, 95% CI: 0.30-0.44), with the highest ASRs found in South-Central Asia and Southern Africa. Key risk factors associated with a higher incidence included unsafe sexual practices and human immunodeficiency virus (HIV) infection.

The temporal trend analysis revealed a globally rising incidence, particularly notable in Iceland (AAPC = 29.56, 95% CI: 12.12-49.71), Chile (AAPC = 22.83, 95% CI: 13.20-33.27), Bahrain (AAPC = 22.05, 95% CI: 10.83-34.40), and the UK (AAPC = 1.40, 95% CI: 0.41-2.39).

Implications: The significant regional disparities and associated risk factors underscore the necessity for targeted interventions and education, particularly in areas with lower human development index (HDI) scores and higher human papillomavirus (HPV) prevalence.

The increasing incidence trend emphasizes the importance of enhancing HPV vaccination rates to prevent the development of vaginal cancer.

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"Never in my wildest expectations": The role of cancer expectations throughout the diagnostic pathway among people with a cancer signal found in the NHS-Galleri trial

Presenters: Laura Marlow, Ninian Schmeising-Barnes, Jo Waller

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Background: Multi-cancer early detection (MCED) blood tests look for cancer signals in cell-free DNA and have the potential to screen for early-stage cancers. Understanding psychological responses to a cancer signal test result is vital prior to any future implementation of blood-based MCED screening.

Aims: We explored how people made sense of this result along the diagnostic pathway.

Methods: The study was embedded in the NHS-Galleri trial (NCT05611632), a large clinical trial of an MCED blood test (Galleri®, GRAIL, Inc.). A subset of 41 participants with a 'cancer signal detected' were interviewed 6-months after their result.

We purposefully selected 20 participants who self-reported a cancer diagnosis and 21 who reported no cancer was found after further tests (at the time of interview). Purposive sampling was also used to maximise demographic diversity. Verbatim transcripts were analysed using Reflexive Thematic Analysis.

Results: Participants described their experiences from receiving the MCED test result to diagnostic resolution. People's expectations of cancer played a pivotal role in emotional reactions (shock, surprise, worry), cognitive responses (making sense of the result) and social interactions. Expectations were influenced by participants' feelings of health and experience of symptoms.

While the cancer signal was often unexpected, the predicted cancer signal origin made sense when consistent with family history or a health issue related to that organ or tissue. During the diagnostic period, views of healthiness or lack of family history were sometimes used to self-reassure: "I'm not feeling ill, so therefore, hopefully, it's treatable, if I've got it."

Those who anticipated a possible cancer diagnosis sometimes experienced intrusive thoughts, impacting sleep and life. Others described being 'matter of fact' and not worrying about cancer as an outcome. For some, receiving a cancer diagnosis was unexpected. For others, expectations of cancer had gradually increased "So it wasn't a horrendous shock to me".

For those who did not have a cancer found (at time of interview), the belief that cancer could still be present (despite not being found) impacted their sense of reassurance and acceptance of their current state of health: "all they've said so far is that we can't see anything". Questions about the meaning of a 'false-positive' were dominated by future cancer risk.

Implications: If MCED screening is implemented, many people could receive a cancer signal test result and need further investigation. Supporting information about the meaning of cancer signals will be vital for minimising psychological impact during this period.

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Defining persons with prolonged incurable cancer: A mixed-methods study

Presenters: Ruben Bouma[1], Olaf Geerse[2,3], Natasja Raijmakers[4], An Reyners[1], Lia van Zuylen[2,3], Kristel van Asselt[5,6], Goda Choi[7], Daan Brandenbarg[7], Mariken Stegmann[7]

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Background: Therapeutic advances have significantly extended survival outcomes for certain incurable cancer types, resulting in a growing population of patients living with prolonged incurable cancer. This emerging group faces unique challenges with regards to the integration of palliative as well as survivorship care. Despite their distinct needs, there is no standardized terminology for this population leading to ambiguity in both research and clinical practice. Moreover, the criteria for defining this group continue to be debated.

Aims: This study aimed to establish a consensus on the terminology and definition(s) for patients living with prolonged incurable cancer, engaging patients and all stakeholders in their care.

Methods: This mixed-methods study comprised focus groups involving patients, caregivers, and healthcare providers to explore key themes. Transcripts were thematically analyzed. A specialist group comprising general practitioners, oncologists, and epidemiologists further refined these findings to inform a subsequent Delphi study. The Delphi expert panel included patients, caregivers, healthcare professionals, researchers, and other stakeholders (e.g. KWF Dutch Cancer Society).

Eligible participants (≥18 years) were patients diagnosed with incurable cancer for at least six months and oncology healthcare providers caring for these patients.

The first round involved ranking 22 statements across three themes on a 5-point Likert scale, while subsequent rounds will aim to prioritize key terms and definitions for consensus.

Results: Focus group (n = 3) discussions revolved around three themes: 1) Defining "incurable" patients (e.g. whether to include patients with a hematological disorder or patients without metastases ineligible for curative treatment due to comorbidity); 2) determining what constitutes "prolonged" survival (e.g. an overarching timeframe applicable to all cancer types or a relative timeframe for each specific type), and; 3) determining the criteria and concepts for a terminology to refer to this group.

The first Delphi round is ongoing, with results expected in November 2024 and a final consensus by the end of 2024. An updated abstract will be submitted in February 2025.

Implications: As the number of patients living with prolonged incurable cancer continues to grow, the role of primary care physicians (PCPs) becomes increasingly essential and multifaceted. Developing a standardized framework is crucial to support PCPs in delivering consistent, long-term care and strengthening collaboration between them and medical specialists. Such a framework can facilitate clear, unified communication and enhance the overall coordination of care, ensuring that the complex needs of this unique patient population are met effectively.

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Understanding the barriers preventing Black men with prostate cancer and their caregivers, from accessing quality prostate cancer care in Canada

Presenters: Aisha Lofters[1], Jackie Bender[2], Paul Wankah[3], Tutsirai Makuwaza[1], Racine Shanelle[2], Anthony Henry[4], Ken Noel[4]

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Background: In Canada, Black men have been found to have a higher likelihood of dying from prostate cancer (PC) than white men. Work by our team has also shown that immigrant men in Ontario from West Africa and the Caribbean (the majority of whom are of West African ancestry) have much higher incidence of PC than other immigrant groups and Canadian-born men.

But in general, little research in Canada has been conducted for and among Black men and/or men of West African ancestry, reflecting an overall gap in the healthcare system of Black health. The community organizations with which we partner have identified disparities among their members versus the healthcare experiences of non-Black men. These gaps in care suggest that systemic inequities in PC care exist for Black men in Canada.

Aims: To identify the systemic and structural barriers to accessing and utilizing high-quality PC care for Black men with PC and their family members across Canada.

Methods: We are conducting a qualitative study with Black men with PC and caregivers (e.g. spouses, adult children) to explore their experiences and perspectives. Sessions are audio recorded transcribed verbatim and analysed using an inductive grounded theory approach.

Results: To date, we have interviewed 18 men, (ages 54-85y) and 5 caregivers (ages 60-72y) living in Alberta, Ontario, Nova Scotia and Quebec provinces, Canada. Patient participants identified as heterosexual males born in the Caribbean (13), South America (2), Africa (1) Europe (1) and Canada (1). Preliminary findings include: i) Limited knowledge about PC including family history prior to diagnosis. ii) Uncompromising definitions of masculinity persist within Black communities where virility, machoism, stoicism and men as providers are seen as important, yet prevent men seeking timely PC care; fear of societal stigma exists. iii) When physician bias is experienced, this diminishes confidence that healthcare needs will be met. iv) Competing life priorities place family and work responsibilities over PC health seeking behaviours. v) Structured and unstructured PC supports are desired and seen as beneficial for positive outcomes. Data collection will be concluded by end of 2024.

Implications: We will use our findings to co-create, implement and evaluate a toolkit of resources for clinicians who provide PC care (primary care providers, urologists, oncologists) that directly addresses these barriers, and for Back men with PC and their family members on evidence-based aspects of PC care to increase awareness, and in turn, self-advocacy.

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Participant selection for lung cancer screening by risk modeling using primary medical records: The Catalan scenario

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Background: Lung cancer (LC) is a major public health problem. Several RCT have shown that LC screening with low-dose computed tomography (LDCT) reduces LC mortality. An important factor in the successful implementation of LC screening programmes is the optimal selection of the high-risk population.

Aims: How does the PLCOm2012nonrace model for identifying people at risk of LC perform when applied directly to routinely collected primary care electronic health records (EHRs)? To what extent can the full PLCOm2012 model provide more accurate predictions than the simplified version (age and smoking history)?

Methods: A population-based cohort was constructed using a secondary data source from EHRs, including living patients aged 55-79 years on 31 December 2023 with a recorded smoking history. We calculated the PLCOm2012noRace 6-year LC risk score (threshold risk ≥2.6%) with the required variables: 1) age, 2) education level, 3) body mass index, 4) COPD, 5) personal history of cancer, 6) LC family history, 7) current smoking status, 8) smoking intensity, 9) smoking duration, and 10) quit years for former smokers. Descriptive statistics were used, considering the normality of the data as appropriate.

Results: A total of 24,294 participants met the inclusion criteria, of whom 47.2% were female, with a mean age of 65.0 years. Of these, 18.6% had a PLCOm2012noRace score ≥2.6. The alteration of the score was more common among participants aged 60–79 (23.8% vs. 22.5%, $p<0.001$) and more common in men than women (22% vs. 15.6%, $p<0.001$).

Using the simplified version, the proportion of individuals with a high score decreased to 9.9%. Among participants with a high score at the end of the study, the average duration of having a score ≥2.6 was 4.29 years with the full version, and 3.67 years with the simplified version.

Notable differences between the full and simplified versions were found in terms of score values, the proportion of individuals with a score ≥2.6, and the duration of elevated scores, varying by sex, age, and time since smoking cessation. In all comparisons, the full version yielded higher scores. The component most significantly impacting the score—smoking intensity—is not always accurately recorded and updated, having this information a mean age of 5.9-7.5 years.

Implications: In the Catalan healthcare context, primary care EHRs represent a valuable resource for identifying individuals at elevated risk of LC. The full PLCOm2012noRace model enhances the identification of patients eligible for LC screening

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Urine high risk human papillomavirus testing as an alternative cervical screening strategy: the ACES Studies

Presenters: Jennifer C Davies[1,2], Suzanne Carter[1], Jiexin Cao[1,2], Maya Whittaker[1,2], Elisabeth Pinggera[1], Clare Gilham[3], Peter Sasieni[4], Alexandra Sargent[5], Emma J Crosbie[1,2]

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Background: Cervical screening saves lives but the attendance rate has been dropping consistently over the last decade, reaching an all time low. Only 68.7% eligible people attend screening in 2022, this is far from the NHS target of 80%. Urine human papillomavirus (HPV) testing shows promise for cervical screening and may improve uptake.

Aims: Our aims were to determine the clinical performance of urine HPV for CIN2+ detection in colposcopy and general screening populations; and ascertain its acceptability to current attendees of cervical screening.

Methods: We tested matched cervical and urine samples for high-risk HPV using Roche cobas-8800 at cervical thresholds. Colposcopy clinic attendees were randomised to provide a first-void urine sample using the Colli-Pee® device (Novosanis;10mls+preservative) or a standard-pot. Primary care attendees collected their urine using the Colli-Pee device.

The colposcopy arm informed diagnostic test sensitivity (detection of CIN2+) and the general screening arm informed diagnostic test specificity (CIN<2). We assessed concurrent acceptability of self-sampling in trial participants using a questionnaire.

Results: 465 colposcopy and 1517 primary care attendees provided matched samples (total=1982).

Colposcopy participants were balanced in age (median;32vs34 years) and ethnicity (79%vs81% white ethnicity) and referral screening results (44%vs44% high grade; 43%vs43% low grade/borderline; and 11%vs12% persistent hr-HPV+/cytology-negative) in Colli-Pee and pot arms, respectively.

Primary care participants had a median age of 37 (IQR 30-45), 69.7% were of white ethnicity with an HPV positivity rate of 13.5%. In the Colposcopy study, urine HPV sensitivity for CIN2+ detection was higher with Colli-Pee (90.3%;95%CI=83.7-94.9) than pot-collected urine (73.4%;95%CI=64.7-80.9;p=0.0005).

Overall, Colli-Pee urine sensitivity for CIN2+ detection was 91.3%(95%CI=85.5-95.3) vs 98.7%(95%CI=95.2-99.8;rel.sens=0.93) in cervical samples and specificity was 85.2%(95%CI=83.3-86.9) vs 87.8%(95%CI=86.0-89.4;rel.spec=0.97). 72.8% of colposcopy and 69.5% of primary care attendees stated they somewhat or strongly agreed that they would be happy to use only a urine sample for screening.

Implications: HPV tested Colli-Pee-collected urine shows similar test accuracy for CIN2+ detection compared to routine cervical screening. Urine shows real potential as an alternative method for HPV testing to conventional cervical samples.

Urine is broadly acceptable to current attendees of cervical screening programmes, however some still prefer clinician sampling, making a choice of sampling methods important in future cervical screening programmes.

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External validation of prediction models for six-month cancer risk in patients presenting with unexpected weight loss in primary care

Presenters: Brian D. Nicholson[1], Meena Rafiq[2,3], Constantinos Koshiaris[1], Julie-Ann Moreland[4], Claire Friedemann Smith[1], Clare Bankhead[1], Georgios Lyratzopoulos[2], Rafael Perera[1], FD Richard Hobbs[1], Pradeep S. Virdee[1]

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Background: Unexpected weight loss (UWL) is a non-specific cancer symptom with limited evidence on the most appropriate investigation strategy in primary care. We developed three prediction models to identify six-month cancer risk in patients with UWL in primary care using information on symptoms, blood tests, and symptoms+tests, respectively.

In the development cohort, the area under the curve (AUC) (95% confidence interval (95% CI)) of the models was: symptoms 0.77 (0.77-0.78), blood tests 0.85 (0.85-0.85), and symptoms+tests 0.86 (0.85-0.86). These models could inform rule-in/out of cancer investigation in patients with UWL.

Aims: To externally validate our prediction models to stratify cancer risk in patients presenting with UWL in primary care.

Methods: We used two validation cohorts. Firstly, patients aged 18+ with first UWL in the Clinical Practice Research Datalink GOLD database – a primary care setting. Secondly, patients aged 18+ with UWL referred for cancer investigation under Oxfordshire's Suspected CANcer (SCAN) pathway – a referred cohort. All three models were assessed in the primary care cohort and the tests model assessed in the SCAN cohort.

Model performance was assessed using the AUC, calibration measures, and positive (PPV) and negative (PPV) predictive value, with (CIs).

Results: There were 21,430 and 3,059 UWL patients in the primary care and the SCAN cohorts, respectively, with 3.5% (n=754) and 8.3% (n=255) diagnosed with cancer by six months post-UWL. In the primary care cohort, for the symptoms, blood tests and symptoms+blood tests models, the AUC (95% CI) was 0.78 (0.77-0.80), 0.84 (0.83-0.86), and 0.85 (0.84-0.86), respectively, and the NPV (95% CI) ranged 99.6-99.9%.

Stage 1 AUC was comparable across the three models (0.73-0.74); the stage 4 AUC was highest for the tests and symptoms+tests models (0.85-0.87). In the SCAN cohort, the tests model AUC (95% CI) was 0.73 (0.70-0.77). Calibration plots showed that each model was well calibrated in the primary care cohort but the tests model under-estimated cancer risk in the SCAN cohort, likely due to a higher cancer incidence in SCAN. Further performance measures will be presented, including by age group, sex, and cancer site.

Implications: This first assessment of these models in external primary care data identified they perform well in risk stratifying UWL patients for cancer. In referred individuals, the blood test model could help inform who needs a CT scan. We are working with public contributors to discuss acceptable investigative strategies in patients with UWL.

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External validation of the Full BLOOD count TRends for colorectal cAnCer deteCtion (BLOODTRACC) risk prediction models in English primary care

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Background: Colorectal cancer is common in the UK. Around 55% of patients are diagnosed late-stage, where likelihood of survival is low (five-year survival: 90% at Stage 1; 10% at stage 4). To facilitate earlier detection, we developed the sex-stratified BLOODTRACC models, dynamic prediction models utilising age and patient-level trends over repeat full blood count (FBC) tests in primary care for two-year risk of colorectal cancer.

Aims: To externally validate the BLOODTRACC models and compare predictive performance to existing colorectal cancer risk prediction models.

Methods: We performed a cohort study using primary care patient data between 01/01/2000 and 31/12/2019 from the Clinical Practice Research Datalink AURUM, linked to the National Cancer Registration and Analysis Service. Eligible patients had at least one FBC test and no history of colorectal cancer before their current FBC (baseline).

Using historical FBCs over five years prior to the current FBC, trends informed risk of cancer diagnosis in two years (+/- 3 months). Co-occurring symptoms at baseline FBC were extracted. Model performance was assessed using the area under the curve (AUC), calibration statistics, and diagnostic accuracy measures, with 95% confidence intervals (CIs).

Results: We included 2,746,544 men and 3,292,392 women, with 0.6% (n=16,306) and 0.3% (n=15,453) diagnosed in two years following their current FBC, respectively.

Mean (standard deviation (SD)) age at current FBC was 60.8 (13.5) years for men and 62.2 (15.0) years for women. The AUC (95% CI) of the models was comparable for both men and women (0.75 (0.74-0.75)) and between patients with and without colorectal cancer-related symptoms for both men (with 0.75 (0.73-0.78); without 0.74 (0.74-0.75)) and women (with 0.71 (0.69-0.74); without 0.74 (0.74-0.75)).

Combining blood test trend with presence of co-occurring change in bowel habit gave the highest AUC (men 0.81 (0.75-0.87); women 0.76 (0.67-0.85)). The calibration slope (95% CI) was 0.97 (0.95-0.99) for men and 0.98 (0.96-0.99) for women. We will present further results, including how predictive performance compares to existing risk prediction tools, such as QCancer Colorectal.

Implications: The dynamic BLOODTRACC prediction models identify patients with undiagnosed colorectal cancer with good discrimination and we are working with public contributors to increase awareness, understanding, and uptake.

We developed an evidence base for incorporating blood test trend into primary care clinical guidance for improved colorectal cancer detection. Further work is underway to enhance performance of the models and investigate the role of blood test trend for detection of other cancers.

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Blood test trends for enhanced prediction of Multiple Myeloma diagnosis: a longitudinal case-control and cohort analysis in English primary care

Presenters: Zach Brubert[1], Ruth Keogh[2], Brian D. Nicholson[1], Pradeep S. Virdee[1]

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Background: Multiple Myeloma (MM) is a notoriously difficult cancer to diagnose. Fifty percent of patients visit their GP three or more times with symptoms prior to secondary care referral. This delayed diagnostic interval is the highest of any cancer. Whilst risk prediction models utilising haemoglobin, calcium and creatinine have previously been developed, none have utilised repeat blood tests as predictors, which could enhance risk stratification.

Aims: To explore the role of trends over repeat haemoglobin, calcium and creatinine blood tests within a MM risk prediction model.

Methods: We first performed a case-control analysis using primary care patient data between 01/01/2000 and 31/12/2019 from the Clinical Practice Research Datalink, linked to the National Cancer Registration and Analysis Service. Every haemoglobin, calcium and creatinine blood test taken in the ten years prior to MM diagnosis were compared, by sex and age, to the same tests in 50,000 randomly selected controls (no MM diagnosis) to identify trends.

A subsequent cohort study, with eligibility of at least one recorded haemoglobin test, was performed to train and test two predictive models for two-year risk of MM diagnosis. One model used a single haemoglobin test, age and sex as predictors (Cox model) and the other used haemoglobin trend over two years, age and sex as predictors (joint model). Model performance was assessed using area under the curve (AUC) with 95% confidence intervals (CI).

Results: There were 28,336 MM cases and 50,000 controls included in the case-control analysis. Divergence in trend for haemoglobin, calcium and creatinine emerged on average 2years, 1.5years and 2years respectively, prior to MM diagnosis. The cohort study included a sample of 50,000 men and 50,000 women, with 0.11% men (n=57) and 0.08% women (n=43) diagnosed within two years.

A decline over repeat haemoglobin tests was associated with increased MM diagnosis risk with hazard ratios (95% CI) of 1.45 (1.32-1.61) for men and 1.75 (1.59-1.96) for women. For men, the AUC (95% CI) of trend predictive model was 0.84 (0.78-0.89), compared to 0.82 (0.76-0.89) for single haemoglobin predictive model. For women, this was 0.75 (0.57-0.92) for trend, compared to 0.73 (0.58-0.88) for a single haemoglobin. Further results will be presented, including calibration measures and performance of other blood tests trends.

Implications: Our analysis suggests there is potential for blood test trends to support cancer referral, but further work is required to see which blood test enhance MM risk stratification the most.

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Routes to cancer diagnosis in migrant populations in Denmark: A population-based nationwide cohort study

Presenters: Anne Dahl Sørensen[1,2,3], Henry Jensen[4], Alina Zalounina Falborg[1], Christian Wejse[2,3,5], Georgios Lyratzopoulos[6], Per Kallestrup[1,2,3], Line Flytkjær Virgilsen[1]

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Background: Studies show that migrant and ethnic minority populations are diagnosed at later cancer stages compared with the background population. In general, the cancer prognosis is strongly associated with the diagnostic pathway, i.e. the route to cancer diagnosis (RtD).

The most common RtD in Denmark is the Cancer Patient Pathway (CPP) from primary care, which is a fast-track referral for cancer workup. However, little is known about the RtDs for cancer patients of migrant and ethnic minority backgrounds.

Aims: This study aimed to describe and compare the RtDs for patients with diverse ethnic backgrounds in Denmark.

Methods: We conducted a nationwide cohort study based on routinely collected Danish registry data. The final study population comprised eligible incident cancer patients aged ≥ 18 years diagnosed from 2014-2018 (n = 154,895). 94.7% of the study population had a Danish background, while 5.3% were migrants. We further categorized the study population into 11 different ethnic groups.

When possible, ethnicity was defined according to country of origin, but for some groups, we had to use region of origin. We categorized each patient into one of seven specified RtDs. We used multinomial logistic regression models to assess the association between ethnicity and RtD. Analyses were adjusted for sex, age, and cancer type.

Results: All results are preliminary. A total of 44.6% (95% CI 44.3%-44.9%) of patients with a Danish background were diagnosed through a CPP from primary care. The corresponding proportions were 40.9% (95% CI 37.8%-44.0%) for patients with a German background, 39.1% (95% CI 35.0%-43.4%) for patients with a Turkish background, and 37.1% (32.9%-41.5%) for patients with an African background.

Compared with the reference group of Danish background, patients of German or African background had an increased risk of being diagnosed with cancer through an unplanned hospital admission relative to a CPP from primary care (relative risk ratios: 1.24, 95% CI 1.03-1.49; and 1.66, 95% CI 1.28-2.15).

Implications: The distribution of RtDs varied somewhat across ethnic groups. Specifically, some ethnic minority populations were less often diagnosed through the CPP from primary care compared with the reference group of Danish background.

Similarly, some ethnic minority populations were more often diagnosed through an unplanned hospital admission, which is the RtD associated with the worst prognosis. The findings may help improve cancer workup for ethnic minority populations in Denmark.

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The barriers and facilitators of primary and secondary healthcare providers about sharing context information between primary and secondary care prior to oncological treatment regarding frail elderly patients

Presenters: Mariken Stegmann, Mathilde Tjepkema, Pauline De Graeff, Daan Brandenbarg, Martijn Appelo, Thomas Stevelink, Barbara Van Leeuwen, Nynke Scherpbier-De Haan

UMCG, Groningen, Netherlands

Background: Elderly cancer patients require tailored care reflecting their context, which encompasses physical, psychological, and social aspects and personal preferences. This information is often available in primary care but is not routinely shared with secondary care.

Aims: To explore the views of primary and secondary healthcare professionals regarding the barriers and facilitators for the sharing of contextual information between primary and secondary care prior to oncological treatment for (frail) elderly patients.

Methods: General practitioners (GPs), practice nurses (PNs), medical specialists (MSs) and specialized nurses (SNs) from a purposive sample participated in semi-structured interviews, conducted iteratively until data saturation. Interviews were transcribed verbatim, coded, and thematically analyzed for main and subthemes.

Results: Eight GPs, five PNs, seven MSs and five SNs were included. For primary care barriers included concerns about patient autonomy, time constraints, and lack of feedback about what was done with the information. Facilitators included personalized treatment, proactive care, and improved professional relationships both between healthcare providers and patients and between healthcare professionals among themselves. Both GPs and PNs thought a digital platform could be helpful, but preferred telephone consultations for nuanced discussions.

For secondary care barriers included time constraints, poor telephone accessibility of the general practice and concerns about prejudicement. Facilitators included personalized treatment, time saving and improved professional relationships both between healthcare providers and patients and between healthcare providers among themselves.

Both MSs and SNs thought sharing context information was most needed for patients with frailty or with psychosocial problems. They mentioned information could not only be asked from the general practitioner but also from the practice nurse. Both a digitally and telephonically were mentioned as the best way.

Implications: Primary and secondary healthcare providers reported various barriers and facilitators about sharing context information between primary and secondary care prior to oncological treatment. This knowledge can help to develop feasible ways of sharing context information. Regional agreements on telephone accessibility and making the effect of the information provided visible could help to solve these issues in order to enable more personalized treatment for elderly patients with cancer.

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Brain tumour diagnostic interval and tumour size at detection; impact on survival, recurrence, inpatient length of stay and neurological deficit

Presenters: Ewan Gray[1], Matthew Baker[1], Paul Brennan[2], James Cameron[1], Peter Hall[2], Piyumanga Karunaratne[2], Abigail Lishman[1], Giovanni Tramonti[2], Maheva Vallet[2]

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Background: Brain tumours commonly present in an emergency setting. However, the majority of brain tumour patients report one or more primary care visits in the preceding months. This suggests opportunities for earlier diagnosis. To address this challenge, Dxcover is developing a simple, rapid liquid biopsy for the primary care setting to enable more efficient triage of patients with non-specific symptoms potentially related to brain cancer. Early economic evaluation of this intervention identified an evidence gap in quantifying the impact of earlier/later diagnosis on patient outcomes.

Aims: To estimate the association between two indicators of earlier/later diagnosis, tumour size and the length of diagnostic interval, and the patient outcomes of cancer-specific survival, overall survival, new or worsened neurological deficit, cancer recurrence and inpatient length of stay in 12 months following diagnosis.

Methods: A retrospective cohort study utilising a database of 1400 patients from Southeast Scotland diagnosed with brain tumours between 2010 and 2020. Diagnostic interval was defined as time from first presentation to radiological diagnosis. Tumour size was defined as the recorded maximum diameter at time of diagnosis.

Hazard ratios for cancer-specific and overall mortality, per mm increase in tumour size or per day increase in diagnostic interval, were calculated. Odds ratios for new or worsened neurological deficit and for tumour recurrence were similarly calculated. Linear regression was used to estimate effects on total inpatient bed days. Regression was used for all outcomes to adjust estimates for possible confounding factors. Alternative diagnostic window definitions were explored in sensitivity analysis.

Analysis was repeated stratified analysis by brain tumour subtype was used to explore generalisability across subtypes.

Results: 1196 patients were included in the study. The mean tumour size was 40.6mm (SD: 17.5mm). Each 1mm increase in tumour size increases mortality risk by approximately 1%, increases the expected inpatient days by 0.15 days, and the risk of new or worsened neurological deficit by 2%. Diagnostic interval results (in preparation) will be presented at the meeting.

Implications: Based on previous estimates of brain tumour growth rates, a tumour with a 40mm diameter at diagnosis (mean diameter in this patient population) would be expected to be 28mm if diagnosed 1 month earlier. Applying the effect size estimates reported above would translate into clinically important differences in outcomes.

This highlights the improvement in patient outcomes that could be expected if early intervention is made possible by new diagnostic tools.

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The diagnostic performance of the faecal immunochemical test for the detection of early-onset colorectal cancer in primary care

Presenters: Melissa Barlow[1], David Messenger[2], Ryan Preece[2], Amy Prowse[3], Willie Hamilton[1], Gary Abel[1], Sarah Bailey[1]

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Background: The incidence of early-onset colorectal cancer (EOCRC) has increased rapidly in recent decades with adults under 50 years now accounting for 10% of all new diagnoses. The number of urgent suspected CRC referrals has quadrupled since 2019, despite the introduction of faecal immunochemical testing (FIT) into referral pathways. In the absence of CRC screening for patients under 50 years, diagnosis is reliant on symptomatic presentation and is frequently subject to delay due to low index of suspicion.

The UK National Institute for Health and Care Excellence (NICE) recommends the use of faecal immunochemical testing (FIT) for patients presenting to primary care with low risk (<3%) symptoms and have set a threshold of ≥10µg Hb/g of faeces for urgent referral. However, the diagnostic performance of FIT in primary care has only been established for patients aged over 50 years.

Aims: We aim to establish the diagnostic performance of FIT for the detection of CRC in patients under 50 years, and to determine FIT thresholds that correspond to a 3% CRC risk.

Methods: In the Salisbury, Wiltshire, Avon, and Gloucestershire (SWAG) Cancer Alliance, data were collected on all patients aged 18-49 years who had a FIT from 01/01/2022 to 10/07/2023, as well as all new diagnoses of CRC in patients under 50 years between 01/01/2022 to 10/07/2024. Multivariable fractional polynomial regression estimated CRC risk by FIT result as a continuous variable to identify the threshold above which estimated CRC risk was 3%.

Results: Of the 40,260 patients with a FIT result, 108 patients were subsequently diagnosed with CRC. Only three patients aged 18-29 years were diagnosed with CRC, so all tested patients under 30 years were dropped from further analysis. A[DM1] [MB2] t a FIT threshold ≥10µg Hb/g for patients aged 30-49 years, the positive predictive value (PPV) was 2.4% and negative predictive value (NPV) 99.98%.

At a threshold of ≥20µg Hb/g, the corresponding PPV was 3.1% and NPV 99.97%. The predicted FIT result to correspond to a 3% CRC risk was 156µg Hb/g (95% CI 106 to 210 µg Hb/g).

Implications: A higher threshold for FIT may be more appropriate for symptomatic patients aged under 50 years in primary care. Applying a 20 µg Hb/g threshold may lessen the diagnostic burden on secondary care with a negligible increase in false negative (missed) tests.

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Cancer risk prediction using machine learning for supporting early cancer diagnosis in symptomatic patients: a systematic review of model types

Presenters: Flavia Pennisi[1,2], Stefania Borlini[1], Rita Cuciniello[1], Anna Carole D'Amelio[1], Giovanni Emanuele Ricciardi[1], Matthew Barclay[3], Georgios Lyratzopoulos[3], Cristina Renzi[1,4]

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Background: Predictive models could support clinicians in identifying patients who may benefit from cancer investigations.

Aims: We aimed to systematically examine published evidence on machine learning models (ML) developed to estimate cancer risk based on symptoms and other patient characteristics.

Methods: Using MEDLINE, Scopus and EMBASE, we performed a systematic review of studies published in 2014-2024, which included data on signs/symptoms for cancer risk prediction and comparing ML models with traditional or other ML-based models. We used the Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) and QUADAS-AI tools to assess study quality. We performed a quantitative synthesis of diagnostic performance, including accuracy, sensitivity, specificity, area under the curve (AUC) and calibration. Adherence to TRIPOD guidelines was assessed.

Results: Among the 5,646 initially identified articles, 35 encompassed sign/symptoms data and met inclusion criteria. Included studies most frequently examined lung (n=9 studies), mesothelioma (n=8) and gastrointestinal cancers (n=4) and used hospital electronic health records (n=8) or publicly available online datasets(n=13). In addition to signs/symptoms (n=35), most predictive models included sociodemographic characteristics (n=28) and lifestyle factors (n=21). In 70% of studies, internal validation was performed. Most studies (n=23) utilised the AUC and two provided findings on calibration. ML models demonstrated satisfactory predictive performance during internal validation, with AUC ranging from 0.72 to 1. Random Forest, Support Vector Machine, Decision Tree, and Multilayer Perceptron methods demonstrated strong predictive performance. Based on QUADAS-AI, 94% of studies had a high risk of bias.

Implications: The reported AUC values principally in internal validation cohorts suggest ML models may hold promise for cancer risk prediction and supporting clinical decision-making. However, current evidence is heterogeneous and frequently subject to bias and imperfect reporting. Further validation and assessment of real-world performance are necessary before they can be employed in clinical practice.

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Predictive value of anaemia for cancer diagnosis in primary care: a population-based cohort study using electronic health records data in England

Presenters: Sufen Zhu[1], Pradeep Virdee[1], Eva Morris[2], Richard Hobbs[1], Clare Bankhead[1], Brian Nicholson[1]

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Background: Anaemia is a common, non-specific condition with multiple possible causes, ranging from nutritional deficiencies to malignancies. Current clinical guidelines recommend referral for suspected cancer based on certain haemoglobin findings, but the potential of anaemia as an early marker for cancer remains unrealised.

Aims: To investigate the predictive value of multiple types and severities of anaemia in determining cancer risk among adults in primary care.

Methods: We conducted a cohort study, including patients aged 18 years or older with at least one haemoglobin test in the Clinical Practice Research Datalink. Anaemia was defined as haemoglobin < 130g/L in men and 120g/L in women and broken down by severity (< 90g/L and 10g/L bands thereafter up to 130g/L) and type (based on co-occurring MCV test: microcytic, normocytic, macrocytic).

The first test showing anaemia (anaemic patients) or a randomly chosen test (non-anaemic patients) was selected. We derived the positive predictive value (PPV) of different anaemia types and severities for overall and specific cancer types diagnosed within 6 months, 1, 2, 3 and 5 years. Analyses were stratified by sex, age at haemoglobin and co-occurring symptom. Sensitivity, specificity, negative predictive value and likelihood ratios of anaemia were also derived for each outcome time window, with 95% confidence intervals (CIs).

Results: We included 12,205,274 patients: 57.9% were women, 28.0% were anaemic and the mean (SD) age was 47.7 (19.7) years. For overall cancer, PPVs increased with older age, severity of anaemia and symptom presence at each outcome window.

The PPV ranged from 0.11% (95% CI: 0.10-0.12) for non-symptomatic women aged 18-39 years with haemoglobin 110-119 g/L to 27.25% (95% CI: 26.09-28.44) for symptomatic men aged 70-79 years with haemoglobin <90 g/L. Higher PPVs were seen in patients with microcytic and macrocytic anaemia compared to those with normocytic anaemia.

Bowel, haematological, and upper gastrointestinal cancers were common in women with haemoglobin below 100 g/L, particularly in those aged 50 or older. In anaemic men under 50 years, haematological cancers were most commonly diagnosed, while bowel cancer was most common in anaemic men aged 50 or older.

Implications: The importance of anaemia in identifying overall or specific types of cancer should be considered based on its type and severity. Improvements of current guidelines for cancer recognition and referral through haemoglobin test are needed to minimise missed diagnoses in high-risk patients and reduce unnecessary referrals in primary care.

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Latest findings from the newly validated Cancer Research UK Cancer Awareness Measure 'Plus' (CAM+) 2024 survey

Presenters: Victoria Whitelock, Kirstie Osborne

Cancer Research UK, London, United Kingdom

Background: Cancer awareness, attitudes and behaviours play a critical role in early detection, diagnosis and treatment outcomes.

The original Cancer Awareness Measure (CAM) survey was developed and validated in 2007-2008 by Cancer Research UK (CRUK), University College London, Kings College London and University of Oxford to address the lack of a validated measure of the public's awareness of cancer.

Since 2014 Cancer Research UK have continually updated, modified and expanded the questions in response to external changes and evidence gaps, with subsequent versions of the survey accordingly referred to as CAM 'Plus' (CAM+).

The CAM+ measures a range of attitudes and behaviours in addition to traditional awareness, on key topics across cancer prevention, screening and early diagnosis. In 2023/24 the CAM+ survey was revalidated.

Aims: The aim of this research is to collect data using the newly validated CAM+ and provide an update on the UK's public's attitudes, awareness and behaviours across key topics within the survey.

Methods: Data will be collected in November 2024 by YouGov Plc from a nationally representative sample of ~6700 adults (aged 18+) in the UK.

Results: Descriptive results on the latest attitudes, awareness and behaviours of the UK public will be shared as well as any variation by key sociodemographic groups.

Implications: The findings from CAM+ can be used to identify priority cancer topics and groups, inform public health interventions and shape the development of appropriate policy aimed at addressing health inequalities and enhancing the efficacy of prevention and early detection efforts.

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CASNET2: Evaluation of an Electronic Safety Netting (E-SN) cancer toolkit for the primary care electronic health record

Presenters: Susannah Fleming, Clare Bankhead, Claire Friedemann-Smith, Rafael Perera, Brian Nicholson

University of Oxford, Oxford, United Kingdom

Background: "Safety netting" is a common strategy for managing uncertainty in primary care, particularly where serious diagnoses such as cancer form part of the differential diagnosis. Safety netting includes giving advice on symptom management, when to consult again, and follow-up processes after tests for serious diseases such as cancer, with the intention of minimising delays in diagnosis.

Aims: To assess the impact of an electronic safety netting tool built into the primary care patient record computer system to reduce diagnostic delay in patients with cancer.

Methods: CASNET2 is a pragmatic cluster-randomised RCT, where GP surgeries were randomised to "turn on" a safety netting toolkit within the EMIS patient record system at different time points. The toolkit enabled staff to record safety-netting advice and actions for suspected cancer cases, as well as providing reminders for patient follow-up.

Routinely collected data was used to collect information on cancer diagnoses and referrals, and patient outcomes before and after the toolkit introduction were compared to assess its impact on cancer diagnosis. All analyses were adjusted for socio-demographic variables, and cluster assignment.

Results: We recruited 52 practices to the study, with an eligible population of 442,662 patients, of whom 9,803 received a cancer diagnosis during the study period. The time from first cancer symptom to diagnosis was an average of 25 days (95% CI 20 to 31 days) shorter after the introduction of the safety-netting tool, with the time from first symptom to referral being shortened by an average of 42 days (95% CI 36 to 48 days).

Patients who had the toolkit used as part of their care experienced greater benefits, with time to diagnosis reduced by an average of 32 days (95% CI 25 to 39 days), and time to referral shortened by an average of 53 days (95% CI 45 to 61 days).

Implications: The toolkit evaluated in CASNET2 is available to all GP practices using EMIS software. Our initial results show that introduction and use of the toolkit results in considerable reductions in time to referral and diagnosis for cancer, with consequent potential for improved clinical outcomes.

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Colorectal cancer diagnostic route by comorbidity status: a population-based study in Northern Italy

Presenters: Flavia Pennisi[1,2], Carlotta Buzzoni[3], Antonio Giampiero Russo[3], Federico Gervasi[3], Mario Braga[4], Cristina Renzi[1,5]

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Background: Reducing emergency cancer diagnoses is a public health priority, as they are associated with worse outcomes than other diagnostic routes. Pre-existing chronic conditions can influence screening participation and emergency cancer diagnosis. However, evidence is mixed and no study is available for Southern Europe.

Aims: To examine variations in the likelihood of colorectal cancer diagnosis following an emergency presentation or screening by patient comorbidity status and socio-demographic characteristics. We also investigated the association between patient characteristics, diagnostic route and comorbidity status with short-term mortality.

Methods: A population-based cohort study using linked cancer registry data and administrative health data from the Agency for Health Protection of Milan, including colorectal cancers diagnosed in 2014-2020 in the provinces of Milan and Lodi, Northern Italy. The primary outcomes were routes to cancer diagnosis (screening, emergency presentation, inpatient/outpatient visits), the stage at diagnosis and short-term mortality (30-day, 6-month, and 1-year).

Results: Among 10,750 colon and 3,707 rectal cancer patients, 44.6% and 57.6% had comorbidities. Emergency diagnosis occurred in 35.6% of colon and 22.6% of rectal cancers, while screening accounted for 8.4% and 9.5% of cases.

Emergency diagnosis was more likely in patients with cerebrovascular diseases (adjusted odds ratio [aOR] 1.50, 95% confidence interval [95% CI] 1.23-1.82), neurological diseases (aOR 1.67, 95% CI 1.33-2.09) or 3+ comorbidities. The odds of screen-detected colorectal cancer were lower for patients with 3+ versus 0 comorbidities (aOR 0.64, 95% CI 0.45-0.91). 30-day, 6-month and 1-year mortality was higher in colon cancer patients with emergency diagnosis vs inpatient/outpatient.

During the COVID-19 lockdown period, emergency diagnoses increased compared to previous periods (aOR 1.28, 95% CI 1.13-1.46), with a corresponding decline in screening (aOR 0.71, 95% CI 0.55-0.93).

Implications: Emergency diagnosis occurred in more than one-in-three colon cancer patients. Comorbidities were associated with a lower likelihood of screening, higher risk of emergency diagnosis and higher mortality. Tailored interventions are needed to facilitate screening, to reduce emergency cancer diagnoses and to improve outcomes for a large number of patients with chronic conditions.

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A Comprehensive Taxonomy of Study Outcomes from Interventions to Boost Awareness of Cancer Symptoms: Findings from a Thematic Synthesis

Presenters: Riya Manas Sharma[1], Benjamin Jacob[1], Sam McGlynn[1], Logan Verlaque[1], Harnoor Kehal[1], Kurdo Araz[1], Zaid Yacoub[1], Ricardo Zaidan[1], Nicole Sim[1], Natalie Lane[1], Ettaeyo Ita[1], Mariia Shpak[1], Conner Bullen[1], Rebecca Trower[2], Heather Burns[3], Kate Hamilton-West[4,5], Patrick Redmond[1]

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Background: Early cancer detection significantly improves survival rates and treatment outcomes. Public health interventions aimed at increasing symptom awareness represent an important strategy for promoting early help-seeking behaviour and diagnosis. However, there is heterogeneity in outcome reporting across studies describing such interventions, hindering systematic evaluation of their effectiveness.

Aims: This taxonomy development study, part of a larger evidence synthesis project, addresses this critical gap in outcome reporting by developing a standardised framework for classifying and comparing outcomes across cancer awareness interventions.

Methods: Following a systematic search across eight major databases (MEDLINE, EMBASE, PsycINFO, Scopus, Web of Science, ProQuest, Cochrane Library, and CINAHL), 12,579 studies were screened and 264 were included in the final analysis. Outcome extraction from the results section of the included studies was conducted using Taguette, followed by thematic synthesis in NVivo. Using Braun and Clarke's six-phase approach to thematic analysis, outcomes were systematically coded and categorised. The broad outcome domains will be used to synthesise a hierarchical classification system.

Results: The initial thematic synthesis yielded seven outcome domains ("Awareness and Knowledge", "Attitudes and Beliefs", "Behavioural Intentions", "Actual Behaviours", "Healthcare System Impact", "Clinical Outcomes" and "Campaign Reach and Engagement"). "Awareness and Knowledge" emerged as the outcome domain most assessed and reported across the studies, with over 500 tags extracted using Taguette from 169 unique studies.

It was followed by "Actual Behaviours" and "Attitudes and Beliefs", each with nearly 200 tags across 94 and 85 studies respectively. These domains encompass the full spectrum of intervention effects, from immediate cognitive and behavioural changes to long-term clinical and health system impacts. We plan to generate multiple unique sub-themes per outcome domain, develop detailed descriptions for each, and organise the categories into a logical framework.

Implications: This comprehensive outcome taxonomy will address a critical methodological gap in cancer awareness research by providing a standardised framework for outcome selection and reporting. The classification system will enable more rigorous monitoring and evaluation of intervention effectiveness, facilitate evidence synthesis, and guide the development of more targeted and measurable awareness campaigns.

Beyond cancer, the taxonomy's structure offers a template for outcome classification in other public health awareness initiatives. These findings hope to inform the development of a core outcome set for symptom awareness interventions.

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External validation of the COLOFIT colorectal cancer risk prediction model in the Oxford-FIT dataset: the importance of population characteristics and clinically relevant evaluation metrics

Presenters: Andres Tamm[1,2,3], Brian Shine[4], Tim James[4], Jaimie Withers[5,2], Hizni Salih[5,2], Theresa Noble[5,2], Kinga A. Várnai[5,2], James E. East[2,6], Gary Abel[7], Willie Hamilton[7], Colin Rees[8,9], Eva Morris[3,10], Jim Davies[3,2,11], Brian D. Nicholson[1]

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Background: A faecal immunochemical test (FIT) result ≥ 10 µg/g is recommended in the UK to triage patients with symptoms of colorectal cancer (CRC) in primary care for urgent cancer investigation. However, only one in eleven FIT-positive patients have cancer. The COLOFIT model combining FIT results with age, sex, platelet count and mean cell volume was developed to reduce the proportion of people referred without CRC.

Aims: To externally validate the COLOFIT using Oxford University Hospitals (OUH) data.

Methods: FITs requested by GPs between January 2017 and February 2024 were extracted from the OUH Clinical Data warehouse. Adults with COLOFIT predictors and 180-day follow-up for CRC were included.

External validation of the COLOFIT equation was conducted overall, and for six independent time periods, as the proportion of patients with higher-risk symptoms had increased over time. Risk score thresholds where the model captured the same number of cancers as FIT ≥ 10 µg/g were estimated to understand the number of urgent referrals avoided. The thresholds were estimated on COLOFIT derivation data, the entire OUH data, and each period of OUH data.

Results: 51,477 individuals (659 cancers) were included; 6,194 (12%) had FIT ≥ 10 µg/g. FIT positivity and testing volume increased over time, associated with a gradual change from testing lower-risk patients to including those with higher-risk symptoms. COLOFIT was poorly calibrated overall, but calibration improved over time as FIT positivity increased. Applying the risk threshold estimated on COLOFIT derivation data was not optimal, yielding a 6% reduction in referrals overall, and at most a 10% reduction in referrals with up to 2% cancers missed over time. Applying the optimal threshold estimated on the entire OUH-FIT dataset, COLOFIT would have led to an 8% reduction in referrals without missing cancers compared to FIT ≥ 10 µg/g. Applying the optimal thresholds for each period, COLOFIT performance varied significantly, ranging from 23% reduction to 2% increase in referrals.

Implications: The potential benefit of COLOFIT varied depending on FIT testing rates, the proportion of FIT ≥ 10 µg/g, and the symptoms in the tested population. Adopting COLOFIT into current clinical practice demands, therefore, FIT positivity and CRC rates within a defined range. Further validation in local and different populations would help maximise COLOFIT's ability to improve diagnostic pathways. Ongoing monitoring and validation over time is recommended. Computer code will be published that facilitates the evaluation of FIT-based models in the future.

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Catch-Up Screen: Offering an at-home urine HPV test to women aged >65 in the UK

Presenters: Clare Gilham[1], Christine Rake[1], Emma Crosbie[2,3], Belinda Nedjai[4], Una Macleod[5], Alex Young[5], Annelie Maskell[2], Michelle Saul[4], Hannah Mohy-Eldin[4], Julian Peto[1]

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Background: Almost half of all cervical cancer deaths in England are among women aged ≥65 years. Women currently being discharged from the NHS screening programme with a negative HPV test will be at extremely low risk of developing cervical cancer, but the lifelong risk will be substantially higher in women who were screened only with cytology (aged ≥65 in 2019 when primary HPV testing was introduced).

Cervical cancer screening has been extended to older women in other countries such as in Australia where women are screened up to age 74, and in Denmark where a national catch-up test was offered to every woman born before 1948.

Aims: "Catch-Up Screen" offers a catch-up HPV test to women aged 65-79 who have not had a primary HPV test. Recruitment began in January 2024. About 18,000 women will be invited with the aim of screening 10,000 women over 3 years.

Methods: A Colli-pee urine collection device (Novosanis) is being posted to women living in the north of England (Manchester and Hull) and consenting participants return their sample by freepost to the laboratory. The Colli-pee device is easy to use, less invasive than other devices and avoids the embarrassment of a speculum examination which older women often find uncomfortable. It is hoped that this will encourage women who were not screened regularly to take part.

The BD Onclarity HPV testing assay is used to test the urine samples. HPV positive women will be invited to repeat their urine test after 6 months, and persistently positive women will be referred to colposcopy.

The project is funded by Yorkshire Cancer Research.

Results: Uptake rates, HPV prevalence and HPV genotyping will be presented for the first ~4500 women who have been invited to take part. The screening invite has been well received so far with 57% of those invited returning a urine sample. The response rate was highest among those adequately screened when aged 60-64. The HPV prevalence is 5.2%.

Implications: We hope to demonstrate that a national HPV catch-up programme is feasible and an effective way to reduce cancer in this older age group. We anticipate that at-home urine tests will address common barriers to screening particularly in under-screened women.

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SURVIVE: a multi-level database for assessment of cancer survivorship care outcomes

Presenters: Christina Crabtree-Ide[1], Sarah Mullin[1], Tessa Flores[1], Philip Whalen[1], Kevin Stein[2], Nicolas Schlecht[1], Pragati Advani[1], Mary Reid[1]

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Background: Cancer survivorship programs are developed to meet the complex needs of cancer survivors; however, understanding patient outcomes related to different models of survivorship has been limited by the lack of comprehensive datasets that include multi-level data. Roswell Park Comprehensive Cancer Center has a large formal survivorship program that offers comprehensive cancer survivorship care, and cancer survivors are also seen in their respective disease-site specific clinics. This model leads to opportunities to evaluate models of survivorship care and patient outcomes within different systems of care.

Aims: We aimed to develop a large, innovative, multi-level database, SURVIVE, that allows us to ask critical complex questions about access and quality at larger scales with broad translational significance.

Methods: We brought together a multidisciplinary team to inform domains important in survivorship and contribute to a relational database based on the Observational Medical Outcomes Partnership (OMOP) common data model following FAIR principles (Findable, Accessible, Interoperable, and Reusable). These provide the infrastructure for rapid, high-quality research concerning survivorship outcomes like access, utilization, and quality.

Elements in SURVIVE are sourced from the EMR and patient-reported outcomes, including the problem list, scheduling and visit data, clinical text notes using named entity recognition and relation extraction, patient-reported outcomes using self-reported assessment surveys, and quality of life assessments collected at each Survivorship clinic visit.

Results: Since inception of our formal survivorship program in 2017, we have serviced 4,792 cancer survivors, including a diverse population from local urban and rural communities, Appalachian regions, and tribal nations.

The SURVIVE database contains data from cancer survivors seen within the dedicated survivorship program and in other Roswell Park disease-site specific clinics. The database now includes over 28,000 patients seen between January 1, 2017, and May 31, 2024, including cancer survivors from all disease sites and the dedicated survivorship clinic, allowing for direct comparisons to our broader patient population and across all clinical services.

Implications: We can leverage our integrated SURVIVE database infrastructure to assess multi-level factors associated with access, utilization, and quality of survivorship care, institution-wide and within a formal survivorship clinic and apply the same structure to assess outcomes across institutions and geographical areas.

This database infrastructure will catalyze research within our institution and can be readily translatable to other Survivorship programs, enabling collaborative science and advancing clinical care that can be adopted by other healthcare systems.

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Rural Cancer Survivorship: Project ECHO (Extension for Community Healthcare Outcomes) for Primary Care Clinical teams

Presenters: Tessa Flores[1], Christina Crabtree-Ide[1], Elise Collins[2], Lindsay Kelly[2], Slyvia Wood[3], Maureen Killackey[4]

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Background: Cancer Survivors have complex needs, and these needs are compounded in rural regions due to differences in access to care, geographic and transportation challenges, social and cultural patterns of healthcare utilization, and availability of services to patients. In rural regions of the United States (US), primary care providers (PCPs) often manage cancer survivors' care but frequently request ongoing education and guidance in managing the multifaceted needs of rural cancer patients in US.

The New York State Cancer Consortium (NYSCC) Survivorship Action Team was awarded funding by the Centers for Disease Control and Prevention to build and implement an educational series for PCPs related to cancer survivorship.

Aims: The aim of this project was to develop and implement an ECHO series with virtual education, case studies, and guidance to develop Cancer Survivorship services, including models of shared care for health teams who manage patients living in rural and remote regions.

Methods: The NYSCC Survivorship Action team brought a team of clinicians and academic researchers to develop and implement a 6-part series that covers some of the main issues faced by rural cancer survivors. We developed modules for the Survivorship ECHO using the results of the 2019-2020 New York State Department of Health Cancer Program Survivorship Assessment of barriers to Survivorship care, highlighting basic Clinical Oncology education, patient navigation, community resource guides, and identification of patient needs.

Results: The sessions were: Survivorship 101, Survivorship Teams, Medical Issues in Survivorship, Survivorship Lifestyle Behaviors, Survivorship and Sexual Health, and Supportive Care in Survivorship. There were 122 total participants across the 3 sessions, with an average of 20 per session, some of the 122 were repeat attendees.

Most attendees had clinical degrees (physicians, advanced practice providers, registered nurses, licensed clinical social workers), and most said 5/6 sessions increased their knowledge of the subject matter and overall competence. Future topics requested by attendees included: specialty services, more information about lifestyle and supportive care, cancer management in primary care, mental health, anxiety, and medical trauma, and support of older adults, caregivers, and low-income patients.

Implications: Improving workforce capacity to meet the growing needs of cancer survivors will continue to be an ongoing priority. These shared educational efforts in an ECHO format are steps toward improving cancer survivorship care among patients with limited healthcare access.

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Impact of asymptomatic PSA testing in primary care on prostate cancer mortality in England; a nested case control study

Presenters: Shama Riaz Sheik[1], Alejandra Caston[1], Christopher Mathews[1], Thomas Round[2], Peter Sasieni[1]

[1]QMUL, London, United Kingdom. [2]King's College London, London, United Kingdom

Background: Although there is no prostate screening programme in England, men aged 50+ can request a prostate-specific antigen (PSA) test from their General Practitioner (GP).

Aims: To study the impact of asymptomatic PSA testing on prostate cancer mortality through a case-control study.

Methods: Nested within the Clinical Practice Research Database (CPRD), all men who died of prostate cancer (linkage to death registry) age 55-84, between 01/01/2003 and 31/12/2017 with a diagnosis during the same calendar period were selected as cases. A random sample of men from the general population who had not died of prostate cancer age and sex-matched to cases were selected as controls. Data on PSA were extracted from CPRD.

We reviewed medical records to determine if a PSA test was performed for asymptomatic or for symptomatic cases (including surveillance of earlier cancer or elevated previous PSA). We used conditional logistic regression to estimate the odds ratio (OR) of prostate cancer mortality.

Conditional logistic regression was used to access the association between PSA level and the risk of prostate cancer death. Adjustment was made for potential confounding factors. We explored the association between prostate cancer mortality and practice level rate of PSA testing.

Results: 23% (1971/8403) of control participants had a PSA test recorded, increasing with age. Of these 30% (601/1971) were symptomatic and 24% of these symptomatic tests had a test in the previous year. Conditional logistic regression on 2919 cases and 8757 controls showed a patient with asymptomatic PSA test was 33% (OR=0.67, 95% CI: 0.56-0.80) less likely than one with no PSA test to die from prostate cancer.

Men aged 65-74 with a PSA under 2ng/ml had at most a 0.15% risk of dying from prostate cancer in the next decade compared with 0.8% in those not tested. Patients in a GP practice in the top 20% for PSA testing were 12% (95%CI: -3% to 25%) less likely to die of prostate cancer than those from the bottom 20%. The study supports a low absolute risk of dying from prostate cancer within 10 years of a PSA test under 2ng/ml.

Implications: Based on routine data men who had a PSA test without symptoms were about one-third less likely to die from prostate cancer compared to those who didn't have the test, in particular low ten-year risk for PSA <2ng/ml. Higher primary care use of PSA testing is associated with improved patient outcomes.

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Linking GP and genetic data for cancer risk prediction in symptomatic populations

Presenters: Allison Drosdowsky[1], Sibel Saya[1], Silja Schrader[1], Roger Milne[2], Robert MacInnis[2], Cate Dellow[2], Larissa Popowski[2], Bethany Gilham[2], Jon Emery[1], Meena Rafiq[1]

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Background: Patients with symptoms that could be signs of cancer will often go to their General Practitioner (GP) first. Many of these symptoms are common, making it hard to know which patients need further investigation. There is some evidence that the use of genetic risk information, or polygenic risk scores (PRS), alongside common blood test results could help GPs could assist with cancer risk prediction in patients who present with symptoms in primary care.

Aims: This project aimed to create the first Australian linked data resource containing information on presentations and investigations in general practice, cancer diagnoses and genetic information. We then assessed the usefulness of PRS in predicting one-year cancer risk in symptomatic patients using multivariate diagnostic prediction models for four cancers (colorectal, prostate, melanoma, breast).

Methods: Data on a subset of individuals recruited to the Melbourne Collaborative Cohort Study (MCCS) who underwent OncoArray genome-wide genotyping were linked to PATRON, a general practice electronic medical record dataset. Genetic information collected by MCCS was used to calculate PRS using validated methods, for each of the four cancers of interest. In addition, MCCS contains information on demographics, lifestyle factors and cancer diagnosis data.

PATRON was used to obtain information on general practice encounters, investigations and results. A symptom list for each cancer was used to identify the symptomatic patient cohorts, developed from guidelines, existing literature and clinical knowledge. Diagnostic prediction models were specified a priori to evaluate the added value of PRS information on top of base models that included age and sex, and blood test results.

Results: Sample sizes for each cohort of symptomatic patients with PRS data varied from n=84 (breast) to n=789 (colorectal cancer). One year risk of cancer also varied from 1.4% (melanoma) to 9.5% (breast). Diagnostic prediction model analyses are underway and results of these will be presented.

Implications: This study will provide further evidence on whether polygenic risk scores could add to the ability to discriminate patients presenting with cancer symptoms in primary care. Using genetic information may be a solution to determine the patients most at risk of an undiagnosed cancer, to expedite diagnosis and improve outcomes.

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Scottish Cancer and Residence (SCOTSCAR) - does increased travel burden to services lead to differences in survival and health care use?

Presenters: Lisa Iversen, Sachin Kumar, Melanie Turner, Peter Murchie

University of Aberdeen, Aberdeen, United Kingdom

Background: One-fifth of Scotland's population lives rurally including 93 inhabited islands. The North of Scotland Cancer and Residence study found that where a person lives affects their cancer journey.

Paradoxically, those living furthest from hospital and island residents were more likely to be diagnosed and treated quickly than those living closer to hospital, but they had poorer one year survival. These patterns persisted after adjustment for advanced disease. It is important to establish whether these geographical inequities are experienced throughout the whole of Scotland.

Aims: To investigate the relationship between travel burden and survival and health care use after cancer diagnosis in Scotland during 2007 to 2018.

Methods: A retrospective cohort of all patients aged 18 or older diagnosed with cancer between 2007 and 2018 was constructed by the data linkage of the Scottish Cancer Registry (Scottish Morbidity Record, SMR06) with other routinely collected health datasets including SMR00 outpatient attendance, SMR01 inpatient and day cases, primary care prescribing (Prescribing Information System) and the National Records Scotland death registry. Geographic Information System (GIS) software was used to calculate distances and travel time between the patients' home and general practice, hospital of diagnosis and treatment locations.

The cohort was assembled by the Electronic Data Research and Innovation Service (eDRIS), Public Health Scotland and is housed within the National Data Safe Haven. All statistical analyses are performed using SPSS version 27 and R version 4.4.2. Baseline characteristics of the cohort will be described using descriptive statistics. Binomial regression and Fine and Gray sub-distribution hazards modelling examine the relationship between travel burden and health care use and survival.

Adjustments will allow for important confounding factors including age, sex, deprivation, rurality, cancer type and metastatic cancer.

Results: The SCOTSCAR cohort is comprised of approximately 250,000 patients. The findings will be approved for release from the National Safe Haven by the conference date. We will present the cohort characteristics described according to the categories of travel burden/travelling time to the hospital of cancer diagnosis (15-<30, ≥30-≤60, >60 minutes and island dwellers in comparison to <15 minutes). We will also report health care utilisation and survival according to travel burden in the one-year period after cancer diagnosis.

Implications: SCOTSCAR will provide insights into geographical inequities in cancer survival and whether these are explained by post-diagnostic treatment and follow-up care.

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Do medications for pre-existing chronic conditions influence colorectal cancer symptom attribution?

Presenters: Giovanni Emanuele Ricciardi[1,2], Flavia Pennisi[1,2], Christian von Wagner[3], Lauren Smith[3], Aradhna Kaushal[3], Georgios Lyratzopoulos[3], Cristina Renzi[2,3]

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Background: Colorectal cancer (CRC) is the fourth most common cancer in the UK and has the second highest mortality. Despite advances in screening, nearly half of CRC cases are diagnosed at an advanced stage, limiting treatment options and reducing survival. The majority of CRC cases are diagnosed after patients present with specific symptoms, such as rectal bleeding, or general symptoms, such as weight loss or fatigue.

In patients with chronic conditions, symptoms of an as yet undiagnosed cancer could sometimes be attributed to the chronic condition or its treatments. While studies have examined the possible influence of chronic conditions on cancer symptom recognition, there is limited evidence on the role of medications in this context.

Aims: To investigate the likelihood of attributing CRC symptoms to medications for chronic conditions.

Methods: The online vignette survey included 1287 participants aged >50 years, with quota sampling to recruit sufficient participants with type 2 diabetes. Participants self-reported chronic conditions and answered questions on symptom attribution and help-seeking, after reading vignettes describing new-onset rectal bleeding or change in bowel habit. Using multivariable logistic regression, we analyzed the association between specific conditions and attributing new-onset CRC symptoms to medications, controlling for demographics.

Results: Among participants, 25% reported type 2 diabetes, 31% being overweight, 25% hypertension and 22% arthritis. Participants with diabetes, versus those without, had a higher likelihood of attributing change in bowel habit to medications (7% vs 3%; adjusted Odds Ratio [aOR]=2.55, 95% Confidence Interval [95%CI] 1.30-5.00).

Similarly, participants reporting being overweight and those with arthritis, versus those without these conditions, were also more likely to attribut change in bowel habit to medications (overweight: 7% vs 2%; aOR=2.36, 95%CI 1.25-4.44; arthritis: 8% vs 3%; aOR 2.27, 95%CI 1.19-4.35). No significant association was found regarding the attribution of rectal bleeding to medications.

Implications: The study findings emphasize the need to raise awareness among patients with common chronic conditions regarding the importance of promptly reporting any new symptom to their doctor, due to the possible overlap between medication side-effects and potential cancer symptoms.

Research is needed on effective doctor-patient communication strategies for patients with multimorbidity in order to provide balanced information preventing unnecessary worry. Additionally, research on risk stratification approaches might help to differentiate between medication side effects and undiagnosed cancer, supporting early cancer diagnosis in this growing patient group.

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Cost-effectiveness analysis of implementing risk-based triage for ovarian cancer detection using Ovatools in UK primary care

Presenters: Runguo Wu, Kirsten Arendse, Tooba Hamdani, Fiona Walter, Boby Mihaylova, Garth Funston

QMUL, London, United Kingdom

Background: Clinical guidelines in England recommend biomarker cancer antigen 125 (CA125) testing in women with symptoms of possible ovarian cancer (OC) presenting in primary care. Pelvic ultrasound scan (USS) is advocated if CA125 is ≥35 u/ml. However, the risk of OC varies markedly with both CA125 level and age. The validated Ovatools model for OC risk, which incorporates age and CA125 level, provides the risk of OC to inform decisions on subsequent testing and referral.

Aims: We proposed a new pathway following a primary care CA125 test using Ovatools: Ovatools risk <1%, released; 1-3%, further USS check; ≥3%, cancer pathway referral. This study examined the cost-effectiveness of implementing the Ovatools pathway in UK primary care compared to the current guideline-recommended pathway.

Methods: The study population included women from the Clinical Practice Research Datalink (CPRD) with either a CA125 test record or a relevant symptom plus USS record between 2013 and 2017. A model consisting of a decision tree and a Markov model, informed by CPRD and other data, was developed to predict OC detection in primary care and long-term survival, quality adjusted life years (QALYs) and cost for the study population. The model-predicted outcomes were compared between the current pathway and the Ovatools pathway.

The probability of stage shift was estimated for originally late-stage cancer additionally detected in the new pathway using data from the literature. Effects and costs from benign gynaecological surgery were integrated using published data. Incremental cost-effectiveness ratios (ICERs) were calculated with 3.5% discount rate for costs and outcomes. Sensitivity analyses examined scenarios 1) considering the pathway's effects on uterine, lower gastrointestinal, lung and pancreatic cancers and 2) excluding the effect of benign gynaecological surgery.

Results: Analysis included 416,004 women investigated for OC. 2,218 (0.53%) were diagnosed with OC within 1 year, with 1,486 (67%) at late-stage (III-IV). 79% and 94% of late-stage OC were detected in the current and the Ovatools pathways, with false positive rates of 1.1% and 3.3%, respectively.

Compared to the current pathway, Ovatools resulted in 372 extra QALYs at additional cost of £3 million (undiscounted), with ICER £12,153/QALY. ICER reduced to £5,887/QALY under the scenario including effects on other cancers and increased to £14,469/QALY excluding the effect of benign gynaecological surgery.

Implications: Implementing the Ovatools pathway to triage women with possible OC in UK primary care has the potential to cost-effectively improve outcomes for women with OC.

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Prostate specific antigen (PSA) retesting intervals and trends in primary care: A retrospective cohort study of over 10 million patients in England between 2000 – 2018

Presenters: Kiana Collins, Jason Oke, Pradeep Virdee, Rafael Perera, Brian Nicholson

University of Oxford, Oxford, United Kingdom

Background: The prostate specific antigen (PSA) test is a diagnostic test for prostate cancer. It is unclear whether the benefits of PSA testing outweigh the harms of overdiagnosis and overtreatment. In England there is no guidance that specifies PSA retesting intervals for symptomatic or asymptomatic patients in primary care. Patterns of PSA retesting intervals in these patients without a prostate cancer diagnosis are unknown.

Aims: Characterise how PSA tests are utilised in primary care before a patient is diagnosed with prostate cancer.

Methods: Temporal trends and annual percentage changes were analysed using age-adjusted PSA testing rates. Negative binomial regression models investigated incident rate ratios of PSA testing. Linear mixed-effects models examined the length of PSA retesting intervals. All results were analysed by region, deprivation, age, ethnicity, family history, symptom presentation and PSA value. A patient public group advised on which analyses were important for patients.

Results: A total of 1,521,116 patients had at least one PSA test and together had a total of 3,835,440 tests. Half of patients had at least two PSA tests. Twenty-seven percent of PSA tests were paired with a symptom. The median PSA retesting interval was 1.1 years (IQR 0.5 – 2.3).

PSA testing increased overtime and peaked in 2018. Rates increased more for asymptomatic patients and for those with PSA values below the National Institute for Health and Care Excellence (NICE NG12) referral threshold. Seventy-three percent of patients who had multiple PSA tests never presented with a PSA value above the NICE NG12 threshold. Region, ethnicity, family history, age and deprivation were all significantly associated with the likelihood of PSA testing and the length of the PSA retesting interval.

The South of England and areas of lower deprivation had higher rates of PSA testing but similar intervals between PSA tests. Symptoms were associated with the likelihood of PSA testing and retesting intervals but had a smaller effect on the length of the retesting intervals compared to patient ethnic and demographic characteristics.

Implications: PSA testing and retesting is happening frequently in primary care for asymptomatic patients and for those with low PSA values. With limited consensus on optimal PSA retesting intervals, more PSA retesting is occurring in primary care than what would be expected in an organised national screening program.

There is an urgent need for evidence-based PSA retesting intervals to be incorporated into clinical practice guidelines to reduce variation and unnecessary PSA retesting.

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Using AI technologies to facilitate the diagnosis of skin cancer in primary care settings: the views and preferences of users and developers

Presenters: Owain Jones[1], Steve Morris[1], Fiona Walter[2]

[1]University of Cambridge, Cambridge, United Kingdom. [2]Queen Mary University of London, London, United Kingdom

Background: Skin cancers, including melanoma and keratinocyte carcinomas, are amongst the commonest cancers worldwide. Improved access and triage of patients presenting with suspicious skin lesions in primary care could lead to earlier detection and better outcomes and reduce the workload of overstretched skin cancer clinics. Artificial intelligence technologies have been postulated as a solution, but there are few studies evaluating these technologies in clinical practice and little evidence on the views of stakeholder groups.

Aims: We aimed to understand the views of patients, the public, clinicians, and AI researchers on the use of AI technologies to facilitate the early diagnosis of skin cancer; and to examine patient, public, and general practitioner preferences for different attributes of AI technologies in this setting.

Methods: We undertook a qualitative interview study with 29 stakeholders. Transcribed recordings were analysed using thematic framework analysis, the NASSS framework helped guide the analysis. We conducted a discrete choice experiment using online surveys with 2302 participants. Choice scenarios were based on: false negative rate, false positive rate, cost, location of the AI technology, efficacy on different skin tones, and recommendation in guidelines. Data were analysed using alternative-specific conditional logit regression models.

Results: Themes generated from qualitative interviews included the positioning of AI in the skin cancer diagnostic pathway and the aims of the AI technology; with cross-cutting themes regarding trust, usability and acceptability, generalisability, evaluation and regulation, implementation, and long-term use. There was no clear consensus on where AI should be positioned, most participants saw the technology in the hands of patients or primary care practitioners.

Participants were concerned about the quality of the data used to develop and test AI technologies, and the impact this could have on the false negative rate and the accuracy in patients with melanin-rich skin tones. In the DCE all attributes significantly influenced the AI technology respondents preferred. False negatives rate was the most important attribute, followed by the skin tones the technology had been developed and tested on.

Implications: The risk of false reassurance from false negative results and accuracy and safety in patients of all demographics were key concerns for participants in both studies. Results from both studies suggest that, at the current moment in time, participants felt AI technologies should be used with a human (clinician)-in-the-loop. Participants from all groups and across both studies had similar priorities and concerns, which provides a consensus of factors that need to be addressed before implementation.

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INvestigating DIGital Outcomes (INDIGO) in Cancer Survivorship: A Randomised Observational Digital Trial – Pilot Study Results

Presenters: Danush Padmasri[1], Kerlann Le Calvez[2,3], Jonathan Gregory[3,4], Lillie Pakzad-Shahabi[2,3], Matthew Williams[2,3]

[1]Imperial College London, London, United Kingdom. [2]Radiotherapy Department, Charing Cross Hospital, Imperial College Healthcare NHS Trust, London, United Kingdom. [3]Computational Oncology Laboratory, Imperial College London, London, United Kingdom. [4]Macmillan Cancer Support, London, United Kingdom

Background: There are 2.4 million people in the UK living beyond cancer, yet their long-term quality of life (QOL) and health outcomes remain poorly understood, but this is important for patients and healthcare providers. Clinical trials focus primarily on short-term QOL, leaving significant gaps in our knowledge of longer-term outcomes and healthcare usage in community settings. The INDIGO trial attempts to address both the evidence and methodological gaps by studying patients 1 year or more from diagnosis.

Aims: Working with patient partners, we co-designed a digital randomised observational clinical trial to explore the feasibility and effectiveness of using a secure digital platform to collect Patient Reported Outcome Measures (PROMs) from patients living with and beyond cancer.

Methods: This Northwest London pilot study engaged 115 GP practices through the clinical research network, complemented by social media recruitment, allowing self-enrolment via a secure digital platform. All participants completed the EQ-5D-5L and were then randomly allocated to one of three additional PROMs (EORTC QLQ-C30, Social Difficulties Inventory (SDI) or Patient Generated Index (PGI)).

Patient partners shaped recruitment materials, social media messaging and usability testing. The study analysed participant engagement, completion rates and consent for data linkage to national cancer registries.

Results: Of 3330 participants who viewed the trial page, 2404 consented to participate. Among participants, 1600 completed the EQ-5D-5L, with 1583 reporting on services used to manage cancer-related effects. Completion rates were comparable across all randomised PROMS, though they captured different QOL challenges. While participants engaged through various digital recruitment methods, primary care clinical research network interaction triggered the largest participation rates.

Comparisons with a local registry (WSIC) demonstrated representativeness across tumour types, treatments, and disease states, although some ethnic groups were underrepresented. Over 75% of participants consented to their NHS cancer registry data linkage, allowing for comprehensive analysis of service use.

Implications: The INDIGO trial demonstrates the feasibility of digital PROM collection through primary care networks, offering a scalable model for integrating patient-reported outcomes into routine community care. High GP practice engagement confirms primary care's crucial role in long-term support for patients living with and beyond cancer.

With national roll-out planned for February 2025, this framework will enable targeted interventions for specific patient needs (e.g. fatigue), while NHS data linkage facilitates comprehensive outcome measurement.

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'Negotiating Cancer in Unprecedented Tides': the experiences of cancer diagnosis, treatment and care during the COVID-19 pandemic among patients, their informal caregivers and healthcare professionals in the UK

Presenters: Micky Kerr, Olufikayo Bamidele, Liz Mitchell, Julie Walabyeki, Mike Lind, Una Macleod

Hull York Medical School, University of Hull, Hull, United Kingdom

Background: The COVID-19 pandemic significantly disrupted cancer diagnostic and care services in the United Kingdom (UK), but the impact on the physical, emotional, and social well-being of patients, their caregivers and healthcare professionals (HCPs) is poorly understood due to a dearth of qualitative research on this topic. Our study addressed this evidence gap, providing valuable insights to inform future policy and practice across cancer care services in the UK and internationally.

Aims: To explore experiences of cancer diagnosis, treatment and care during the COVID-19 pandemic from the perspectives of patients, their informal caregivers and HCPs.

Methods: Using constructivist grounded theory methodology, semi-structured interviews were conducted with adults who received cancer diagnosis and treatment since January 2020 (n=62), their informal caregivers (n=16), and HCPs (n=20) involved in cancer care (including primary and secondary care), all recruited in the Yorkshire region between 2021 and 2023. Interviews lasted 30-60 minutes, were conducted either in-person, online or by telephone and audio-recorded.

Data were iteratively analysed using constant comparison and followed the key stages of initial, focused and theoretical coding until saturation was achieved. Reflexive and analytical memos were kept to ensure rigour and trustworthiness.

Results: Data analysis culminated in the development of the substantive theory 'Negotiating Cancer in Unprecedented Tides' which provides a conceptual understanding of the experiences of cancer during the COVID-19 pandemic from patients, their caregivers and HCPs' perspectives.

Patients and caregivers recounted waves of uncertainties navigating a cancer diagnosis in the face of an unprecedented pandemic, attributed to diagnostic delays, treatment disruptions, social isolation and public health messaging/policies on COVID-19 (e.g. social distancing).

HCPs further highlighted the inevitable transitioning between in-person and remote consultations as well as balancing health policies around cancer care and COVID-19 restrictions, affected the dynamics of patient-provider interactions, their own psychosocial well-being and patient's perceptions of their care. Patients and caregivers adopted diverse strategies, drawing on internal reserves (e.g. positive goal-setting) and external resources (e.g. trusted expertise) to keep afloat during the cancer journey. HCPs relied on teamwork, professional expertise and resilience, in implementing changes to cancer care delivery despite the pandemic.

Implications: The uncertainties associated with a cancer diagnosis were heightened by the COVID-19 pandemic. There is need for improved, dynamic public health communication and policies that recognise these uncertainties, respond proactively and optimise the potential benefit of blending physical and digital interventions to personalise cancer care pathways during and post pandemics.

Yorkshire Cancer Research is a funder of this study.

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The risk of lung cancer in symptomatic patients with selected long term health conditions

Presenters: David Shotter[1], Lucy Kirkland[1], Bianca Weiring[1], Elizabeth Shephard[1], Sam Merriel[2,1], Gary Abel[1], Willie Hamilton[1], Sarah Bailey[1]

[1]University of Exeter, Exeter, United Kingdom. [2]University of Manchester, Manchester, United Kingdom

Background: As of 2020, more than 75% of individuals diagnosed with cancer also have at least one pre-existing long-term health condition.

Comorbidities in cancer patients are linked to reduced survival rates, due in part to delayed diagnoses. Over 80% of cancer cases are diagnosed after symptoms are presented in general practice. Clinical decisions are based on symptoms, signs, or abnormal test results. However, treatment for other conditions and shared risk factors such as age, socioeconomic disadvantage, smoking, and obesity can affect healthcare-seeking behaviour, symptom presentation, and clinical decision-making.

Lung cancer has a UK incidence of 48,500 and a 10-year survival of 9.5%. Diagnosis at an early stage significantly benefits patients, in terms of survival. In 2018, 65.6% of lung cancers in England were diagnosed at a late stage (stage III/IV).

Aims: The primary aim of this study is to estimate the predictive value of clinical features for lung cancer in patients with any of six common comorbidities. The comorbidities investigated are diabetes, anxiety and/or depression, chronic obstructive pulmonary disease (COPD), hypertension, obesity and cardiovascular disease (CVD).

Methods: This case-control study used data from the Clinical Practice Research Datalink. Lung cancer cases and controls were matched on sex, age and general practice. The predictor variables for cancer sites were selected based on previous literature, input from public collaborators and searching grey literature. The model being fitted is a multivariable logistic regression, which will be based on multiple clinical features including test results, symptoms and other pre-existing conditions.

Results: There were 48,302 incident lung cancer cases and 241,510 controls. The prevalence of pre-existing conditions in cases was 47% with hypertension, 45% anxiety and/or depression, 31% CVD, 27% obesity, 26% COPD, and 16% diabetes.

Our modelling found that there were 59 significant interactions between conditions and features which may have an impact on risk of cancer diagnosis; these features will be presented at the conference.

Implications: The results from this study address an evidence gap on the clinical features of suspected lung cancer, by examining how selected long-term health conditions affect cancer risk and feature presentation. These results can inform whether different features should be acted upon differently for patients with pre-existing morbidities, for example by altering the age at which they become eligible for an urgent referral.

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Handling multiple symptomatic consultations when identifying index dates from electronic health records for cohort studies assessing risk of cancer: options and impact

Presenters: Nadine Zakkak[1,2], Becky White[1], Helen Fowler[1], Gary Abel[3], Sarah Price[3], Sarah Moore[3], Meena Rafiq[1,4], Georgios Lyratzopoulos[1], Matthew Barclay[1]

[1]University College London, London, United Kingdom. [2]Cancer Research UK, London, United Kingdom. [3]University of Exeter, Exeter, United Kingdom. [4]University of Melbourne, Melbourne, Australia

Background: Building cohorts of symptomatic patients for disease risk prediction using primary care electronic health records involves many decisions that are rarely examined in the literature. Which symptomatic consultation(s) to use as an index date is one such key choice.

Aims: In this study, we examine the impact of the choice of symptom consultations(s) on analytical options and resulting cancer risk estimates.

Methods: We analysed primary care electronic health records data from CPRD Gold on patients aged 30-100 years presenting with abdominal pain. We considered different cohort design and analytical approaches, such as the inclusion of either only first-ever or new-onset and subsequent symptoms, different definitions of a new-onset symptom (first-ever or no history within the previous 12 months), and different washout periods between symptom consultations before they are eligible for inclusion (3 months or 6 months).

To model cancer risk within 12 months, we used sex-stratified logistic regression models adjusted for age and new-onset status (and when including multiple presentations, via generalised estimating equations with an exchangeable correlation structure).

Results: 298,995 women presented with abdominal pain at least once between 2007 and 2017 (median follow-up of 3.7 years). Half (44%) had multiple presentations (median of 3 presentations per patient among those with multiple presentations). Initial presentation for abdominal pain was often associated with many symptomatic presentations in quick succession, validating the need for a washout period.

Considering three different approaches (first-ever presentation only; random presentation with a washout period of 6 months; all presentations with a washout period of 6 months), we found broadly similar results.

First-ever presentation appeared to give higher risk estimates (e.g., 3.4% cancer risk at age 65, 95% CI 3.2-3.6%); considering a random presentation gave lower risk estimates with a relatively large difference between new-onset (3.0%, 2.9-3.1%, at age 65) and subsequent symptoms (2.5%, 2.4-2.7%); considering all presentations gave estimates in the middle (3.1%, 2.0-3.3%, for new-onset, 2.9%, 2.7-3.1%, for subsequent symptoms).

Implications: Our results outline different valid approaches to estimating cancer risk in symptomatic patients presenting in primary care. There are many methodological options beyond those studied here. Options that allow inclusion of multiple symptoms per patient are helpful when there is an interest in risk for subsequent symptom presentations.

This project forms part of ongoing work examining risk of cancer across a wide range of symptoms and identifying relevant analytical approaches.

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The risk of colorectal cancer in symptomatic patients with selected long term health conditions

Presenters: David Shotter[1], Lucy Kirkland[1], Bianca Wiering[1], Elizabeth Shephard[1], Gary Abel[1], Willie Hamilton[1], Sam Merriel[1,2], Sarah Bailey[1]

[1]University of Exeter, Exeter, United Kingdom. [2]University of Manchester, Manchester, United Kingdom

Background: More than three in four individuals diagnosed with cancer also have at least one pre-existing long-term health condition (LTHC); patients with comorbidities may have poorer cancer survival. Several LTHCs have shared risk factors with cancer, such as age, socioeconomic disadvantage, smoking, and obesity. These features can affect healthcare-seeking behaviour, symptom presentation, and clinical decision-making.

Colorectal cancer has an approximate yearly incidence of 42,900 and a 10-year survival of 52.9% respectively. Earlier diagnosis is crucial for patients with LTHC to improve outcomes.

Aims: The primary aim of this study is to estimate the predictive value of clinical features for colorectal cancer in patients with any of 6 common comorbidities. The comorbidities investigated are diabetes, anxiety and/or depression, chronic obstructive pulmonary disease (COPD), hypertension, obesity and cardiovascular disease (CVD).

Methods: This case-control study used data from the Clinical Practice Research Datalink. Colorectal cancer cases and controls were matched on sex, age and general practice. The predictor variables for cancer sites were selected based on previous literature, input from public collaborators and searching grey literature. The model being fitted is a multivariable logistic regression, which will be based on multiple clinical features including test results, symptoms and other pre-existing conditions.

Results: There were 48,302 incident colorectal cancer cases, and 241,510 controls. The prevalence of pre-existing conditions in cases was 48% with hypertension, 37% anxiety and/or depression, 33% obesity, 26% CVD, 16% diabetes, and 7% COPD.

In the year before diagnosis, change in bowel habit was recorded in 8% of cases, and abdominal pain in 18% of cases, both of which are featured in NG12 guidelines as indicators for suspected cancer in combination with other clinical features. Both distension and new onset IBS were recorded in 1% of cases, neither feature in NICE NG12.

Our modelling found that there were 51 significant interactions between conditions and features which may have an impact on risk of cancer diagnosis; these features will be presented at the conference.

Implications: The results from this study address an evidence gap on the clinical features of suspected colorectal cancer, by examining how selected long-term health conditions affect cancer risk and feature presentation. These results can inform whether different features should be acted upon differently for patients with pre-existing morbidities, for example by altering the age at which they become eligible for an urgent referral.

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Symptom appraisal and help-seeking before a cancer diagnosis during pregnancy: a qualitative study

Presenters: Afrodita Marcu[1], Emma Ream[1], Karen Poole[2], Jo Armes[1], Faith Gibson[3], Lisa Whittaker[4], Jenny Harris[1]

[1]University of Surrey, Guildford, United Kingdom. [2]Clinical Trials and Statistics Unit, The Institute of Cancer Research, Sutton, United Kingdom. [3]Great Ormond Street Hospital for Children NHS Foundation Trust, London, United Kingdom. [4]King's College London, London, United Kingdom

Background: Estimated incidence of cancer diagnosis during or shortly after pregnancy is 1 in 1,000 pregnant women in the UK. Pregnancy can impact symptom appraisal and help-seeking for symptoms subsequently diagnosed as cancer. However, little is known about the pathway to cancer diagnosis in pregnancy or the delays that pregnant women can encounter.

Aims: To explore women's symptom appraisal, help-seeking decisions and experience of receiving a cancer diagnosis during pregnancy to understand factors affecting timely diagnosis.

Methods: Semi-structured interviews with 20 women (aged 27 to 45 years), diagnosed with cancer during or shortly after pregnancy in the previous four years, recruited between January and May 2022 via the charity Mummy's Star. Seventeen women (85%) were diagnosed with cancer during pregnancy (5 to 35 weeks of pregnancy).

Three women (15%) were diagnosed 6 to 16 weeks postpartum, having initially sought help for their symptoms during pregnancy. Thirteen participants (65%) were diagnosed with breast cancer, and 7 (35%) with other cancers. The time interval from first noticing symptoms to receiving the cancer diagnosis ranged from one week (albeit for participants with private health insurance) to 48 weeks. The data were analysed using Reflexive Thematic Analysis and the themes were mapped onto the intervals of the Model of Pathways to Treatment. Two patient representatives previously diagnosed with breast cancer during pregnancy contributed to the interview guide, the recruitment strategy, and the interpretation of the findings.

Results: Symptoms were often interpreted through the lens of pregnancy by both participants and most of the healthcare professionals from whom they sought help. Some participants suspected their symptoms might be cancer from looking them up online. Worsening symptoms and symptoms incongruent with pregnancy were main motivations for seeking help.

Participants with breast lumps were more likely to suspect cancer and also to be referred promptly for tests in secondary care. Some participants regretted not seeking help earlier or being diagnosed relatively late by the HCPs, but some saw their delayed diagnosis as a 'blessing in disguise' that allowed a longer carefree enjoyment of pregnancy.

Implications: Health services need to better support women presenting with possible cancer symptoms during pregnancy to ensure timely diagnosis. Full assessment is required before misattributing symptoms to pregnancy. We need to understand how to educate healthcare professionals in primary care, midwifery and obstetrics/gynaecology services to recognise cancer symptoms in pregnancy.

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Variations in diagnostic tests among 2443 women with ovarian cancer in 22 low- and middle-income countries: An analysis of The Every Woman Study Cohort

Presenters: Garth Funston[1], Frances Reid[2], Karen Kapur[3], Tracey Adams[4], Florencia Noll[5], Isabelle Soerjomataram[6]

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Background: Ovarian cancer has the worst survival of any gynaecological malignancy, but timely diagnosis and treatment could improve outcomes. Seventy percent of women with the disease live in low- and middle-income countries (LMICs). However, there is little data on diagnostic practices for ovarian cancer within this setting.

Aims: To examine variation in tests/clinical examinations women underwent prior to ovarian cancer diagnosis in LMICs.

Methods: Women who were treated for ovarian cancer were recruited at 82 hospitals in 22 countries across Africa, Asia and South America. Following patient consent, data on tests/procedures (including clinical examination, CA125 and imaging) performed before their ovarian cancer diagnosis were extracted from medical records of participants by members of the hospital team. The proportion of women who underwent each test was calculated by country and region.

Results: Of the 2446 women recruited into The Every Woman Study, diagnostic data was available for 2443. Clinical examination was performed in 88.3% of women in all countries (cross country range: 64.7% in Colombia-100% in Kenya, Jamaica, Peru, Uganda, Egypt, Guatemala and Nepal). By region, it was lowest in South America (84.5%) and highest in Africa (94.0%).

CA125 was performed in 84.4% of women but this varied, with only 14.1% of participants in Malawi having the test compared to 100% participants in Guatemala, Jamaica and Uganda. By region it was lowest in Africa (74.7%) and highest in Asia (92.2%).

Computer tomography (CT) was the most common imaging modality (74.2%, cross country range: 14.1% in Malawi - 98.1% in Kenya; lowest region Africa (61.8%), highest Asia (82.7%)) and transvaginal ultrasound the least common (34.2%, cross country range: 0.9% in Kenya - 84.2% in Argentina, lowest region Africa (13.4%), highest South America (45.4%)). Participants reported cost of tests (often born by patients) as a major barrier to test access, while local clinicians reported lack of radiographers as a key issue.

Implications: ASCO resource stratified guidelines for ovarian cancer recommend clinical examination and a combination of abdominal/transvaginal ultrasound alongside CA125 as initial tests followed by CT +/- Magnetic Resonance Imaging.

Our results show testing practices vary widely between countries and regions. Expanding affordable access to health technologies including diagnostic tests for ovarian cancer and increasing the skill base is key to improve diagnosis and ultimately outcome among women with ovarian cancer.

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The Oxford Suspected CANcer (SCAN) Pathway: Report of the first 5000 patients

Presenters: Claire Friedemann Smith[1], Julie-Ann Moreland[2], Pradeep S. Virdee[1], Brian D. Nicholson[1]

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Background: Non-specific symptoms present a diagnostic challenge as they may indicate many serious and benign conditions as well as cancer. Patients with non-specific symptoms therefore historically experienced longer diagnostic intervals and poorer prognosis. To improve their care and outcomes, Rapid Diagnostic Centres (RDCs) were rolled out across England.

Aims: We report the findings of the first 5000 patients accepted to the Oxford SCAN Pathway.

Methods: Data was collected through bespoke forms at different stages of the pathway. Changes to the cohort were assessed using linear regression for continuous patient data and logistic regression for binary patient data, with Pathway year as the input variable, with the impact of the COVID-19 pandemic considered. We derived the positive predictive value (PPV) of referral criteria and blood tests for cancer. A two-sided 5% significance level was used.

Results: Of the first 5,000 patients referred to the SCAN Pathway, 4,823 were included after the national data opt-out was applied. The SCAN Pathway had a cancer conversion rate of 8.8% (n=423), 11.1% (n=535) of patients had a new non-cancer diagnosis and 19.3% (n=933) had a clinically relevant incidental finding.

Changes to the Pathway over time included a reducing cancer conversion rate, decrease in the use of GP gut-feeling and nausea/appetite loss and an increase in the use of unexpected weight loss as referral criteria. The mean (95% CI) number of days in the secondary care (8.5 (4.7-12.3) and treatment (4.0 (1.7-6.3)) intervals also increased for cancer cases over the operational years.

When the associations between abnormal blood tests and referral criteria with cancer were considered, the combination of unexplained laboratory results and nausea/appetite loss gave the highest PPV (18.5% (95% CI: 15.1-22.3)). An abnormally high CA125 had the highest PPV among all blood test abnormalities (36.0% (95% CI: 22.9-50.8)).

Implications: While RDCs are generally associated with higher cancer conversion rates than traditional two-week-wait pathways, many differ in their configuration and optimal testing regimens are still a matter of debate.

Some configurations may result in higher numbers of incidental findings which might be justified by higher cancer and serious non-cancer disease conversion rates, but will have practice implications, particularly in the light of the recent requirements to accommodate adults under 40 years of age. We will discuss our experience of implementing the SCAN Pathway and the policy implications, drawing on our recent work on implementing cancer detection innovations.

Lightning talks

02

A randomised controlled trial of a digital intervention (Renewed) to support symptom management, wellbeing and quality of life in cancer survivors

Presenters: Paul Little[1], CLASP study team[2]

[1]University of Southampton, Southampton, United Kingdom. [2]Universities in UK, Singapore, Canada, Southampton, Oxford, Bristol, Exeter, Coventry, Leicester, Bangor, Calgary, Singapore, London, United Kingdom

Background: Cancer survivors are often left with consistently poor quality of life after primary treatment ends, with limited evidence about what could help in primary care.

Aims: We aimed to develop and trial an evidence and theory based digital intervention (Renewed) supporting increasing physical activity, improving mental health, improving diet and weight loss.

Methods: This was a pragmatic parallel open randomised trial. Participants were recruited through primary care and randomised to either a generic NHS website ('Live Well, n=906), the bespoke Renewed website (n=903) or Renewed plus brief primary care healthcare worker support (n=903).

Participants had finished primary treatment for colo-rectal, breast or prostate cancer and had with lower Quality-of-Life (European Organization for Research and Treatment of Cancer QLQ-C30 (EORTC QLQ-C30) score<85). Primary outcome: self-reported EORTC QLQ-C30. Secondary: self-reported EORTC QLQ-C30 subscales (global self-rated health; functional and symptom subscales), psychological measures, resource use.

Results: At 6 months there were improvements in EORTC QLQ-C30 score in all groups, but no between-group differences (vs generic: Renewed -0.42 (-1.57, 0.72); Renewed-with-support 0.52 (-0.53 -1.57)). By 12 months the Renewed-with-support group continued to improve compared to generic advice (1.42, 95% CIs 0.33 to 2.51), with largest differences in the prostate subgroup. In both Renewed groups by 12 months subscales improved significantly for global health, dyspnoea, constipation, and enablement.

For Renewed-with-support there were also significant differences for physical, cognitive and emotional functioning and fatigue. Renewed and Renewed-with-support both incurred substantially lower mean annual NHS costs per patient (generic advice £265: vs generic respectively -£141,-153 to -128; -£77,-90 to -65).

Implications: Currently available detailed online support is likely to help cancer survivors improve quality of life. Providing robustly developed bespoke digital support provides additional modest longer term improvements in enablement, symptom management, and self-rated global health, with much lower NHS costs.

03

Risk of cancer and other diseases in patients presenting in primary care with fatigue: a series of population-based cohort studies

Presenters: White Becky[1], Matthew Barclay[1], Nadine Zakkak[1], Cristina Renzi[1], Meena Rafiq[1], Arturo Gonzalez-Izquierdo[2], Spiroz Denaxas[1], Brian D Nicholson[3], Georgios Lyratzopoulos[1]

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Background: Fatigue is a common non-specific symptom in primary care, which can be associated with cancer and a range of other illnesses. Yet, GPs must decide which fatigued patients need urgent specialist referral for suspected cancer, or instead, investigation in primary care or 'watchful wait' management.

Aims:

a) inform GPs of the risk of present but as-yet undetected cancer in patients presenting with fatigue, and

b) contextualise that risk in respect of other differential diagnoses.

Methods: We used GP electronic health records (EHRs) to examine short-term cancer risk in cohorts of patients presenting to GPs with new-onset fatigue.

We characterise short-term cancer risk (overall and by cancer site) in patients presenting with new-onset fatigue in primary care, by age and sex, considered either on its own, or in combinations with 19 other non-specific symptoms.

We contextualise risk of cancer against 237 other possible diagnoses, identifying diseases with the greatest excess risk in fatigue presenters, compared to patients presenting without fatigue.

Results: When examining only fatigued patients without potential alarm symptoms for cancer or anaemia, cancer risk generally did not exceed current UK guideline thresholds (> 3%) for urgent investigation for suspected cancer.

However, when patients presented with fatigue in combination with another non-specific symptom, particularly weight loss or abdominal pain, risk was higher and exceeded 3%.

Compared to other diseases, cancer was relatively likely in older men with fatigue, but not women. In men, by 80 years, cancer was the disease with the 4th highest absolute excess risk in male fatigue presenters compared to non-fatigue presenters. In women, cancer remained relatively infrequent; by age 80 it was the disease with the 13th highest excess risk in fatigue presenters.

Older patients with fatigue were at high actual risk (ranging from 2-5%) of consequential diagnoses including cancer, pneumonitis, acute kidney injury, stroke, chronic kidney disease, and coronary heart disease.

Implications: Among older men presenting to their GP with new-onset fatigue, cancer is relatively likely compared to other diagnoses, particularly when other non-specific symptoms are present (e.g. weight loss or abdominal pain). Several other consequential diseases should still be considered.

In older women with fatigue, in the absence of other signs and symptoms of cancer, doctors could consider safety-netting for cancer or investigating it alongside other possible diagnoses. The findings highlight the importance of expanding multispecialty diagnostic services for non-specific symptoms like fatigue, given its wide disease spectrum.

05

The Pre-Diagnostic General Practitioner Care of Sarcoma Patients: A Real-World Data Study

Presenters: Emily Holthuis[1], Winette van der Graaf[1], Cas Drabbe[2], Winan Van Houdt[1], Yvonne Schrage[1], Tim Olde Hartman[2], Annemarie Uijen[2], Anne Miek Coenen[1], Stephanie van der Kleij[1], Isabelle Bos[3], Marianne Heins[3], Olga Husson[1]

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Background: There is limited knowledge of the early signs and symptoms of sarcoma that people present with when consulting their general practitioner (GP). However, gaining a deeper understanding of this pre-diagnostic trajectory holds the potential to create referral guidelines and interventions.

Aims: Our aim was to investigate the diagnosis recorded by the GP, consultation frequency, and differences among broad sarcoma subtypes of individuals during the 12 months leading up to their sarcoma diagnosis in primary care.

Methods: Individuals newly diagnosed with a sarcoma in 2010-2020 were identified through the Netherlands Cancer Registry and linked to Nivel Primary Care Database, covering approximately 10% of the Dutch population. Sarcoma cases were age and gender matched to cancer-free controls (2:1 or 1:1 ratio). Consultations at the GP and the symptoms patients presented with were extracted for the 12 months preceding the diagnosis.

Results: XA total of 787 individuals with soft-tissue sarcoma (STS) and 188 individuals with bone sarcoma (BS) were identified. There was a significant difference in monthly GP contacts from 4 months to the last month before STS diagnosis, and 2 months before BS diagnosis between cases and controls. Most prevalent health conditions for which STS cases contacted the GP were nonspecific and included musculoskeletal neoplasm (26.6%), uncomplicated hypertension (15.6%) and cystitis/other urinary infections (12.2%). Musculoskeletal neoplasm (42.8%), knee symptoms/complaints (9.7%) and shoulder symptoms/complaints (9.7%) were the most frequently recorded heath conditions for BS cases.

Implications: This study is a first step towards to the beginning of efforts to enhance the comprehension of the pre-diagnostic journey undertaken by sarcoma patients. The findings revealed a significant difference in GP contacts between cases and controls in the 4 and 2 months leading up to STS and BS diagnosis, correspondingly. In the case of STS, patients received more frequently diagnoses such as musculoskeletal complaints/conditions, localized swelling/malignancy of the skin, and iron deficiency anemia. As for BS cases musculoskeletal neoplasm, knee and shoulder symptoms/complaints were predominant, aligning with the clinical presentation of BS.

A more profound understanding of the pre-diagnostic trajectory could aid GPs in early identification of sarcoma patients, potentially leading to the development of strategies to minimize diagnostic delays and improve patient outcomes.

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Patient Perspectives of Potential Bowel Cancer Diagnostic Delays – A Systematic Review and Meta-synthesis of Qualitative Studies

Presenters: Chiemezi Ajoku[1], Wasim Hamad[2], Thomas Round[1]

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Background: Bowel cancer is a significant health challenge with rising global incidence and mortality rates. Timely diagnosis is crucial for improving outcomes, yet delays in diagnosis persist, negatively impacting patient survival. Understanding these delays from a patient perspective is essential to identifying potential actionable improvements.

Several papers have examined patient reviews in the cancer pathway, but few systematic reviews specifically address patients' perspectives on delays in the bowel cancer diagnostic process. This review focuses on exploring patient experiences regarding diagnostic delays, driving patient-centred approaches to bowel cancer care.

Aims: To systematically review qualitative research to explore the factors contributing to diagnostic delays in bowel cancer by synthesizing patient perspectives, this review - Prospero ID: CRD42024559645 seeks to develop areas to improve earlier diagnosis, with particular emphasis on primary care settings.

Methods: A systematic review and meta-synthesis of peer-reviewed qualitative studies on patient-reported experiences with diagnostic delays in bowel cancer was conducted. Searches in PubMed, Embase, PsychINFO and MEDLINE yielded 367 titles, with 25 full texts screened, and 12 papers included in the review. The study followed PRISMA guidelines and used the CASP checklist for quality assessment, applying rigorous qualitative methods to synthesize themes on diagnostic delays.

Results: Key factors contributing to diagnostic delays included symptom misinterpretation, healthcare access issues and communication gaps with providers. Emotional barriers, like fear of diagnosis and stigma around bowel symptoms, also hindered timely help-seeking. System inefficiencies, such as referral delays and misdiagnoses, worsened these delays, especially in rural areas and among younger patients. The study emphasized the importance of interdisciplinary care in primary settings to enhance communication and streamline referrals, addressing major barriers effectively.

Implications: The findings emphasise the need for public health campaigns to raise awareness of bowel cancer symptoms, encouraging early help-seeking behaviours. Improving patient-provider communication, expediting referral processes and addressing healthcare access inequalities are essential strategies to reduce diagnostic delays.

These interventions can support early detection, ultimately enhancing patient outcomes and survival rates. The active involvement of patients in this research ensures that their perspectives are central to identifying barriers and developing effective solutions, making the findings highly relevant to policymakers and healthcare providers committed to delivering patient-centred, equitable cancer care.

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Blood cancer survival and inequalities in the UK

Presenters: Janice Hoang[1], Joshua Allen[2], Rebecca Capel[2], Aziz Sheikh[1], Christopher Cardwell[3], Rebecca Thomas[4], Stephanie Smits[4], Sally Cox[2], Julia Hippisley-Cox[1], Ceri Bygrave[5], Diana R Withrow[6]

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Background: Blood cancers are among the most commonly diagnosed cancer types and rank as the third leading cause of cancer-related deaths in the UK, affecting over 40,000 people each year. Blood cancer survival varies significantly by subtype and is not routinely reported within the UK nations.

Aims: This study estimated survival for haematological malignancies in the UK including England, Northern Ireland, Scotland and Wales stratified by time period, and demographic factors.

Methods: Four retrospective cohort studies were undertaken, including all patients aged 15-99 years old with haematological malignancies diagnosed between 01/01/2009 and 31/12/ 2019 within the English, Northern Ireland (NI), Scottish and Wales cancer registration datasets. In England, the QResearch database, which incorporates the most recent dataset from the National Cancer Registration Analysis Service, was employed. Net survival analysis was conducted overall, by major subgroups (leukaemia, lymphoma, myeloma), and by finer subcategories where numbers permit, using the 25 internationally agreed HEAMACARE groups.

Results: Across nations, the highest five-year survival was for Hodgkin lymphoma with nodular lymphocyte predominance (England: 95.4%, 95%CI: 93.6-96.7; NI: 92.6%, 95%CI: 84.5-96.6; Scotland: 97.0, 95%CI: 87.2-99.3; Wales: 93.4%; 95%CI: 81.8-97.7), while the lowest five-year survival was for acute myeloid leukaemia (England: 22.5%, 95%CI: 22.0-23.0; NI: 23.0, 95%CI: 19.9-26.2; Scotland: 21.7, 95%CI: 20.0-23.4; Wales: 23.2%; 95%CI: 20.2-24.3). The survival for all blood cancers combined increased between the time periods 2009 to 2014 and 2015 to 2019 in England, NI and Wales (England: 60.5% to 64.3%; NI: 61.3% to 66.4%; Wales: 58.8% to 61.8%) but did not change significantly in Scotland (64.7% to 65.3%). Young people and females generally had higher survival rates in all four nations. This observation was consistent across nearly all subtypes, but the magnitude of the sex differences varied. Non-white groups generally exhibited better survival rates than the White population.

The patterns varied across blood cancer subtypes, and were not often statistically significant in England. Overall, higher five-year age-standardised net survival was for those in the least deprived quintile than those in the most deprived quintile across nations. Due to small sample sizes, survival differences in Scotland, NI and Wales for some subtypes were not statistically significant.

Implications: These findings are part of the 2024 Blood Cancer UK Action Plan, presented to the UK Parliament to promote policies for better blood cancer survival and reduce disparities.

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Good in theory, but not viable with existing systems: survivors' and care providers' perspectives on shared care after cancer treatment

Presenters: Robin Urquhart[1], Sarah Scruton[2], Cynthia Kendell[1], Caroline Hovey[1]

[1]Dalhousie University, Halifax, Canada. [2]Nova Scotia Health, Halifax, Canada

Background: For more than two decades, randomized controlled trials have shown that alternate approaches to follow-up (FU) care, such as primary care-led FU, are equivalent to oncologist-led FU in terms of patient outcomes such as recurrence, survival, and quality of life.

A more recently investigated approach is shared care, involving shared oncologist and primary care FU. Like other approaches, shared care appears equivalent to oncologist-led care. However, little research has explored cancer survivors' or care providers' perspectives on shared care, or how shared care models can be optimally implemented in local practices.

Aims: To explore cancer survivors' and care providers' perspectives on a shared care model of post-treatment care.

Methods: This descriptive qualitative study used focus groups and semi-structured interviews in two Atlantic Canadian provinces (Nova Scotia, New Brunswick) to understand survivors' and their providers' perspectives on shared care, including how best to implement shared care in practice. Survivors were breast and colorectal cancer survivors who were 1-5 years post-treatment.

Healthcare providers were oncology and primary care providers of breast and colorectal cancer patients/survivors. Data analysis involved coding, grouping, detailing, and comparing the data, using techniques commonly employed in descriptive qualitative research.

Results: Thirty-four participants (20 cancer survivors, 14 healthcare providers) took part in this study. The analysis resulted in four overarching themes: (1) shared care would enable primary care providers to take on greater responsibility for FU care; (2) shared care would optimize primary care providers' ability to manage follow-up care (e.g., increased confidence and access to expertise, if needed); (3) shared care would reduce barriers to re-entering the cancer system if recurrence is suspected (a key concern of survivors); and (4) without adequate infrastructure (health technology) and provider buy-in, shared care could lead to poorer quality care and duplication in care.

Implications: A formal shared care model of FU does not currently exist in Atlantic Canada. Participants believe shared care is beneficial in theory, particularly to help shift care to primary care settings, but not viable in existing systems due to poor infrastructure, which hinders communication and coordination. Improved health technology and provider buy-in are needed to implement shared care and realize its benefits for survivors and the health system.

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Symptom Clusters in Pancreatic Cancer: A retrospective cohort study within a primary care sentinel network

Presenters: Claire A Price[1,2], Simon de Lusignan[1,3], Freda Mold1, Nadia A S Smith[4,5], Martyn Winn[6], Agnieszka Lemanska[1,2]

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Background: Pancreatic cancer has a poor prognosis and is a rising cause of cancer mortality. To improve survival a breakthrough in early diagnosis is urgently needed to allow people to receive curative treatment. Early detection is challenging due to non-specific symptoms that resemble other diseases. Groups of symptoms are more distinctive than individual symptoms; thus, identifying pancreatic cancer-related symptom clusters could aid early diagnosis.

For instance, pancreatic cancer-related increase in blood glucose is often mistaken for diabetes, delaying diagnosis. However, an increase in glucose combined with weight loss is a recognized pancreatic cancer indicator, as outlined in National Institute for Health and Care Excellence (NICE) cancer guidelines.

Aims: To identify symptom clusters associated with pancreatic cancer.

Methods: We conducted a retrospective cohort study of adults with pancreatic cancer diagnosis between 2006 and 2020 in the nationally representative Oxford-Royal College of General Practitioners Clinical Informatics Digital Hub (ORCHID) database. We extracted data on symptoms from five years before pancreatic cancer diagnosis using primary care computerised medical records and codelists in the Systematised Nomenclature of Medicine Clinical Terms system.

Symptoms included abdominal pain, back pain, altered bowel habit, constipation, diarrhoea, indigestion, nausea, vomiting, jaundice, weight loss and diabetes.

A binary variable (present or absent) was curated for each symptom. We summarised symptom prevalence with counts and percentages. We identified symptom clusters with unsupervised hierarchical cluster analysis using Ward's method and Euclidean distance.

Results: There were 11,124 people diagnosed with pancreatic cancer from 734 primary care practices. The median age at diagnosis was 73 years (IQR 17). Abdominal pain was reported by 3,376 (30.3%) of people, diarrhoea by 2,660 (23.9%), back pain by 2,453 (22.1%), jaundice by 2,398 (21.6%), indigestion by 2,170 (19.5%), constipation by 1,375 (12.4%), nausea by 1,110 (10.0%), vomiting by 662 (6.0%), weight loss by 790 (7.1%), and altered bowel habits by 471 (4.2%).

Nearly a fifth, 2,205 (19.8%) of people were diagnosed with diabetes. We identified two symptom clusters: the first included indigestion, jaundice, nausea, vomiting, and weight loss; the second included abdominal pain, back pain, altered bowel habits, constipation, diabetes, and diarrhoea.

Implications: Symptom clusters could be used to flag people with an increased risk of pancreatic cancer who would be eligible for a suspected cancer referral. As part of the NHS digital innovation, this research is leveraging healthcare data to support primary care in improving early detection in order to improve patient outcomes.

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DEtermining the FEasibility of calculating pancreatic cancer risk scores for people with New-onset Diabetes in PRIMary carE (DEFEND PRIME): a study applying a data-driven algorithm to improve early diagnosis

Presenters: Hugh Claridge[1,2], Claire A. Price[1,2], Elizabeth A. Cooke[2], Simon de Lusignan[3,4], Adam Harvey-Sullivan[5,6], Catherine Hodges[7], Natalia Khalaf[8], Dean O'Callaghan[5], Ali Stunt[9], Spencer A. Thomas[2], Joanna Thomson[7], Agnieszka Lemanska[1,2]

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Background: Fewer than one in ten patients with pancreatic cancer survive beyond five years as it is often diagnosed too late for curative intervention. Survival rates have remained unchanged for approximately 40 years, and a breakthrough in early diagnosis is urgently needed. The UK's National Health Service digital transformation is leveraging healthcare data to support clinicians with innovative solutions, offering opportunities for improving early diagnosis of pancreatic cancer.

We are working on an innovative, data-driven approach using routinely collected data on blood glucose, body weight and age to identify people at an increased risk of undiagnosed pancreatic cancer. We are applying an algorithm, developed in the United States, called 'Enriching New-onset Diabetes for Pancreatic Cancer' (ENDPAC).

In January 2024, we published a protocol for a study called 'DEtermining the FEasibility of calculating pancreatic cancer risk scores for people with New-onset Diabetes in PRIMary carE' (DEFEND PRIME, Claridge et al. 2024 BMJ Open). The preliminary results are reported here.

Aims: To determine the feasibility of applying ENDPAC for early detection of pancreatic cancer in UK primary care.

Methods: We undertook a multicentre observational study, supported by a patient and public involvement group of pancreatic cancer survivors and clinicians, to assess the feasibility of applying ENDPAC. We aimed to recruit 20 primary care practices and developed software to extract and process anonymised data for people aged ≥ 50 years with at least one glycated haemoglobin (HbA1c) test result ≥ 48 mmol/mol (6.5 %) in the last three years, excluding people already diagnosed with pancreatic cancer. Using descriptive statistics, we summarised the demographics, clinical characteristics and ENDPAC scores of participants and assessed the quality of HbA1c and body weight data.

Results: To date, we have recruited 11 primary care practices. Five practices have provided data for 371 participants, with an average age of 62.3 years (standard deviation [SD] 9.3), 203 (54.7 %) were male. Ninety participants (24.3 %) had sufficient HbA1c and weight or body mass index measurements to calculate an ENDPAC score. Of these, nineteen (21.1 %) were flagged by the algorithm as needing further investigations for suspected pancreatic cancer, constituting four (SD 3) participants per practice that would be referred.

Implications: Preliminary results show that ENDPAC has the potential to be suitable for use within UK primary care. Findings from this study are informing the development of an NHS England intervention to improve early diagnosis of pancreatic cancer.

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General practitioners' experiences with implementing colon or prostate cancer survivorship care in primary care; a cross-sectional survey nested within two randomized-controlled trials

Presenters: Julien Vos[1], Barbara Wollersheim[2], Henk van Weert[1], Lonneke van de Poll-Franse[2], Kristel van Asselt[3]

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Background: Recently two RCT have been performed to measure effectiveness of GP-ledsurvivorship care. In order to gain a greater understanding of the implementation potential of this care, we need to further evaluate the barriers and solutions to GP-led survivorship care when put into practice. This can then help to guide a potential care transition from the hospital to primary care.

Aims: To evaluate general practitioners' (GPs) experiences with providing cancer survivorship care, and explore readiness for implementation.

Methods: This cross-sectional survey study was nested within two randomized-controlled trials conducted in the Netherlands between 2015-2023, comparing GP- to specialist-led survivorship care for colon or prostate cancer patients. An adapted version of the Normalisation MeAsure Development (NoMAD) survey was distributed among participating GPs. NoMAD assesses the implementation complex interventions, and includes 7 items on experiences (score ranges 0-10) and 19 core items (expressed as % agreement). Higher scores indicate greater normalization, i.e. embedding in primary care.

Results: In total, 214 GPs participated (response rate 69%). Overall experience with providing survivorship care was 7.0±1.6 for prostate cancer and 6.4±1.8 for colon cancer. Lowest scores were seen for willingness to provide care (5.9±2.4 and. 5.0±2.5 respectively), expected future involvement (6.6±2.0 and 5.6±2.5), and appropriateness of involvement (6.4±2.1 and 5.6±2.7).

GPs in both trials agreed (±75%) there was potential value for patients, but not for their own work (±50%). Survivorship care for colon cancer was often perceived as different from usual care (74%). GPs' self-reported knowledge of care was high in the prostate cancer trial (62%), but not in the colon cancer trial (41%).

GPs from both trials agreed that they could easily integrate management of physical and psychosocial effects into their work (±70%), but integrating routine check-ups was rated less positively (± 55%). Financial compensation was deemed necessary (±80% agreed). 21% was willing to provide care for other cancer types.

Implications: Our survey study highlighted both the potential and challenges associated with the transition of cancer survivorship to primary care. It revealed valuable insights into the barriers to implementation, such as the need for financial compensation and tailored education.

Addressing these barriers is important to ensuring the success of any potential transition. From the GPs' perspective, implementation of prostate vs. colon cancer survivorship care seems more feasible. Recognizing the differences between the cancer types is crucial, indicating that a one-size-fits-all approach may not be appropriate.

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A screening ratio for the performance of GP practice areas in a national bowel cancer screening programme accounting for sociodemographic differences

Presenters: Amar Ahmad, Martina Slapkova, Matt Grant, Scarlett Cartwright-Hughes, Jon Shelton, Kristen Barrett, Hope Walters

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Background: Bowel cancer screening aims to detect pre-cancerous cells and early-stage cancer thereby increasing the chances of successful treatment. However, only 72.0% of individuals in England were screened within the last 2.5 years as of the end of 2022/23. Although coverage is increasing annually-especially since the introduction of the Fecal Immunochemical Test (FIT)-there remains a regional variation in screening rates between GP surgeries. This variation is partly driven by sociodemographic differences.

Aims: The aim of this project was to develop a statistical approach and create an online tool to enable health care professionals to better understand variation between GP practices, by calculating whether they have higher, similar or lower coverage than other practices with comparable sociodemographic populations.

Method: A multivariate generalized linear mixed-effects Poisson regression model was performed with the number of screened patients (Obs) as an outcome. Fixed-effect predictors included the index of multiple deprivation score, proportion of males aged 60-74, proportion of practice population aged 60-74, practice population list size, rural-urban classification of the GP practice, and percentage of usual residents who are of White British ethnicity, with ICB used as the random effect predictor.

The number of eligible individuals was used as an offset in the model. The model predicted the number of screened patients (Exp) for each GP practice. A conservative extreme-bound method for calculating the confidence interval of a ratio was employed to ensure robust uncertainty estimation. This method derives the ratio R = Obs/Exp by dividing the lowest observed count by the highest expected count for the lower bound, and the highest observed by the lowest expected for the upper bound. This approach is crucial in accurately reflecting the full range of potential outcomes in varying conditions.

Results: Of 6,191 GP practices included in the statistical analysis, 343 (5.5%) and 360 (5.8%) GP practices performed significantly better or worse than predicted, respectively.

Implications: Building on previous statistical methods, we have developed an online tool with the potential to help health care professionals and system leaders identify underperforming and high-achieving practices, aiming to improve screening programmes across England.

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Barriers to cervical screening and the potential for self-sampling methods to improve screening uptake in people from ethnically diverse backgrounds living in the UK: the Alternative CErvical Screening (ACES) Diversity study

Presenters: Jiexin Cao[1,2], Jennifer C Davies[1,2], Rachel L Hawkins[3,4], Ketsia Kalala[1], Pauline Opoku[1], Helena O'Flynn[1], Maya Whittaker[1,2], Emma Thorpe[3,4], Lee Malcomson[1], Lorna McWilliams[4,5], Emma J Crosbie[1,2,4]

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Background: Attendance in cervical screening is dropping over the last decade, people from ethnically diverse backgrounds are less likely to attend cervical screening in the UK and are more likely to be never-attenders. Self-sampling may overcome some of the barriers experienced in this population.

Aims: This study aimed to understand these barriers and explore the potential for vaginal and urine self-sampling to improve cervical screening uptake among people from ethnically diverse backgrounds in the UK.

Methods: A cross-sectional survey was co-created with community groups in Greater Manchester, UK and distributed through community partners and social media using online and paper surveys, targeted to maximise recruitment from ethnically diverse groups.

The survey was available in 10 languages. People over 18 years and invited for cervical screening were eligible. Data were collated via the Qualtrics platform and analysed using descriptive statistics.

Results: A total of 629 completed surveys were analysed, 450 (71.5%) participants from African (n=91, 20%), Chinese (n=69, 15.2%), Indian (n=69 ,15.2%), Pakistani (n=49, 10.8%), Mixed (n=52, 11.6%), Caribbean (n=21, 4.6%), Eastern European (n=19, 4.2%), Arabic (n=11, 2.4%), or from other ethnically diverse backgrounds (n=69, 15.3%) and 173 were White British. Emotional barriers, including worry about discomfort/pain (n=165, 36.7%) and lack of female practitioners (n=133, 29.6%) were the primary barriers to routine cervical screening reported by participants from ethnically diverse backgrounds.

By contrast, practical barriers, including difficulty finding a good time for screening, were the most frequent barriers reported by White British participants (n=75, 43.3%). Participants invited to screening who reported their preference for future screening, 157/343 (45.8%) preferred self-sampling, especially poor attenders, across all ethnic groups. More ethnically diverse participants felt confident about taking a urine self-sample than a vaginal self-sample for future cervical screening (375/450; 82.2% vs 271/450; 59.8%).

Implications: People from ethnically diverse backgrounds in the UK face specific barriers to cervical screening. Self-sampling may be an acceptable alternative to these populations, with urine self-sampling having the broadest appeal.

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Enhancing Genomic Literacy in Primary Care: A Clinical Primer for Primary-Care Physicians in Singapore

Presenters: Nur Diana Ishak[1], Zewen Zhang[1], Rose Fok[1], Joanne Ngeow[1,2]

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Background: Primary-care physicians (PCPs) are often the first point of contact for patients with hereditary cancer syndromes, which account for 5-10% of all cancers and require lifelong management for both patients and their at-risk relatives. Early detection of Hereditary Breast and Ovarian Cancer (HBOC) syndrome and Lynch syndrome is crucial, as it enables timely interventions such as enhanced surveillance, risk-reducing surgery, and targeted therapies.

Aligned with the Singapore Ministry of Health's national strategy to improve patient outcomes through early detection, accurate diagnosis, and timely treatment, the Clinical Implementation Pilots (CIP) grant was introduced to optimize healthcare experiences for providers and patients.

Aims: The workshop aims to enhance PCPs' knowledge and confidence in genomic medicine, particularly in managing HBOC and Lynch syndrome, and equip them with the skills needed to integrate genetic insights into patient care. Key learning objectives include assessing genetic risk through patient history, recognizing indicators for genetic testing, interpreting genetic test results, and understanding the role of PCPs in the ongoing management of hereditary cancers alongside specialists.

Methods: A blended learning approach was used, incorporating e-learning, in-person instruction, and case-based group discussions. The e-learning component included pre-course reading and multiple-choice questions (MCQs) to assess baseline knowledge. In-person sessions featured interactive modules and clinical case studies, fostering practical application and collaborative problem-solving. To evaluate the workshop's effectiveness, a post-workshop survey was administered to participants, assessing their confidence, knowledge, and competencies in genomic medicine.

Results: Post-workshop surveys indicated significant improvements in PCPs' (n=61) confidence in genomic medicine. Specifically, 73.8%(n=45) of participants reported confidence in evaluating genetic criteria, 68.9%(n=31) felt comfortable taking detailed family histories, and 91.8%(n=56) indicated they would recommend genetic testing for high-risk cases, highlighting the workshop's effectiveness in equipping PCPs to incorporate genetic assessments into primary care. Additionally, 57.4%(n=35) stated they would refer patients to a specialist clinic if genetic testing was needed, while the remaining participants may offer testing within their own clinics.

Implications: This workshop highlights the critical role of PCPs in managing hereditary cancer syndromes and emphasizes the need for a national genomic testing service to support PCPs in genetic risk assessment and patient management. Such a framework would enable PCPs to address hereditary cancer risk more proactively. Future directions include refining this national structure to better support PCPs, close knowledge gaps in primary care, and advance precision medicine, ultimately improving cancer prevention and outcomes for at-risk populations.

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Primary care practitioners' priorities for improving the timeliness of cancer diagnosis in primary care: a European cluster based analysis

Presenters: Ana Luísa Neves[1,2], Magdalena Esteva Cantó[3], Robert Hoffman[4], Michael Harris[5,6]

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Background: Primary Care Practitioners (PCPs) play a key role in timely diagnosis of cancer. PCPs' knowledge of their own patient populations and health systems could help improve the planning of more effective approaches to earlier cancer recognition and referral.

How PCPs act when faced with patients who may have cancer is likely to depend on how their health systems are organised, and this may be one explanation for the wide variation on cancer survival rates across Europe.

Aims: To identify and characterise clusters of countries whose PCPs perceive the same factors as being important in improving the timeliness of cancer diagnosis.

Methods: The Örenäs Research Group carried out a cluster analysis of qualitative data from an online survey. PCPs answered an open-ended survey question on how the speed of diagnosis of cancer in primary care could be improved. Following coding and thematic analysis, we identified the number of times per country that an item in a theme was mentioned.

k-means clustering identified clusters of countries whose PCPs perceived the same themes as most important. Post-hoc testing explored differences between these clusters.

Results: Twenty-five primary care centres in 20 European countries each recruited a median of 72 participants. In all, 1,351 PCPs gave free-text answers. We identified eighteen themes organising the content of the responses. Based on the frequency of the themes, k-means clustering identified three groups of countries.

There were significant differences between clusters regarding the importance of: access to tests (P=0.010); access to specialists (P=0.014), screening (P<0.001); and finances, quotas and limits (p<0.001).

Countries in 'Cluster 1' (Sweden, Israel, Finland, Norway, Spain, Denmark, the United Kingdom, Slovenia and Poland) particularly value access to tests and specialists (and value screening and financial support less). Those in 'Cluster 3' (Germany and Bulgaria) show the opposite pattern. Countries in 'Cluster 2' (Switzerland, France, Italy, Portugal, Netherlands, Croatia, Greece and Romania) especially value screening programmes and access to tests and specialists, while attributing lower importance to financial aspects.

Implications: Our study identified three distinct clusters of European countries within which PCPs had similar views on the factors that would improve the timeliness of cancer diagnosis.

Further work is needed to understand what it is about the clusters that have produced these patterns, allowing healthcare systems to share best practice and to reduce disparities.

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RCT: Avoiding unnecessary colonoscopy by using an algorithm and point-of-care FIT test

Presenters: Janniek Schilderinck[1], Kristel van Asselt[1], Niek de Wit[1], Ben Witteman[2], Sjoerd Elias[1]

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Background: The diagnostic pathway for non-acute lower abdominal complaints is challenging for general practitioners. The key difficulty lies in distinguishing between significant colorectal disease (SCD), such as colorectal cancer (CRC) and irritable bowel disease, and functional disorders, as these present with overlapping symptoms. The current diagnostic approach leads to many unnecessary colonoscopy referrals, with 80% of patients having no SCD.

In recent years, we developed the CEDAR algorithm as a diagnostic tool to estimate the risk of SCD and suggesting referral with a threshold of >5%. It combines eight items from patients' medical history with a FIT test. The algorithm has been externally validated and confirmed safety. Using this threshold, the algorithm would reduce referrals by a third while achieving a high negative predictive value for SCD.

Aims: This trial aims to assess whether the clinical application of the CEDAR algorithm to rule out SCD without colonoscopy is safe and to provide the scientific evidence necessary for incorporating the CEDAR diagnostic algorithm into the Dutch guidelines, optimizing the diagnostic work-up for patients currently considered candidates for colonoscopy referral.

Methods: The study will be a multicenter, prospective, open-label RCT conducted in six colonoscopy centers in the Netherlands. General physicians (GPs) will refer patients for evaluation rather than directly for colonoscopy. All patients will undergo POC SmarTests FIT and Calprotectin, followed by 1:2 randomization to standard care (direct colonoscopy) or CEDAR algorithm-guided decisions (colonoscopy for high-risk, no colonoscopy for low-risk).

Low-risk SCD patients will be redirected to their GPs, who will manage these cases according to current guidelines.

To ensure algorithm safety, these patients will be followed for a minimum of 12 months to identify any initially missed SCD diagnoses. Additionally, the entire process will be evaluated to assess caregiver and patient perceptions of the algorithm and their willingness to implement it.

Results: Not applicable

Implications: If successful, this study could significantly impact clinical practice by reducing unnecessary colonoscopies in low-risk patients, thereby decreasing patient burden, healthcare costs, and colonoscopy wait times. GPs would have a validated, algorithm-based tool (CEDAR) for risk stratification, enabling a more selective referral process. This approach would support GPs in managing lower-risk cases effectively within primary care while ensuring that high-risk patients promptly receive specialist evaluation.

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Understanding the barriers and facilitators affecting the use of remote consultations among marginalised communities: a mixed-methods systematic review

Presenters: Stefanie Disbeschl[1], Grace McCutchan[2], Julia Hiscock[1], Katherine Brain[2], Richard Neal[3]

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Background: Primary care consultations in a remote format are increasingly seen as a potential tool to address some of the current issues in the UK National Health Service (NHS), including increased demand from patients and pressure on the workforce. There is, however, a growing body of evidence that suggests remote consultations may create new and exacerbate existing inequalities in primary care. Marginalised groups in particular face inequalities in both primary care and cancer diagnosis overall, but it remains unclear how these populations experience remote consultations when accessing primary care for suspected cancer symptoms.

Aims: The aim of this study is to conduct a mixed methods systematic review to understand the factors affecting the use of remote consulting among marginalised groups.

Methods: This mixed methods systematic review will be conducted using a convergent integrated approach, combining quantitative and qualitative data. Searches of peer-reviewed literature will be undertaken in Medline (via Ovid), Embase, PsychINFO (via ProQuest) and CINAHL (via EBSCOhost). There will be no time limit on the searches. The quality of articles will be assessed using the Mixed Methods Appraisal Tool (MMAT).

Data extracted will include specific details about the study population and participant characteristics, including how the authors defined and measured their study population, study methods, setting, the format of remote consultation, symptoms, and context. Quantitative data will be transformed into textual descriptions or narrative interpretations, following which all data will undergo narrative synthesis.

Results: This study will result in a deeper understanding of the barriers to and facilitators of remote consulting among marginalised populations. This will feed into the next phases of the Re-Connect study, which will consist of interviews with marginalised groups and focus groups with general practice teams across Wales and the Northwest of England. Ultimately, the aim is to develop a set of guidelines or an intervention to improve remote consultations for marginalised groups.

Implications: Primary care has seen a shift towards remote consulting, with the Covid-19 pandemic leading to widespread and rapid uptake across the UK. With the move towards remote consulting in primary care, this study is highly relevant in potentially ensuring that the benefits of remote consultation can be experienced by all when accessing primary care, as well as contributing to the improvement of early cancer diagnosis.

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Implementing an intervention to improve time to presentation and referral with lung cancer symptoms: navigating real world research

Presenters: Una Macleod[1], Walabyeki Julie[1], Alex Young[1], Victoria Allgar[2], Lukas Pitel[1], Sara Macdonald[3], Katriina Whitaker[4], Elizabeth Mitchell[1]

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Background: Survival from lung cancer is related to stage at diagnosis - advanced presentation at diagnosis results in poorer outcomes. There is therefore a need to develop interventions which would result in patients at risk of lung cancer seeking help earlier and being referred sooner for potential lung cancer symptoms.

Hull has one of the highest rates of lung cancer in England but one of the lowest rates of 2 week wait referrals, indicating potential delays in diagnosis. The PEOPLE-Hull study, funded by Yorkshire Cancer Research, combined public and community engagement, and primary care interventions to improve the early diagnosis of lung cancer.

Aims: Our aim was to develop and test a theoretically driven community-primary care linked intervention to improve both presentation to GPs by patients with potential lung cancer symptoms and referral of these patients, thereby reducing the proportion diagnosed with advanced cancer.

Methods: Our planned methods were to conduct public and community campaigns and link these to a Lung Health Check (LHC) offered to smokers/ex-smokers in the community and general practices, and to evaluate the effectiveness by analysing awareness of lung cancer symptoms, uptake of the LHC, presentation with potential lung cancer symptoms, chest X-ray /urgent referral, proportion of emergency presentations, and proportion of Stage III and IV cancers diagnosed.

Our study was interrupted by two significant unanticipated events which were outside of our control. Firstly, NHS England initiated a pilot for lung screening which was called a 'Lung Health Check'. Hull was chosen as one of the initial sites for the same reasons we had argued to conduct our study there. Secondly, towards the end of our public awareness campaign a global pandemic overtook us which had lung symptoms as its principle presenting symptoms. There was local concern that our adverts risked overwhelming the NHS.

Results: We will present how we adapted this study, with the support of our funder, and what we were able to learn about the public understanding of lung cancer symptoms and presentation with them. We have serial focus group data, demonstrating persistent views about the challenge of accessing primary care. We ourselves encountered many barriers in implementing the primary care aspect of the study post pandemic.

Implications: It is important that researchers are transparent about conducting research in the real world, about adaptations needed and where they fall short of the original research plan.

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The Role of Primary Care in Addressing Inequalities in Cancer Screening: Enhancing Representation of Deprived Groups in the NHS-Galleri Trial and Lessons for Future Implementation of MCED Screening

Presenters: Libby Ellis[1], Sara Hiom[1], Earl Hubbell[2], Laura King[1], Ian Lowenhoff[3], Sean McPhail[4], Thomas Round[5], Rebecca Smittenaar[1], Richard Neal[6]

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Background: People living in the most socioeconomically deprived areas in England experience a greater cancer burden (both in incidence and mortality) than the least deprived, and participation in cancer screening is lower, contributing to increased late-stage diagnoses and poorer health outcomes. Multi-cancer early detection (MCED) tests have the potential to detect cancers before symptoms arise, and may allow screening for poor-prognosis cancers not currently screened.

Given the considerable burden of late-stage cancer in deprived populations, MCED screening programmes could have greater relative benefits in these groups: modelling predicts potential reductions in late-stage diagnoses of 274 per 100,000 persons in the most deprived groups and 160 in the least deprived. Targeted strategies in primary care may help reach deprived populations and support equitable uptake of MCED screening.

Aims: To illustrate how higher screening uptake can be achieved in deprived groups in the context of an MCED screening RCT, and propose a possible role for primary care in supporting the implementation of a future MCED screening programme.

Methods: We examined the enrolment approaches used in the NHS-Galleri trial to support the recruitment of a diverse participant population, and calculated the number needed to invite (NNI) to enrol one participant by deprivation group (based on IMD quintiles).

Results: The NHS-Galleri trial achieved enhanced representation of deprived participants compared to the general England population: in ages 50-77, 22.7% were from the most deprived group, compared to 16.7% nationally. This was supported by a targeted invitation strategy including GP identification, reducing barriers to participation, and community-based delivery. The number of invitations required to enrol one participant in the trial was 21.5 for the most deprived group, and 4.6 for the least deprived.

Implications: Modelling suggests deprived populations may receive the greatest relative benefit from participation in MCED screening. While it might be difficult to extrapolate RCT findings into clinical practice, experience from the NHS-Galleri trial indicates that reaching deprived groups is achievable with thoughtful local implementation working together with a strong national data infrastructure. Implementation of MCED screening should focus on enabling equal participation across all socioeconomic groups, and primary care may play a pivotal role in understanding local contexts. The NHS-Galleri trial used a range of methods to achieve inclusive recruitment, including support from general practice, which could be built upon to reduce inequalities in uptake in any future MCED screening programme.

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Cancer survivorship care in general practice: a national survey from Australia

Presenters: Carolyn Ee[1], Kylie Vuong[2], Joel Rhee[3], Elysia Thornton-Benko[4],[3], Julien Vos[5], Rose Fok[6], Divya Babu[2], Chad Han[1], Larissa Nekhlyudov[7]

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Background: here is increasing demand for greater involvement of GPs in cancer survivorship. However, self-reported knowledge and confidence gaps among GPs have been identified in some domains of survivorship care. This is the first quantitative study to evaluate GPs' comfort in providing survivorship care in Australia.

Aims: XThis study aims to evaluate Australian GPs' comfort in providing survivorship care to adult cancer survivors and assess knowledge barriers and educational needs.

Methods: An anonymous cross-sectional online survey was distributed to GPs/GPs in training practising in Australia from July 2024 via professional networks and social media. The survey was developed by the research team through an iterative process to assess GP overall comfort in caring for adult cancer survivors across five domains of quality survivorship care (surveillance, health promotion/disease prevention, and management of physical effects, psychosocial effects and comorbid chronic conditions) and comfort in providing care in five clinical scenarios with varying levels of risk.

Barriers to optimal survivorship care, resource access and training opportunities were also assessed. Descriptive statistics were used to identify association of comfort with providing care and demographic/practice variables. Survey data collection is ongoing and will close in December 2024.

Results: 178 GPs/GPs in training provided responses as of November 2024. Just over half of respondents were somewhat/extremely comfortable with providing other health promotion (57%), counselling about diet and exercise (52%), and providing screening recommendations for other cancers (51%).

Respondents were least comfortable with managing sexual dysfunction due to cancer/treatment and managing physical effects (37% somewhat/extremely uncomfortable). Across risk scenarios, comfort levels ranged from 31% for managing physical effects in a high-risk adult survivor of childhood cancer to 57% for managing physical effects in advanced lung cancer.

GPs were most consistently comfortable with providing health promotion and disease prevention (47% - 53%) while there was more variation in comfort with managing psychosocial effects (33% in high-risk colorectal cancer to 52% in high-risk adult survivor of childhood cancer).

Implications: Comfort levels did not vary significantly across risk scenarios. GPs consistently report feeling most comfortable with health promotion, and chronic condition management. The findings from our study should inform medical school/GP training curriculum focusing on addressing knowledge barriers, building confidence and inform service providers/policy makers involved in collaborative care of cancer survivors.

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Setting the context for ThinkCancer!:A qualitative exploration of stakeholder perspectives

Presenters: Clio Evans, Annie Hendry

Bangor University, Bangor, United Kingdom

Background: ThinkCancer! is a novel behaviour change intervention delivered to General Practice staff via a series of workshops which aim to lower referral thresholds and improve safety netting within primary care. Evidence suggests that this could help shorten primary care intervals and therefore improve patient outcomes and survival. During the workshops, practices are encouraged to appoint a Cancer Safety Netting Champion (CSNC) to oversee the implementation of a safety netting plan within the practice.

ThinkCancer! takes a whole practice team approach and was tested and refined in a feasibility study before progressing to a large randomised controlled trial with 94 participating practices from across Wales and parts of England. Understanding context is key to delivering, and implementing, complex interventions.

Aims: To gain key stakeholder perspectives on ThinkCancer! and establish context by gathering background knowledge and experiences to inform how best to implement ThinkCancer! within General Practice.

Methods: Qualitative data collected via semi-structured interviews with a purposive sample of key stakeholders in the field of primary care and cancer. The interviews explore current practice in terms of safety netting and referrals, training needs, and knowledge, acceptability, and implementation of educational interventions.

All interviews were transcribed verbatim and analysed using the Framework method. This method facilitates a teamwork approach and allows for multiple members of the research team and the ThinkCancer! Patient Advisory Group to be involved in interpretation of the data.

Results: Interview data highlights the context in which the ThinkCancer! intervention is being delivered. Primary care is a complex environment and data highlights barriers and facilitators to safety netting, referral and early diagnosis.

Perspectives from a variety of stakeholders allows for a rich exploration of the ways in which educational interventions such as ThinkCancer! may serve to reduce the primary care interval and improve outcomes for patients.

Implications: The themes generated by the analysis enable an in-depth understanding of the context in which ThinkCancer! is delivered, and an exploration of the challenges faced by primary care and implementation of the intervention from stakeholders' perspectives will inform how ThinkCancer! can be best implemented successfully within primary care. Successful implementation has potential to facilitate earlier cancer diagnosis which ultimately could improve patient outcomes and survival.

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The acceptability and feasibility of urogenital sampling for the diagnosis of endometrial cancer in primary care

Presenters: Helena O'Flynn, Jean-Ellen Johnson, Lorna McWilliams, Emma Crosbie

University of Manchester, Manchester, United Kingdom

Background: Referral rates for post-menopausal bleeding from primary care is at its highest with waiting times also at their longest. Implementation of an endometrial cancer detection tool using urine (Coli-Pee) and vaginal (Delphi-screener) cytology samples in primary care could accurately triage which women need urgent investigation.

Aims: To explore the acceptability and feasibility of urogenital sampling for the diagnosis of endometrial cancer in primary care.

Methods: Patients with suspected endometrial cancer attending a gynaecological cancer centre in North-West England and enrolled into the Detect study were eligible for inclusion. A cross-sectional questionnaire was completed by patients referred from January 2023-September 2024. Semi-structured interviews using purposive sampling were conducted with a sub-set of participants.

General practitioners (GPs) were recruited from six practices to complete a questionnaire and semi-structured interview based upon vignette cases. Qualitative data were analysed using thematic analysis organised using the framework approach and informed by Sekhon's Theoretical Framework of Acceptability. Quantitative data were analysed using descriptive statistics.

Results: In total, 103 patient participants were recruited with 100 questionnaires completed. Twenty-four semi structured qualitative interviews were conducted (patients n=16, general practitioners n=8).

Questionnaire responses - Patients found urogenital cytology an acceptable test, 79.0%reported the experience was better than expected. Most felt confident using the Coli-Pee device (91.0%) and more were willing to do a urine test again compared with the Delphi screener (96.0% vs 91.0%).

GPs felt confident using the Delphi-screener for obtaining vaginal samples and all felt they understood how the test worked. Patient acceptability and ensuring all potential cancer cases were referred were their greatest priorities. Most felt it was appropriate to use this in conjunction with an ultrasound, as a triage tool alongside referral or for women who decline/are unsuitable for investigations.

Interviews - All respondents felt urogenital sampling had the ability to reduce invasiveness and improve patient experience. Patients were concerned about the lack of specialist involvement to rule out cancer if these are implemented in primary care, whilst GPs were concerned with the transfer of clinical responsibility, explanation of results and the need to implement a robust recall system.

Implications: XUrogenital cytology could be an acceptable and feasible test to use in primary care for endometrial cancer detection. Further prospective validation of its use in primary care is needed to establish where it fits in the diagnostic pathway. Training and clinical decision tools are required to ensure GPs felt confident in its use.

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Evaluating the Accuracy of Locally-Deployed Large-Language Models for Extracting Symptom Data from Unstructured GP Notes

Presenters: Sara Daoud[1,2], Benjamin Jacob[1,2], Alexander Carroll[1,2], Patrick Redmond[1,2]

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Background: Primary care datasets are invaluable for clinical research, offering rich information and comprehensive population representation. However, unstructured GP notes, though containing symptom data, are difficult to systematically analyse, limiting their use for identifying early cancer signals.

LLMs can transform these free-text notes into structured data, enabling researchers to track symptom patterns and detect pre-diagnostic cancer signals. Yet, traditional cloud-based LLMs like ChatGPT raise privacy concerns, as they transmit sensitive data externally. Locally deployed LLMs allow secure, on-premises data processing, ensuring privacy compliance while maximising primary care data's research value.

Aims: To use locally deployed LLMs to extract cancer symptom data from unstructured GP notes

Methods: We are conducting a retrospective analysis on unstructured GP notes from the CRADLE dataset, a primary care resource comprising electronic health records (EHRs) from approximately 75 GP practices across Ireland, covering around 600,000 patients—roughly 12% of the population. We deployed Ollama, a locally hosted large language model, to extract and structure data on four types of non-specific symptoms of cancer (NSSC): unexplained weight loss, vague abdominal pain or persistent bloating, nausea or appetite loss, and fatigue or malaise.

We will fine-tune prompts to better identify and categorise mentions of these NSSC symptoms, capturing their frequency and timing to create structured symptom data. To evaluate the presence or absence of NSSC symptoms accurately, we will perform a manual validation by reviewing samples of 3,438 positive extractions and 3,438 negative extractions. This sample size provides a 1% margin of error for sensitivity and specificity estimates (assuming a minimum of 90% for each).

Interim results using a synthetic dataset revealed a 60% accuracy on the initial prompt and up to 75% accuracy on subsequent adjusted prompts on the same data. Performance was also impressive with only a few seconds of processing on smaller data samples.

Results: We will report the following: (1) the sensitivity and specificity of Ollama's extraction of NSSC symptoms, (2) a sensitivity analysis to examine how accuracy varies by NSSC type, consultation note characteristics, patient demographics, GP practice, and calendar year, (3) age-and-sex-stratified symptom prevalence rates will be presented for each NSSC type, and (4) a comparative analysis contrasting LLM-extracted symptom prevalence with coded data to estimate potential under-coding in structured records.

Implications: This study highlights the potential of locally deployed language models to support early detection research by structuring unstructured medical notes and transcending the limitations of research on coded symptom data.

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Changes in healthcare-seeking and diagnostic evaluation of patients with lung cancer symptoms over a decade – a Danish population-based study

Presenters: Lisa Maria Sele Sætre[1], Kirubakaran Balasubramaniam[1], Christian B Laursen[2], Sonja Wehberg[1], Jens Søndergaard[1], Dorte Ejg Jarbøl[1]

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Background: Contacting the general practitioner (GP) with symptoms and subsequent referral for diagnostic evaluation is a prerequisite for timely diagnoses of lung cancer. Computed Tomography of the thorax (CT thorax) replaced chest X-ray (CXR) as first choice of imaging among high-risk patients in 2018 in Denmark. Whether healthcare seeking with lung cancer symptoms and subsequent referral for diagnostic evaluation have changed over the last decade remains unknown.

Aims: Using two population-based surveys linked to registers, this study aims 1) to compare the proportion of GP contacts and subsequent diagnostic evaluation among individuals reporting lung cancer symptoms in 2012 and 2022, and 2) to analyse the associations between smoking status and diagnostic evaluation.

Methods: A random sample of 100,000 individuals was invited to participate in a survey about symptoms and healthcare seeking in 2012 and 2022, respectively, followed by linkage to Danish registers. This study includes questionnaire data on lung cancer symptoms (prolonged coughing, dyspnoea, haemoptysis, prolonged hoarseness), GP contacts and smoking status. Register data included socioeconomic status and diagnostic imaging (CXR and CT thorax). Descriptive statistics and multivariable regression models were applied.

Results: A total of 35,958 and 22,077 individuals ≥40 years responded to the questionnaire in 2012 and 2022, respectively. Of those 5910 (16%) and 4883 (22%, p-value <0.05) reported any of the lung cancer symptoms.

The proportion of GP contacts was higher in 2022 (45%) than in 2012 (40%, p-value<0.05), whereas the proportion completing diagnostic imaging was slightly lower in 2022 (22%) compared to 2012 (24%).

CXR was the most common first choice of imaging both years (22% and 15%, respectively), though the proportion of CT thorax increased from 2 to 7% over the decade. Individuals who currently smoked had lower odds of GP contact, whereas no associations were found between current smoking and diagnostic imaging in neither 2012 nor in 2022. Contrary, individuals who formerly smoked had higher odds (OR 1.3 (95% CI: 1.00;1.58)) of undergoing diagnostic imaging both years.

Implications: Healthcare seeking with lung cancer symptoms was higher in 2022 than in 2012, whereas the proportion of diagnostic imaging was somewhat lower. Individuals who smoked were still less likely to seek care, and notably their likelihood of undergoing diagnostic imaging was similar to that of individuals who never smoked. This emphasizes a need to target interventions and attention towards risk groups regarding both healthcare-seeking behaviour, stratification of diagnostics, and education of the GPs.

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The role of long-term or recent-onset anxiety, depression or painful conditions in influencing diagnostic investigations and risk of emergency lung cancer diagnosis

Presenters: Helen Fowler[1], Cristina Renzi[1,2], Georgios Lyratzopoulos[1]

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Background: Long-term or recent-onset pre-existing Anxiety/Depression and Painful Conditions can influence decisions on diagnostic investigations and the risk of emergency cancer diagnosis in patients presenting with symptoms of an as-yet undiagnosed lung cancer.

Aims: We investigated how timing of onset and duration of Painful Conditions and Anxiety/Depression may influence the use of diagnostic imaging (Chest X-Ray and CT) and diagnostic route in patients subsequently diagnosed with lung cancer.

Methods: We used linked primary care (CPRD) and cancer registration data to examine onset and duration of Painful Conditions and Anxiety/Depression among patients diagnosed with lung cancer in England 2012-2018. Conditions were categorised as recent-onset (first recorded <12 months pre-cancer diagnosis) or long-term (first recorded >12 months and <6 years pre-cancer).

We used multinomial logistic regression models to explore associations between Painful Conditions or Anxiety/Depression and route to cancer diagnosis (Emergency Presentation – EP; Two Week Wait – TWW; and 'Other route'), accounting for patient factors (age, sex, deprivation quintile), clinical factors (symptoms, total number of physical or mental health comorbidities) and healthcare factors (chest-imaging investigations 1-12 months and 13-24 months pre-diagnosis, GP visits 1-12 months pre-cancer).

Results: Among the 6,828 lung cancer patients, 39% had pre-existing Painful Conditions (27% recent-onset) and 26% had Anxiety/Depression (9% recent-onset).

Among patients with long-term Painful Conditions, recent-onset Painful Conditions or no Painful Conditions, the frequency of chest imaging investigations 1-2 months pre-diagnosis was 60%, 48% and 47%, respectively. Chest imaging was performed in 54%, 50% and 47% of patients with long-term Anxiety/Depression, recent-onset Anxiety/Depression or no Anxiety/Depression.

The risk of emergency diagnosis was lower for both recent-onset (29%) or long-term Painful Conditions (14%) versus no Painful Conditions (42%), (RRR=0.70; 95%CI 0.61, 0.80 and RRR=0.32; 95%CI 0.25, 0.41), with an increased probability of TWW referral (RRR=1.49; 95%CI 1.29, 1.72 and RRR=1.88; 95%CI 1.54, 2.30). Lower emergency diagnosis risk was observed in patients with long-term Anxiety/Depression compared to those with no Anxiety/Depression (29% vs 37%, RRR=0.80; 95%CI 0.67, 0.94); no association was observed for recent-onset Anxiety/Depression.

Implications: Patients with long-term Painful Conditions and Anxiety/Depression might have more opportunities during the months pre-cancer to discuss potential lung cancer symptoms and have chest-imaging, with a lower risk of emergency cancer diagnosis. Attention should also be dedicated to patients without long-term conditions to reduce their risk of emergency cancer diagnosis.

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Cancer incidence and mortality among patients with new-onset atrial fibrillation: a population-based matched cohort study

Presenters: Nadine Zakkak[1,2], Matthew Barclay[1], Arturo Gonzalez-Izquierdo[3,1], Amand Floriaan Schimdt[1,4,5,6], Gregory Y. H. Lip[7,8], Georgios Lyratzopoulos[1], Rui Providencia[1,9]

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Background: Understanding the risk of cancer after the diagnosis of another condition can present opportunities for earlier diagnosis.

Aims: This study aims to examine the risk of cancer diagnosis conditional on prior diagnosis of atrial fibrillation (AF).

Methods: Linked electronic health records were used to identify patients aged ≥18 with new-onset AF and age-sex-matched controls. Cumulative incidence of and mortality from cancer (overall and cancer-site specific) within three months, three months to five years and beyond five years from diagnosis of AF were examined. Findings were further validated using Mendelian randomisation (MR).

Results: The cohort included 117,173 patients with new-onset AF and 117,173 matched controls (median age 78). In the first three months, 2.2% of AF patients were diagnosed with cancer vs. 0.47% in controls (relative risk: 4.7 [95%CI 4.2-5.4] in men and 4.4 [95%CI 3.8-5.0] in women).

Nearly 80% of cancers related to thoracic or abdominal organs. Differences in cumulative incidence were only evident in women between three months and five years (subdistribution hazard ratio=1.1 [95%CI 1.01-1.12]) and absent in all patients beyond five years.

MR analysis did not support the presence of a causal association between AF and major cancer subtypes.

Implications: There is a large short-term increase in cancer incidence and mortality following new-onset AF. The findings may reflect incidental identification of AF or paraneoplastic manifestation. New-onset AF confers high short-term risk of cancer diagnosis, at levels comparable with symptomatic risk threshold mandating urgent assessment for suspected cancer.

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Recruitment Strategies for Lung Cancer Screening: An Umbrella Review of Effectiveness in Low-Participation Subcohorts

Presenters: Bethany Cushing, Benjamin Jacob, Ricardo Zaidan, Patrick Redmond

RCSI, Dublin, Ireland

Background: Lung cancer is the leading cause of cancer-related deaths globally. Low-dose CT (LDCT) lung cancer screening (LCS) reduces lung cancer specific mortality by 20%. However, participation rates can be as low as 15%, compared with 60-75% for other types of cancer screening. This problem is perceived to be due to barriers such as accessibility, stigma, misconceptions, and fear of diagnosis.

While various recruitment methods have been used, including personalized invitations, media campaigns, and primary care referrals, no comprehensive synthesis exists to evaluate which strategies are most effective across different populations.

Aims: This umbrella review aims to address this gap by synthesising evidence from systematic reviews on recruitment methods for LCS, with a particular focus on their impact in populations that historically demonstrate low participation rates, such as heavy smokers, ethnic minorities, and individuals from lower socioeconomic backgrounds.

Methods: A systematic search was conducted across PubMed, Embase, Scopus, Web of Science, the Cochrane Library, and systematic review registries, including PROSPERO and the Joanna Briggs Institute database, to identify systematic reviews published before 31 October 2024. This umbrella review will follow the Joanna Briggs Institute guidelines, adhere to the PRIOR reporting guideline, and will be pre-registered on the Open Science Framework (osf.io).

Eligible reviews examined recruitment strategies for increasing participation in lung cancer screening and reported key outcomes such as intervention characteristics, population reach, screening uptake and adherence, patient experience, and barriers or facilitators to implementation.

The quality of included reviews will be assessed using AMSTAR 2 (A Measurement Tool to Assess Systematic Reviews), focusing on methodological rigour, transparency, and risk of bias. Data extraction will capture details on recruitment strategies, populations studied, healthcare settings, and reported outcomes. A narrative synthesis will be employed to categorise and compare recruitment strategies based on their effectiveness across diverse populations and settings. Findings will highlight gaps in the evidence and provide recommendations for future research.

Results: Not applicable

Implications: This umbrella review will provide critical insights into effective recruitment strategies for lung cancer screening, particularly in populations with low participation rates. The findings will inform a report for WP8.5 of EUCanScreen, a joint action project funded by EU4Health, aimed at promoting the sustainable implementation of high-quality cancer screening across Europe. These results will support efforts to improve screening uptake, reduce disparities, and enhance early detection and survival outcomes for lung cancer.

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Exploring factors related to access to and uptake of lung cancer screening with a focus on health inequity: professional stakeholders' views

Presenters: Arbaz Kapadi[1], Gemma Howard[1], David French[1], Philip Crosbie[2,3], Lorna McWilliams[1]

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Background: In England, since 2019, the Targeted Lung Health Check (TLHC) Programme has been rolled out in the most deprived areas to screen eligible individuals (based on age and smoking history) for lung cancer. Screening, which uses a risk assessment and low-dose computed tomography (LCDT), can improve early detection and reduce mortality. Yet at the same time, lung cancer risk factors such as smoking and low socioeconomic status are associated with reduced screening participation.

Furthermore, evidence from other cancer screening programmes report barriers at the invitation and screening phase, leading to reduced uptake from individuals living with chronic health conditions and disabilities.

Aims: This study explores the views of professional stakeholders involved in the design and delivery of TLHCs across England, regarding key considerations and perceived factors related to access to and uptake of TLHCs, with a focus on health inequity.

Methods: Individual semi-structured interviews were conducted online with twenty-one professionals involved in the set-up, implementation or delivery of TLHCs across England. These included GPs, TLHC expert advisors, TLHC programme managers, TLHC delivery nurses, TLHC communication and engagement officers, and cancer clinicians.

Data collection took place between May and August 2024. Data was analysed inductively using reflexive thematic analysis.

Results: Professionals' views centred on three themes. The first theme - Identification of target population and their uptake of TLHC – related to decision-making around individuals' fitness to participate in screening, the accuracy of GP record data to inform screening invitation and the ability to monitor population uptake. The second theme - Strengthening awareness and understanding of the TLHC programme across public, patient and staff populations – related to the importance of increasing local and national TLHC visibility and clarifying requirements of participation and adherence within screening.

Achieving greater coordination between involved health services and professionals in the delivery of TLHCs was also identified within this theme. The third theme - Equitability of the TLHC programme and pathway to access and uptake – related to the diversity of TLHC model delivery and understanding of reasonable adjustments with implications for programme uptake and equity.

Implications: Understanding professionals' views are vital given their responsibilities to oversee the TLHC invitation process, implement strategies to facilitate access and monitor population uptake. Identifying priorities regarding health inequalities within lung cancer screening is important to ensure standardisation, minimise geographical variation and prioritise equity of access as the TLHC programme is rolled out nationally by 2030.

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Trends and sociodemographic variation in primary care consultations and urgent referrals for potential cancer symptoms: 2019 to 2023

Presenters: José M Ordóñez-Mena[1], Sheba Ziyenge[1], Rachel Byford[1], Kiana Collins[1], Rob Williams[1], Cynthia Wright Drakesmith[1], Rebekah Burrow[1], Cecilia Okusi[1], Charlotte Williamson[2], Lyndsy Ambler[2], Samantha Harrison[2], Rafael Perera[1], Simon de Lusignan[1], Richard Hobbs[1], Brian D Nicholson[1], Clare R Bankhead[1]

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Background: While cancer survival in the UK has improved over time, there remains a persistent deprivation gap, resulting in loss of life-years. Sociodemographic differences in various factors which may influence survival have been reported, such as time-to-diagnosis post GP presentation, likelihood of urgent two-week-wait cancer referral and treatment delays. There are concerns that delays in help-seeking behaviours with cancer symptoms during the COVID-19 pandemic have further exacerbated disparities in cancer diagnosis.

Aims: There is almost no data presented describing socioeconomic variation in primary care consultations for clinical features of cancer and associated urgent cancer referrals.

This study aimed to describe sociodemographic variations in primary care consultations for clinical features of cancer and associated urgent referrals by GPs from 2020 to 2023, compared to the corresponding period in 2019, to account for the effects of the COVID-19 pandemic.

Methods: We analysed data from primary care electronic health records of patients registered at English GPs from Oxford Royal College of General Practitioners Clinical Informatics Digital Hub (ORCHID). Twenty-nine clinical features selected from the NG12 NICE Suspected Cancer guideline were matched with eight cancer pathways: Breast, Colorectal, Gynaecological, Haematological, Head & Neck, Lung, Upper Gastrointestinal and Urological. Variation in consultation and referral rates was analysed by sex, age group, ethnicity, deprivation quantile and NHS region, and visualised over time in comparison to baseline year 2019.

Results: We observed sex, age, ethnicity, deprivation, and regional differences in rates of consultation and urgent referrals in baseline year 2019, for most cancer pathways. While there was some indication of varying trends between some groups and cancer pathways, sociodemographic differences remained at the end of the study period.

There was a decrease in consultation rates during the first COVID-19 lockdown for all clinical features, with differential rates of recovery for each feature. At the end of the study period, a cumulative deficit remained in consultations for all clinical pathways. Despite this, referrals increased and exceeded pre-pandemic levels for all pathways.

Implications: Evidence from this work can be used to support the development of targeted interventions for groups facing inequalities in cancer diagnosis, including the development of symptom awareness campaigns and clinical management strategies for patients presenting with relevant symptoms in primary care. Understanding the difference in referral patterns between regions is important for identifying unwarranted variation, and further investigation can help to identify and support the wider implementation of best practice.

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Primary Care Staff Perspectives on Delays in Cancer Diagnosis: A Qualitative Systematic Review and Meta-Synthesis

Presenters: Wasim Hamad[1], Tanvi Save[2], Thomas Round[2]

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Background: Primary care providers have a critical role in cancer diagnostic pathways. Previous research focused on staff and patients' roles in cancer diagnostic delays. However, primary care staff perspectives on cancer diagnostic delays have not been comprehensively studied.

Aims: The review aims to systematically synthesise qualitative evidence on the perspectives of primary care staff (clinical and non-clinical) on cancer diagnostic delays. The objective is to understand delays from their viewpoint to support potential strategies for earlier cancer detection.

Methods: A systematic electronic search was conducted on MEDLINE, Embase, PubMed, PsycINFO, and Web of Science. Eligible studies were qualitative, included only primary care (or equivalent) staff (including non-clinicians), focused on cancer diagnostic delays, and published in English. Studies were excluded if they involved secondary care staff or focused solely on a single cancer type.

The review adhered to Cochrane handbook for qualitative reviews, CASP-2 checklist and implemented thematic synthesis to generate emerging and overarching themes. The review explored the interaction of themes with intervals and factors in the pathway to treatment framework.

Results: We identified 2,211 records and included 18 studies, of which, six were in the UK, three in Australia and six in other parts of Europe. Fifteen studies conducted interviews with a total of 348 participants, while three studies used surveys with participants ranging from 158 to 1,352. Meta-synthesis generated 13 overarching, and 28 emerging themes.

Overarching themes were categorised as i) patient factors: patient behaviours and help-seeking, patient knowledge and perceptions, and patient interaction; ii) provider factors: clinical decision-making process, knowledge application, and roles and responsibilities; iii) health system factors; care continuity and coordination, communication and collaboration, cancer detection process, task shifting, evaluation and enhancement, and safety netting; iv) disease factors; diagnostic challenges. Most themes were related to the healthcare system, with care continuity, interaction between health system levels (primary and secondary care) and communication being the most prominent.

Implications: Primary care staff views on delays in cancer diagnostic pathways spans multiple factors. Primary care staff perspectives on reducing delays focus on improved coordination and communication between primary and secondary care to facilitate continuity of care. Tools to aid clinical decision could help in identifying cancers earlier. Future research should focus on exploring the interactions between primary and secondary care and developing novel tools in the pathway. Further research is needed in less developed countries and settings.

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Comparing case-only and case-control estimates of diagnostic window length: evidence from population-based health records

Presenters: Emma Whitfield[1,2], Matthew Barclay[1], Becky White[1], Meena Rafiq[1], Nadine Zakkak[1], Marta Berglund[1], Spiros Denaxas[2], Georgios Lyratzopoulos[1]

[1]University College London, Department of Behavioural Science and Health, London, United Kingdom. [2]University College London, Institute of Health Informatics, London, United Kingdom

Background: Diagnostic windows can provide insight into the potential for earlier diagnosis of cancer and have previously been measured for many cancer sites. Whilst a number of methods for measuring diagnostic windows have been proposed, there is no consensus on whether case-only or case-control designs are preferable, or indeed whether they should be interpreted in the same way.

Aims: This study aimed to identify whether differences exist between case-only and case-control estimates of diagnostic window length for five cancer sites (brain, colon, lung, ovary, pancreas).

Methods: We used population-based linked longitudinal records from CPRD, HES, and ONS to identify patients with a first incident diagnosis of a cancer site of interest between 1/1/1999 and 31/12/2019. Up to five controls per case were included, matched on age, sex, and practice. We used the maximum likelihood estimation method to produce case-only and case-control estimates of diagnostic windows in face-to-face/telephone primary care use.

Results: XCase-only estimates ranged from 5 to 6 months. Case-control estimates were consistent with case-only estimates for ovarian cancer (6 months) and were 1 month longer for colon, lung, and pancreatic cancers. The largest discrepancy was observed in diagnostic windows for brain tumours, for which case-control estimates were 5 months longer (case-only: 5 months, case-control: 10 months).

Implications: With appropriate matching processes and covariates, estimates of neoplastic diagnostic windows produced using the MLE method are fairly robust to the choice of case-only or case-control study design. However, case-control estimates may be slightly longer.

Our findings indicate that case-control designs are able to produce comparable estimates to case-only settings with a smaller sample of cases. Future research should therefore consider using case-control designs to estimate diagnostic window length, particularly for less incident cancer sites.

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The risk of pancreatic cancer in symptomatic patients with selected long term health conditions

Presenters: David Shotter[1], Lucy Kirkland[1], Bianca Wiering[1], Elizabeth Shepherd[1], Justus Imoyera[1], Andrew Parsons[1], Gary Abel[1], Willie Hamilton[1], Samuel W D Merriel[2], Sarah Bailey[1]

1University of Exeter, Exeter, United Kingdom. 2University of Manchester, Manchester, United Kingdom

Background: Identifying patients at risk of cancer in primary care can be challenging for general practitioners when patients have pre-existing long-term health conditions that have similar and overlapping clinical features.

Currently, over 75% of patients with cancer have at least one pre-existing long-term health condition and these patients are more likely to be diagnosed via an emergency route and have poorer survival.

There are approximately 10,800 new cases of pancreatic cancer diagnosed per year in the UK. In 2018, 62% of pancreatic cancers in England were diagnosed at an advanced stage (III/IV). Incidence rates are projected to rise by 5% in the UK between 2025 and 2038-2040.

Aims: This study aims to study the clinical features of pancreatic cancer in patients with hypertension, obesity, chronic obstructive pulmonary disease (COPD), diabetes, cardiovascular disease (CVD), and depression and/or anxiety.

Methods: This case-control study used data from the Clinical Practice Research Datalink. Pancreatic cancer cases and controls were matched on sex, general practice and age. Predictor variables for cancer sites were selected based on previous literature, input from public collaborators, and searching grey literature. The model being fitted is a multivariate conditional logistic regression, which will be based on multiple clinical features including test results, symptoms, and other pre-existing conditions.

Results: There were 11,008 incident pancreatic cancer cases between 2012 and 2018, and 55,040 controls. Among the cases, prevalence of pre-existing conditions included 50% with hypertension, 41% anxiety and/or depression, 31% obesity, 29% CVD, 22% diabetes, and 8% COPD.

In the year before diagnosis, jaundice was recorded in 19% of cases, and abdominal pain in 30% (both are featured in NG12 as an indicator if alongside a patient aged >60 with weight loss). Dyspepsia was recorded in 7% of cases, and loss of appetite in 3% of cases (neither feature in NICE NG12). There were 33 significant interactions between conditions and features which may impact the risk of cancer diagnosis; these features will be presented at the conference.

Implications: The results from this study address an evidence gap in the clinical features of suspected pancreatic cancer, by examining how selected long-term health conditions affect cancer risk and feature presentation. These results can inform whether different features should be acted upon differently for patients with pre-existing morbidities, for example by altering the age at which they become eligible for an urgent referral.

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Enhancing Early Stage Cancer Detection in Primary Care: Evaluating the Impact of C the Signs in Manchester

Presenters: Seema Dadhania[1,2,3], Alison Chapman[4], Ajay Kotegaonkar[5], Victoria Moyle[5], Judith Gordon[3], Bea Bakshi[3], Miles Payling[3]

[1]Imperial College London, London, United Kingdom. [2]Imperial College Healthcare NHS Trust, London, United Kingdom. [3]C the Signs, London, United Kingdom. [4]Manchester Integrated Care Board, London, United Kingdom. [5]Manchester Integrated Care Board, Manchester, United Kingdom

Background: Horizon Primary Care Network (PCN) serves a diverse population of 96,000 patients. In August 2021, Horizon PCN adopted C the Signs, a clinical decision support system (CDSS) to improve cancer detection and streamline referrals in primary care.

Aims: This evaluation examines the impact of C the Signs by comparing the cancer detection rate (CDR) and conversion rate against Greater Manchester Integrated Care Board (GM-ICB) and NHS England benchmarks. Additionally, it presents audit results, including staging at presentation, over a 12-month period from April 1, 2023 to March 31, 2024 to address the impact the CDR is having locally.

Methods: CDR and conversion rate data was evaluated from the public Fingertips website. The audit data came from C the Signs and EMIS which identified 495 cancer cases particularly focussing on staging. The data were compared with GM-ICB and NHS England standards to assess the performance of Horizon PCN.

Results: Since implementing C the Signs, Horizon PCN has consistently outperformed both GM-ICB and NHS England in CDR, improving from 55.7% prior to C the Signs to 62.9% in the latest year available (12.9% rate of improvement). This was compared to 0.2% improvement in the same period for GM-ICB and 1.5% in NHSE. The conversion rate for 2022/23 was 5.6%, slightly lower than NHS England's rate of 6.0%, indicating efficient targeting of high-risk cases without overburdening the system.

Among the 495 cancer cases (275 male, 220 female), ages ranged between 4 and 98. Presentation pathways included the Suspected Cancer Pathway(55%), screening programmes(10%), hospital care(12%), and emergency presentations(13%), particularly for lung, colorectal, lymphoma, and upper-GI cancers. Staging data revealed that 36.2% of cancers were diagnosed at Stage 1, 13.3% at Stage 2, 14.5% at Stage 3, 18.2% at Stage 4. Early-stage detection (Stage 1/2) was notably higher in Horizon PCN for prostate (77.8%vs.55.1%), bladder (91.3%vs.71.1%), and colorectal cancer (58.9%vs.45.1%) compared to GM-ICB, with lung cancer showing a modest increase (40.0%vs.36.6%). Overall, 60.2% of staged cancers were diagnosed at an early stage, compared to 56.5% in GM-ICB.

Implications: Overall, the implementation of C the Signs has enabled Bury Horizon PCN to achieve a higher CDR compared to regional and national standards, while also maintaining a balanced conversion rate. The improvement in early-stage diagnoses for certain cancers underscores the benefits of CDSS, suggesting a valuable model for broader adoption to improve patient outcomes and optimise resource management.

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Integrating Breast Cancer Survivorship Care into Primary Healthcare: Perspectives of Specialists and General Medical Practitioners in Pakistan

Presenters: Ayesha Bibi[1], David Weller[1], Christine Campbell[1], Amjad Khan[2]

[1]University of Edinburgh, Edinburgh, United Kingdom. [2]Quaid-i-Azam University, Islamabad, Pakistan

Background: Post-treatment breast cancer survivorship care is crucial for addressing survivors' ongoing physical, psychological, and social challenges. In Pakistan, care is predominantly delivered in specialist centers, with limited engagement from general medical practitioners (GMPs). This study explores the perspectives of breast cancer specialists and the roles, challenges, and training needs of GMPs to identify pathways for integrating survivorship care into primary healthcare.

Aims: To explore the perspectives of breast cancer specialists and the roles, challenges, and training needs of GMPs in providing post-treatment breast cancer survivorship care and identify pathways for integrating such care into primary healthcare in Pakistan.

Methods: Two separate cross-sectional surveys were designed for breast cancer specialists and GMPs to capture their specific experiences and views on survivorship care. Convenience sampling and snowball techniques were used to recruit participants from multiple sites across Pakistan. An online semi-structured questionnaire for each professional group was distributed via email and professional networks. The survey remained open for seven months, during which time the response rate was low despite extensive outreach, with 50 GMPs and 17 specialists participating. Data were analyzed descriptively to identify key themes and trends.

Results: GMPs frequently managed 1–2 breast cancer survivors per month, focusing on treatment side effects (34%) and comorbidities (32%). Key challenges included GMPs' limited training and confidence in survivorship care (36%) and patient preferences for specialist facilities (48%). Specialists emphasized the importance of improving communication between primary and specialist care (38%) and called for targeted training for GMPs (72%). Both groups advocated for integrating survivorship care into existing primary healthcare settings to enhance accessibility and continuity of care.

Implications: Integrating breast cancer survivorship care into primary healthcare in Pakistan is a pragmatic and resource-conscious approach. Recommendations include capacity-building initiatives for GMPs, streamlined communication between care levels, and allocation of resources for survivorship services. These steps can foster a sustainable care model, ensuring better outcomes for breast cancer survivors in under-resourced settings

Ca-PRI 2025 theme: Interdisciplinary care

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Estimating the Eligible Population for Lung Cancer Screening in Ireland: Integrating Smoking Data and Population Projections

Presenters: Tatiana Bezdenezhnykh, Benjamin M. Jacob, Vivian X.W. Teng, Patrick Redmond

Royal College of Surgeons in Ireland, Dublin, Ireland

Background: Lung cancer screening programmes can significantly improve survival by detecting cancer at earlier stages in high-risk groups, mainly heavy smokers aged 55 and older. Accurately estimating the eligible screening population in Ireland requires integrating data on smoking prevalence, intensity, and demographic trends. This study uses EU Barometer microdata for smoking intensity, the 2022 Census for prevalence estimates, and population projections to forecast the eligible screening cohort and inform healthcare planning.

Aims: To estimate the size of the population eligible for lung cancer screening in Ireland, focusing on heavy smokers aged 55 and above, using integrated data from the EU Barometer, Census, and Central Statistics Office (CSO) projections.

Methods: The study employs an integrated data modelling approach, synthesising information from the 2022 Census, EU Barometer surveys (2012, 2014, 2017, 2020), and Central Statistics Office (CSO) population projections. Smoking prevalence and intensity were analysed across age groups and genders to model trends and forecast future eligibility for lung cancer screening. The EU Barometer provided data on smoking intensity, while the Census offered baseline prevalence estimates, forming the foundation for population forecasting.

Results: Initial estimates indicate a substantial cohort of heavy smokers aged 55 and above who may be eligible for screening. Projections based on demographic and smoking trends suggest increasing demand for screening services, highlighting the need for strategic healthcare planning.

Implications: The study offers an evidence-based framework for estimating future screening demand, aiding policymakers in planning for the implementation of a national lung cancer screening programme in Ireland. These insights support effective resource allocation and programme sustainability.

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Pilot lung screening in Scotland: intervention findings and qualitative insights

Presenters: Christine Campbell[1], Debbie Cavers[1], Ahsan Akram[1], Graeme Dickie[1], Edwin J R van Beek[1], Katie Robb[2], Frank Sullivan[3], Melanie Mackean[4], RJ Steele[5], Aileen Neilson[1], David Weller[1]

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Background: Lung cancer screening using low dose computed tomography has been shown to reduce lung cancer mortality by upwards of 20%. The UK screening committee has made a formal recommendation for the implementation of lung screening. This paper will present the descriptive findings from a lung screening intervention and qualitative feedback from study participants, non-responders and primary care providers.

Aims: We aimed to test the feasibility and acceptability of lung screening in Scotland and to understand views on, and influences on participation in, lung screening, to inform the future of implementing lung screening in Scotland.

Methods: Patients for the pilot were identified via participating general practices using codes for smoking status. Those who responded were screened for eligibility using validated risk prediction tools. Patients assessed as high risk were offered a one-off low dose CT (LDCT) scan. Patients requiring any follow-up were referred to usual NHS care. A sub-group of participants, non-responders and primary care providers were interviewed to ascertain their views.

Results: Six hundred and sixty-seven people responded to an invitation to take part in lung screening from four Scottish health boards, with an average response rate of 24.1%, variably by SIMD. Of these, 502 participants (~75%) were assessed as high risk and offered a LDCT scan. Three lung cancers were detected, and five other cancer types.

There were a high number of incidental findings, including roughly 50% of those scanned having coronary artery disease requiring GP assessment of whether follow-up is required. Qualitative insights suggest a high level of support for lung screening, awareness of early detection, and acceptability of process.

Participation is influenced by attitude to health and self-efficacy, experience navigating the healthcare system, convenience, and perceived risk. Non-participants also reported support for lung screening and described competing demands, lack of priority, and complex ill health as preventing participation.

Primary care providers recognised the potential for preventing more serious ill health from developing to benefit primary care in the long term, but reported an increased burden on primary care in an already constrained environment.

Implications: Implementation of lung screening must take into account the characteristics of the population it will serve and accommodate the barriers and facilitators to maximise uptake and improve outcomes. Our pilot study to explore the feasibility and acceptability of lung screening in the Scottish population has identified challenges to be addressed in any future lung screening programme.

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A stop-smoking strategy after cervical cancer screening: Results of a cluster-randomised controlled trial in Dutch general practice

Presenters: Marthe Mansour[1], Mathilde Crone[2], Henk van Weert[1], Niels Chavannes[3], Kristel van Asselt[4]

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Background: XIn the Netherlands, cervical cancer screening takes place in general practice. The appointment for the cervical smear could serve as a routine teachable moment to reach women who smoke, creating a link between the reason for their visit (cancer prevention) and their behaviour (smoking).

Aims: This study aimed to assess whether brief stop-smoking advice given to women who smoke and visit their general practice for cervical cancer screening improves smoking cessation outcomes.

Methods: This two-arm cluster-randomised controlled trial was conducted in 75 Dutch general practices. Participants in the intervention group received brief stop-smoking advice based on the Ask-Advise-Connect method, delivered by a practice assistant. Patient-reported outcomes were measured at 6 months: undertaking a serious quit attempt of at least 24 hours during follow-up (primary outcome), 7-day point prevalence abstinence (PPA) at 6 months, reduction in number of cigarettes smoked, reduction in number of cigarettes smoked, increase in motivation to quit smoking, exposure to advice or support, and other psychological and behavioural measurements.

Results: There was no significant difference in undertaking a serious quit attempt between the intervention (39.8% of n=266) and control group (36.0% of n = 214), OR 1.18 (95% CI: 0.80–1.72, P=0.41). Neither did the PPA significantly differ between groups: 21.1% vs. 16.3%, OR 1.38 (95% CI: 0.83–2.29, P=0.21).

Although nonsignificant, the direction of effects for the aforementioned outcomes was in favour of the intervention group. The reduction in number of cigarettes smoked and increase in motivation to quit did not differ between groups. The uptake of cessation counselling was higher in the intervention (14.7%) than in the control group (2.8%).

Implications: A brief stop-smoking strategy after the smear test for cervical screening might encourage women who smoke to attempt quitting and seek cessation counselling, but a significant effect could not be demonstrated in this trial.

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Gender inequalities across ethnicities in primary care cancer referrals: findings from a scoping review

Presenters: Deepthi Lavu, Judit Konya, Tanimola Martins, Sarah Price, Richard Neal

APEx (Exeter Collaboration for Academic Primary Care), University of Exeter, Exeter, United Kingdom

Background: Early cancer diagnosis is associated with improved mortality and morbidity; however, studies indicate that women and individuals from ethnic minorities experience longer times to diagnosis and worse prognosis compared with their counterparts for various cancers. In countries with a gatekeeper healthcare system, such as the UK, most suspected cancer referrals are initiated in primary care.

Aims: To understand the extent of evidence available on the relationship between primary care cancer referral pathways and cancer outcomes in relation to gender across different ethnic groups.

Methods: A scoping review of articles written in English was undertaken. It was based on the Joanna Briggs Institute methodology and reported according to PRISMA-ScR. Electronic databases were searched. Two independent reviewers carried out the study selection and data extraction. Based on Population (or Participant), Concept and Context (PCC) framework, this review explored the relationship between gender, across various ethnic groups, and cancer outcomes, following primary care cancer referral in countries with gatekeeper healthcare systems (UK, New Zealand, Sweden, Australia, Canada, Denmark, Republic of Ireland, and Norway).

Results: Out of 18,995 initial studies identified on database searching, 33 studies were included in the final review; however the focus of these studies was not investigating gender discrepancies. The studies ranged from cohort and cross-sectional studies to surveys, and majority of the studies were based in the UK. The focus of the type of cancers in the studies were largely mixed (11) but colorectal cancer featured in 8 other articles independently. Diagnostic interval was explored in 23 studies and emergency presentations in 9 others. There were no studies which specifically explored gender differences within ethnic groups. Females were found to have either longer diagnostic intervals or more emergency presentations or more pre-referral consultations than males in most of the studies.

Implications: The results provide an overview of the discrepancies in primary care cancer referrals based on gender. Gender discrepancies within ethnic groups has not been explored before and warrants further examination. A large number of studies around colorectal cancer reported that women are likely to experience longer times to diagnosis or have more emergency presentations. This study identified research gaps, including the need to understand the full extent and likely causes of such findings. Addressing these will enable the development of an appropriate range of strategies to ease any inequalities in primary healthcare cancer diagnosis.

Digital poster presentations

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The role of general practitioners in the post-treatment survivorship care of people with head and neck cancer: a qualitative study with general practitioners in rural Australia

Presenters: Poorva Pradhan[1], Ke (Zoe) Wan[2], Samuel Roberts[1], Carsten Palme[1,2], Michael Elliott[1,2], Jonathan Clark[1,2,3], Rebecca Venchiarutti[1,2]

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Background: The post-treatment survivorship needs of people with head and neck cancer (HNC) are complex, requiring comprehensive multidisciplinary care from medical, nursing, dental, and allied health specialties. People in rural areas experience unique challenges in accessing survivorship care for HNC due to reduced availability of services, geographical barriers in accessing care, and greater socioeconomic disadvantage. General practitioners (GPs) play a crucial role in caring for survivors of HNC, especially following discharge from routine oncology specialist-led follow up. Under proposed new models of care, GPs may have an increasingly central role in managing post-treatment survivorship care of people with cancer..

Aims: To explore the perspectives of rural GPs in providing care to survivors of HNC in Australia after cancer treatment.

Methods: Qualitative semi-structured interviews were conducted with 11 GPs based in rural New South Wales, Australia. Interviews were audio recorded, transcribed, and thematically analysed with a coding framework informed by the Quality of Cancer Survivorship Care Framework.

Results: GPs had varying levels of confidence in managing survivors of HNC. They described greater confidence in managing patients with cutaneous cancers compared to mucosal cancers (e.g., oral cancers). There was a desire for more training and opportunities for 'hands-on' experience to upskill in this area. Participants highlighted the profound impact and challenges of managing side effects of treatment on critical functions like breathing, swallowing, and eating. GPs noted the significant psychosocial impacts of changes in appearance and function. While some were able to refer to local psychological services, others took on a direct role in providing psychological support themselves when access was limited. GPs acknowledged care plans as useful to manage chronic conditions and for people with complex needs but were critical of the processes to deliver these care plans, citing bureaucratic and administrative barriers that detracted from actual patient care. Workforce issues including GP and case manager shortages in rural areas emerged as a barrier to delivering effective whole-person care.

Implications: GPs are essential to providing holistic care for survivors of HNC and will play an increasingly critical role as models of survivorship care move away from those that are oncology specialist led. Ongoing commitments to investing in the rural GP workforce in Australia are needed to ensure adequate delivery of primary care. Additional training and opportunities to build networks between GPs and oncology specialists could support greater delivery of HNC survivorship care in the primary care sector.

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The Stockholm Early Detection of Cancer Study (STEADY-CAN): rationale, design, data collection, and baseline characteristics for 2.7 million participants

Presenters: Elinor Nemlander[1,2,3], Eliya Abedi[1,2,3], Per Ljungman[1,4], Jan Hasselström[1,3], Axel C Carlsson[1,3], Andreas Rosenblad[1,2,5]

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Background: The Stockholm Early Detection of Cancer Study (STEADY-CAN) cohort was established to investigate strategies for early cancer detection in a population-based context within Stockholm County, the capital region of Sweden

Aims: Utilising real-world data to explore cancer-related healthcare patterns and outcomes, the cohort links extensive clinical and laboratory data from both inpatient and outpatient care in the region. The dataset includes demographic information, detailed diagnostic codes, laboratory results, prescribed medications, and healthcare utilisation data.

Methods: Since its inception, STEADY-CAN has collected longitudinal data on 2,732,220 individuals aged ≥ 18 years old living in or having access to health care in Stockholm County during the years 2011-2021. Focusing on cancer, the cohort includes 138,404 (5.1%) individuals with incident cancer and a control group of 2,593,816 (94.9%) cancer-free individuals

Results: The cohort's diverse adult population enables robust analyses of early symptom detection, incidental findings, and the impact of comorbidities on cancer diagnoses. Utilizing the wide range of available laboratory data and clinical variables allow for advanced statistical analyses and adjustments for important confounding factors.

The cohort's primary focus is to improve understanding of the early diagnostic phase of cancer, offering a crucial resource for studying cancer detection in clinical practice.

Its comprehensive data collection provides unique opportunities for research into comorbidities and cancer outcomes, making the cohort a useful resource for ongoing cancer surveillance and public health strategies.

Implications: The present study gives a detailed description of the rationale for creating the STEADY-CAN cohort, its design, the data collection procedure, and baseline characteristics of collected data.

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Newly developed anaemia predicts incident cancer and death within 18 months: Findings from 1.1 million patients in the Stockholm Early Detection of Cancer Study (STEADY-CAN) cohort

Presenters: Elinor Nemlander[1,2,3], Eliya Abedi[1,2,3], Jan Hasselström[1,3], Per Ljungman[1,4], Andreas Rosenblad[1,2,5], Axel C Carlsson[1,3]

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Background: Anaemia is a common condition in primary healthcare (PHC) and is frequently associated with existing cancer. Detecting incident anaemia may provide an opportunity for earlier cancer diagnosis.

Aims: This study aimed to examine the association between newly developed anaemia and incident cancer and mortality in women and men, adjusting for age and comorbidities.

Methods: We conducted a population-based cohort study using data from the Stockholm Early Detection of Cancer Study (STEADY-CAN) in Stockholm, Sweden. Adults aged ≥ 18 years old with at least two haemoglobin (Hb) measurements at two separate days between January 2011 and June 2020 were included. Newly developed anaemia was defined as Hb < 130 g/L for men and < 120 g/L for women, following a prior normal Hb level, between January 2012 and June 2020. The primary outcomes were incident cancer and death within 18 months, assessed using competing risks Cox regression models.

Results: Out of 1,096,833 eligible individuals, 284,157 (25.9%) cases of newly developed anaemia were observed. Among these, 9,846 (3.5%) were diagnosed with incident cancer, compared to 5,027 (0.6%) in the non-anaemic group. The unadjusted hazard ratios (HR) (95% confidence intervals [CIs]) for incident cancer were 7.4 (7.1–7.8; P < 0.001) for men and 5.1 (4.8–5.4; P < 0.001) for women with anaemia. After adjusting for age and comorbidity, the HR (95% CI) for cancer was 3.7 (3.4-3.9; P < 0.001) for both sexes. Anaemia was also associated with higher mortality, with adjusted HRs (95% CIs) of 3.9 (3.6-4.2; P < 0.001) for men and 2.0 (1.9-2.2) for women.

Implications: Newly developed anaemia is strongly associated with a higher risk of incident cancer and mortality in both women and men. Clinicians should maintain a high index of suspicion for cancer in patients with incident anaemia, even after adjusting for comorbidities. Future studies should explore anaemia characteristics and follow-up durations to improve early cancer detection and patient outcomes.

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Strengthening Communities: The Plymouth Cancer Champions' Project addresses inequities in cancer care through collaboration and asset-based community development

Presenters: Katy Stevenson[1], Felix Gradinger[2], Richard Byng[1], Niqui Bond[3], Debbie Freeman[3]

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Background: There are significant differences in cancer survival between low and high-income areas, and despite various initiatives, these inequities persist. Macmillan Cancer Support has partnered with local Voluntary and Community Sector (VCS) organisations in the UK to address the drivers of inequity in cancer care. In Plymouth, a low-income city in the South-West with higher cancer mortality rates, Macmillan has collaborated with Zebra (a small community collective working towards social and environmental justice), Age UK Plymouth (a charity which supports older adults), The Wolseley Trust (a social prescribing community development trust), as well as local GP surgeries, to implement an asset-based community development approach to minimise these inequities.

The Plymouth Cancer Champions' Project (PCCP) team was established in April 2024 and includes representatives from the local community along with individuals who have lived experience of cancer. They have since hosted multiple community cancer awareness and support events, aiming to tackle these inequities through community-led initiatives.

Aims: The Principal Investigator (PI) is a GP trainee, and with Zebra they are taking an embedded ethnographic action-research approach to explore how the PCCP influences Plymouth communities' engagement with cancer care.

Methods: Thirteen PCCP stakeholders have been recruited as participants and data from naturally occurring events such as meetings, cancer awareness events, and participant reflective logs have been collected, and focus groups will be facilitated in early 2025.

The PI has delivered training on cancer, health equity and primary care. The University of Plymouth has ethically approved this project.

Results: The research has begun to unearth barriers to access, diagnosis and care for local people with mental health issues, financial difficulties, substance dependence, homelessness, and those from minority groups. Following decades of community work, Zebra's longstanding relationship with the community has enabled them to engage with local citizens rapidly and deeply.

Zebra acts as a web, connecting healthcare providers, community resources, and local people to address cancer inequities and foster community connection through meaningful engagement via an asset-based community development approach.

Implications: The findings from the PCCP initiative underscore the necessity to prioritise community engagement and collaboration with local organisations, ensuring that resources are directed towards groups who can identify and address the specific barriers faced by their communities. By adopting an asset-based approach, healthcare providers can better utilise local strengths and foster sustainable relationships, with the goals to improve cancer outcomes and reduce health inequities in low-income areas.

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Assessing the impact of timely diagnosis on psychological outcomes and quality of life for cancer patients: a scoping review

Presenters: Laura Boswell[1], Jenny Harris[1], Richard Green[1], Jo Armes[1], Georgia Black[2], Katriina Whitaker[1]

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Background: Timely diagnosis and cancer treatment are crucial for improving patients' outcomes and prognosis. Much is known about the impact of prolonged diagnostic/treatment intervals on survival; however, less is known about the psychological impact of receiving a timely cancer diagnosis. Considering outcomes beyond survival is important, given the number of patients impacted by cancer and because survival rates are increasing with improvements in treatments and gains in early detection.

Aims: We reviewed the literature on timely cancer diagnosis and its significance on psychological outcomes or quality of life (QoL) in cancer patients. We aimed to understand a) the types of psychological and QoL outcomes that have been studied, b) the assessment methods that have been used to identify these outcomes, c) how studies have conceptualised/measured timely diagnosis and d) the evidence for the relationship between timely diagnosis and psychological outcomes and/or QoL of cancer patients.

Methods: We conducted a scoping review to map existing literature in this area, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews. This identified 4,194 studies for screening after duplicates were removed. A quality appraisal was completed by combining a validated appraisal tool with cancer-specific quality reporting criteria.

Results: Six studies were identified. Four studies used cross-sectional surveys, and one each used qualitative and mixed-method designs. Quantitative evidence suggests that timely diagnosis was associated with better psychological outcomes and quality of life. Qualitative and mixed-method evidence found an incidental relationship suggesting that timely diagnosis positively impacts psychological outcomes but was not a focus of the studies. Definitions of timely diagnosis varied, including using diagnostic intervals from electronic health records, the number of pre-referral consultations with a general practitioner, and self-reported participant accounts. No study satisfied all quality appraisal criteria, with dates of events leading up to diagnosis being the least reported (0/6 studies).

Implications: Considering outcomes beyond survival is important for national government/third-party early diagnosis strategies. Preliminary evidence indicates that timely diagnosis may be associated with variations in psychological outcomes and quality of life in patients with cancer; however, methodological heterogeneity restricts the generalisability of the findings. More high-quality longitudinal quantitative and qualitative research is needed to explore the direction of the association and lived experience during the adjustment process.

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Implementation of important and feasible actions to increase uptake of cervical screening: Moving from knowledge to action

Presenters: Kimberly Devotta[1,2], Aisha Lofters[1,2], Mandana Vahabi[2,3]

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Background: Improving uptake of cervical screening is critical to the elimination of cervical cancer. In Ontario, Canada, screening rates have plateaued over the past decades, with a further observed decline since the COVID-19 pandemic. Using a participant-driven process called concept mapping, key action items to address cervical screening rates for South Asian women – one of Ontario's most underscreened groups – were identified.

During this process, participants brainstormed, rated and interpreted action items for addressing low rates of cervical screening. The outcome was a prioritized list of important and feasible (i.e. impactful) action items that highlight the need for multiple levels of interventions to increase and sustain participation in cervical screening.

Aims: To move from knowledge to action, to create and evaluate evidence-informed interventions to encourage uptake of cervical screening.

Methods: This is a presentation on a work in progress. Methods to be discussed will include plans for community engagement, as well as the development and evaluation of knowledge translation and exchange (KTE) interventions.

Results: N/A

Implications: This work will generate community-identified and co-designed interventions aimed to increase uptake of cervical screening among some of the most underscreened populations.

The ultimate goal is to encourage broader participation in cervical screening and contribute to the elimination of cervical cancer.

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A study protocol for a randomized controlled trial evaluating the impact of different methods of HPV DNA testing for cervical cancer screening in primary care settings

Presenters: Xin Rong Ng[1], Imm Pin Quek[1], Michelle Jessica Pereira[2], Joseph De Castro Molina[2,3], Joanne Ngeow[3,4,5], Sabrina Kay Wye Wong[3,6]

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Background: Cervical cancer remains a significant public health concern in Singapore, with screening rates at 43%, far below the national target of 70%. The introduction of Human Papillomavirus (HPV) DNA testing in 2019 aimed to improve participation; however, barriers such as embarrassment, privacy concerns, and discomfort with clinician-sampled tests persist. Self-sampled HPV DNA testing offers a promising alternative, enhancing privacy and convenience for women.

Aims: This study aims to evaluate the impact of incorporating self-sampled HPV DNA testing as an alternative to clinician-sampling on cervical cancer screening uptake, clinical outcomes, and cost-effectiveness within primary care settings.

Methods: This pragmatic, open-label, two-arm randomized controlled trial (RCT) employs a Zelen design. A total of 968 women aged 30-69, who are due for cervical cancer screening, will be recruited from National Healthcare Group Polyclinics in Singapore. Participants will be randomly assigned to either the intervention arm (offering both self-sampling and clinician-sampling) or the usual care arm (clinician-sampling only).

The primary outcome is the detection rate of high-risk HPV. Secondary outcomes include cervical cancer screening uptake, colposcopy referrals, detection rates of cervical intraepithelial neoplasia (CIN) 2, 3 and cervical cancer, as well as cost-effectiveness.

Acceptability and feasibility of self-sampling will be assessed through post-screening questionnaires.

Results: The study is currently ongoing, and results will be released upon its completion.

Implications: The findings from this trial will provide crucial evidence for the potential inclusion of self-sampling in Singapore's national cervical cancer screening program. If successful, this approach could increase screening rates and significantly improve public health outcomes, particularly for underserved populations who face barriers to accessing traditional screening methods. By addressing these inequalities, the study aims to promote health equity and ensure that all women have the opportunity to participate in preventive care.

This trial is registered at ClinicalTrials.gov (NCT06528184).

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Exploring the Role of Digital Scribes in Enhancing Cancer Care Outcomes in Primary Healthcare: A Scoping Review

Presenters: Conner Bullen[1,2], Kurdo Araz[1,2], Benjamin Jacob[2], Patrick Redmond[2]

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Background: Digital scribes use speech recognition and natural language processing to document clinical encounters, similar to human scribes. By automating documentation tasks, digital scribes may reduce clinician workload, particularly in primary care, potentially allowing more time for cancer screening and patient engagement, which are essential for early diagnosis and improved outcomes.

Aims: To evaluate the role of digital scribes in enhancing cancer outcomes in primary care.

Methods: This scoping review follows the Arksey and O'Malley framework, enhanced by Levac et al., and adheres to PRISMA-ScR guidelines. A comprehensive search was conducted in MEDLINE and Embase, focusing on peer-reviewed studies examining the use of digital scribes in primary or cancer care settings. The data were thematically charted, comparing methodologies, main findings, and limitations.

Results: The review included 10 relevant publications, primarily focused on primary care. Four studies employed an interventional design, while the majority were descriptive or based on expert opinion. Reported benefits included reduced physician burnout, decreased documentation time, increased referral rates, improved coordination between primary and secondary care, and enhanced patient-clinician communication. Identified barriers included medico-legal concerns and issues related to patient privacy.

Implications: These preliminary findings suggest potential benefits of digital scribes in reducing clinician workload and enhancing practice efficiency, though evidence directly linking their use to improved cancer outcomes in primary care is limited. The increased capacity for patient assessment and timely referrals could support early cancer detection. Full results, including a detailed analysis, will be presented at the conference, alongside recommendations for addressing implementation challenges related to legal and privacy issues.

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Co-producing a primary care-led intervention to reduce the risk of osteoporotic fractures in men living with prostate cancer receiving androgen deprivation therapy - a protocol for a RCGP funded project

Presenters: Qizhi Huang[1], Janet Brown[1], Caroline Mitchell[2]

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Background: Prostate cancer (PCa) is the most common cancer in men in the UK, with 1 in 8 will be diagnosed during their lifetime. Androgen deprivation therapy (ADT) is a mainstay of the treatment used in at least one third of the patients. ADT can cause a range of long-term complications including osteoporosis.

Although guidelines recommend PCa patients receiving ADP (PCa-ADT) need fracture risk assessment, this is poorly implemented especially in the UK. There is a lack of knowledge of bone care, and lack of supporting structure.

As PCa survival rate is improving, many men will live with cancer for many years and many of them will require prolonged cancer treatment including ADT. Improving cancer survivorship, minimising cancer and cancer treatment induced long-term complications is becoming increasingly important. Primary care can play an important role.

Aims: The study aims to develop a brief intervention for primary care clinicians seeking to reduce fracture risk for PCa-ADT patients. We will use a co-participatory approach to explore the perspectives of both patients and clinicians and incorporate their views of preferred solutions.

Methods: This study will be guided by the principles of NIHR-MRC developing and evaluating complex interventions framework and the iPARISH implementation framework. The protocol was developed with intensive and ongoing engagement of underserved communities including black men who have double the risk of PCa.

There are three work packages:

1. Qualitative studies using semi-structured interviews/ focus groups to explore barriers and facilitators to implementation of reducing fracture risk in PCa-ADT from UK patients' and primary clinicians' perspectives. We will recruit participants with a variety of social-ethnic backgrounds.

2. Articulate a programme theory for how a brief intervention may be implemented in primary care.

3. Conduct stakeholder workshops to co-develop the content and implementation strategies of a prototype brief interventions including: a) for PCa patients, provide education resources, b) for clinicians, design tools such as algorithms for assessing fracture risk, BMD measurement and bisphosphonate treatment, and resources for implementation and evaluation (audit tool).

Results: N/A

Implications: The education for PCa-ADT patients can empower them to self-manage their bone health and good medication compliance.

The intervention will facilitate the implementation of guidelines through education, structured assessment, and audit for primary care clinicians.

There is potential for scaling up the intervention by incorporating it into routine medication review.

The intervention will reduce burdens from falls and fractures including their impacts on patients, carer and the healthcare system.

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Stimulating innovation and research in early cancer diagnostics through the development of Target Product Profiles

Presenters: Jessica Lloyd[1], Sowmiya Moorthie[1], Sonja Marjanovic[2], Mark Cabling[2], Bethany Shinkins[3], Jacqueline Dinnes[4], Amanda Cole[5], Sarah Cook[1], Jessica Dawney[2], Mary Jordan[3], Larry Kessler[6], Zuzanna Marciniak-Nuqui[2], Pranshu Mundada[3], Matthew Napier[5], Fifi Olumogba[2], Lotte Steuten[5], Samantha Harrison[1]

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Background: Detecting and diagnosing cancer earlier often leads to improved survival. However, this is reliant on availability of effective tests. Unfortunately, turning scientific discoveries into new tests is fraught with challenges and, often, tests that are developed are not fit for purpose. This process could be aided by the development of target product profiles (TPP).

Aims: These are documents that outline the desired characteristics for a new technology to address a specific unmet clinical need. TPPs could be an important demand signalling tool to catalyse and support the development and translation of cancer diagnostics into practice. TPPs have not been widely developed in the context of cancer.

Methods: To address this gap, Cancer Research UK (CRUK) are investing in research to explore how TPPs should be developed for cancer diagnostics. Mixed methods approaches were used across two projects. These included a literature review, interviews, workshops, economic modelling and engagement with UK experts and key stakeholders, including cancer patients and carers.

Results: Phase 1, led by RAND and the Office of Health Economics (OHE), confirmed that TPPs can be important tools for signalling demand and guiding innovation. However, they also highlighted a lack of formal guidance for developing TPPs for diagnostic test and the need for a more rounded consideration of the diverse features that influence whether a test will be fit for purpose. A generic guide, which defines best practice for developing a diagnostic TPP for cancer was developed, along with an early economic modelling tool.

Implications: Building on this research, a further project is underway to create practical resources to aid TPP development. The project, led by Prof Bethany Shinkins (University of Warwick) and Dr Jacqueline Dinnes (University of Birmingham), is focussing on TPP development for new diagnostic tests that can be used in screening and primary care settings. Priority areas for TPP development in early cancer diagnostics have been identified through a prioritisation exercise involving different stakeholder groups. The development of an exemplar TPP for bladder/kidney cancer with an accompanying health economic model is underway.

Developing TPPs is complex and there are few existing resources to support this process. If well designed and appropriately embedded into the diagnostic development pipeline, TPPs could serve as an important demand signalling tool for highlighting unmet needs to innovators and aligning between industry, research funders and the health system.

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A Bibliometric Analysis of Interventions to Enhance Public Awareness of Cancer Symptoms

Presenters: Logan Verlaque[1], Sam McGlynn[1], Benjamin Jacob[1], Riya Sharma[1], Yousef Juha[1], Joel Nordstrom[1], Laranya Kumar[1], Kate Hamilton West[2], Heather Burns[3], Patrick Redmond[1]

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Background: Cancer continues to be a major global contributor to mortality and morbidity, with late-stage diagnoses significantly impairing treatment outcomes. It is proposed that heightened public awareness of cancer symptoms may prompt earlier help-seeking behaviours and improve diagnosis timing. While a range of interventions has been developed to increase symptom recognition, their effectiveness remains uncertain. This analysis forms part of a larger research initiative aimed at addressing this knowledge gap by producing a comprehensive, updated synthesis of the evidence on the efficacy of public interventions designed to raise awareness of cancer symptoms.

Aims: To systematically analyze publication trends and identify key areas of focus in terms of cancer type, intervention modality and target population of studies focussed on public interventions aimed at increasing cancer symptom awareness.

Methods: A bibliometric analysis was conducted following a systematic search of relevant databases to identify interventions aimed at increasing cancer symptom awareness for earlier presentation. Only comparative study designs were eligible, including both randomised and non-randomised studies, as well as before-and-after single-arm studies. The outcomes of interest were clinical outcomes, representing success in terms of mortality and cancer stage; healthcare utilisation outcomes, indicating changes in healthcare-seeking behaviour; measures of intent, attitude, or knowledge, which are precursors to behavioural change; and campaign reach, as it forms the basis for other impacts.

Results: 264 single studies and 29 reviews were included, with most focusing on breast and skin cancers. The United Kingdom and United States were the main contributors. Common study designs were before-and-after studies and randomized control trials. Interventions mainly used community-based education and multi-faceted strategies. There is a rising trend in publications, but gaps remain for underrepresented regions and cancer types, highlighting areas for future research.

Implications: The bibliometric analysis identifies the interventions and outcomes that have been most frequently in published literature in efforts to enhance public awareness of cancer symptoms. This information can help researchers and policymakers to better understand where evidence gaps exist. Addressing these gaps may contribute to the development and funding of more effective interventions to enhance public awareness and promote earlier cancer diagnosis.

This analysis provides valuable insights into the types of interventions studied to raise public awareness of cancer symptoms and their associated outcomes. By identifying research trends and evidence gaps, it can guide future efforts to develop and implement more effective strategies for promoting earlier cancer diagnosis and ultimately improving patient outcomes.

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Perceptions of general practitioners and general practitioners practice nurses on their role in providing smoking cessation care to cancer patients and experienced barriers and facilitators

Presenters: Ruben Bouma[1], Kristel van Asselt[2,3], Daan Brandenbarg[1], Mariken Stegmann[1]

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Background: Approximately one-fifth of patients with cancer smoke at diagnosis, with half to two-thirds continuing post-diagnosis. Smoking increases risks of treatment side effects, decreases therapy efficacy, and increases recurrences and new tumors. Additionally, some cancer treatments are related to long-term risk of cardiovascular diseases, emphasizing the importance of smoking cessation. Despite its relevance, cessation support is not routinely offered. In the Netherlands, general practices already incorporate cessation programs for patients with diabetes and cardiovascular disease, making them well-suited to extend this care to cancer patients.

Aims: This qualitative study aimed to (1) investigate the perceptions of general practitioners (GPs) and GP's practice nurses (PNs) regarding their roles in promoting smoking cessation among cancer patients, (2) explore barriers, facilitators, and knowledge gaps to provide smoking cessation care, and (3) identify intervention ideas to support healthcare professionals.

Methods: We conducted a qualitative study using semi-structured interviews with 7 GPs and 7 PNs from 13 GP practices, selected through purposive sampling based on age, gender, practice size, and experience. The interviews were recorded, transcribed verbatim, and subjected to thematic analysis.

Results: GPs and PNs recognized their significant role in providing smoking cessation care to cancer patients, benefiting from established patient relationships. They viewed general practice as suitable for this care, with potential for hospital involvement.

While GPs recognized the importance of addressing smoking habits, they often hesitated to engage actively in cessation discussions. Identified barriers included patient discomfort, low patient motivation, inconsistent documentation, knowledge deficits, time constraints, and limited visibility of cancer patients.

GPs and PNs acknowledged the specialists' importance in addressing smoking cessation and highlighted the need for improved communication between primary and hospital care.

Facilitators included patient motivation, teachable moments, specialist involvement, integrated care models, and motivational interviewing techniques. Suggested interventions encompassed professional training, informational resources, communication protocols, and summary cards emphasizing the benefits of smoking cessation for cancer patients.

Implications: Our findings highlight the crucial role of GPs and PNs in smoking cessation support for cancer patients. Standardized documentation of smoking habits can enhance patient visibility, while education on cessation benefits may encourage integration into routine care. Furthermore, there is need for enhanced collaboration and clear communication between primary and hospital care teams. The next phase will focus on developing a pilot intervention in ten general practices, guided by qualitative findings from phase 1 and an analysis of current care for cancer patients seeking to quit smoking, leading to tailored implementation plans for each practice.

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Clinical risk factors for pancreatic cancer: an umbrella review of systematic reviews and meta-analyses

Presenters: DSarah Moore[1], Sarah Price[1], Judit Konya[1], Sophie Blummers[1], Fiona Walter[2], Richard Neal[1], Gary Abel[1]

[1]University of Exeter, Exeter, United Kingdom. [2]Queen Mary University London, London, United Kingdom

Background: Identifying cancer earlier can help save lives. An increasingly popular approach to diagnosing cancer earlier is the development of risk prediction models applied to the electronic healthcare records of patients, especially in primary care. Development of these models requires systematic and thorough identification of the risk factors that might increase an individual's propensity to develop the disease.

This study uses an umbrella review to identify risk factors that might be included in a risk prediction model for pancreatic cancer, a disease with a high percentage of late-stage diagnoses and consequent high mortality.

Aims: To identify and quantify clinical risk factors for pancreatic cancer that may be used in developing risk prediction models using coded electronic healthcare records from primary care.

Methods: The study protocol was registered with PROSPERO (CRD42024526338) and published in BMJ Open. Potentially relevant systematic reviews and meta-analyses were identified from MEDLINE and EMBASE via Ovid and the Science Citation Index Expanded of the Web of Science Core collection.

Abstract and full-text screening was performed by two independent reviewers using Covidence software. Eligible studies were extracted by a single reviewer and checked by a second. Studies was graded using pre-defined credibility assessment criteria and the ROBIS tool for assessing risk of bias.

Results: 2166 abstracts and 423 full-texts were screened, resulting in 153 studies for inclusion. Many studies looked at multiple risk factors or stratified the results e.g. by sex and these were all extracted, resulting in a total of 343 estimates of impact across 21 key categories.

According to credibility assessment criteria, several factors were 'convincing' or 'highly suggestive' of increasing pancreatic cancer risk, including diabetes, pancreatitis, smoking, and obesity whilst other factors protective, including atopy and blood group O vs. A.

Many more were 'suggestive' or 'weakly suggestive' of increased risk including multiple autoimmune conditions, infections such as hepatitis B and C and Helicobacter pylori, cholecystectomy and cholelithiasis, poor oral hygiene and metabolic syndrome whilst use of medications such as aspirins and statins and history of pregnancy appeared protective.

Implications: Results of this review will feed directly into ongoing development of a risk prediction model for pancreatic cancer in symptomatic patients in primary care. This model could be integrated into primary care software to potentially identify those at higher risk of pancreatic cancer at an earlier stage than might have otherwise been achieved.

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Optimising use of FIT in symptomatic patients

Presenters: Charlotte Williamson, Claire Champ, Maduran Sundaresan

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Background: Bowel cancer is one of the most common cancers in the UK. It is commonly diagnosed at a late stage, which is associated with poorer outcomes. More patients are diagnosed following presentation to primary care than via any other route. Efforts to improve the diagnostic process in primary care and reduce late-stage diagnosis are therefore crucial to improve outcomes.

Faecal Immunochemical Test (FIT) is a positive and proven intervention that supports the detection of bowel cancer. Optimal use of symptomatic FIT can support timelier and earlier diagnosis of bowel cancer for more patients, by supporting GP decision-making in primary care. However, challenges to optimal implementation remain and these need to be addressed to ensure the benefits of symptomatic FIT can be fully realised.

Aims: To generate and synthesise evidence, data and insight from a range of sources on the use of FIT to support recognition and referral of suspected bowel cancer in primary care, including barriers and facilitators to use.

Methods: Supporting optimal use of FIT is an ongoing priority for Cancer Research UK (CRUK). The Evidence and Implementation (E&I) department at CRUK generates and monitors a range of evidence and insights to influence cancer policy and practice, through primary research, evidence synthesis and insights from stakeholders.

Peer-reviewed literature searches synthesise evidence on diagnostic accuracy of FIT, how FIT use can be optimised, and inequalities associated with FIT use. Wider insights have been triangulated through stakeholder insights and ongoing monitoring of national datasets to highlight priorities for research, evaluation and implementation.

Insights from public-facing surveys including nationally representative audiences , such as the Cancer Awareness Measure 'Plus' (CAM+).

Results: Data triangulation and synthesis is ongoing. We will share (not exhaustive): public attitudes / perceptions into the use of safety netting those with a negative FIT and barriers to uptake, inequalities in the recognition and referral of suspected bowel cancers, evidence on the use of repeat FIT and risk stratification of FIT threshold as well as identified evidence gaps in this space.

Implications: This triangulation provides key priorities and actionable insights relevant to a primary care audience, including academics, health system leaders and health professionals. The results will provide next steps to achieve best practice and reduce inequalities in recognition and referral of suspected bowel cancer.

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What impacts health professionals' use of cancer referral guidelines in UK primary care setting?

Presenters: Charlotte William[1], Lyndsy Ambler[1], Jaimee Kerven[1], Samantha Harrison[1], George Webster[2], Gail Steeden[2], Lola Godeau[2]

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Background: Up to date, evidence-based cancer referral guidelines play a crucial role in the timely recognition and referral of suspected cancer in primary care, supporting GPs to assess risk and helping to ensure that people are referred along the most appropriate pathways, at the right time.

Evidence suggests that health professionals' use of and concordance with guidelines varies, including by symptom presentation and patient demographics. International literature suggests several factors may impact health professional decision making (including health system factors and health professional factors), but this is not specific to the use of referral guidelines for suspected cancer in primary care.

Use of guidelines and contextual factors that may influence their use remains an evidence gap. Understanding these factors is key to understanding how health professionals can be best supported to use the guidelines.

Aims: a) Determine factors that may encourage or discourage health professionals from utilising primary care cancer referral guidelines, (b) investigate if and how these factors vary depending on context and (c) identify actions to be implemented to improve use of guidelines

Methods: Cancer Research UK have commissioned Humankind Research to conduct a qualitative research project. In-depth group interviews will be undertaken with a sample of 40-65 GPs from across the UK exploring what factors influence their decision-making when deciding whether to refer a person along a suspected cancer pathway. Sample recruitment will seek to cover a range of experience considering years of experience, interest in cancer, location and other factors.

An expert advisory group comprising of 6 GPs will provide expertise on the topic, and steer topic prioritisation.

Results: This project is underway, and results are due February 2025.

Implications: This research will build understanding of barriers and associated contextual factors that may lead to sub-optimal use of referral guidelines, supporting the identification of actionable steps that could be taken by different stakeholders to optimise their use, including health professionals, health system leaders and policy makers.

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Urine human papillomavirus (HPV) testing as a strategy for cervical screening in high-risk older women: the Alternative CErvical Screening (ACES) 65+ study

Presenters: Jiexin Cao[1,2], Jennifer C Davies[1,2], Suzanne Carter[1], Minal Patel[1,2], Lisa Cornwall[2], Anisah Ahmed[2], Deepthi Johns[2], Cheryl Mendonca[2], Richard Booton[3], Philip A J Crosbie[4,5], Nadira Narine[1,6], Alexandra Sargent[6], Emma J Crosbie[1,2,7]

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Background: In the UK, an arbitrary age cut-off of 65 years is used for routine cervical screening, despite mortality rates increasing exponentially from 70 years of age. Non-attenders of screening and current/ex-smokers from socioeconomically deprived backgrounds are at greatest risk. Speculum examination is poorly tolerated in this age group, but urine HPV testing is less invasive with similar sensitivity for cervical pre-cancer detection (CIN2+) compared to routine screening

Aims: Our aims were to assess the HPV prevelance and to establish the acceptability of urine HPV testing for cervical screening over 65-year-olds attending community-based lung cancer screening.

Methods: People attending community-based targeted lung health checks in Greater Manchester, UK who were 65 years or older with a cervix were invited to provide a urine sample using the Colli-PeeÒ, a specialised first void urine collection device, for high-risk HPV testing using Roche Cobas 8800.

Participants whose urine tested HPV positive were offered a clinician-collected cervical sample for HPV and cytology testing. Colposcopy was performed on those with abnormal cervical samples. A questionnaire was used to ascertain acceptability of urine sampling for cervical screening.

Results: A total of 988 urine samples were tested for HPV. Eighty-three (8.4%) tested HPV positive, of whom 63 (75.9%) provided cervical samples, and 31 (49.2%) of these had positive findings. To date, colposcopy has been performed on 25 (2.5%) participants with 4 (0.42%) CIN2+ lesions detected so far. Urine self-sampling had high acceptability, with 895 (90.5%) participants confident about using the Colli-PeeÒ device.

Implications: The 0.42% CIN2+ rate is comparable to that of women over 50 years of age (0.5%) in the UK cervical screening programme. This suggests that the upper age limit for routine cervical screening warrants re-evaluation. Urine self-sampling was acceptable and could encourage screening uptake in high-risk individuals accessing healthcare for another indication.

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Blood test trends for enhanced cancer risk stratification in patients with unexpected weight loss in primary care: a diagnostic accuracy, longitudinal cohort study

Presenters: Pradeep S. Virdee, Clare Bankhead, Jason Oke, Constantinos Koshiaris, Rafael Perera, FD Richard Hobbs, Brian D. Nicholson

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Background: Unexpected weight loss (UWL) is a non-specific symptom of cancer, with limited evidence on the most appropriate investigative strategy in primary care. Combining presence of UWL with co-occurring blood test abnormality enhances patient selection for cancer referral. Our recent work found that monitoring trends over repeated blood tests may further improve risk stratification, by identifying cancer-related changes from an individual's normal trajectory.

Aims: To compare the diagnostic accuracy of blood test trend to abnormality in primary care patients with UWL.

Methods: We performed a cohort study, including patients with first UWL over 01/01/2000-31/12/2018 from the Clinical Practice Research Datalink, with linkage to further databases. Patients were aged 18+ years at UWL and had at least one blood test over 10 years before UWL. Blood tests studied were the full blood count, liver function test, and inflammatory markers (total 26 individual tests).

Longitudinal blood test trends over 1, 3, 5, and 10 years pre-UWL were compared to co-occurring blood test abnormality pre-UWL for cancer diagnosis within six months post-UWL (yes/no). Joint modelling was used to investigate blood test trend and Cox models for blood test abnormality (yes/no). A two-sided 5% significance level was used. The area under the curve (AUC) and positive (PPV) and negative (NPV) predictive value (95% confidence interval (CI)) were derived to assess diagnostic accuracy.

Results: We included 275,234 patients with UWL, with 5.0% (n=13,799) six-month cancer incidence. A declining blood test trend in 8 (31% of 26) and rising trend in 13 (50% of 26) over 1, 3, 5, and 10 years was associated with six-month cancer diagnosis for all blood tests ($p<0.05$). No association was observed for ALT, AST, eosinophil count, red blood cell count, or haematocrit trend ($p>=0.05$). Blood test trend gave a higher AUC (95% CI) than abnormality for 20 (77% of 26) blood tests. The largest difference in AUC (95% CI) was in mean cell volume (trend 0.61 (0.60-0.61); low 0.51 (0.51-0.52)). The PPV (95% CI) favoured trend for 18 (69% of 26) blood tests, highest for C-reactive protein (trend 11.9% (10.4-13.5); high 8.2% (7.9%-8.4%)), with 95% NPV comparable. Age- and sex-adjusted results will be presented.

Implications: Monitoring temporal changes in commonly used blood tests may offer enhanced cancer risk stratification compared to blood test abnormalities in patients with UWL. We are working with public contributors to understand acceptability of repeat blood testing in primary care.

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A Systematic Review of Health Economic Methodologies in the Detection of Upper Gastrointestinal Cancers

Presenters: Zhezhou He, Runguo Wu, Garth Funston, Borislava Mihaylova

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Background: Upper gastrointestinal (UGI) cancers, including gastric, esophageal, pancreatic, biliary tract, and gallbladder cancers, often lead to high mortality rates due to late-stage diagnoses, posing a significant challenge to healthcare systems. These cancers typically present with common symptoms, often requiring multiple GP consultations before diagnosis. Early detection in primary care aims to improve outcomes and enhance the role of primary care in cancer control. However, early detection strategies need to also be cost-efficient. Therefore, a comprehensive cost-effectiveness analysis (CEA) is essential to evaluate the overall economic impact of early detection strategies.

Aims: This study aims to systematically review health economic and modelling methodologies for assessing healthcare pathways in detecting UGI cancers, with an emphasis on strategies relevant to primary care, from early presentation in healthcare settings through diagnostic and management stages to long-term outcomes. Key objectives include identifying and critically appraising relevant studies and developing a taxonomy of the methods used.

Methods: Systematic searches will be conducted in Medline via Ovid, Embase, and the NHS Economic Evaluation Database (NHS EED). The review will assess the framing of the decision problem, investigated strategies, study populations, service characteristics, and study design, including modelling methods and key model features (structure, data sources, and outputs).

Study methods and reporting quality will be assessed using the Criteria for Health Economic Quality Evaluation (CHEQUE) checklists. Screening and data extraction will be managed in Covidence, with two reviewers independently conducting screening, selection, and quality assessment; any disagreements will be resolved by a third reviewer. A narrative synthesis approach will be used.

Results: The review is ongoing. We will present methodological insights from this review, including economic evaluation frameworks and modelling approaches of UGI cancer detection and outcomes. We will highlight and critically appraise the strengths and limitations of current methods, offering recommendations for future research.

Implications: This systematic review is conducted as part of the CanDetect Programme, which is developing a multi-cancer early detection (MCED) platform tailored to primary care settings. The review will guide our approach to modelling pathways of UGI cancer detection, supporting the platform's development and evaluation.

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How do Health Care Professionals provide safety netting information to patients at risk of metastatic spinal cord compression? A scoping review

Presenters: Philippa Hacking[1], Gillian Yeowell[2], Susan Greenhalgh[2,3]

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Background: Metastatic spinal cord compression (MSCC) is a potentially devastating consequence of cancer. It is an oncological emergency which requires early recognition and treatment to prevent irreversible spinal cord injury and paralysis. Provision of information to patients at risk of MSCC has been recommended in the 2024 NICE guidelines.

As cancer incidence is increasing the prevalence of patients presenting with MSCC will rise. Health care professionals (HCPs)and patients need to be aware of the early signs of cord compression to ensure prompt re-consultation and management.

Aims: To investigate how healthcare professionals provide information to patients at risk of MSCC.

Methods: This scoping review utilised the Arksey and O'Malley Framework for conducting scoping reviews and the recommendations by the Joanna Briggs Institute. Relevant literature was identified following a systematic search of three databases. Following data charting, thematic analysis was used to identify salient themes across the dataset.

Results: A total of N=197 records were identified. Following removal of duplicates, title and abstract screening N=24 records were screened and N=9 were included for full analysis. Two key themes relating to information provision were identified; timeliness of information and format of information. Timeliness concerned at what stage patients with cancer should be given information about MSCC, and which clinicians should provide this information. Format of information concerned whether safety netting information is provided verbally or in writing.

Implications: These findings support the provision of information about the early signs of MSCC to facilitate early diagnosis, and better functional outcomes for patients. Providing safety netting information to patients with cancer but with no evidence of spinal metastases or MSCC is not yet common practice, despite recommendations in the 2024 NICE guidelines. The limited research to date suggests that patients want written and verbal information about MSCC. All HCPs, including generalist clinicians, have a responsibility to provide information to patients. An MSCC patient information safety netting tool is needed to strengthen clinical management.

This study found an absence of information from the patients' perspective. More research is needed to explore patients' views around the provision of information relating to MSCC. This will help to shape future safety netting resources and will help to support the generalist HCP in the clinical monitoring of this potentially vulnerable patient group.

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Rapid Diagnostic Centres: Descriptive analyses of Service Provision and Development of a London-Wide Novel Real World Data Informatics Pipeline

Presenters: Sunnia Gupta[1], Marcel Al led[1,2], Thea Matthias[3], Ravindhi Murphy[4], Christopher Sivell[5], Simon Erridge[6], Luigi Demichele[7], Owen Carter[8], Margaret Perkins[1,2], Margaret Powell[1,2], Lisa Scerri[1], Meena Rafiq[9], Saoirse Dolly[5], Andrew Millar[10], Ceire Costello[1,2], Richard Lee[1]

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Background: Rapid Diagnostic Centres (RDCs) were established to expedite cancer diagnosis for patients with non-specific symptoms (NSS) and improve patient care by eliminating circuitous pathways, and tackling health inequalities. NSS may not meet typical "red flag" criteria. Published 'RDC' cancer diagnosis rates are 7-12% with limited evidence on the RDC services' assessment.

Diagnostic workup at these Centres varies according to local protocols and clinical preferences, reflecting gaps in knowledge and limited standardization which is difficult to achieve due to diversity symptoms and diagnoses. To address this, we proposed a retrospective analysis of patients referred to London RDCs.

Aims: 1) Describe the demographics and clinical characteristics of patients referred to RDCs; 2) Stratify risk groups based upon symptoms and clinical profile; 3) Evaluate Services and identify disparities across London.

Methods: Five London Centres (Guys' and St Thomas'/ North Middlesex/Cheslea and Westminster, West Middlesex/ Barking, Havering and Redbridge/St George's NHS Trusts), established between 2020 and 2024 will extract, anonymize and transfer data to the Royal Marsden's Trusted Research Environment (BRIDgE) for analysis, as part of the RDC BIO study (REC 22/PR/1107) from two sites, and service evaluation for three sites. Data collected routinely at these Centres include age, gender, ethnicity, presenting symptoms, co-morbidities, smoking and alcohol consumption history, investigations performed before and after referral to the RDC, number of consultations before referral, final diagnosis, subtype and stage of cancer, time to diagnosis and treatment.

We will characterise the cohort with descriptive statistics, report and compare the outcomes across these Centres. Statistical tests will be conducted to investigate differences between patients diagnosed with cancer and those not. Furthermore, we will consider different modeling approaches to determine risk stratifications scores using symptoms and clinical data.

Working with the 'One London Secure Data Environment', which is a novel service to make available GP record data, we will extract linked primary care records to enhance data completeness and better understand patient presentations, and GP management prior to referral.

Results: Data received for 4325 patients, across 3 sites, is undergoing the process of cleaning. Completeness will be supported by local data review, informatics approaches and the primary care records.

Implications: Better definition of this important patient cohort and improved information about service provision would enable streamlined care pathways and service planning. This should facilitate earlier, more cost-effective diagnosis, and better allocation of healthcare resources, all of which can help reduce health inequalities.

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Primary care consultation and imaging history in patients with lung cancer diagnosed as an emergency or after referral: A cohort study using linked records data

Presenters: Marta Berglund[1], Becky White[1], Matthew Barclay[1], Emma Whitfield[1], Cristina Renzi[1], Meena Rafiq[1], Neal Navani[1], Caroline A Thompson[2], Georgios Lyratzopoulos[1]

[1]University College London, London, United Kingdom. [2]The University of North Carolina at Chapel Hill, Chapel Hill, USA

Background: Diagnosis of lung cancer as an emergency is common and associated with worse prognosis. However, it remains unclear to what extent and how many emergency diagnoses can be avoided.

Aims: We aimed to measure pre-diagnostic primary care consultations and imaging activity in patients with lung cancer differed between emergency-diagnosed and referred patients.

Methods: We analysed linked primary care, imaging and cancer registration data on 4,473 patients with lung cancer 2007-2018. We compared monthly rates of GP consultations (for any complaint, and for selected presenting respiratory symptoms) and chest imaging in the year pre-diagnosis by emergency or referred route, and by sociodemographic characteristic, stage at diagnosis, chronic obstructive pulmonary disease status, and smoking history, using Poisson regression. Activity rates were plotted, and inflection points (change in consultation / imaging rates) were identified using appropriate statistical modelling.

Results: One in three patients were diagnosed as emergencies ('emergency presentations' per the Routes to Diagnosis classification used by England's cancer registry). Nearly all patients (98%+) had consulted at least once in the 2 years pre-diagnosis. Increasing rates of all primary care consultations were observed from 5 months pre-diagnosis, similarly for emergency-diagnosed and referred patients. For consultations involving the three cardinal respiratory symptoms (cough, dyspnoea, haemoptysis), visual inspection showed the inflection point for consultation rates was closer to diagnosis for emergency-diagnosed patients than for referred patients (3 months vs. 4 months, respectively).

After adjusting for patient factors, referred patients had higher consultation rates with these symptoms compared to emergency-diagnosed patients (adjusted Incidence Rate Ratio [aIRR]: 1.61 [95%CI: 1.44–1.79] for routinely referred vs. emergency-diagnosed patients; 1.48 [1.33–1.65] for urgently referred vs. emergency-diagnosed patients).

Visual inspection showed the rate of chest imaging events began to increase earlier for referred patients compared to emergency-diagnosed patients (3 months vs. 2 months, respectively). Pre-diagnostic chest imaging rates were higher for referred patients compared to emergency-diagnosed patients (aIRR: 2.50 [2.02–3.10] for routinely referred vs. emergency-diagnosed patients; 1.91 [1.53–2.38] for urgently referred vs. emergency-diagnosed patients).

Implications: The findings support the hypothesis that emergency-diagnosed patients have tumours causing fewer, less specific prodromal symptoms, resulting in fewer consultations and imaging investigations closer to diagnosis.Improvements are needed in assessing the risk of cancer among patients presenting with low-risk/atypical symptoms. Attention should be paid to the diagnostic healthcare trajectories of non-emergency-diagnosed patients, in whom diagnostic windows of substantial length exist, signalling substantial potential for expediting their diagnosis.

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The clinical utility of blood test trends for improving cancer detection: a scoping review

Presenters: Sufen Zhu[1], Sheba Ziyenge[1], Jacqueline Murphy[1], Isabella de Vere Hunt[1], Kiana Collins[1], Zach Brubert[1], Eva Morris[2], Richard Hobbs[1], Brian Nicholson[1], Pradeep Virdee[1]

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Background: Cancer is a leading cause of death worldwide, with earlier detection crucial for improving survival rates. Blood tests are pivotal in stratifying cancer risk in primary care. Smarter utilisation of blood tests, incorporating changes over time (trends) in repeated blood tests, may offer improved risk stratification for cancer.

Aims: To identify and map out the existing literature reporting the clinical utility of trends in blood tests for cancer detection and identify evidence gaps.

Methods: MEDLINE, Embase, ProQuest Dissertations & Theses Global and Overton were systematically searched to identify relevant studies published from inception until December 2023. Studies of any design that investigated pre-diagnostic blood test trends (e.g., liver function tests and full blood count) for cancer detection were included.

Data extraction was conducted independently by two reviewers, with discrepancies resolved through consensus. We grouped studies into common themes, derived descriptive summaries and narratively synthesised studies.

Results: We included 80 studies investigating blood test trends (n=30 tests) for cancer detection (n=26 cancers). Studies were categorised in up to four groups: 1) association between blood test trends and cancer (n=65, 81%), 2) implementation of blood test trends in clinical practice (n=51, 64%), 3) added benefits of blood test trends to current practices and risk factors (n=24, 30%), 4) cancer risk prediction using blood test trends (n=15, 19%).

In group 1, the most common methods for analysing trends for cancer were descriptive analysis (n=22, 28%) and logistic regression (n=15, 19%). In group 2, studies highlighted the potential of trends in practice but lack of thorough investigation resulted in limited conclusions. In group 3, 8 studies found relevant trends can pre-date blood test abnormality and facilitate earlier cancer detection.

For group 4, ColonFlag was the most commonly tested trend-based model (n=11, 14%), with area under the curve ranging from 0.76 to 0.84 for colorectal cancer. Research gaps identified include the role of trends in enhancing risk stratification in symptomatic patients and cost effectiveness of repeated blood testing.

Implications: While most studies have examined the association between blood test trends and cancer and developed risk prediction models using trends, their practical application remains unclear and research is limited to a few cancer types. Comprehensive studies are required to understand the strategies to employ trends in practice and benefits to healthcare.

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Care Pathway Analysis for Oesophageal and Gastric Cancer Diagnoses in the United Kingdom

Presenters: Gianni Dongo[1], Bethany Shinkins[2,3], Richard Neal[1]

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Background: Oesophageal and gastric cancers (OGCs) often present at late stages, resulting in fewer than 1 in 5 patients surviving five years . One way of facilitating earlier diagnosis is through the development and adoption of new tests, however these tests must be fit for purpose for routine clinical practice and overcome some of the barriers to early diagnosis in the current pathway.

Generating the evidence needed to fully assess a diagnostic tests is challenging and, consequently, we need to focus research and development efforts on well-defined unmet clinical needs to maximise the benefits of diagnostic innovation for patients and the health system.

Aims: To establish unmet needs in the early diagnosis of OGCs in the UK and identify scenarios where a new test may improve patient outcomes.

Methods: The current diagnostic pathways for OGCs will be mapped, capturing points of interaction with healthcare professionals, actions, decision-making and patient outcomes. This would be done by reviewing national guidelines. Literature reviews will be conducted to synthesise published evidence on barriers and facilitators to the early diagnosis of OGCs, including patient experiences and preferences relating to the diagnostic pathway.

We will then identify key stakeholder groups involved in the current diagnostic pathway for OGCs and invite representatives of these groups to a series of meetings. Using a modified Delphi Method, these meetings would focus on identifying any incongruencies between real-world and recommended practice, where the delays or problems in the pathway lie, resulting in a detailed representation of the unmet need within the existing pathway.

This would allow us to develop a novel diagnostic pathway which incorporates a hypothetical diagnostic test to address the identified needs.

Results: Preliminary PPI engagement offered key insights into the public's perception of an appropriate test; it revealed that parameters such as the discomfort factor experienced by an individual undergoing a test, maybe as important to acceptability as, for example, the sensitivity of a test. We have established the stakeholder groups and will have results from these meetings to present at the conference.

Implications:

• The output of this work will identify the barriers to the early diagnosis for OGCs in the UK.

• The findings will determine whether the development of a target product profile for a novel diagnostic test for OGCs is required.

• The findings will provide a basis for future horizon scanning work for new technologies to address the identified needs

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Barriers and facilitators to diagnosis and treatment of Prostate Cancer in Black men in the UK - a qualitative study

Presenters: Hafsa Mohammed[1], Dena Ettehad[1], Julia Bailey[1], Kate Walters[1], Samuel WD Merriel[2], William Kinnaird[1], Mike Kirby[3], Dipesh P Gopal[4], Qizhi Huang[5], Greg Shaw[6], Hilary Baker[6], Patricia Schartau[1]

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Background: Prostate cancer (PCa) is the most common cancer among men in the UK, with a disproportionate impact on men from Black African or Black Caribbean backgrounds. Black men are twice as likely to develop PCa, 2.5 times more likely to die from it and have less satisfactory healthcare experiences than their White counterparts. While biological factors may contribute to higher prostate cancer incidence among Black men, they do not explain these health inequalities.

In the UK, there is no national prostate cancer screening programme: opportunistic 'screening', referral for diagnostics and care of stable/successfully treated patients is a primary care responsibility.

Aims: This study aimed to identify the barriers and facilitators experienced by Black men to accessing opportunistic 'screening' tests in primary care and engaging with healthcare services post-diagnosis.

Methods: Semi-structured interviews were conducted face-to-face or online with:

(i) Black men living in the UK aged 45 or above to explore opportunistic PCa 'screening'

(ii) Patients with a PCa diagnosis

(iii) Multi-disciplinary healthcare professionals (HCPs)

Interview transcripts were analysed thematically.

Results: We interviewed 27 Black African and Black Caribbean men aged 41-80 years:15 for group (i); 12 for group (ii) ; 15 HCPS were interviewed for group (iii) including GPs, radiographers, oncologists and a nurse.

Barriers to opportunistic 'screening' included limited patient awareness around PCa, the lack of a national screening programme, insufficient HCP awareness of Black men's risk and asymptomatic presentations, inaccessible health information, clinician refusal to conduct prostate specific antigen tests, stigma, mistrust of medical information, and experiences of racial discrimination. Facilitators included personal motivation, risk recognition, and visible representation of Black men in public health campaigns.

Treatment-related barriers included insufficient and untailored HCP information provision, lack of Black healthcarers, poor co-ordination between primary and secondary care, racial discrimination, mistrust of 'Western' medicine, and experiences of disempowerment. Facilitators included support from female partners and peers, Black HCP visibility, perceived HCP availability, and continuity of care.

Implications: Our findings highlight the need for increased awareness of the risk for Black men, and guidance and training for primary care clinicians to facilitate pro-active conversations with Black patients aged 45+ or with a family history of PCa. Prostate cancer information should be accessible and culturally relevant for Black men, particularly in online resources and public health campaigns. Community partnerships may also support fostering trust.

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Interventions to reduce inequalities in bowel cancer screening participation - an evidence and data mapping exercise

Presenters: Hope Walters, Seren Limb, Victoria Whitelock, Maxine Lenza, Samantha Harrison

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Background: Bowel cancer is the 4th most common cancer in the UK, and survival is significantly better at an early stage (stage I or II). When detected via screening, most bowel cancers will be diagnosed at an early stage. Uptake of bowel cancer screening in the UK ranges from 58-70%. Inequalities in bowel cancer screening exist, with significantly lower uptake for some demographic groups. Investigating barriers and facilitators to accessing bowel cancer screening and designing interventions to support informed participation and reduce inequalities is an active area of research but there is little consensus on which interventions are most effective.

Aims: To consolidate evidence and data regarding inequalities in uptake of bowel cancer screening in the UK, including barriers, facilitators, and possible interventions to increase informed uptake and reduce inequalities. We also aimed to identify key data and evidence gaps.

Methods: We conducted an evidence and data review of published research/data sources to identify demographic groups in the UK who are less likely to participate in bowel cancer screening, and mapped barriers and facilitators to these groups.

We identified possible intervention targets using established behaviour change models/frameworks. The evidence base for each intervention target was assessed, to understand the potential uptake improvement and inequalities impact. Evidence and data gaps were identified across each section of the mapping exercise.

Results: Nine demographic groups were identified as less likely to participate in bowel cancer screening. We identified 28 possible interventions (12 with some supporting evidence, 4 in ongoing research and 12 with no identified evidence). Most interventions (86%) were mapped to multiple groups.

There was a large variation in the potential percentage improvement in uptake reported both overall (0.6%-49%) and for specific groups (0.3%-49%).

Evidence and data gaps or limitations were categorised into those relating to specific groups, barriers or interventions. For example, groups with no mapped evidence-based barriers or interventions, or interventions that were mapped to groups where evidence hasn't assessed effectiveness, but behaviour change theory suggests potential.

Implications: Consolidating our understanding of interventions to support informed uptake of bowel cancer screening mapped to demographic groups who are less likely to participate has identified effective interventions that could be implemented to help reduce inequalities. Addressing data and evidence gaps identified in this review could provide a more complete picture of inequalities in bowel screening and expand the repertoire of tools available to support informed uptake.

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Assessing the acceptability of an at-home urine test for HPV screening: the Catch-Up Screen study

Presenters: Annelie Maskell[1], Alex Young[2], Clare Gilham[3], Christine Rake[3], Emma Crosbie[1], Una Macleod[2], Belinda Nedjai[4], Michelle Saul[4], Hannah Mohy-Eldin[4], Julian Peto[3]

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Background: The Catch-Up Screen study offers an at-home urine test for HPV to women aged 60-79 who have not had a primary HPV test as part of the NHS Cervical Screening Programme (CSP). The Catch-Up Screen study aims to test the efficiency and acceptability of an at-home urine test for HPV in reducing risk and catching early cancer in the post CSP population.

Aims: To investigate the acceptability of an at-home urine test for HPV for women aged 60-79 residing in Hull and Manchester.

Methods: Home testing kits are sent out to patients across two sites, Hull and Manchester, from recruited practices. The Colli-pee device (Novosanis) uses a patented funnel and collection tube which enables the collection of first void urine and immediate mixing of preservative, both of which are essential for optimum HPV testing.

Patients who wish to participate send their urine samples with consent and feedback forms to the laboratory. The feedback forms ask about previous experiences of cervical screening, experiences of using the home testing kit, and for some basic demographic information.

Results: To date around 3000 kits have been sent out across the two sites in Hull and Manchester with a 57% return rate. The urine test has been well received with 86% of respondents reporting that the device was easy to use. 88% of patients expressed a preference for HPV screening via a urine test at home, with 8% having no preference, and 4% preferring a nurse taken sample. They liked that it was easy, private and did not require them to go out. 91% of patients were in favour of extending the upper age of the CSP, 51% with any test and 38% with an at-home test.

Implications: The at-home urine test for HPV is an acceptable, and preferred alternative to traditional smear tests for patients aged 60-79 who have exited the CSP and should be considered by the NHS CSP as a viable alternative should a national catch-up screen be adopted.

The significant preference for a home urine test highlights the need for further exploration of this as a method of screening in the broader national CSP.

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A risk score for pancreatic cancer diagnosis using machine learning techniques applied to linked routine data: full case-control study and economic evaluation

Presenters: Ananya Malhotra[1], Han-I Wang[2], Bernard Rachet[1], Audrey Bonaventure[3], Andrew Green[4], Stephen Pereira[5], Laura Woods[6]

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Background: Only 15% of pancreatic cancer (PC) cases are diagnosed at a localized stage, and 5-year survival is only 10-12% because of the often-significant delay between the biological onset and clinical detection. Whilst population-level screening is contraindicated, targeted screening whereby high-risk individuals are identified and offered biomarker testing may offer a viable alternative.

In our pilot study, we demonstrated that machine learning (ML) algorithms applied to electronic health records could identify individuals who later developed PC up to 17-20 months prior to diagnosis with approximately 70% sensitivity. However, the study's limited sample size reduced its specificity and generalisability.

Aims: We aim to 1) refine and improve the accuracy of our machine learning algorithm from the pilot study to better predict future PC diagnosis, 2) estimate the proportion of PC cases which could be diagnosed at an early stage and 3) assess the performance of our model 'on the ground': evaluating its clinical and economic impacts in combination with the most accurate biomarker tests available to date.

Methods: We are now conducting a full case-control study and economic evaluation of this approach to overcome these problems. We are comparing 12,012 confirmed PC cases (from Clinical Practice Research Datalink) diagnosed between 2005-18, with four age-, sex-, and GP practice-matched controls . The median age at diagnosis is 74 years (IQR=[66,82]) with male-to-female ratio 1.03. Disease and prescription codes for the five years prior to diagnosis have been used to identify 69+ individual symptoms.

We are about to work out whether pancreatic cancer patients reported more symptoms to their GP than those who did not have pancreatic cancer. A refined and improved ML model will be applied to predict who might later develop PC.

Results: We will report initial results from the ML analysis, estimates of the number of persons who would be identified as 'high risk' as well as our planned approach to the economic evaluation.

Implications: Our approach has the potential to identify pancreatic cancers in the general population earlier than is currently the case, improving treatment options and outcomes for those affected by this very aggressive malignancy.

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A systematic review of patient, carer and healthcare professional perceptions of the barriers and facilitators to embedding exercise in the adjuvant and neoadjuvant cancer treatment pathways

Presenters: Sarah Hodge, John Saxton, Julie Walabyeki, Victoria Brown, Jordan Curry, Maureen Twiddy

University of Hull, Hull, United Kingdom

Background: Current evidence suggests that physical activity and exercise are safe and beneficial for cancer patients during treatment. Furthermore, evidence indicates that physical activity and exercise can play a role in mitigating, and sometimes ameliorating, cancer treatment side effects therefore enhancing patients' quality of life. However, despite the recorded benefits of physical activity and exercise, barriers exist to embedding it into the cancer treatment pathways.

Aims: A systematic review was conducted to explore (a) what existing knowledge is available in relation to exercise for patients diagnosed with cancer who are undergoing adjuvant and neoadjuvant treatment? (b) what are the barriers and facilitators for embedding exercise in the adjuvant and neoadjuvant cancer treatment pathways from a patient's perspective? (c) what are the barriers and facilitators for embedding exercise in the adjuvant and neoadjuvant cancer treatment pathways from a healthcare professionals' perspective?

Methods: The systematic review adheres to the reporting of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses. CINAHL (via EBSCO), MEDLINE and PsycINFO were searched for qualitative, quantitative, and mixed methods evidence using a structured search strategy. 95 papers were selected, and a full text review of each paper was completed independently by two researchers.

Risk of bias for each included study was assessed using the Critical Appraisal Skills Programme tool. Inductive thematic meta-synthesis was used to analyse data and gather themes. The COM-B Framework and Theoretical Domains Framework were utilised to structure and categorise the themes.

Results: Thirteen qualitative, 11 quantitative and two mixed methods studies were included. Participants within the studies included cancer patients, healthcare professionals (including primary sector) or a combination of both. Included studies reported on the barriers and facilitators to exercise participation, exercise recommendations, barriers and facilitators to implementation and potential solutions to overcome the barriers.

Three main themes identified included 'Intervention' (capability, beliefs, impact), 'Setting' (organisation, environment, opportunity, infrastructure) and 'Cancer Pathway' (symptoms, treatment type).

Implications: Barriers and facilitators can interlink in different ways that impact the overall implementation of physical activity and exercise within cancer treatment pathways. Studies that demonstrate facilitators may not directly address solutions.

Therefore, further research is needed with both patients and healthcare professionals (inclusive of those responsible for the commissioning of services) to gain a more comprehensive understanding and address potential solutions to embedding exercise in the cancer treatment pathways to inform and develop good practice implementation guidelines within cancer care.

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Establishing the Research Usefulness of Irish GP Data (ERUDITE-1): A Comparison of Cancer Incidence in Primary Care Records with National Cancer Registry Data

Presenters: Alexander Carroll[1,2], Benjamin Jacob[2], Linda Henry[1,2], Patrick Redmond[2]

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Background: Primary care datasets offer valuable longitudinal data for clinical research and health policy. However, Ireland's primary care data infrastructure remains limited, with concerns about inconsistent diagnostic coding. Previous studies have highlighted gaps in coding practices for chronic conditions, but similar validation for cancer diagnoses is lacking. This study examines the research utility of Irish GP data by comparing cancer incidence rates derived from primary care records with rates from the National Cancer Registry Ireland (NCRI). .

Aims: To estimate cancer incidence in a high-risk cohort aged over 60 using primary care diagnostic codes and to compare these rates with age- and sex-adjusted incidence rates from the NCRI.

Methods: We conducted a retrospective cohort study using anonymised data from 43 GP practices in the Irish Primary Care Research Network (IPCRN), following RECORD guidelines. Data spanning 1 January 2011 to 5 April 2018 were extracted using a standardised tool. Cancer cases were identified using ICD-10 and ICPC-2 codes, focusing on the 20 most common cancers reported by the NCRI. Incidence rates per 100,000 person-years were calculated and compared with NCRI data.

Inter-practice variability in coding was assessed to evaluate the consistency of cancer diagnoses across practices. We will also report preliminary results from a replication in the CRADLE dataset, a primary care resource comprising electronic health records (EHRs) from approximately 75 GP practices across Ireland, covering 600,000 patients.

Results: The cohort included 51,160 patients, with a mean follow-up of 5.3 years. During this period, 3,432 new cancer cases were identified. Prostate, leukaemia, and cervical cancer were among the most accurately coded cancers.

However, for 16 cancers including breast, lung, and pancreas, the observed incidence significantly differed from NCRI estimates ($p < 0.05$), with the majority underrepresented. Substantial inter-practice variability was evident, with coding rates ranging from 0.03 to 54.2 codes per patient. Most practices favoured the ICPC-2 coding system, although ICD-10 was used more consistently for specific cancer types.

Implications: These findings highlight significant discrepancies between cancer incidence reported in primary care data and national registry rates, underlining the need for improved coding practices and data validation in Irish general practice. Addressing these issues could enhance the utility of primary care datasets for cancer research and surveillance. Full results, including detailed recommendations for standardising coding practices, will be presented at the conference.

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The presenting signs, symptoms and tests associated with a lymphoma diagnosis within primary care settings: a systematic review

Presenters: Tara Seedher, Clare Bankhead, Brian Nicholson

University of Oxford, Oxford, United Kingdom

Background: Lymphoma, classified into subtypes Hodgkin (HL) and Non-Hodgkin (NHL), is the fifth most common cancer but challenging to diagnose in primary care. Symptoms typically mimic benign conditions and reliable routine investigative tests are lacking.

Aims: This systematic review sought to determine the accuracy of signs, symptoms and tests to detect lymphoma in primary care.

Methods: Studies were identified through MEDLINE, Embase and The Cochrane Database of Systematic Reviews that reported the clinical features of incident lymphoma within primary care. Data were extracted to estimate the diagnostic accuracy of clinical features for HL, NHL, and Lymphoma not otherwise specified (NOS). A narrative synthesis was conducted by outcome. Risk of bias (ROB) was assessed using QUADAS-2. Heterogeneity was assessed using forest plots.

Results: Eight studies were eligible, reporting 15 symptoms and 18 tests. There was little consistency in reported features across studies and therefore meta-analysis could only be conducted for raised platelet count. Most frequently reported features included: head and neck swelling, lymphadenopathy, lump swellings (elsewhere) and raised inflammatory marker tests. The strongest association across all outcomes was for lymphadenopathy, with odds ratios of 184.5 (40.7,837.1) for lymphoma NOS; 263.0 (133.0, 519.0) for NHL, and 282.0 (25.0, 3123.0) for HL.

The highest sensitivities were for raised plasma viscosity at 81.3% (53.79, 95.0%) and 76.5% (62.2%, 86.8%) for lymphoma NOS and HL respectively. Most specificities were ≥80%, the highest being lymphadenopathy and head and neck swelling at nearly 100%.

Lymphadenopathy had the highest positive predictive values (PPVs), 5.6% and 13% for HL and NHL, respectively. The remaining PPVs were low, below the 3% NICE referral threshold. In papers reporting combined features, this often increased the PPVs. Combining lymphadenopathy with raised inflammatory markers or leucocytosis for NHL produced PPVs of 15%.

Across all types of lymphoma, head and neck swelling, lymphadenopathy and lump swellings (elsewhere) had strong evidence to rule in a lymphoma diagnosis, with LR+> 10. Raised platelet count had strong evidence to rule in a HL diagnosis, LR+=14 (8.2, 24). No clinical feature had a negative likelihood ratio of <0.3, sufficient to rule out lymphoma. QUADAS-2 ranked the overall ROB for most studies (6/8) as high. Age, sex and stage influenced risk for certain clinical features.

Implications: Lymphadenopathy is the best predictive feature for lymphoma. Future research should examine and report a broader range and combinations of features, accounting for age, sex and stage, to better stratify risk.

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Uncovering pre-diagnostic signals: Comparing trends in pre-diagnostic primary care activity in Australia across 13 cancer sites

Presenters: Silja Schrader[1,2], Meena Rafiq[1,2,3], Jon Emery[1,2]

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Background: Typically, patients with cancer symptoms will first consult in General Practice (GP). Previous studies have shown that changes in primary care usage prior to diagnosis can identify opportunities for expediting cancer diagnosis. Importantly, the length of these 'diagnostic windows' will vary for different cancers and can be used to identify which cancer sites have the greatest potential for improving early diagnosis in primary care.

Aims: This study aims to apply different statistical approaches to identify patterns in the frequency of primary care visits and the use of pathology tests among cancer patients in Victoria, focusing on trends that may signal underlying cancers.

Methods: This case-only study uses linked primary care data to examine 76,942 patients from Victoria, Australia, with a new cancer diagnosis recorded in the Victorian Cancer Registry between 2008 to 2022. Cancer diagnoses were categorised into 13 different cancer streams for comparison.

Patterns in primary care visit frequency and use of common pathology tests were examined for each cancer type by identifying inflection points for when clinical activity first starts to increase in the year preceding the cancer diagnosis using three different models — segmented linear models, change-point regression using Bayesian inference, and mean and variance change-point analysis.

Results: All three models identified a notable increase in GP visits at around 8 weeks prior to diagnosis when considering all cancer types together.

The earliest estimated inflection points were observed for gynaecological and genitourinary cancers, which showed distinct increases in primary care activity from 11 and 16 weeks pre-diagnosis, respectively. The shortest diagnostic windows were observed for neuro-oncology and melanoma/skin cancers, where primary care activity increased about 4 weeks before cancer diagnosis.

For some cancer types the models identified highly varying inflection points, which were therefore classified as being of lower certainty. Examination of pathology tests displayed similar trends, with the models identifying distinct increases in, for example, liver function tests at around 4.7 weeks for upper gastrointestinal cancers, or inflammatory markers at 2.5 to 3 weeks for neuro-oncology. However, some cancers, such as sarcomas, showed no distinct increases in blood test use before diagnosis, further highlighting differences among cancer types.

Implications: This study has identified differences in diagnostic windows and provides a valuable insight into how different cancers may therefore require different approaches when developing earlier detection models and inform which cancers should be targeted when developing primary care early diagnostic interventions and policies.

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Multiple myeloma and lymphoma and unplanned diagnostic pathways – a nationwide Danish study

Presenters: Linda Aagaard Rasmussen[1], Peter Vedsted[1,2,3], Henry Jensen[4], Henrik Frederiksen[5,6], Tarec Christoffer El-Galaly[7,8,9,10], Ida Bruun Kristensen[5], Peter de Nully Brown[11], Line Flytkjær Virgilsen[1]

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Background: Cancer survival is improving but vary considerably across cancer types and populations. Research suggests that prognosis is linked to how the cancer is diagnosed and that 15% of cancer patients in Denmark are diagnosed in unplanned diagnostic pathways rather than elective (planned) pathways. Haematological cancer often presents with vague and non-specific symptoms, challenging timely diagnosis.

Aims: We investigated the diagnosis of multiple myeloma and lymphoma in unplanned pathways and the association with patient characteristics, disease profile, and survival.

Methods: A nationwide register-based study included all patients diagnosed with multiple myeloma and lymphoma in Denmark in 2014-2018. Patients were categorised as diagnosed in an unplanned pathway if registered with an acute admission within 30 days prior to the diagnosis date and no other previously registered pathway.

Unplanned pathways were compared to all elective pathways combined, including referral to a Cancer Patient Pathway, admission for other reasons than cancer and outpatient visits.

Results: We included 2,213 patients with multiple myeloma and 5,157 patients with lymphoma, hereof 32% and 21% diagnosed in unplanned pathways, respectively. More comorbidity, no prior cancer diagnosis, a history of few visits to general practice, signs and symptoms of more advanced disease, complications at diagnosis, and advanced cancer stage were associated with a higher probability of diagnosis in an unplanned pathway.

For example, 24% (95% confidence interval (CI) 22-27) of myeloma patients with Charlson Comorbidity Index (CCI) score 0 were diagnosed in an unplanned pathway as were 51% (95% CI 46-56) of patients with CCI score 3+. Patients diagnosed in an unplanned pathway had higher mortality (myeloma: hazard ratio (HR) 1.44 (95% CI 1.26-1.64), Hodgkin lymphoma: HR 2.99 (95% CI 1.94-4.62)) when taking age and comorbidity into account. The inferior survival persisted when taking stage into account and when restricting to populations receiving standard treatment and patients surviving up to three years.

Implications: High comorbidity level, few usual GP visits, and the severity of the disease at diagnosis were associated with diagnosis in an unplanned pathway. Patients diagnosed in an unplanned pathway had inferior survival compared to a diagnosis through a planned route. Whether the findings were due to missed diagnosis or biological factors need further research. Promoting earlier diagnosis and preventing unplanned pathways may help improve survival in patients diagnosed with multiple myeloma and lymphoma.

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Characterising the risk of oesophago-gastric cancer in patients who present to their GP with a relevant symptom or sign, or who are diagnosed with a symptomatically similar disease

Presenters: Freya Pollington, Matthew Barclay, Yoryos Lyratzopoulos, Spiros Denaxas, Meena Rafiq, Becky White

UCL, London, United Kingdom

Background: Improvements are needed in the diagnosis of oesophago-gastric (OG) cancer. Due to a lack of evidence, National Institute for Health and Care Excellence (NICE) guideline recommendations lack granularity when it comes to sex, age, comorbidity and smoking status. Differential cancer risk for patients with symptomatically similar diseases (SSDs) are not considered, and evidence on pairwise symptom combinations is lacking.

Aims: Identify combinations of symptoms, SSDs, and patient characteristics with a positive predictive value for OG cancer greater than 3% in patients presenting to primary care.

Methods: OG cancer risk was examined in CPRD for individuals aged 30-100 presenting with one of four symptoms (dyspepsia, dysphagia, upper abdominal pain, vomiting) or one of five new-onset SSDs to OG cancer (Barrett's oesophagus, diaphragmatic hernia, gastritis or duodenitis, gastro-oesophageal reflux disease, oesophageal ulcer) from 2007-2018.

Variation in risk was stratified by age and sex, lifestyle factors, comorbidity, and co-occurrence of index symptoms or diseases, and seven general vague or alarm symptoms or signs within the previous six months. Individual logistic regression models were run for each feature cohort, and a combined model using data across the cohorts (for sample size enlargement) was additionally run.

Results: The largest risk estimates were seen in the dysphagia (Age 80: men - 6.5%, women - 2.6%), and Barrett's oesophagus (Age 65: men - 3.5%, women - 1.4%) cohorts. In terms of the effect size for co-occurring features within six months of one of the nine index features, the largest coefficient estimates include dysphagia, current smoker status, dyspepsia, weight loss, vomiting and Barrett's (OR: 3.00, 2.06, 2.03, 1.83, 1.69 and 1.52, respectively).

Vague features such as cough and fatigue reduced the OG cancer risk (OR: 0.73 and 0.65, respectively). Risk patterns by age varied substantially between different symptom cohorts (e.g., bell-shaped curve for dysphagia, monotonic increase for oesophageal ulcer).

Trialling different model forms revealed potential effect modification of co-occurring features dependent on consultation context (e.g., when co-occurring, dysphagia ORs vary by cohort: OR: 10.17 (vomiting), 9.18 (diaphragmatic hernia), 6.61 (abdominal pain), 5.15 (gastritis/duodenitis), 3.00 (combined)). Early investigation into the relationship between the order a patient experiences features, and their overall risk, found there was some variation within certain feature pairs.

Implications: The findings offer support to the implementation of current NICE recommendations for OG cancer urgent referral, highlighting the potential for considering SSDs and more granular age stratification. Further examination of pairwise feature combinations and associated risk should be prioritised.

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A Realist Review of Diagnostic Pathways for Lung Cancer in Low- and Middle-Income Countries

Presenters: Joshua Graham[1], Conor Murphy[1], Jennifer Githaiga[2], Sarah Day[2], Benjamin Jacob[1], Raghad Hosaf[1], Vedika Khurana[1], Patrick Redmond[1]

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Background: Lung cancer is a leading cause of cancer mortality globally, with nearly 70% of deaths occurring in low- and middle-income countries (LMICs) due to delayed diagnosis and limited access to healthcare. Early detection dramatically improves survival, with five-year rates of around 60% for stage I cases versus 6% for stage IV.

Previous reviews have identified broad barriers to early diagnosis in LMICs, such as socio-economic constraints and inadequate healthcare infrastructure. However, the specific mechanisms driving these delays within varied local contexts are poorly understood.

Aims: To apply a realist review approach to examine how contextual factors, mechanisms, and outcomes interact in lung cancer diagnostic pathways in LMICs, generating insights for targeted policy and system improvements to support earlier detection.

Methods: This review follows a realist methodology to build and refine theories on the functioning of diagnostic pathways in LMICs. We will explore interactions between patient, provider, and system-level factors influencing timely or delayed diagnosis.

An initial programme theory (IPT) will be developed through a scoping review and stakeholder consultation, with iterative updates as new evidence is synthesised.

Results: Data will be extracted from peer-reviewed and grey literature and coded to identify context-mechanism-outcome (CMO) configurations. The review adheres to RAMESES standards for quality and reporting.

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Cancer diagnosis in primary care. A patient storytelling project

Presenters: Ulrika Sandén[1], Hans Thulesius[2], Marija Zafirovska[3],[4], Marcello Mangione[5], Aikaterini Metochianaki[6], Emmanouil Smyrnakis[7], Lars Harrysson[8], Andreas Hellström[9], Michael Harris[10],[11]

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Background: Early detection and treatment of symptomatic cancer aims to improve survival and quality of life. However, diagnosis and treatment is often delayed due to factors related to patient, provider, health system, community and society.

This research project integrates storytelling as an innovative cancer research tool. Storytelling is based in artistic work but has also been used in scientific research. Its roots in narrative research are founded on the idea that people are "storytellers by nature", and that it helps us understand people's identity and experiences.

We wish to show its possibilities through a better insight into patient experiences within a research context.

Aims: We aim to increase knowledge regarding cancer diagnosis processes in primary care, specifically through patients' eyes. By analysing patients' stories, we will eventually identify obstacles in the diagnostic process.

We ask:

- What do patients' stories tell us about their experiences of cancer diagnosis in primary care?

- What do patients' stories tell us about how cancer diagnosis in primary care can be improved?

Methods: The Örenäs Research Group is collecting data from primary care patients in Greece, Italy, North Macedonia and Sweden. We offer each participant different ways to tell their story; write, record, participate in a narrative interview or fill in a 'structured journey' tool that was specifically designed for this project. Our data will be analysed in accordance classic grounded theory. All collected data will go through coding processes where codes and categories emerge.

Concepts, memory notes and codes are compared between the stories until a main category emerges. Then all material will be coded in a theoretical coding process towards the main category. At saturation, the emerging theory will be compared to existing literature before a final grounded theory will be presented.

Results: Conceptual knowledge about if and how patients' own stories may contribute to better understand a cancer diagnosis trajectory and identify potential preventable obstacles.A base for further studies on patient perspectives in medical research will be introduced through a novel storytelling method.

New information on patient delays in cancer diagnosis will be introduced, allowing connection to other cancer diagnosis research programmes.

Implications: We aim to illuminate factors that influence delays in primary care cancer diagnosis. We hope to develop alternative ways for general practitioners to work with and get medical information from their patients, and we may find new ways to obtain patient information in clinical settings.

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Modelling the extent, determinants and impact of overdiagnosis in lung cancer screening: Protocol and interim results for the MODULUS study

Presenters: Benjamin Jacob[1], Aindrias Ó Floinn[1], Koen de Nijs[2], Patrick Redmond[1]

[1]Royal College of Surgeons in Ireland, Dublin, Ireland. [2]Erasmus MC, Rotterdam, Netherlands

Background: Overdiagnosis in cancer screening threatens program effectiveness and public acceptance. In a 2023 meta-analysis of 5 trials comparing low-dose CT screening against standard care, Voss et al. estimated that 29% of lung cancers were overdiagnosed. This was based on the assumption that cancers detected early in the screening group would have appeared in the control group within 3.6 years, however, lung cancer, particularly adenocarcinoma, often remains asymptomatic for longer, with potential latent periods of 6 years.

Aims:

1. To re-evaluate the overdiagnosis estimates from Voss et al., testing their sensitivity to histology-specific extensions of the event horizon.

2. To analyse variations in overdiagnosis rates by sex, age, smoking intensity, quit time, and pack-year history to identify at-risk groups.

3. To assess how overdiagnosis might offset the overall benefit of lung cancer screening.

Methods:

WP1: We will conduct a meta-analysis on published data from five trials included in the Voss et al. meta-analysis: ITALUNG, DLCST, NELSON, MILD, and LUSI. The primary objective is to calculate a pooled overdiagnosis rate at the 3.6-year follow-up threshold, validating consistency with Voss et al.'s findings. Additionally, we will conduct a sensitivity analysis to evaluate changes in overdiagnosis rates according to histology and as the follow-up horizon varies.

WP2: We will conduct a microdata analysis using patient-level data from NLST and NELSON, as available, to examine how overdiagnosis rates vary with baseline characteristics and histology.

Key baseline variables will include age, sex, smoking intensity at enrollment, quit time, and pack-year history. Logistic regression models will be developed to estimate overdiagnosis rates based on these baseline factors, with results segmented by histological subtype and stratified by protocol details.

WP3: We will quantify the "survival gap" by assessing how reductions in lung cancer-specific mortality translate—or fail to translate—into reductions in all-cause mortality. Then, we will provide a conservative estimate of the mortality burden associated with each overdiagnosed case. Hierarchical regression analyses will control for variations in trial protocols, baseline patient characteristics, and other relevant factors to ensure robust estimates across diverse study conditions.

Results: n/a

Implications: We will present preliminary results from the first two work packages. This study will generate refined estimates of overdiagnosis in lung cancer screening and identify risk factors. By balancing benefits and harms, our findings will inform eligibility recommendations and support tailored risk communication strategies, potentially enhancing both the effectiveness and public acceptance of lung cancer screening programmes.

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Enhancing Colorectal Cancer Screening Participation via Text Message Interventions: A Systematic Review and Meta-Analysis

Presenters: Ghader Almoallem[1], Wasim Hamad[2], Thmas Round[1]

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Background: Colorectal cancer (CRC) is a leading cause of cancer-related deaths. CRC screening improve survival rates. However, screening participation remains variable, especially among underserved and minorities populations. Text message interventions have emerged as a potential strategy to increase CRC screening uptake. Text messages offer a potential to provide culturally tailored educational material that could increase participation, especially in groups with lower screening-uptake.

Aims: The primary aim is to synthesize evidence on the performance of text message interventions in CRC screening. The secondary goal is to explore the performance of such interventions in specific groups with lower uptake.

Methods: This systematic review, registered with PROSPERO (CRD4202452413), followed the Cochrane handbook for diagnostic accuracy studies guidance. A comprehensive search of PubMed, MEDLINE, Embase, and Cochrane databases was performed. Eligible studies evaluated text message interventions in CRC screening using faecal immunochemical testing (FIT) or faecal occult blood testing (FOBT).

Studies were excluded if they focused on colonoscopy-based screening, were conducted in non-screening settings, or did not assess text message interventions. No restrictions were applied on study design or language. Quality assessments were conducted using the RoB 2 tool, QUADAS-2, or CASP-2.

Results: The search identified 733 records, of which 18 studies were eligible, 12 randomized clinical trials, two mixed-methods, two observational, and two qualitative studies. Eligible studies included 226,632 participants aged 45 to 75. Most studies (n=13) were conducted in the USA, with others from Australia (n=2), Israel (n=2), and the UK (n=1).

A meta-analysis of seven trials comparing text message interventions to usual care yielded a pooled absolute uptake difference of 0.06 (95% CI: -0.001 to 0.12). Sensitivity analyses, excluding one study with a high risk of bias and another with a small sample size, revealed a pooled absolute uptake difference of 0.08 (95% CI: 0.02 to 0.14) in favour of text message interventions.

Studies comparing text messages to other interventions showed consistent findings for text messages. Qualitative studies on minority groups with lower uptake highlighted the acceptability of text message interventions and their potential to overcome language and cultural barriers.

Implications: Text message interventions effectively increase CRC screening participation and address disparities in screening uptake. Integrating text messaging into FIT or FOBT screening programs can improve access among underserved populations and enhance early detection efforts. Future research should focus on optimizing message content, enhancing cultural relevance, and evaluating the impact of scaling these interventions to a broader level.

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Inequalities in diagnostic interval among marginalised groups diagnosed with breast cancer, and the impact of the COVID-19 pandemic

Presenters: Tetyana Perchyk[1], Agnieszka Lemanska[1], Luke Mounce[2], Tanimola Martins[2], Isabella de Vere Hunt[3], Brian D. Nicholson[3], Kate Sykes[4], Yoryos Lyratzopoulos[5], Katriina L. Whitaker[1], Robert S. Kerrison[1]

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Background: Breast cancer is a leading cause of mortality in the United Kingdom. Evidence suggests that people from marginalised groups are more likely to be diagnosed at a late stage. One possible explanation is that they experience longer time-to-diagnosis ('diagnostic intervals').

Few studies have tested this hypothesis, and there are growing concerns that diagnostic intervals have increased since the COVID-19 pandemic.

Aims: The aims of this study, therefore, were to:

1. Test whether inequalities in diagnostic interval exist;

2. Test whether diagnostic intervals have increased since the COVID-19 pandemic, and whether such increases have occurred unilaterally.

Methods: We performed a cross-sectional study, in which diagnostic interval (the time between first recorded symptom and diagnosis), was compared between 5 population subgroups including: ethnic minorities, non-female gender, living in deprived areas, diagnosis of a learning disability (LD), and diagnosis of severe mental illness (SMI). Data was assessed between 2017-2023 comprising of three years before ('Pre-COVID') and after ('Post-COVID) 31st March 2020 (the date of the first lockdown).

Primary care records data were derived from the Clinical Practice Research Datalink. Differences in the proportion experiencing delayed diagnosis (defined as a diagnostic interval greater than the median) were computed overall (n=25,672), pre- (n=13,218) and post-covid (n=12,454), and assessed using binary logistic regression.

Results: A greater proportion of people of Asian or black ethnicity experienced delayed diagnosis, compared to people of white ethnicity (53% [Asian] and 57% [black] vs. 49% White; p's<0.05). Similarly, people with SMI were more delayed compared to people without SMI (54% vs. 49%; p<0.01). Younger age was also associated with increased likeliness of delayed diagnosis (p<0.01).

The diagnostic interval increased pre- to post-COVID for all adults (42 days vs. 53 days; p<0.01). The proportion experiencing delayed diagnosis post-COVID increased significantly (compared with period median) in people of white (42% vs. 52%; p<0.01) or Asian (48% vs. 59%; p<0.01) ethnicity, in people without LD (46% vs. 53%; p<0.01), in people without SMI (46% vs. 53%; p<0.01), in females (42% vs. 53%; p<0.01), and in people living in both the highest deprived (47% vs. 52%; p<0.01) and less deprived areas (46% vs. 53%; p<0.01).

Implications: Certain groups, including younger adults, people with SMI, ethnic minority groups and people living in higher deprived areas experience longer diagnostic intervals. COVID has increased diagnostic interval, with variation in size of impact between groups. Targeted efforts are needed to address these inequalities.

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Prediction and characterization of patients with lung cancer in primary care via rich health record data using a transformer-based deep learning model

Presenters: Lan Wang, Erik Mayer, Alessandra M. Russo, Brendan C. Delaney

Imperial College, London, United Kingdom

Background: Lung cancer typically presents late and is the most common cause of cancer related death in the UK. Using primary care EHR data from Whole Systems Integrated Care (WSIC) Northwest London, we have developed and trained a transformer-based deep learning model for lung cancer diagnosis in primary care which has achieved AUROC of 0·924 (95% CI 0·921– 0·927) with a PPV of 3·6% (95% CI 3·5 – 3·7) and Sensitivity of 86·6% (95% CI 85·3 – 87·8).

The model captures rich relationships and dependencies in sequential coded patients' care pathways to diagnosis regarding symptoms, diagnoses, procedures, sites of encounter and medical tests only as a 'request'.

Aims: In this presentation we explore potential approaches to improving performance by two different approaches to curating blood test results prior to developing the model.

Methods: We curated 80 blood tests from 1734 recorded tests with prior knowledge from medical experts and conducted extensive local data transformation to map results to normal/abnormal categories. We replaced the blood test requests with the blood test results in the patient pathways in two ways.

Firstly, to keep both normal and abnormal result flags. Secondly, to include only abnormalities. The updated patient pathways were then used to train and validate our transformer-based prediction model.

Results: Our updated model achieved an AUROC of 0·924 with a PPV of 3·4% and Sensitivity of 82·8% based on the three year's data including abnormalities prior to diagnosis less the immediate month before index diagnosis. Trained and validated on the three-year data including both normal and abnormal blood test results, our updated model achieved an AUROC of 0·915 with a PPV of 2·5% and Sensitivity of 81·8%.

Implications: Neither method of including tests results improves model performance. Further work will explore selective curation of test results that are known to indicate possible cancer (blood count, liver function for example). Deep learning for diagnosis could provide improvement in early diagnosis of lung, contributing to more efficient care delivery and more accurate decisions faster, improving cancer outcomes and reducing survival rates.

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Clinical relevance of the neutrophil-to-lymphocyte ratio (NLR) for cancer risk detection in primary care: initial results

Presenters: Liz Down, Sarah Price, Sarah Bailey, Tanimola Martins, Elizabeth Shepherd, Lucy Kirkland, Celia Butler, David Shotter, Richard Neal, Luke Mounce

University of Exeter, Exeter, United Kingdom

Background: The neutrophil-to-lymphocyte ratio (NLR) is an emerging biomarker that captures two elements of the immune system in diseased states. NLR has been shown to be a useful prognostic marker of breast, prostate, lung and pancreatic cancers and can be easily calculated in primary care from a full blood count. Its use as a diagnostic marker of cancer has not been studied.

Aims: To explore the distribution of NLR in primary care patients in England, and to assess the association between NLR and incident cancer diagnosis.

Methods: Retrospective cohort study set in English primary care using Clinical Practice Research Datalink (CPRD) records of patients who had a blood test from 01/01/2012 to 31/12/2017 with follow-up data linkage to the national cancer registry until 31/12/2018 (latest available). Patients will be aged ≥40 years and have no prior cancer diagnosis.

Patients' first test within the study period will be taken as their index NLR result. Diagnosis of any cancer (excluding non-melanoma skin) within one year of the index test will be the primary outcome. We will explore centiles of NLR distributions by patient group (age band, gender, ethnicity).

The association of high NLR to incident cancer diagnosis will be investigated with multi-level logistic regression (clustering patients by practice), adjusting for the above patient characteristics. Differences in NLR utility by cancer site will be explored with an interaction term.

Results: Data is currently being extracted for this project. We will present the above preliminary analyses, including positive predictive values of high NLR for different patient groups by cancer site.

Implications: NLR has the potential to be another useful blood marker of undiagnosed cancer easily accessible in primary care, similar to high platelet count. Results could be easily incorporated into guidance for GPs, such as NICE NG12 in England.

Online poster presentations

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Uptake and experience of professional interpreting services in primary care in a South Asian population: a national cross-sectional study

Presenters: Graham Hieke[1], Emily Williams[2], Paramjit Gill[3], Georgia Black[4], Lily Islam[5], Cecilia Vindrola-Padros[6], Judith Yargawa[4], Sabine Braun[1], Katriina Whitaker[1]

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Background: The majority of cancers are diagnosed following a decision to seek help for symptoms, with the first point of contact being primary care. Language barriers have been highlighted as impacting help-seeking for potential cancer symptoms, because patients may lack the ability to describe the issue for which they are seeking help and feel misunderstood in the consultation.

When patients and healthcare professionals do not share a common language, the use of professional interpreters becomes fundamental to ensuring understanding, as well as to avoid exacerbating inequalities in healthcare access and outcomes. Prior research highlights the benefits to patients of using professional interpreters. However, these services are often under-utilised, and little is understood about the issues associated with the uptake and experience of professional interpreting services in primary care.

Aims: This study explored the uptake and experience of professional interpreting services in primary care (general practice) among South Asian communities in England.

Methods: National cross-sectional survey of participants from Bangladeshi (n=213), Indian (n=200), and Pakistani (n=196) backgrounds, with qualitative interviews (n=30). We examined barriers and facilitators to uptake of GP professional interpreting services, the association between healthcare access, patient characteristics, self-reported health, and uptake and patients' experience of using services. The fieldwork took place in four regions in England between January and June 2023. Trained multilingual researchers used their personal networks to recruit participants with limited or no English proficiency using nonprobability convenience/snowball sampling.

Results: Just under two-thirds of participants reported having previously used the professional interpreting services provided by their GP practice. Face-to-face interpreting was the most common modality, followed by telephone and video interpreting. Several key influences on uptake were identified in multivariable analysis including ethnic origin, education, region, number of primary care visits within the last 12 months, participants being told about professional interpreting services, and participants being given a choice about the language support service offered.

Qualitative evidence provided additional insight into how people made decisions about using interpreting services. For example, people described being less likely to use them when their symptoms were perceived to be "trivial" and conversely in emergency situations. People reported negative consequences of poor quality interpreting, such as incorrect follow-up care or disengagement with services.

Implications: Understanding the experience of professional interpreting services from a patient perspective is vital to optimise how interpreting services are offered (and used), and to ensure equitable routes to diagnosis for conditions including cancer.

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Something's Not Right: the five changes that could speed up diagnosis and save lives

Presenters: Laura Fulcher

Mission Remission, London, United Kingdom

Background: Mission Remission is a grassroots charity with a community of over 15,000 cancer survivors across the UK. Led entirely by cancer survivors, our mission is to help people feel happy, healthy, and independent after cancer. We also advocate for improvements in the cancer journey, focusing on what matters most to our people.

A common challenge our community faces is delayed diagnosis, which can lead to long-term physical and psychological issues. Despite public campaigns urging people to recognise cancer signs and see their GP immediately, this approach isn't working as intended. Public Health England reports that over 50% of patients are not referred along the 'urgent' cancer pathway.

One contributing factor is the information gap around the patient's role.

Aims:

• To identify the barriers to diagnosis, from a patient's perspective

• To identify changes to ensure diagnosis at the first symptom

Methods: A structured survey with 245 cancer survivors gathered quantitative data on their healthcare experiences, while 73 semi-structured interviews offered qualitative insights into their cancer journeys. Two participatory workshops co-produced a framework with five key recommendations for change

Results:

• 65% weren't clearly instructed to return to the GP if symptoms persisted

• Over 50% expected their GP to lead the discussion by asking questions and didn't realise they needed to clearly communicate their cancer symptoms

• 72% lacked confidence in navigating cancer treatment

• 84% felt the diagnostic process was not clearly explained

• 66% felt keeping a symptom diary would boost confidence in communicating symptoms with doctors – though only 20% kept a record.

Implications: The interviews & workshops resulted in the following five recommendations:

Practice

1. 'Next Step' Discussions: Ensure every GP visit includes explicit discussions on next steps, such as when to return if symptoms persist.

2. Embed Community Empowerment Tools: tools such as:

• Symptom Diaries

• Guidance on how to prepare for a GP appointment

• Diagnosis Guide -- Step by Step explanation of the process & how to overcome hurdles

• Relationship Development – How to build supportive GP relationships

Policy

3. 'Dismantling Barriers' Workstream: In co-production with patients, identify barriers to diagnosis nationally and locally, and dismantle them

4. Strategic Change: Make improving the patient journey to diagnosis (and dismantling barriers) a strategic priority, with focus on communication and navigation

5. Address inequalities in performance data: ensure the data includes all people, not just those referred urgently.

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Computerised clinical decision support systems (CDSS) for the detection of disease in primary care: Systematic review and recommendations for disease detection tools

Presenters: Christina Derksen, Suzanne Scott, Adriana Binti Akbar, Asha Violet Elizabeth Parmar, Tyler Saunders, Thomas Round, Fiona Walter

Queen Mary University of London, London, United Kingdom

Background: Early detection of diseases is crucial for timely treatment and better outcomes. With complex care demands and limited resources, missed diagnostic opportunities may occur. Clinical decision support systems (CDSS) aim to improve the diagnostic process. Despite potential benefits, barriers at patient, clinical and system levels have so far prevented effective use.

Aims: This systematic review aimed to synthesise existing literature to develop recommendations for the implementation of CDSS for cancer and other disease detection in primary care. It is part of the CRUK-funded CanDetect programme, aiming to accelerate detection of upper gastrointestinal (UGI) cancers.

Methods: We searched MEDLINE, EMBASE, Scopus, Web of Science and Cochrane databases for studies that reported barriers to the implementation of CDSS for the detection of undiagnosed, prevalent cancer and other diseases in primary care. Two independent researchers undertook screening and data extraction. The QuADS tool was used for quality assessment.

Data on barriers and facilitators were synthesised using an inductive-deductive approach based on the Theoretical Domains Framework (Atkins et al., 2017). Recommendations to facilitate CDSS implementation were developed based on linked intervention functions in the Behaviour Change Wheel (Michie et al., 2011).

Results: 9879 titles and abstracts were screened, and 744 full texts were assessed. We included 83 studies describing 73 tools, mainly for use by GPs and some for use by nurses or admin staff. Most studies (56, 67.5%) applied qualitative methods and described CDSS implemented in pilot studies (52, 62.7%). There was limited stakeholder involvement or theoretical underpinning in included studies.

We identified 1567 unique statements that were assigned to Theoretical Domains Framework categories. Clinicians' use of CDSS depended on the environmental context, highlighting time constraints, difficulties integrating CDSS into primary care workflows and healthcare system barriers. Other important barriers were poor usability of the CDSS interface and a lack of trust in CDSS capabilities due to an insufficient evidence base. Some studies reported a need for more training and primary care practitioners' negative beliefs about consequences on the patient-provider relationship, decision-making, and patient outcomes.

Implications: This review summarises a wide range of literature on perceived and actual barriers to CDSS use before and during implementation from different stakeholder perspectives. Successful implementation will rely on training, education, persuasion, incentivisation and environmental restructuring to overcome the barriers. The current work will inform the development and implementation of a CDSS to contribute to more timely detection of UGI cancers in primary care.

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Socio-demographic disparities in receiving prostatectomy as the initial treatment for prostate cancer: A population-based study using electronic health records in England

Presenters: Gayasha Batheegama Gamarachchige[1], Elizabeth Ford[2], Jo Armes[1], Sotiris Moschoyiannis[1], Agnieszka Lemanska[1,3]

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Background: Prostate cancer (PCa), is the leading malignancy among men in the United Kingdom with pervasive inequalities along the continuum of care. As survival rates improve, understanding the factors influencing long-term quality of life (QOL), particularly post-treatment, is important. Curative treatments like radical prostatectomy (RP), while highly effective, often cause side effects that can negatively impact QOL. Socio-demographic factors—including age, ethnicity, and deprivation—may affect treatment decisions, contributing to inequalities in outcomes. Primary care plays a key role in managing PCa, so understanding how these socio-demographic factors influence treatment decisions is vital for better-managing side effects and improving long-term outcomes for men, regardless of their cancer stage.

Aims: This study aimed to evaluate the association of age, ethnicity, and deprivation with the likelihood of receiving RP for PCa in England to inform primary care providers in offering better support to diverse patient populations.

Methods: We conducted a retrospective cohort study of men aged ≥56 years diagnosed with PCa between 2010 and 2016 using linked Clinical Practice Research Datalink (CPRD), Cancer Registry and Hospital Episode Statistics (HES) datasets. The study examined age, ethnicity (Asian, Black, Mixed/Other, White), and Index of Multiple Deprivation (IMD) quintiles associated with RP receipt, adjusted for comorbidities, cancer stage (localised, locally advanced, advanced), Gleason score, diagnosis year, and diagnosis route. Logistic regression models provided adjusted odds ratios (aOR) with 95% confidence intervals (CIs).

Results: There were 13,693 men diagnosed with PCa during 2010-2016 after excluding 388 (3%) due to missing ethnicity or deprivation data. Of that, 13,048 (95%) men were of White ethnicity and 8349 (61%) were over 70 years (mean age 73, standard deviation 7.7). Most had localised PCa (45%), followed by locally advanced (34%) and advanced cancer (21%). Overall, 38% received RP with significant variations by age ($p<0.001$), IMD ($p=0.006$) and ethnicity ($p=0.003$).

Older men were less likely to receive RP than younger men, (for every 10-year age increase, aOR:0.68 (95% CIs 0.64 to 0.72)). Men from more deprived areas were less likely to receive RP than those from less deprived areas (aOR:0.82 (0.76 to 0.90)). Men of Black ethnicity were more likely to receive RP than those of White ethnicity (aOR:1.52, 1.20 to 1.93).

Implications: This study highlights significant socio-demographic disparities in PCa treatment. Awareness of these disparities can help primary and secondary care providers deliver more personalised supportive care for men with PCa, leading to better long-term QOL.

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Was it worth it? Qualitative study on treatment goals of older patients with cancer

Presenters: Vera Hanewinkel, Hanneke van der Wal - Huisman, Barbara van Leeuwen, Suzanne Festen, Pauline de Graeff

University Medical Center Groningen, Groningen, Netherlands

Background: Elucidation of treatment goals is crucial in decision-making for older cancer patients. Older patients often prioritize functional outcomes, such as maintaining independence and quality of life, over mere survival. It is essential to understand what patients want and expect from their treatment in order to provide care that aligns with their values and preferences.

Additionally, gaining insight into how patients evaluate their treatment decisions and the factors influencing the choices they made can reveal important aspects of their decision-making process and expected outcomes.

Aims: This study aims to identify the treatment goals that older patients with cancer consider important before treatment, how they evaluate their treatment decisions and the decision-making process, and the factors influencing their decisions.

Methods: We conducted 16 in-depth interviews with eight patients, of which five male patients, aged 70 and older with solid malignancies. The Interviews were conducted before start of treatment and three months post-treatment Interviews were held with the patients alone or in the presence of a relative, depending on their preference. A thematic analysis was conducted to identify key themes related to treatment goals prior and after treatment.

Results: The mean age of the participants was 75.8 years (SD 2.8). Preliminary findings highlight four main themes: evaluation of treatment, decision-making process, patient situation and attitude, and important life issues before treatment. Final results will be available at the time of the conference.

Implications: Understanding that treatment decision-making is influenced by the patient's context and attitude, while outcome evaluation is shaped by both the patient's attitude and treatment outcome, can help healthcare professionals better prepare patients. By considering these distinct factors in decision-making, professionals can facilitate that treatment plans align with patients' goals, leading to more patient-centered care.

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An iNSIGHT to attitudes towards genetic testing and cancer screening – Cross sectional survey in three Asian cities

Presenters: Jo-Anne Manski-Nankervis[1,2,3], Jack Ho[4,2], Muhammad Haiman Bin Samad[4,2], Joanne Ngeow[5,6], Jon Emery[3], Sabrina Wong[7,1], Phui-Nah Chong[8,2], Rebecca Caeser[6,9], May Oo Lwin[4,2]

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Background: Singapore has developed a precision medicine strategy that will see 10% of the Singapore population, comprised largely of those of Chinese, Malay and Indian ethnicity, contributing to a database of genomic, lifestyle, health, social and environmental data. It is envisaged that this data will be used to drive improvements in population health, including risk-stratified cancer screening.

There is a need to understand cancer screening intentions and attitudes to genomic medicine to inform clinical translation in primary care in Singapore and more broadly in Asia. These intentions and attitudes may be impacted by factors including information-seeking behaviors, media literacy and religiosity.

Aims:

1. To explore public perspectives about genetic testing and attitudes to cancer screening amongst adults living in three urban cities in Asia and

2. Examine the relationships between psychosocial and health behaviour determinants and cancer screening attitudes/intentions.

Methods: Cross-sectional survey conducted as part of the iNSIGHT (InterNational Survey on Immunisation, Genomic Health and Technology) programme. 1000 adults aged 21 years and over will be recruited from each participating city using a stratified random sampling method to ensure national representativeness of sample populations.

Data will be collected using the Qualtrics platform. Information collected includes demographics, health information seeking behaviour, digital literacy, lifestyle factors, fatalism, religiosity, attitudes towards preventive genomics and genetic testing adapted from Vermeulen et al, and attitudes to cancer screening and early detection behaviours adapted from McCaffery et al. Descriptive statistics will be used to summarise survey responses and generalized linear models will be used to explore relationship between attitudes to genomic testing and cancer screening and psychosocial and demographic factors.

Results: Ethics approval has been granted for the iNSIGHT programme. The survey will be deployed in late 2024; results will be available by March 2025.

Implications: Cancer screening rates are lower in many Asian countries compared to countries in the West. Our results will help to inform communication, policy and clinical strategies to increase cancer screening that incorporates genetic testing in the region.

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Anxiety Management for Cancer Investigations: A Primary Care Intervention to support Wellbeing

Presenters: Vicky Jones, Beth Jackson-Dale, Elizabeth Smith

Leek and Biddulph Primary Care Network, North Staffordshire, United Kingdom

Background: The Primary Care Network Occupational Therapy Team provides a short-term intervention to support the mental wellbeing of patients who have been referred for two week wait urgent cancer investigations.

Aims: To provide mental wellbeing support to patients awaiting cancer investigations to reduce the development or worsening of investigation related anxiety and/or low mood and to provide onward signposting and support if diagnosed.

The Anxiety Management Programme supports patients through the particularly stressful time of awaiting appointments and results for possible cancer under the 2week wait pathway. This has been acknowledged as a significant event in creating distress and anxiety ranked as highly concerning for patients awaiting scan results, and people living with cancer report that "scanxiety" is a notable and challenging part of their cancer experience (Derry Vick et al 2023)

Methods: Patients are referred to PCN OT by GP at the point of onward referral for 2WW Cancer investigations. A member of the PCN OT team contacts the patient within 2-5 days of receiving the referral. The patient has a follow up telephone call in 2 weeks and forwarded onto the appropriate service if necessary.

The patient is provided with a PDF resource pack providing the following information:

• Understanding cancer related anxiety.

• Breathing Techniques including; Diaphragmatic Breathing, Box Breathing, 478 Breathing and Mindful Breathing.

• Relaxation Techniques including, Body Scan, Progressive Muscle Relaxation, Active Relaxation, Guided Visualization and utilising nature and the outdoors.

• Exercise ideas and Distraction techniques

Results:

• 100% of patients seen by the team within 2-5 target

• 60% did not require any onward referral or signposting

• 30% patients required onward referrals or signposting to MDT member

• 5.6 average contacts from PCN OT team per patient during period of intervention

Referral destination:

• 20% Secondary Mental Health Services

• 20% PCN Dietitian

• 20% PCN Mental Health Practitioners

• 40% Macmillan Cancer Support

Implications: Further study into how often the resource pack was used and which interventions provided the most support would be beneficial to tailor and expand the service further.

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Development and Testing of a Clinical Decision Support Tool (CDSS) to aid earlier diagnosis of patients with Pancreatic Cancer: A Simulation Study

Presenters: Javiera Martinez-Gutierrez[1,2], Kaleswari Somasundaram[1], Christina M Bernardes[3,4], Meena Rafiq[1,5], Silja Schrader[1], Sophie Chima[1], Kit Huckvale[1], Barbara Hunter[1], Jo-Anne Manski-Nankervis[6], James Lawson[7], Katrina Anderson[7], Vivienne Milch[7], Rachel E Neale[3,4], Jon Emery[1,8]

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Background: Improving pancreatic cancer outcomes through early diagnosis in primary care is a priority in the National Pancreatic Cancer Roadmap, developed by Cancer Australia. This is often difficult because the early symptoms of pancreatic cancer are often non-specific and can occur in a wide range of conditions that general practitioners (GPs) manage.

With technology advancing rapidly, computerised clinical decision support systems (CDSS) have shown potential to facilitate timely cancer diagnoses. Despite this, significant barriers exist to their adoption in clinical practice. Simulation techniques offer flexible and cost-effective ways to assess digital health interventions and can be used for testing CDSS to address these barriers before implementation.

Aims: To evaluate the acceptability and feasibility of using CDSS to flag symptoms/conditions related to pancreatic cancer, including unintended weight loss and new-onset diabetes, within a simulated environment.

Methods: A CDSS was developed to interact with electronic medical records, identifying patients with potential pancreatic cancer based on their symptoms (selected symptoms/conditions were suggested by a multidisciplinary working group convened by the University of Queensland). We tested the CDSS in a digital simulation laboratory with GPs who used the tool in simulated patient scenarios. Afterward, GPs participated in interviews about their experience. The data were analysed using thematic analysis and two relevant frameworks: (i) Sociotechnical model for evaluation of digital interventions by Sittig and Singh; and (ii) Sekhon's acceptability of healthcare interventions.

Results: The CDSS itself was found to be user-friendly and unobtrusive as it was easily integrated into the clinical workflow. The content was easy to understand and helpful in prompting GPs to consider further investigations for patients with symptoms possibly indicative of pancreatic cancer.

GPs preferred a stepwise approach to further investigations, rather than immediate imaging. For new-onset diabetes they raised concerns about the potential for over-testing, financial costs, and causing unnecessary anxiety in patients with a low likelihood of cancer. They identified a need for a stronger evidence base before widespread implementation.

Implications: The study demonstrated that a CDSS for prompting GPs to investigate non-specific symptoms/conditions associated with pancreatic cancer is generally acceptable and compatible with GP workflows. However, concerns about over-testing, cost-effectiveness, and the lack of robust evidence to support the clinical recommendations were identified as barriers to implementation. Further evidence is needed to support its widespread adoption in primary care.

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Multi-Agent Computational Framework for Uncovering Causal Relationships in Cancer Using Big Data Analysis

Presenters: Muhammad Amin, Latif Khan, Hasnain Sarfaraz, Muhammad Usama

University of Engineering and Technology, Peshawar, Pakistan

Background: Cancer is a multifaceted disease influenced by an interplay of genetic predispositions, environmental exposures, and lifestyle choices. Identifying the underlying causes and their interactions is crucial for devising targeted interventions yet current analysis methods struggle with the scale and complexity of cancer-related big data. Therefore, a comprehensive, data-driven approach capable of handling this complexity is essential for advancing cancer research.

Aims: This study aims to develop an intelligent, multi-agent computational framework designed to integrate and analyze diverse cancer-related datasets. By employing specialized agents for specific data types—such as genomic sequences, proteomic interactions, environmental records, and epidemiological profiles—the framework seeks to reveal complex causal relationships and interactions that contribute to cancer progression. This approach intends to provide a more complete picture of cancer etiology, supporting the development of predictive models for cancer risk assessment.

Methods: Our framework assigns agents with domain-specific analytical capabilities, including deep learning for genomic and proteomic data, natural language processing for epidemiological literature, and statistical modeling for environmental factors. Agents preprocess and analyze data independently and then communicate findings through an inter-agent collaboration layer.

Through iterative cross-validation and refinement, agents identify patterns, correlations, and potential causal pathways. Machine learning models within each agent adapt based on the collective findings, enhancing pattern recognition across large, heterogeneous datasets. The framework was tested on an integrated dataset comprising publicly available genomic, environmental, and lifestyle data related to various cancer types.

Results: The multi-agent framework successfully identified significant multi-factorial correlations that traditional analysis methods could not detect. Key findings included previously unrecognized links between specific genetic markers and environmental triggers, as well as lifestyle factors that, in combination with genetic predispositions, significantly elevated cancer risk. Cross-agent validation enabled the discovery of cascading risk factors and dependencies across datasets, revealing complex causative chains.

Implications: This multi-agent framework offers a powerful tool for oncologists, researchers, and healthcare decision-makers by presenting a comprehensive, scalable approach to analyzing cancer causes. The insights from this framework could inform tailored prevention strategies, such as identifying high-risk populations based on genetic and environmental profiles, and support the design of more personalized treatment plans.

Additionally, policymakers may utilize these findings to design public health interventions targeting modifiable risk factors. By advancing our understanding of cancer etiology, this approach can contribute significantly to reducing cancer incidence and improving patient outcomes through more informed, evidence-based strategies.

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What about rural and coastal? A content analysis of UK cancer policy

Presenters: David Nelson[1,2], Natalia Calanzani[3], Emily Skene[3], Ben Pickwell-Smith[4,5], Samuel Cooke[1], Kathie McPeake[6,2], Peter Selby[5,7], Ros Kane[8], Shana A. Naqvi[3], Eila Watson[9], Rebecca Foster[10], Lynn Calman[10], Mark Lawler[11], Peter Murchie[3]

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Background: The UK is geographically diverse, with a significant proportion of people living in rural and coastal areas. People affected by cancer who live in rural and coastal areas can be at risk of poorer experiences and outcomes when compared to urban dwellers. The devolution of health and social care policy means that the four countries of the UK have distinct approaches to healthcare and indeed, bespoke approaches to cancer care. Scotland, Wales, and Northern Ireland (NI) have recently published national cancer strategies, with England, now the only nation in the UK, with no national cancer control plan.

Aims: The aim of this study was to undertake a content analysis of key cancer policy documents across the UK, to identify the extent to which rural or coastal issues were considered.

Methods: We gathered relevant national government cancer strategy and policy documents for the four nations of the UK. We reviewed the documents seeking specific sections on rural and coastal cancer care and performed keyword searches, counting the number of times words appeared for terms relevant to geography, rurality, coastal, barriers and promoters of access and primary care in each of the documents identified. We then examined the contextual details for each appearance of "Geography/Geographical"; "Rurality/Rural"; and "Travel/Transport" in each policy.

Results: Fifty-five [Scotland 21; Wales 7; NI 10 and England 17] policy documents were included published between 2000-2024. None included a specific section or recommendations for rural or coastal cancer care. NI and England had conducted a rural impact assessment in their most recent plans; however these largely concluded that the policies did not negatively impact rural areas without clearly evidencing that fact. Terms relating to geography, rurality, coastal and travel/transport appeared infrequently across all plans, and contextual analysis revealed that these terms appeared rarely within recommendations to ensure rural or coastal equity.

Despite sizeable rural and coastal populations across the four countries of the UK, national cancer policies give inadequate consideration to the challenges of living with or caring for cancer in rural and coastal settings.

Implications: Coastal and rural health issues have received significant policy attention via the Chief Medical Officer for England's annual reports in 2021 and 2023. However, when it comes to national cancer policy across England and the devolved nations, the needs of rural and coastal people affected by cancer are not being recognised in high-level policy documents.

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Neutrophil-to-Lymphocyte Ratio (NLR) as a Biomarker for Cancer Diagnosis: A Literature Review

Presenters: Sassy Drake[1,2], Melissa Barlow[1], Lucy Kirkland[1], Sarah Price[1], Liz Down[1], Luke Mounce[1], Richard Neal[1], Celia Butler[1], Sarah Bailey[1]

[1]University of Exeter, Exeter, United Kingdom. [2]Cardiff University, Cardiff, United Kingdom

Background: Neutrophil to lymphocyte ratio (NLR) is a component of a complete blood count which has been shown to be a prognostic marker for cancer overall survival and disease-free survival. Its use as a diagnostic biomarker for undiagnosed cancer is yet to be studied. In primary care, diagnostic markers are crucial as they allow early detection of disease and for treatment to be personalised.

On average someone in the UK is diagnosed with cancer every 90 seconds. The NHS Long Term Plan aims to increase early-stage diagnosis from 50% to 75% by 2028. Novel strategies are needed to achieve this, including identifying the very earliest signs of cancer in routine blood tests.

Aims: To review the literature on the diagnostic value of neutrophil to lymphocyte ratio for identifying cancer of any type in primary care or family medicine settings and to answer the question can NLR be used as a biomarker for new cancer diagnoses.

Methods: A search strategy was developed to identify relevant literature from OVID MEDLINE(R) ALL (1946 to October 5, 2024), EMBASE (1974 to October 5, 2024) & Epistemonikos databases. Key words used in the search included neutrophil to lymphocyte ratio, diagnosis, cancer, primary care. There were no limitations on the type data collected or studies used. For a paper to be used it had to have a comparison of NLR in healthy individuals vs individuals with cancer (case-control study) or individuals pre and post diagnosis (cohort study); papers looking at prognosis, survival and metastasis were excluded. Relevant results were extracted from included papers and combined in a narrative synthesis.

Results: Out of 3,624 references there were 2,042 duplicates, of the 1,594 potential references only 39 were selected to be reviewed. Further grey literature research will be conducted. The results of this study will help to determine whether NLR could be used as a diagnostic marker of cancer. The study will also produce a general idea of the expected NLR trends when comparing healthy individuals and individuals with cancer as well as different cancer types.

Implications: This study may highlight the diagnostic potential of a novel marker of cancer and will inform future studies evaluating the use of NLR as a biomarker for cancer. This study will address the gap in literature identifying a potential fast and low-cost cancer marker for earlier diagnosis.

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Should we continue chest X-ray screening for lung cancer screening in Japan? Balance of benefits and harms of lung cancer screening

Presenters: Chisato Hamashima[1], Teruhiko Terasawa[2], Yuki Kataoka[3], Keisuke Anan[3], Satoyo Hosono[4]

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Background: Lung cancer (LC) has been a heavy burden worldwide, and an efficient screening program is needed. Although low-dose CT (LDCT) screening has become the primary screening for current and ex-smokers, chest X-ray (CXR) screening has continued for individuals aged 40 years and older regardless of smoking history in Japan.

Aims: XConsidering the Japanese background, we assessed the benefits and harms of LC screening based on a simple model.

Methods: We estimated the benefits and harms of LC screening for 100,000 subjects, including both non-smokers and smokers in Japan. The prevalence of LC for individuals aged 40 years and older, smokers and non-smokers, as estimated in the Japanese study (Marugame, Can Sci 2005), was incorporated into our model. Benefits were defined as the reduced number of LC deaths who underwent screening compared to those who did not.

Meanwhile, harms were defined as the numbers needed for further examinations (NNFE) to prevent one LC death in LC screening. Mortality reduction from LC was estimated from the following RCTs: CXR screening for average-risk individuals in the PLCO (Oken JAMA 2011) and CXR and LDCT screening for smokers in the NLST (Dominioni, J Thorac Oncol. 2010). The NNFE was calculated based on a study that evaluated test accuracy in the Japanese population (Toyoda, BJC 2008).

Results:

1. Non-smokers - Without screening, 26 subjects died from LC, but CXR screening saved two lives. A total of 1,003 further examinations were required to prevent one LC death.

2. Smokers - Although 137 subjects died from LC, eight subjects had their deaths from LC averted by CXR screening and 34 subjects by LDCT screening. The NNFE was calculated at 530 for CXR screening and 245 for LDCT screening.

Implications: At the introduction of CXR screening in 1987, the distribution of LC histology in Japan differed from that of Western countries due to the lower smoking rate. However, as smoking rates have decreased, this distribution has become more similar. Consequently, the findings of the PLCO study, which suggested limited benefits of CXR screening, may apply to the Japanese context.

LDCT screening offers more benefits for smokers than CXR screening. The benefits of CXR screening are limited for both non-smokers and smokers, and it is associated with a relatively high rate of further examinations. We should carefully reconsider if CXR screening is needed for non-smokers based on the balance of benefits and harms.

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Patient Experiences of Symptomatic FIT: Findings from the COLO-FIT Interview Study

Presenters: Adam Biran[1], Christina Dobson[1], Colin Rees[1,2], Willie Hamilton[3], Christian von Wagner[4], John Whelpton[1], Linda Sharp[1]

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Background: Faecal Immunochemical Testing (FIT) was recently introduced in the UK as a tool to prioritise urgent investigation of patients with possible colorectal cancer (CRC). Around 700,000 English patients are referred to secondary care annually for investigation of possible CRC symptoms. Most undergo colonoscopy or Computerised Tomographic Colonography (CTC), invasive investigations with risks, and for which demand increasingly outstrips capacity. Fewer than 5% of patients investigated have CRC.

FIT can help target investigations to those with greatest probability of CRC. Patient participation is required to ensure timely collection and return of stool samples, as well as patient acceptance of results as being central to decisions about care. Several studies have explored patients' FIT experiences in population-based screening, highlighting barriers to completion and generally reporting positive experiences. Fewer have considered symptomatic patients, whose experiences may be different.

Aims: To explore patients' experiences of FIT and their expectations regarding investigation in secondary care.

Methods: Semi-structured interviews were carried out remotely with 21 patients and 30 health professionals.

Patients who had had a CTC or colonoscopy 3-12 months earlier, following referral from primary care on completion of FIT, were eligible. Health professionals involved in the delivery of symptomatic FIT were eligible. Coding of transcripts, and thematic analysis, was conducted by two researchers, with higher order themes discussed and agreed by the broader research team.

Results: Among study participants, completion of FIT was unproblematic. However, health professionals expressed concern over an estimated 20% of patients not returning samples. Patients had mixed understanding of the purpose of FIT and meaning of results. Health professionals acknowledged that ensuring patient understanding can be challenging. Patients believed colonoscopy less likely to miss cancer than FIT. Nevertheless, many believed they would be content to avoid colonoscopy if their FIT result fell below the referral threshold.

Patients with familial or personal history of cancer were particularly anxious about symptoms and preferred the reassurance of colonoscopy, even in the event of negative FIT results. It was recognised that while a negative FIT result could reduce anxiety around cancer, ultimately patients were seeking explanation and treatment for the symptoms with which they presented.

Implications: Findings suggested no major concerns with acceptability of FIT and pointed to possible value in further work to improve communication and patient understanding of the test purpose and process. This might improve compliance and support patients' acceptance of non-referral as appropriate in the event of negative results.

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Exploring health care professionals' understanding of interim non-cancer diagnoses as missed opportunities to diagnosing cancer: a qualitative study

Presenters: Luke Robles[1], Gary Abel[2], Georgia Black[3], Anna Dowrick[1], Willie Hamilton[2], Angela King[2], Luke Mounce[2], Richard Neal[2], Brian D. Nicholson[1], Sarah Price[2], Mel Ramasawmy[3], Suzanne Scott[3], Anne Spencer[2], Fiona M. Walter[3], Bianca Wiering[2], Claire Friedemann Smith1

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Background: Patients with cancer often present in primary care with non-specific symptoms. GPs may diagnose a non-cancer illness that matches symptoms, which may reflect good clinical practice given the clinical information available at the time. However, these non-cancer 'interim diagnoses' may sometimes be missed opportunities to refer patients for cancer investigations, leading to delayed diagnosis and poorer outcomes.

Aims: To explore health care professionals' understanding of when interim diagnoses represent missed opportunities to diagnose cancer.

Methods: This qualitative study has recruited 36 health care professionals (HCPs) to date working in primary care who are involved in the patients' routes to, and speed of, diagnosis, including GPs, practice nurses, and practice administrators.

Online semi-structured interviews were conducted and were guided by a vignette describing a hypothetical patient receiving an initial non-cancer diagnosis and subsequently diagnosed with kidney cancer.

Participants were asked questions on topics, including how interim diagnoses occur and change over time, and what could be done to reduce potential delays. Interviews were audio-recorded, transcribed, and analysed using a framework approach. PPIE collaborators provided feedback on the interview vignette, topic guide, and were involved in the data analysis.

Results: At present, 12 interviews have been coded for analysis. Our preliminary findings show that HCPs suggest that interim diagnoses occur because 'common things happen commonly' (i.e., symptoms that match the most likely diagnosis). HCPs have described how the absence of red flag symptoms (i.e., tiredness, unexplained weight loss) and atypical presentations of cancer symptoms could be why interim diagnoses are made. HCPs suggested that the suspicion of cancer and, therefore, the likelihood of referral, increased following an interim diagnosis with increasing re-consultation. In-person appointments and effective safety-netting were considered ways to reduce delays in cancer diagnoses.

Implications: The results of this study will contribute to the development of future interventions for reducing delays in cancer diagnosis due to interim diagnoses.

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Multimorbidity and clusters of long-term conditions after cancer: a whole country cross sectional study in Scotland, United Kingdom

Presenters: Rosalind Adam, Peter Murchie, Mary-Joan Macleod, Melanie Turner

University of Aberdeen, Aberdeen, United Kingdom

Background: The number of people living with and beyond cancer is increasing and primary care is playing a major role in providing holistic care for individuals after cancer. Cancer prevalence increases with age, and many of those living with and beyond cancer will have other long-term conditions (LTCs). Multimorbidity (≥ 2 LTC's) has been associated with greater all-cause mortality after cancer, but the association with cancer-specific mortality is less straightforward. It is possible that certain comorbidities and clusters of comorbidities could influence cancer survival more than absolute number of comorbidities. Clusters of comorbidities could vary by cancer type due to shared risk factors and mechanisms.

Aims: The aim of this study is to identify and describe clusters of long-term conditions in individuals with common cancers.

Methods: This cross-sectional study uses a national, Scotland-wide linked dataset containing data from SMR00, SM01, PIS, SMR06 covering all individuals with a cancer diagnosis recorded between 2010 to 2018. Descriptive statistics will be used to explore the most common comorbidities, comorbidity counts and Charlson scores for 20 different cancers. Partitioning cluster analysis with high dimensionality will be used to identify distinct patterns of comorbidities occurring together in individuals with different types of cancer. In the next stage of this research, we will explore associations between multimorbidity, multimorbidity clusters, all-cause and cancer-specific survival by cancer type.

Results: Approximately 230,000 individuals were included in the dataset with a diagnosis of cancer. The most common LTCs overall in people with cancer were hypertension, diabetes, atrial fibrillation, chronic pulmonary disease, chronic kidney disease, myocardial infarction, cerebrovascular disease, depression, thyroid disease, and chronic pain. In the presentation, comorbidities will be described by cancer type and clusters will be described (analyses in progress).

Implications: Multimorbidity management in individuals with cancer is a core component of high-quality cancer survivorship care. Understanding the prevalence, patterns and consequences of different types of co-occurring LTCs will help with service planning and pro-active holistic primary care to improve survival and other important outcomes in those living with and beyond cancer.

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Inequalities in Symptomatic FIT completion: data from the Northeast of England

Presenters: Emily Haworth[1], Christina Dobson[1], Linda Sharp[1], Colin Rees[1], Willie Hamilton[2], Caroline Addison[3]

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Background: Faecal Immunochemical Testing (FIT) is now a core step in the referral and investigation of patients presenting with symptoms of possible colorectal cancer (CRC). Patients with a positive FIT result (concentrations ≥10µg Hb/g) qualify for an urgent suspected cancer referral ("two week wait") for definitive investigation, with the aim of prioritising resources to those at greatest risk, and diagnosing cancers early.

Non-return could have a notable effect on time to diagnosis, however, at the moment, there is very little evidence as to which patient groups are less likely to return symptomatic FIT. Identifying who is less likely to return is vital to understanding barriers and developing tailored interventions.

Aims: To describe patterns of symptomatic FIT return and ascertain which patient groups are less likely to return tests.

Methods: Pseudo-anonymised data for symptomatic FIT requests made between 01/01/2023 and 31/12/2023 were routinely collected at the pathology hub serving the Northeast of England. For analysis, eligible patients were those aged 18 or over, with a symptomatic FIT request from primary care, and both sex and postcode sector reported. After ineligible patients were removed, the dataset comprised 125,729 patients.

Index of Multiple Deprivation (IMD) quintiles, ethnicity tertiles and rural-urban categories were assigned using postcode sector. Chi-square tests were conducted to examine associations between fixed characteristics and FIT kit return status.

A logistic regression was carried out to assess the effect of age, sex, IMD quintiles, urban-rural category, and ethnicity tertiles on the likelihood of not returning the FIT kit. Sensitivity analyses excluded those aged under 50. Final models had adequate fit.

Results: 117,083 patients (93%) returned their FIT kit. Those under 50, males, those in the most deprived areas, those in urban areas, and patients in the most ethnically diverse areas had significantly higher rate of non-return.

The overall model (which was statistically significant) included five characteristic variables: age, sex, IMD quintiles, urban-rural category, and ethnicity tertiles. Sensitivity analysis revealed similar patterns.

Implications: Inequalities that persist across the cancer pathway appear to be evident in the context of symptomatic FIT. Further work is needed to understand barriers to symptomatic FIT completion for those currently less likely to return. By firstly identifying and understanding barriers to completion attempts to improve symptomatic FIT completion are more likely to be effective and improve CRC diagnostic pathways and outcomes.

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High primary care reported health condition rates among adolescent and young adult (AYA) cancer survivors up to 22 years after diagnosis in the Netherlands

Presenters: Daan Van der Meer[1,2], Olga Husson[1,3,4], Isabelle Bos[5], Winette van der Graaf[1,2], Marianne Heins[5]

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Background: Cancer and its treatment have a significant impact on adolescents and young adults (AYAs) causing premature morbidity and late mortality. Nevertheless, (epidemiological) knowledge on survivorship-related issues in AYAs is limited. Long-term longitudinal primary care data may prove valuable in addressing this important knowledge gap.

Aims: To investigate the number and types of long-term and late primary care-reported health conditions among AYA cancer survivors aged 18-39 years, compared to controls without a malignancy.

Methods: Data on sociodemographic, tumour and treatment characteristics of AYAs diagnosed with a malignant tumour in the Netherlands between 1999-2020 were retrieved from the population-based the Netherlands Cancer Registry (NCR).

Available data on their general practitioner (GP) consultations and health conditions up to 20 years after diagnosis were retrieved from Nivel Primary Care Database (Nivel-PCD). Using negative binomial regression analysis, consultation rates in AYA cancer survivors were compared to controls matched by sex, age, follow-up duration and general practice, up to 22 years post-diagnosis.

Results: A total of 3,347 AYA cancer survivors were matched to 10,041 controls (1:3 ratio). Overall, AYA cancer survivors were 1.3-times more likely to consult their GP for any health condition, as compared with controls. Male survivors were 1.4-times more likely, whereas this was 1.2-times for females. For 9 out of 18 ICPC chapters, AYA cancer survivors more often consulted their GP than controls. Additional risk ranged from 1.1-times for musculoskeletal and eye conditions to 13.6-times for malignancy-related conditions.

Implications: This study shows that up to 22 years after diagnosis, AYA cancer survivors have increased GP consultation rates, indicating higher health care needs. As AYA cancer is rare, most GPs will have limited experience with the care for this distinct patient group. Structured care for AYAs, including guidelines, surveillance strategies for high-risk groups and interventions when needed is warranted.

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Patient Experiences of GP Communication, Safety-netting and Risk in the Case of All-Clear Cancer Results

Presenters: Chloe Phillips, Anna Dowrick, Claire Friedemann Smith, Brian Nicholson

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Background: The NHS aims to have 75% of all cancers diagnosed at stage 1 and 2 by 2028. A key policy priority for earlier detection is identifying cancer in people with non-specific symptoms. Non-specific symptom (NSS) pathways are innovative approaches to cancer detection that have now been widely implemented. 7% of patients are diagnosed with cancer, leaving 93% with an all-clear.

Renzi et al highlighted how all-clear diagnoses can unintendedly lead to over-reassurance or reluctance to seek help if troubling symptoms continue. While there is established literature exploring how cancer screening impacts perception of risk, there is limited work on how NSS pathways influence understanding of risk. In particular, there is limited understanding about the role of GPs in communicating risk before referral and post all-clear result

Aims: Our aim was to explore patient experiences of all-clear results, focusing on their perceptions of the role of primary care in the NSS pathway.

Methods: This was a qualitative interview study of 18 patients who received an all-clear diagnosis from the Oxford NSS pathway (the SCAN pathway). This pathway offers patients with vague symptoms the opportunity to have multiple, non-invasive tests to assess the likelihood of cancer. Using thematic analysis, I analysed discussion of the way GP communication and an 'all-clear' cancer result impacted their understanding of cancer risk. Patients were recruited directly from the SCAN pathway; we ensured our sample was representative across patient demographics. A PPI Panel inputted into the design of the research and interpretation of findings of this study.

Results: There were three major findings from this study that offer insight into the role of the GP in NSS pathways. These are: GPs play a crucial role in managing expectations of risk; after an all-clear diagnosis the patients rarely recall safety-netting advice from the pathways and GPs; and there is a trade-off between reassurance that investigations are 'ruling out cancer' and being serious about potential risk, even if the risk is low.

Implications: How GPs present information about risk to patients can change the trajectory of an all-clear diagnostic experience. Safety netting patients who return to primary care following NSS pathways is important, as GPs are best placed to understand when further investigation may be required. A policy priority is to improve GP communication, ensuring that patients are informed and prepared for diagnostic pathways even when their cancer risk is low.

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Impact of the COVID-19 pandemic on admission rates for, and management of lung and bowel cancer in Wales

Presenters: Martina Slapkova[1], Shane Johnson[1], Rosie Hinchliffe[1], Mark Lawler[2], Dyfed Huws[3], Stephanie Smits[3]

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Background: The COVID-19 pandemic led to a rapid reorganisation of health services to deal with the influx of COVID-19 patients, resulting in changes in access to primary care and referral pathways, reductions in diagnostic activity, and pausing of screening programmes. This could negatively affect patient outcomes resulting in late-stage diagnoses.

Aims: To quantify changes to cancer pathways and clinical practice in Wales in the first two years of the COVID-19 pandemic to understand the impact on lung and bowel cancer. Specifically, focusing on the number of primary care consultations for cancer-specific symptoms, urgent suspected cancer referrals, and diagnostic waiting times.

Methods: Patient-level data were accessed via the Secure Anonymised Information Linkage (SAIL) Databank, specifically the Welsh Longitudinal General Practice Dataset (WLGP) data, and the Cancer Network Information System (CNIS) data.

StatsWales was used to extract data on Cancer Waiting Times for lower gastrointestinal cancer and lung cancer, and on Diagnostic Waiting Times for colonoscopy, bronchoscopy and non-cardiac nuclear medicine.

Data were for January-2019 to March-2022.

Results: From April-2020 to March-2021, there was a 54.8% decrease in the number of lung cancer-related symptoms reported to GPs and a 27.6% decrease from April-2021 to March-2022 (compared to April-2019 to March-2020). For people subsequently diagnosed with lung cancer, the decrease in symptom-reporting was 54.9% and 60.6%, respectively.

Reporting of bowel cancer-specific symptoms decreased by 22.1% in 2020/21 and by 7.5% in 2021/22, and by 11.6% and 15.0% for people subsequently diagnosed with bowel cancer, respectively.

The number of people on the Single Cancer Pathway (SCP) starting treatment within target dropped from 91.9% in 2019/20 to 82.7% in 2020/21 and to 67.9% in 2021/22 for lung cancer and from 85.1% to 65.3% and 45.5%, respectively, for bowel cancer.

The proportion of people waiting 8+ weeks for a non-cardiac x-ray increased from 3.9% to 34.9% in 2020/21 then to 19.5% in 2021/22, with a similar pattern observed for bronchoscopy. For colonoscopies, this increase was more dramatic, from 23.6% to 59.9% in 2020/21 and to 60.1% in 2021/22.

Implications: Wales saw a marked decrease in lung and bowel cancer patients presenting with cancer and starting treatment within target, and an increase in diagnostic waiting times in the two years since the COVID-19 pandemic. This analysis highlights the impact the pandemic had on Welsh cancer services, underlining the need for better system resilience to deal with future adverse public health events, including strategies for acute and long-term impacts.

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Assessing medication adherence through primary care prescribing vs pharmacy encashment data: Experiences from the SWEET feasibility study

Presenters: Guy Taylor[1], Eila Watson[2], Ruth Norris[1], Sue Thompson[1], Linda Sharp[1]

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Background: : Interest in use of prescription data for research is growing. NHS England's (NHSE) published guidance comments on the ease and utility of its data, but it is not clear whether this accords with experiences in the research community.

Aims: Within the SWEET study on adherence to endocrine therapy in breast cancer, we explored feasibility of accessing (i) pharmacy encashment data and (ii) primary care prescription data and compared measures of medication adherence from these sources.

Methods: Fifty-six women with breast cancer from 5 clinical sites in England were recruited. NHSE encashment (Primary Care Prescription Database (PCPD)) and GP prescription data were requested. Medication Possession Ratio (MPR) and Proportion of Days Covered (PDC) were calculated using the AdhereR R package. Differences were assessed by paired t-test, individual coefficient of variation and Bland-Altman plots.

Results: Pharmacy encashment data was obtained for all women from PCPD 16 months after Data Access Request Service (DARS) form initiation and 10 months after submission, after pivoting to access through NHS DigiTrials, costing ~£23,000. Initially, two women's records could not be matched due to discrepancies in date of birth, but this was resolved after clarifying with sites. Encashment date is reported monthly, with no specific date of when the prescription was dispensed/collected.

For GP prescribing data, practices were provided with pre-written searches to run on EMIS and SystmOne. Over 9-months, we obtained prescribing data for 47 participants (84%). The process was labour intensive, with multiple challenges experienced. Clinical Research Network (CRN) support and processes varied by network, and permissions regarding data sharing varied. To incentivise GPs, we paid £90 per patient (costs £4230). This does not include costs for colleagues writing search codes, CRN staff supporting GP practices, or the study team engaging with practices.

For the 47 women with both prescribing and encashment data, overall mean±SD MPR (PCPD:109±20%, GP:107±22%, p=0.124) and PDC (PCPD:92±12%, GP:93±13%, p=0.231) were similar. When comparing patients' scores, 7 women had coefficient of variation >15%. The GP prescribing dataset appeared to have a small amount of missing data.

Implications: For small studies within England, primary care prescription data could be a viable and less costly option. However, researchers should be aware of the resource intensive process. We suggest early contact with CRNs and search developers. For PCPD encashment data, researchers should be aware of the slow process. We suggest early engagement with DARS to iterate applications.

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CRISP-C – Making a Colorectal Cancer Risk Prediction (CRISP) Tool available to the public: What needs to be done to make it usable?

Presenters: Madeline Luke[1], Jennifer McIntosh[1], Sibel Saya[1], Sandra Sursock[1], Adrian Bickerstaffe[1], Alfie Punnoose[1], Finlay Macrae[2], Jon Emery[1]

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Background: Many Australians are not completing the correct bowel cancer screening for their risk. The CRISP tool is a web-based tool that calculates an individual's risk of developing bowel cancer using lifestyle factors and cancer family history and provides an associated report with screening recommendations. To ensure maximum reach and impact, the CRISP tool could be made publicly available. Previous research has indicated that changes to the tool are required to increase its accessibility and usability.

Aims: This qualitative project aimed to explore perspectives on the usability and acceptability of the CRISP tool as a public-facing tool in individuals aged 50-74 years.

Methods: Semi-structured interviews were conducted on Zoom with participants aged 50-74. Recordings were transcribed; deductive content and thematic analysis were conducted.

Results: Nine participants (5 females, 4 males, mean (SD) age: 67 (±5) years) were interviewed. Deductive content analysis identified specific changes to the CRISP tool and reports, including rewording of the questions about diet for clarity, clear ways to indicate how to get more information about specific questions, and restructuring of some of the risk presentations in the reports.

Thematic analysis revealed that participants had an overall positive response to the tool and reports. However, emotional reactions to them varied widely, with some participants finding the reports scary and others thinking they might convey a false sense of reassurance or complacency.

The positive influence of the reports and other factors on completing bowel cancer screening was also explored, with participants saying that receiving the report would encourage them to do the screening recommended.

Implications: These findings will inform changes to the CRISP tool prior to broader acceptability and feasibility testing in a larger cohort to assist in the implementation of CRISP as the first publicly available online bowel cancer risk prediction tool in Australia.

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The Cost-effectiveness of An Earlier Starting Age of Colorectal Cancer Screening: a cohort study in Hong Kong

Presenters: Junjie Huang, Claire Chenwen Zhong, Martin Wong

The Chinese University of Hong Kong, Shatin, Hong Kong

Background: Hong Kong is experiencing a rising incidence of early-onset colorectal cancer (CRC). However, the existing CRC screening program fails to prioritize the prevention of early-onset cases in individuals under 50.

Aims: This study provides a comprehensive evaluation of different colorectal cancer screening strategies in an Asian population.

Methods: This simulation study involved 100,000 individuals in Hong Kong, beginning screening at ages 40, 45, and 50, and continuing up to age 75. Colonoscopy and the fecal immunochemical test (FIT) were the two primary screening techniques.

The effectiveness of different strategies was assessed from two parameters: life-years gained and cost-effectiveness measured using the incremental cost-effectiveness ratio (ICER).

Results: The life-years gained for FIT screening at age 45, with compliance rates of 70%, 80%, and 90%, were 2,135, 2,296, and 2,438, respectively, while for colonoscopy at the same age, they were 2,725, 2,798, and 2,855. The difference in life-years gained between two techniques diminished as the compliance rate increased.

On the other hand, the ICERs for initiating FIT screening at ages 50, 45, and 40 were USD 53,262, USD 67,892, and USD 86,554, respectively, while for colonoscopy at the same age, they were USD 267,669, USD 312,848, and USD 372,090. For the same starting age, the FIT strategy was more cost-effective and gained similar number of life-years under high compliance rate compared to colonoscopy.

Implications: This study finds FIT screening strategy at age 45 in Hong Kong to be cost-effective, with considerable cost savings and similar number of lives saved compared to screening at age 50. Our findings suggest that implementing FIT as the primary CRC screening method in Hong Kong is feasible and economically viable.

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Prediction Models and Risk Scoring System for Survival in Breast Cancer Patients with Type II Diabetes: A Machine Learning and Retrospective Cohort Study

Presenters: Claire Chenwen Zhong, Martin CS Wong, Junjie Huang

The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background: Breast cancer patients with type II diabetes mellitus (T2DM) face unique challenges that may impact their survival outcomes.

Aims: This study aims to employ machine learning methods to develop predictive models and establish a risk scoring system to identify risk factors associated with survival in breast cancer patients with T2DM and estimate their survival probabilities.

Methods: Data were collected from the Hong Kong Hospital Authority Data Collaboration Laboratory. Five machine learning algorithms were utilized to develop predictive models for survival: Cox proportional hazards regression, survival tree, LASSO Cox regression, boosting, and random survival forest (RSF).

Model performance was evaluated using time-dependent area under the curve (AUC) and concordance index (C-index). Key risk factors were identified through Shapley Additive Explanations analysis based on the top-performing model, while the AutoScore-Survival package facilitated the development of a risk scoring system.

Results: This retrospective cohort study included 8,255 breast cancer patients with T2DM. The average survival time was 97.83 months, with 99.21% of participants being female and 16.00% deceased. The RSF model demonstrated the strongest predictive performance, achieving an AUC of 0.840 and a C-index of 0.79.

A risk scoring system was created based on several criteria: age at diagnosis (0 points for under 50 years, 12 for ages 50-60, 21 for 60-70, and 40 for 70 and older), duration of T2DM (0 points for less than 1 year, 20 for 1-5 years, and 24 for 5 years or more), HDL-C levels (3 points for less than 1 mmol/L and 0 for 1 mmol/L or more), LDL-C levels (0 points for less than 3.4 mmol/L and 8 for 3.4 mmol/L or more), and creatinine levels (18 points for less than 47 μmol/L, 1 for 47-56, 0 for 56-81, 5 for 81-115, and 10 for 115 μmol/L or more). This scoring system classified 48.6% of patients as high-risk, with scores exceeding 65 correlating with a 5-year survival probability of 27.7%.

Implications: These findings underscore the importance of the risk scoring system and highlight the roles of HDL-C, LDL-C, and creatinine levels as significant factors in identifying high-risk breast cancer patients with T2DM.

By incorporating these biomarkers into clinical assessments, healthcare providers can better tailor interventions to improve survival outcomes. Future research should focus on validating the risk scoring system across diverse populations and exploring targeted therapies for patients identified as high-risk.

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A Risk Scoring System for Predicting Advanced Colorectal Neoplasia in Diabetic Patients: A derivation and validation study

Presenters: Martin Wong, Claire Chenwen Zhong, Junjie Huang

The Chinese University of Hong Kong, ShaTin, Hong Kong

Background: Colorectal cancer (CRC) ranks as the third most common cancer worldwide.

Aims: This study aims to guide colonoscopy evaluation among diabetic patients by devising and validating a clinical scoring system for risk prediction of advanced colorectal neoplasia (ACN).

Methods: This study retrieved data on 55 964 diabetic patients who received colonoscopies from a large Chinese database. We used random sampling to recruit a derivation cohort, with the rest included in the validation cohort.

Univariate analysis and binary logistic regression were used to evaluate the risk factors of CRC, determining whether these risk factors were related to ACN, defined as advanced adenoma, CRC, or any combination.

A risk score that ranges from 0 to 6: 0–4 "average risk" (AR) and 5–6 "high risk" (HR) was created using the adjusted odds ratios (aORs) for independent risk factors.

Results: Derivation and validation cohorts has the same (2.0%) prevalence of ACN. Our risk scoring system classified 78.5% and 21.5% of patients in the validation cohort as AR and HR, respectively.

The prevalence of ACN in the HR group (4.1%) was 2.78-fold higher than that in the AR group (1.5%).

The constructed risk score demonstrated a good discriminatory capability to stratify high□risk individuals who should consider colonoscopy with a concordance (c-) statistics of 0.70.

Implications: This study constructed a clinical risk scoring system based on age, gender, smoking, presence of hypertension, and use of aspirin, which has good ability to predict the risk of ACN among diabetic patients.

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The Burden of Disease, Risk Factors, and Trends in Breast Cancer in Low- and Middle-Income Countries: A Global Analysis

Presenters: Claire Chenwen Zhong, Junjie Huang, Martin CS Wong

The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background: Breast cancer poses significant health risks to women and places substantial strain on healthcare systems, particularly in low- and middle-income countries (LMICs). In these regions, limited resources and inadequate healthcare infrastructures exacerbate the challenges related to breast cancer prevention, treatment, and awareness.

Aims: This study examined the prevalence, risk factors, and trends of breast cancer in LMICs.

Methods: We extracted data on disability-adjusted life years (DALYs) and breast cancer risk factors from the Global Burden of Disease (GBD) databases, covering 203 countries or territories from 1990 to 2019. We employed joinpoint regression analysis to assess DALY rates in LMICs.

Results: Among different income groups, the lower middle-income category exhibited the highest DALYs, with a rate of 1787 years lost per 100,000 people. Collectively, LMICs accounted for 74% of the global burden of DALYs lost due to breast cancer in 2019. Notably, the DALY rates in lower middle-income countries (LMCs) remained relatively stable.

In LMCs, the risk associated with metabolic syndromes was found to be higher than that associated with behavioral factors alone. Over the past three decades, breast cancer incidence rates have significantly increased in LMCs (average annual percent change [AAPC]: 1.212, confidence intervals [CI]: 1.51–1.87, $p < 0.001$), upper middle-income countries (AAPC: 1.701, CI: 1.12–1.48, $p < 0.001$), and low-income countries (AAPC: 1.002, CI: 1.57–1.68, $p < 0.001$).

Implications: This study underscores how breast cancer in LMICs is exacerbated by insufficient resources and inadequate healthcare infrastructure. To effectively combat breast cancer in these regions, future strategies must prioritize enhancements in healthcare infrastructure, awareness campaigns, and early detection mechanisms.

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Machine Learning for Long-Term Survival Prediction in Lung Cancer Patients with Type 2 Diabetes: A 20-year cohort study

Presenters: Junjie Huang, Claire Chenwen Zhong, Martin Wong

The Chinese University of Hong Kong, Sha Tin, Hong Kong

Background: Lung cancer and type 2 diabetes mellitus (T2DM) are two prevalent chronic diseases. The presence of one disease can significantly complicate treatment and survival outcomes of the other.

Aims: This study aims to identify significant risk factors and develop predictive models to improve the current understanding of survival among lung cancer patients with T2DM.

Methods: We retrospectively analyzed lung cancer patients with T2DM using data from the Hong Kong Hospital Authority Data Collaboration Laboratory, covering the period from 2000 to 2020. We employed five survival analysis algorithms: Cox proportional hazards regression, boosting, LASSO Cox regression, random survival forest (RSF), and survival tree.

Time-dependent area under the curve (AUC) and concordance index (C-index) were used to evaluate the model performance. The best-performing model was analyzed by SHAP (Shapley Additive Explanations) to identify critical risk factors.

Results: The study contained 5,491 lung cancer patients with T2DM. Their average diagnosis age and mean survival time were 72.59 years and 30.16 months, respectively. Poor prognosis was associated with smoking behavior (aHR=1.41, 95% CI [1.29, 1.54], p<0.001), older age at diagnosis (adjusted hazard ratio [aHR]=1.06, 95% CI [1.05, 1.06], p<0.001), and longer duration of T2DM (aHR=1.05, 95% CI [1.04, 1.06], p<0.001).

Improved prognosis was associated with the use of anti-diabetic medications (aHR=0.85, 95% CI [0.79, 0.91], p<0.001) and anti-lipid (aHR=0.84, 95% CI [0.77, 0.93], p<0.001). The RSF model achieved highest AUC (0.883) and C-index (0.78).

The top five influential factors were age at diagnosis (410.65), duration of T2DM (188.52), smoking status (152.98), sex (75.37), and LDL cholesterol levels (70.62).

Implications: Our findings find a complex relationship between T2DM and lung cancer prognosis which need more tailored treatment strategies. This study suggests that lung cancer patients with T2DM may achieve better survival outcomes by addressing modifiable risk factors, such as smoking and medication adherence.

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The cost-effectiveness of Artificial Intelligence-assisted Colonoscopy as a primary or secondary screening test in population-based colorectal cancer screening programme: a Markov modelling study

Presenters: Martin Wong, Claire Chenwen Zhong, Junjie Huang

The Chinese University of Hong Kong, Sha Tin, Hong Kong

Background: Colorectal cancer is one of the most common cancer worldwide. With advancements of artificial Intelligence, a variety of screening strategies available.

Aims: The study wants to evaluate the cost-effectiveness of incorporating AI colonoscopy into CRC screening programs by analyzing its potential benefits and economic implications.

Methods: Our study evaluated different population-based colorectal cancer (CRC) screening strategies, including Artificial Intelligence (AI)-aided colonoscopy, by comparing their incremental cost-effectiveness ratios (ICERs) and key outcome measures such as loss of cancer-related life-years, prevention of CRC cases, life-years saved, and total cost per life-year gained.

Relevant cost and performance estimates were calculated using data from international literature and the government gazette.

Results: We compared the incremental cost-effectiveness ratio (ICER) of [FIT + colonoscopy] (US$138,539), [FIT + AI colonoscopy] (US$122,539), colonoscopy (US$203,929), and AI colonoscopy (US$180,444). The [FIT + AI colonoscopy] strategy has significantly smaller total loss of cancer-related life-years (5,355 vs. 5,327), higher number and proportion of CRC cases prevented (120 vs. 132, 3.7% vs. 4.1%), more life-years saved (280 vs. 308), and lower total cost per life-year saved (US$944,008 vs. US$854,367) compared to [FIT + colonoscopy].

[FIT + AI colonoscopy] outperformed all other strategies (-US36,462 vs. FIT + colonoscopy), with the lowest ICER [US$122,539]. AI colonoscopy dominated conventional colonoscopy (ICER -39,040) after the adoption of colonoscopy as the primary screening test.

Implications: Our study finds a strategy of using AI colonoscopy after Faecal immunochemical tests (FIT) as the most cost-effective in population-based CRC screening programmes.

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Epidemiological Updates on Ureteral Cancer: a regional, temporal, risk factor analysis of cancer registries

Presenters: Junjie Huang, Claire Chenwen Zhong, Martin Wong

The Chinese University of Hong Kong, Sha Tin, Hong Kong

Background: Ureteral cancer is a rare cancer that has received inadequate attention.

Aims: This study aimed to comprehensively analyze the global trends, risk factors, and temporal trend of ureteral cancer, providing up-to-date information.

Methods: Incidence data was retrieved from the Cancer Incidence in Five Continents Plus and Global Cancer Observatory databases.

First, we evaluated the global incidence of ureteral cancer by region, country, sex, and age group by age-standardized rates. Then, univariable linear regression with logarithm transformation was applied to determine associated risk factors.

Lastly, we measured the incidence trend of ureteral cancer by sex and age group in different countries by Average Annual Percentage Change (AAPC).

Results: In 2022, the global age-standardized rate of ureteral cancer incidence was 22.3 per 10,000,000 people.

A higher incidence was notice in regions with higher human development index (HDI), such as Europe, Northern America, and East Asia. Risk factors associated with higher incidence of ureteral cancer included higher HDI and gross domestic product (GDP) and a higher prevalence of smoking, alcohol drinking, physical inactivity, unhealthy dietary, obesity, hypertension, diabetes, and lipid disorder.

We found an overall increasing trend of ureteral cancer incidence for the past decade, especially among the female population.

Implications: We found a rising trend of ureteral cancer over the world. It was more evident among females compared with the other subgroups, especially in European countries. These epidemiological changes and risk factors identified require further studies to confirm and examine the reasons behind.

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The Global Burden of Pancreatic Cancer: An Analysis of Incidence, Mortality, and Risk Factors Across Income Levels (1990–2021)

Presenters: Claire Chenwen Zhong, Junjie Huang, Martin CS Wong

The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background: Pancreatic cancer represents a significant public health concern on a global scale. It ranks among the most lethal cancers, characterized by dismal 5-year survival rates that range from 2% to 9%.

Aims: This study aims to examine the burden of pancreatic cancer and its associated risk factors across varying income levels.

Methods: Data from the Global Burden of Disease Study (GBD) 2021, along with Gross Domestic Product (GDP) per capita figures, were utilized in this analysis. Countries were classified into four income categories. The primary parameters for assessing the burden of pancreatic cancer included age-standardized incidence, mortality, and disability-adjusted life years (DALYs). Linear regression models were employed to analyze the associations between the burden of pancreatic cancer and the economic levels of the countries.

Results: The results indicate that high-income countries generally experience a greater burden of pancreatic cancer compared to other income levels in 2021. Greenland reported the highest age-standardized DALYs at 374.93 per 100,000, followed by Uruguay (297.06) and Monaco (290.87).

A significant positive correlation was found between higher GDP per capita and increased age-standardized incidence (ß = 0.77, 95% CI = 0.63-0.90, $p < 0.001$), mortality (ß = 0.72, 95% CI = 0.59-0.86, $p < 0.001$), and DALYs (ß = 14.59, 95% CI = 11.38-17.80, $p < 0.001$). From 1990 to 2021, the burden of pancreatic cancer increased across all income levels, with the most pronounced rise observed in lower-middle-income countries. While age-standardized DALYs related to smoking have declined since 1990, there has been a notable increase among males in upper-middle-income countries during the same timeframe.

Implications: In conclusion, the burden of pancreatic cancer has been increasing globally, with significant variation among countries based on income levels. There is an urgent need for effective prevention strategies to address the rising burden of pancreatic cancer.

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Changes in healthcare seeking with gynaecological cancer symptoms – results from two Danish population-based studies

Presenters: Sofie Amalie Seldorf[1], Lisa Maria Sele Sætre[1], Rikke Sand Andersen[1], Lone Kjeld Petersen[2], Dorte Ejg Jarbøl[1], Kirubakaran Balasubramaniam[1]

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Background: Gynaecological cancers affect women in all ages. The prognosis of a gynaecological cancer depends on timely diagnosis which mainly relies on women's help-seeking when experiencing symptoms. The interpretation of a symptom and subsequent healthcare seeking is influenced by several factors. Through the last decade there has been an increased focus on timely diagnosis of cancer and several campaigns have been launched to increase awareness on cancer symptoms. Furthermore, the focus and attention to bodily sensations and symptoms in society seems to have increased. Consequently, it is hypothesized that healthcare seeking with gynaecological cancer symptoms have changed over time.

Aims: XThis study aims to investigate whether the prevalence of gynaecological cancer symptoms and subsequent healthcare seeking have changed over a 10-year period.

Methods: The study is a part of The Danish Symptom Cohort (DaSC) consisting of two population-based national surveys carried out in 2012 and 2022. In each survey 100,000 randomly selected Danish citizens =20 years old were invited to participate in a questionnaire study on symptom experiences and contacts to general practice. The current study is based on 13 predefined symptoms that may be indicative of one of the gynaecological cancers: cervical, endometrial and ovarian cancer. Descriptive statistics and multivariable regression models were applied.

Results: : In total 25,818 and 16,010 women above 20 years participated in 2012 and 2022, respectively. The most frequently reported symptoms in 2012 and 2022 were backpain (33.2% / 36.0%), changed bowel habits (31.1% / 31.7%) and bloating (35.2% / 33.8%).

Healthcare seeking with the symptoms increased significantly for most symptoms from 2012 to 2022. The symptoms with highest proportion of GP contact were postmenopausal bleeding (32.1% / 41.4%), backpain (34.5% / 39.5%) and bleeding during intercourse (30.6% / 35.0%). Healthcare seeking did not exceed 42% for any of the symptoms. Overall, higher age was associated with an increased odds of healthcare seeking for all symptoms with the exception of pain during intercourse in 2012 and bleeding during intercourse in 2022.

Implications: Results from the two DaSC studies give a unique opportunity to compare the symptom prevalence and healthcare-seeking behaviour within 10 years. One way to improve cancer outcome for gynaecological cancers is reducing time from symptom appearance to presentation in general practice. Understanding the pattern of healthcare seeking, including changes over time, is important to target future interventions pointing to individuals in risk of omitting relevant healthcare seeking when experiencing symptoms.

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Improving early diagnosis of pancreatic cancer in primary care: Insights from multi-site learning event analysis in Lancashire and South Cumbria

Presenters: Nicola Cooper-Moss[1], Angela Dunne[2], Neil Smith[2]

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Background: Pancreatic cancer is one of the most challenging cancers to treat, with a five-year survival rate below 5% and many cases identified only at advanced stages. Early diagnosis can significantly improve patient outcomes by increasing curative treatment chances and allowing timely symptom management, reducing emergency diagnoses. In Lancashire and South Cumbria, pancreatic cancer early diagnosis rates are below the UK national average. The Learning Event Analysis (LEA) approach, a quality improvement tool originally known as Significant Event Analysis, is widely used in primary care to examine critical cases, identify gaps, and suggest improvements in care.

Aims: This project, funded by the Lancashire and South Cumbria Cancer Alliance, aims to enhance the diagnostic pathway for pancreatic cancer by identifying common barriers to timely diagnosis and sharing insights across Primary Care Networks (PCNs). The goal is to reduce diagnostic delays, allowing for earlier intervention to improve survival and quality of care.

Methods: Each of the 196 practices in Lancashire and South Cumbria have been asked to complete at least one LEA on Pancreatic cancer, as part of a local incentivised quality improvement scheme. Each practice has been asked to complete a detailed electronic case review form, capturing demographics, clinical presentation, appointment intervals, investigations, and referral timelines. Findings from each LEA will be discussed in multidisciplinary practice meetings and later shared in PCN meetings for peer review. The collective insights will be documented and thematically analysed using NVIVO software.

Results: Data collection and analysis are ongoing, and results will be ready for presentation at the conference.

These results are anticipated to reveal common diagnostic barriers, recurrent symptoms that could prompt earlier suspicion, and system-level factors influencing referral decisions. The findings will inform recommendations for practice adjustments and highlight areas where guidelines may need reinforcing or additional support.

Implications: Insights from this study will guide local initiatives and resource allocation, as well as informing national conversations on improving diagnostic pathways for pancreatic cancer, with potential implications for training and support in primary care networks. Additionally, this project underscores the importance of reflective practice in primary care, promoting the use of LEA as a tool for continuous improvement and early cancer detection.

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Expanding Lung Cancer Screening to Older Adults in Greater Manchester: The Lung Health Check-Plus Study

Presenters: Nicola Cooper-Moss[1], Muzrif Munas[1], Samuel Merriel[1], Haval Balata[2], Zoe Merchant[2], Cassandra Ng[2], Kath Hewitt[2], Caroline Sanders[1], Philip Crosbie[1]

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Background: Lung cancer is the leading cause of cancer mortality in the UK, and worldwide, frequently diagnosed at advanced stages. Expanding early detection strategies is crucial, especially as 40% of cases affect those aged 75 and older—a demographic currently outside the scope of the UK's Targeted Lung Health Check (TLHC) programme. Preliminary findings from a pilot programme in North Manchester suggest that screening people aged 75-80 with low-dose Computed Tomography (LDCT) can identify more early-stage cancers and achieve treatment outcomes comparable to younger populations. This innovation project is funded by the Greater Manchester Cancer Alliance, supporting efforts to assess the benefits of expanded screening criteria.

Aims: This project evaluates the feasibility, outcomes, and acceptability of extending the TLHC programme to individuals aged up to 80 within Greater Manchester. It specifically examines attitudes toward screening in older adults and aims to develop a "screening fitness" assessment to minimise potential screening-related harm.

Methods: The study is recruiting ever-smokers aged 75-80 identified as high-risk due to their smoking history for an extended Lung Health Check (LHC-plus). The LHC-plus integrates lung cancer risk assessment with other measures of "screening fitness", including frailty and comorbidity scoring.

A mixed-methods approach, co-designed with public involvement and incorporating surveys and follow-up interviews, is being used to capture data on attitudes, acceptance, and personal experiences of the LHC-plus. Recruitment and data collection are currently ongoing. Qualitative interview data will be analysed thematically.

Results: The project will invite 2000 adults aged 75-80 to an LHC-Plus appointment, with the aim of performing 1000 LHC-Plus assessments. It is predicted that a minimum of 500 people will go on to have an LDCT scan. Preliminary survey and interview findings will be presented at the conference, shedding light on screening attitudes, experiences, and perceived acceptability of lung cancer screening in older adults.

Implications: This study aims to provide data-driven support for national policy changes that would expand lung cancer screening to the 75-80 age group. Additionally, it seeks to inform the creation of a "screening fitness" tool to enhance personalised screening and informed decision-making for older adults, potentially lowering lung cancer mortality and screening related harms in this high-risk population.

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Using the Candidacy Framework to understand multilevel factors driving inequities in women with breast cancer: A cross-sectional analysis of the English National Cancer Care Experience Survey

Presenters: Mar Estupiñán Fernández de Mesa, Afrodita Marcu, Emma Ream, Katriina Whitaker

University of Surrey, Guildford, United Kingdom

Background: Despite innovations and advancements in cancer care, minoritised women continue to experience inequities in breast cancer care and outcomes. Understanding women's experience along the cancer care pathway, particularly their experience with primary care services, is essential to finding solutions to tackle breast cancer inequities.

Aims: Using the English National Cancer Patient Experience Survey (NCPES), we described and summarised patterns of inequities in care experience by sociodemographic factors; we identified and interpreted multilevel factors driving differences in breast cancer care experience; and we mapped findings across the cancer pathway.

Methods: Secondary data analysis of the 2017/2018 NCPES survey (n = 25,408) using logistic regression to explore inequities in cancer care experience by age, ethnicity, socioeconomic position, and sexual orientation across 59 survey questions. We used the Candidacy Framework to interpret and organise our findings.

Results: Compared to older (65–74) and White British women, young (35-44, OR = 0.55 [0.44, 0.69]), Asian (OR = 0.52 [0.41, 0.67]), Black (OR = 0.67 [0.46, 0.97]) and White Other (OR = 0.63 [0.49, 0.81]) women were more likely to rate their overall care experience less positively.

Doctors were identified as gatekeepers for referrals to secondary care (prolonged diagnosis intervals); e.g., Asian (ORadj, = 0.48 [0.30, 0.65]) and the least affluent females (ORadj, = 0.26 [0.15, 0.46]) more often reported they had to see their doctor three or more times before being referred to secondary care.

Our findings also suggest patterns of inequities along all domains of the cancer care pathway (e.g., patients' distrust of doctors and nurses; lack of tailored services).

Through a candidacy lens, we identified multilevel factors related to this variation in cancer care experience, including prolonged help-seeking behaviours (individual), poor patient-provider communication (interpersonal), and variation in access to healthcare professionals and resources (system level).

Implications: Multilevel factors intertwine to influence inequities in the experience of care along the breast cancer pathway for young women and women from minoritised groups. Interventions are necessary to ensure the cancer care system is responsive to women's health needs and provide equity of care to all patients.

Recommended interventions range from reviewing and tailoring policies and services to cater for the diverse population they serve; assessing doctors' gatekeeper roles, providing guidance to inform their professional judgement and improving referral systems to reduce prolonged diagnosis intervals; implementing targeted interventions to reduce prolonged help-seeking intervals; rebuilding trust with communities; and improving patient-healthcare professionals relationships.

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Scottish Referral Guidelines for Suspected Cancer update: Key themes and gaps from evidence review

Presenters: Charlotte Williamson, Jessica Lloyd, Anjali Behal, Emma Jobson, Remi Looi-Somoye, Lyndsy Ambler, samantha harrison

Cancer Research UK, London, United Kingdom

Background: For most cancer types the most common route to diagnosis is via a GP. Recognising cancer in primary care can be challenging, as there are relatively few effective tests and tools to support assessment, and most symptoms are not very predictive of cancer. Guidelines support healthcare professionals' decision-making, helping to ensure consistency to investigation of suspected cancer. It's important that guidelines reflect the latest evidence.

NHS Scotland committed to updating national cancer referral guidelines in the 3-year action plan, for the wider 10-year national cancer strategy. The update has been led by the Centre for Sustainable Delivery (CfSD). Cancer Research UK has supported this process in a variety of ways, including conducting evidence reviews to inform the guideline update. Several themes and evidence gaps were identified through this work, which could influence academic activity in this space.

Aims: To identify, critique and synthesise evidence around recognition and referral of suspected cancer in primary care, informing the guideline update and identifying evidence gaps.

Methods: Rapid evidence reviews were conducted between January–August 2024. Literature searches were performed using PubMed to identify primary care studies published from 2015 onwards. Studies published prior to this were considered for inclusion where relevant for explaining differences between the SRG and the National Institute for Health and Care Excellence (NICE) NG12 guidelines.

The review focused on studies relevant to UK health systems. In some cases, international studies were considered for inclusion, particularly where there was little evidence available from UK studies.

15 reviews were conducted covering different cancer types and pathways, non-specific symptoms, children teenage and young adult cancers. An additional review covering wider considerations such as risk thresholds and adherence to guidelines was also conducted.

Studies that reported prevalence or predictive value of individual symptoms and combinations, diagnostic accuracy of investigations accessed or completed in primary care, safety netting were included. Studies providing insight into risk of cancer e.g, linked to patient characteristics were also considered.

Results: Key themes across evidence reviews and identified evidence gaps will be summarised, highlighting priority areas for future research, including symptom combinations, the use of risk stratification and optimal safety netting practices.

Implications: Inform academic community about direction of travel in the primary care evidence base, and about the growing evidence base informing how guidelines are updated. Also, the identified evidence gaps will inform the research agenda, encouraging academics to consider gaps in this space.

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Acute leukaemia: the factors associated with an unplanned diagnostic pathway

Presenters: Line Virgilsen1, Peter Vedsted2,3, Henry Jensen4, Henrik Frederiksen5,6, Tarec Christoffer El-Galaly5,6,7,8,9, Anne Stidsholt Roug5, Linda Aagaard Rasmussen1

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Background: Acute leukaemia (AL) is a rare and aggressive haematological cancer with a 5-year relative survival e.g. for men with acute myeloid leukaemia of 31.5 % in Denmark. Many AL patients present with vague symptoms or reversely, in a state of profound illness and diagnosis in a curable state is challenging. For other cancer types, survival has been linked with the diagnostic pathway.

Aims: To present new evidence on the diagnostic pathway for patients with AL focusing on how diagnosis in an unplanned vs elective diagnostic pathway is linked with healthcare contacts before diagnosis, patient- and disease characteristics, and mortality.

Methods: We included1,554 patients diagnosed with AL in Denmark in 2014-2018. Patients were categorised with diagnosis in an unplanned pathway if registered with an acute healthcare contact within 30 days of diagnosis and no other diagnostic pathway. Elective pathways were defined as other pathways.

Healthcare contacts in general practice and hospitals were assessed as number and relative monthly contacts for patients compared to 1:10 matched references using negative binomial regression models.

The link between patient characteristics and unplanned pathway was studied using marginal means-methods and the link between unplanned presentation and survival using cox regression.

Results: In total, 51% were diagnosed through an unplanned pathway. Overall, there were no significant differences in healthcare contacts between patients in unplanned and elective pathways. Both groups had higher contact rates in hospitals two years before diagnosis than their matched references. Contacts to general practice increased between 3-16 months before diagnosis.

Socio-demographic characteristics did not differ for patients in unplanned and elective pathways. Patients with high comorbidity and poor performance status had a higher probability of diagnosis in an unplanned pathway.

Patients in unplanned pathways had lower overall survival than patients in elective pathways. When excluding patients who died within 3 months after diagnosis, the difference in mortality was eliminated.

Implications: The pathway to AL diagnosis did not vary across socio-demography or healthcare contacts prior diagnosis. The more comorbidity and severe disease stage, the higher probability of a diagnosis through an unplanned pathway. This could indicate that the main reason for an unplanned pathway is the aggressiveness of the AL disease.

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Supporting women with breast cancer with adherence to adjuvant endocrine therapy (SWEET): a feasibility study of the HT&Me intervention

Presenters: Eila Watson[1], Lucy McGeagh[1], Sarah-Jane Stewart[2], Ruth Norris[3], Linda Sharp[3]

[1]Oxford Brookes University, Oxford, United Kingdom. [2]University College London, London, United Kingdom. [3]Newcastle University, Newcastle, United Kingdom

Background: Adjuvant endocrine therapy (AET), taken daily for 5-10 years, is effective at reducing the risk of breast cancer recurrence, yet adherence is known to be sub-optimal. Determinants of adherence include medicine-related (eg side-effects), healthcare-related (eg relationship with health professionals) and patient-related (eg. AET beliefs and concerns) factors. Although usually started in hospital, repeat AET prescriptions are issued by primary care. Moreover, patients with early-stage disease are likely to be on patient-initiated follow-up, meaning many may consult primary care regarding any concerns about the treatment.

Aims: We assessed the feasibility and acceptability of delivering an evidence-based, theory-informed intervention (HT&Me) designed to support women with adherence to AET and improve health-related quality-of-life.

Methods: Women within 14 weeks of being prescribed AET following a primary invasive ER+ve breast cancer diagnosis, from 5 NHS hospital sites in England were enrolled in the single arm study. All received a personalised intervention comprising: 1) an animation video about AET; 2) two personalised AET consultations with a study nurse/practitioner (face-to-face in the treating hospital or remotely through the charity Breast Cancer Now); 3) access to an interactive web-app (including information, support and interactive tools to support adherence); and 4) motivational nudge messages. Participants completed a baseline questionnaire, and a follow-up questionnaire 8 weeks post-intervention. A sub-sample of participants and health care professionals (HCPs) from participating sites were interviewed to explore experiences of the intervention and study participation.

Results: 51 women received the intervention. Participants were diverse and included some (28%) who were not confident in using IT. Completion rates of study outcome measures were high. All found the intervention to be acceptable and perceived it to be useful. Both face to face and remote delivery of the consultations was acceptable and intervention delivery was feasible (mean fidelity score of 95% for the initial consultation and 99% for the follow-up consultation). HCPs delivering the intervention were positive about the study and felt it was addressing a significant need.

Implications: Findings informed minor adaptations to the intervention and the design of a large-scale randomised controlled trial now underway to evaluate clinical and cost-effectiveness of HT&Me. The intervention offers potential to improve patient outcomes by improving adherence and thus reducing risk of recurrence. There may also be potential for reducing burden in primary care by better meeting the needs of women on AET.

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Capsule Sponge: An Easy Pill To Swallow for Primary Care?

Presenters: Orla Carney, Helen Coleman, Helen Reid

Queens University Belfast, Belfast, United Kingdom

Background: Oesophageal cancer presents a growing and serious problem worldwide. Incidence is increasing with adenocarcinoma now the most common subtype in many developed countries including the UK and Ireland. Initial presentation is often at a late stage with non-specific symptoms. Subsequently, survival outcomes are amongst the poorest compared to other cancers. There is currently no screening program in place for oesophageal cancer. The novel capsule sponge technology offers an opportunity for early diagnosis through improved identification of Barrett's oesophagus. This easy to perform test has potential uses within primary care however with general practice currently under significant pressure, successful implementation of a new test would require the backing of GPs. To date, there has been no research into GP perspectives on this novel technology.

Aims: This qualitative study seeks to fill this research gap by exploring barriers and enablers for implementation from the viewpoint of GPs.

Methods: This qualitative study aims to understand GP decision making regarding management of patients presenting with upper gastrointestinal symptoms. Currently, semi-structured interviews are ongoing with 20 GP volunteers working in the UK and Republic of Ireland with representatives having varied levels of clinical experience.

The interviews have a particular focus on those presenting under the age of 55 and the concept of "GP gut feeling" when formulating management plans. Interviews discuss the concept of the capsule sponge as a tool to risk stratify patients in primary care and whether GPs feel this would be acceptable option in future practice. Patient representatives were involved in the development of the interview guide through discussions at a regional personal and public involvement (PPI) group.

Results: As the study is currently in the early stages of interviews, results are not yet available. The research team aims to complete interviews by February 2025 with the data being interpreted using thematic analysis in the style of Braun and Clarke.

Implications: The potential use of the capsule sponge to improve early diagnosis of oesophageal cancer in primary is an exciting development. However, it is essential that GP viewpoints are considered prior to implementation in order to achieve widespread adoption in primary care.

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Early detection of symptomatic cancer in primary care in Ireland: results from a research prioritisation exercise

Presenters: Emma Harty[1], Benjamin Jacob[1], Jack Adams[2], Sophie Dolan[1], Laura O'Connor[3], Barbara Clyne[1], Heather Burns[4], Richard D Neal[5], Patrick Redmond[1]

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Background: Cancer is a significant cause of morbidity, mortality, and economic loss. It is important that cancer research funding is directed in accordance with the values of a wide variety of stakeholders, to ultimately deliver tangible benefits to cancer patients.

Priority setting partnerships for early cancer detection have been conducted with success in the UK, but similar efforts have not previously been conducted in an Irish setting.

Aims: To achieve consensus regarding the shared research priorities of patients, members of the public, healthcare professionals and researchers in relation to early detection of symptomatic cancer in primary care in Ireland.

Methods: This prioritisation exercise adapted the James Lind Alliance (JLA) consensus framework, involving stakeholders in identifying and ranking research questions. The stages are as follows: (1) establishing a steering group and priority-setting partnership, (2) conducting an accelerator workshop with primary care providers to generate preliminary research questions, (3) launching an online survey to gather additional questions from broader stakeholders, (4) processing, categorising, and integrating questions from both the workshop and the survey, (5) identifying unanswered research questions, and (6) determining the top 10 research priorities through a consensus workshop with public and patient participants and other stakeholders.

Results: Stages 1 and 2 of the prioritisation exercise are complete, and preliminary research questions from the accelerator workshop have been identified, covering topics such as pathways for diagnostic support, AI-assisted risk stratification, and resources available to primary care providers in facilitating early cancer detection. The next stages include gathering additional questions via an online survey (Stage 3), categorising and integrating all questions (Stage 4), identifying unanswered questions (Stage 5), and finalising the top priorities through a consensus workshop in March 2024 (Stage 6).

Implications: The co-development of the "Top 10" consensus-driven research questions for early cancer detection will create a strong platform for both funders and researchers to address the issues that matter most to stakeholders, particularly patients and their doctors. By focusing on these shared priorities, the research efforts and resources can be better directed to support relevant and patient-centred improvements in early diagnosis and better health outcomes.

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A Hybrid Systematic Review of Barriers and Facilitators to Implementing Lung Cancer Screening in Community Settings

Presenters: Katie Pirie[1], Sam McGlynn[2], Benjamin Jacob[2], Sophie Bahadursingh[1], Zachariah McCart[1], Ahmeda Ali[2], Caoimhe Hughes[2], Frank Doyle[3], Kate Brain[4], Alice LeBonniec[5], Seamus Cotter[6], Grace McCutchan[7], Nicole Rankin[8], Patrick Redmond[2]

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Background: Lung cancer remains a leading cause of cancer mortality, with low-dose computed tomography (LDCT) screening shown to improve survival. Despite this, participation rates in screening programmes are low, particularly among underserved populations.

Aims: This review examines barriers and facilitators to implementing community-based lung cancer screening, using a behavioural and implementation science framework to guide strategies for enhancing uptake.

Methods: This hybrid systematic review was conducted in two phases. Phase one identified and screened existing systematic reviews on global LDCT-based lung cancer screening recruitment strategies. Phase two involved searching databases for individual studies not included in prior reviews. Studies were included if they focused on community-based recruitment for lung cancer screening, with barriers and facilitators as primary outcomes.

Two reviewers independently conducted screening, selection, bias assessment, and data extraction. Thematic synthesis was performed using the Consolidated Framework for Implementation Research (CFIR), with evidence strength evaluated using GRADE and CERQual. The review follows the Joanna Briggs Institute (JBI) Manual and PRISMA-P guidelines.

Results: From phase one, 3,310 articles were identified, with 2,638 screened and 548 included for analysis. Preliminary trends indicate key barriers, including socioeconomic challenges, lack of awareness, smoking-related stigma, and concerns about overdiagnosis. Facilitators include strong healthcare provider recommendations and shared decision-making processes.

Implications: The review provides comprehensive insights into factors influencing the implementation of lung cancer screening in community settings, serving as a guide to improve recruitment strategies and increase participation rates. The findings of this review have implications for researchers, healthcare practitioners, policymakers, and the public to support the effective implementation of lung cancer screening programmes.

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What would primary care practitioners do differently after a delayed cancer diagnosis? Learning lessons from their experiences

Presenters: Tuomas Koskela[1,2], Magdalena Esteva Cantó[3], Marcello Mangione[4], Senada Hajdarevic[5], Cecilia Högberg[5], Mercè Marzo-Castillejo[6], Vija Siliņa[7], Michael Harris[8,9], Davorina Petek[10]

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Background: Diagnosis of cancer is challenging in primary care due to the low incidence of cancer cases in primary care practice. A prolonged diagnostic interval may be due to doctor, patient or system factors, or may be due to the characteristics of the cancer itself.

Aims: The aim was to learn from Primary Care Physicians' (PCP) experiences of incidents when they had failed to think of, or act on, a cancer diagnosis.

Methods: This Örenäs Research Group study was a multicentre, qualitative, online survey eliciting PCP narrative responses to the question 'If you saw this patient with cancer presenting in the same way today, what would you do differently?' We used thematic analysis to analyse the data.

Results: We analysed data from 159 PCPs in 23 European countries.

PCPs identified several learning points following a failure to think of, or act on, a possible cancer diagnosis. These include the need to think more broadly in their clinical reasoning, to have a long-term, holistic and active approach, to use effective communication that ensures shared decision-making, to follow patients up, with continued to re-assessment of the patient's clinical condition.

PCPs emphasised the need to avoid narrower thinking when with younger patients, when the presentation was complex due to comorbidity, and when patients were frequent attenders.

Implications: Our findings have implications for PCP training and postgraduate education. PCPs should be encouraged not to rely on the simplest and most obvious explanation for a patient's symptoms, but also to think broadly about several differential diagnostic possibilities. To reduce the risk of errors, PCPs need to have realistic tools such as e-health databases and software to support them in their approach, and automated follow-up reminders for both PCPs and their patients.

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Clinical performance evaluation of a brain cancer liquid biopsy

Presenters: Abigail Lishman[1], James Cameron[1], Georgios Antoniou[1], Paul Brennan[2], Holly Butler[1], David Eustace[1], Asgeir Jakola[3], Michael Jenkinson[4], Senada Koljenovic[5], Alan Lazarus[1], Ryan Mathew[6], David Palmer[1,7], Alexandra Sala[1], Tobias Weiss[8], Matthew Baker[1]

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Background: Diagnostic delays impact the quality of life and survival of patients with brain cancer. Currently, clinicians must make referral decisions based on non-specific symptoms that vary by patient. Existing symptom-based referral guidelines inadequately stratify patients for imaging on suspicion of cancer, resulting in many patients making repeat appearances in primary care with worsening symptoms over time. Currently, referral pathways capture many patients with headache syndromes and very small numbers of brain tumours.

Aims: To introduce a simple, rapid liquid biopsy into the primary care setting to enable more efficient triage of patients with non-specific symptoms potentially related to brain cancer.

Methods: The Dxcover® Liquid Biopsy is a rapid multi-omic test that interrogates serum from a standard blood draw with infrared radiation, producing a distinctive signature of the entire biomolecular profile of the sample. EMBRACE is a prospective, observational, multicentre study, currently running across seven sites in the United Kingdom, Sweden, Switzerland, and Belgium.

The study duration is 24 months and will recruit a minimum of 2200 participants. The target population is comprised of patients presenting to primary care with non-specific symptoms associated with brain cancer, such as headache, weakness and confusion.

The primary objective is to determine the clinical performance of the liquid biopsy for patients with brain cancer in terms of diagnostic sensitivity and specificity. The test performance will be determined by comparing the liquid biopsy result to diagnostic imaging.

Results: In initial feasibility studies, we prospectively recruited 988 patients with non-specific symptoms associated with a brain tumour. The algorithm detected 96% of the patients with brain tumours, 100% of glioblastomas (GBM), and had an NPV of 99.3%. This very low likelihood of missing positive cases suggests potentially high value as a triage tool in the primary care setting. Publication of the results of the EMBRACE study is expected to take place after Q1 2025, after the data analysis has concluded.

Implications: This simple, non-invasive liquid biopsy would facilitate the triage of brain tumour patients for rapid imaging. Earlier and expeditious diagnoses should enable detection at earlier stages of disease, when tumours are smaller, which is crucial to reducing the associated morbidity and mortality, as well as the associated healthcare resource utilisation. Use of the triage tool should also reduce excess unwarranted referrals to imaging, as well as patient anxiety in these unwarranted referral scenarios.

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General practitioners' clinical decision-making in patients that could have cancer: a vignette study comparing the Baltic states with four Nordic countries

Presenters: Alexander Rosendahl1, Liina Pilv-Toom1, Jānis Blumfelds2, Vija Siliņa2, Mette Brekke3, Michael Harris4,5

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Background: Relative one-year cancer survival rates in the Baltic states are lower than the European mean; in the Nordic countries they are higher than the mean. As the two regions, although close geographically, have developed differently and their nations have different primary care systems, we hypothesised that the poorer cancer survival rates in the Baltic states may be due to a lower likelihood of immediate diagnostic action by their General Practitioners (GPs).

Aims: To investigate whether the primary care management of patients with a low but significant risk of cancer in a primary care setting differed between the Baltic states (Estonia, Latvia and Lithuania) and four Nordic countries (Denmark, Finland, Norway and Sweden).

Methods: The Örenäs Research Group surveyed a cross-section of GPs to identify the factors associated with national variations in cancer survival. GPs in these countries completed an on-line questionnaire with clinical vignettes that described patients presenting with specific symptoms that may be due to cancer, and were asked what action they would take.

The primary outcome was a between-region comparison of GPs' stated immediate actions, in terms of whether or not they would perform a key diagnostic test and/or refer to a specialist. We also examined how the management of these patients was affected by GP demographic factors.

Results: Of the 427 GPs that completed the questionnaire, those in the Baltic states, and GPs that were more experienced, were more likely to arrange a key diagnostic test and/or refer their patient to a specialist than those in Nordic Countries or who were less experienced ($P<0.001$ for both measures).

Neither GP sex nor practice location within a country showed a significant association with these measures.

Implications: While relative one-year cancer survival rates are lower in the Baltic states than in four Nordic countries, we found no evidence that this is due to their GPs' reluctance to take immediate diagnostic action, as GPs in the Baltic states were more likely to investigate and/or refer at the first consultation. Research on patient and secondary care factors is needed to explain the survival differences.

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Recalibrating Predictive Value: Interpreting Diagnostic Tests in Primary Care

Presenters: Benjamin M Jacob, Jack Adams, Patrick Redmond

Royal College of Surgeons in Ireland, Dublin, Ireland

Background: Imagine a general practitioner (GP) assessing a patient with unexplained weight loss and fatigue, and the GP suspects a malignancy. Their symptoms are vague, and not tied to any particular system. This highlights a central challenge in primary care: balancing the likelihood of cancer versus more common ailments, while delivery quality care and protecting secondary and tertiary health services. We are in a developmental boom of cancer diagnostic tests at the primary care level. For GPs, the effectiveness of a diagnostic test depends on both the statistical properties of the test and the prevalence of cancer in their patient population.

Let us consider a hypothetical test for cancer with high sensitivity (90%) and specificity (85%). While these metrics look impressive, their value for GPs depends on how they translate to patients in a low-prevalence setting, such as primary care. This is why we must examine diagnostic test metrics (DTMs) with a nuanced approach, factoring in prevalence and primary care demands.

Aims: To underscore the importance of interpreting DTMs faithfully to the real-world of primary care, to demonstrate how an unadjusted reporting of sensitivity and specificity can lead to errors in appraising tests, and to present tangible solutions that help GPs make reliable decisions.

Methods: A review of common DTMs is provided, with focus on sensitivity, specificity, PPV, and NPV, using the hypothetical cancer test as an example.

Our worked example examines how predictive values shift with prevalence, illustrating why raw sensitivity and specificity often do not reflect real diagnostic utility for GPs, who, by nature, work in low prevalence settings.

Results: With a 1% prevalence, even a highly sensitive test yields a PPV of just about 6%. This means that most individuals who test positive will not actually have cancer. NPV, however, remains high at >99%, a metric often touted by diagnostic test creators. However, given the low pre-test probability (1%) in a low prevalence (1%) setting, it becomes apparent that the gain in reassurance provided by a negative test is only marginal.

This example highlights a common pitfall: assuming a test's sensitivity and specificity alone make it fit for primary care use.

Implications: For GPs, the key takeaway is that sensitivity and specificity are of limited use without considering prevalence. By tailoring literature reporting standards to include PPV and 1-NPV at prevalence rates relevant to primary care, we can better support GPs in cancer management.

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Improving assessment of lung risk in patients presenting with cough or dyspnoea in primary care by adding information from recent prescription activity

Presenters: Marta Berglund, Meena Rafiq, Nadine Zakkak, Becky White, Matthew Barclay, Georgios Lyratzopoulos

University College London, London, United Kingdom

Background: Differentiating patients' underlying lung cancer risk can be challenging in patients presenting with cough or dyspnoea. Incorporating recent relevant prescriptions data may help identify symptomatic patients at greater cancer risk for prioritised urgent investigations.

Aims: This study aims to quantify the predictive value of new-onset cough or dyspnoea for as-yet-undetected lung cancer (by age, sex, and smoking status) alongside the predictive value of additionally considering recent relevant prescription history.

Methods: This population-based cohort study uses linked data from the Clinical Practice Research Datalink (CPRD), Hospital Episode Statistics (HES), and National Cancer Registration and Analysis Service (NCRAS). Patients aged 30-99 with new-onset cough or dyspnoea in primary care (2007-2016) were included. Age- and sex-specific Positive Predictive Values (PPVs) for lung cancer were calculated at 12 months post-symptom presentation. Patients with relevant prescriptions (antibiotics, inhalers, oral steroids, opioid analgesics) within three months of symptoms were identified. Diagnostic accuracy statistics were calculated for lung cancer diagnosis within 12 months of symptoms combined with each prescription type (antibiotics, inhalers, oral steroids, opioids) by age and sex.

Results: The study included 832,094 patients with new-onset cough and 310,949 with new-onset dyspnoea. PPVs for lung cancer were 1% for women and 2% for men with cough, and 2% for both genders with dyspnoea. Of all patients, fewer cough patients had recent prescriptions than dyspnoea patients (36% vs 51%).

Among patients with relevant prescriptions PPVs increased up to 8% for men and 7% for women with cough; and up to 7% for men and 14% for women with dyspnoea. PPVs exceeded the 3% threshold for patients aged 50+ with cough and prescriptions, and 60+ with dyspnoea and prescriptions.

Among smokers aged 60-69 with cough alone, PPVs were 3.8% for women and 3.3% for men, increasing to 7.7% and 8.0% with relevant prescriptions and decreasing to 2.8% and 2.6% without. The corresponding PPVs were 6.3% for women and 5.5% for men with dyspnoea alone, increasing to 6.7% and 6.0% with relevant prescriptions and decreasing to 2.9% and 3.4% without. Across symptom-prescription combinations, women smokers aged 70-79 with dyspnoea and an opioid prescription (1 in 33 women in that stratum) had the highest PPV (14%).

Implications: Cancer risk assessment in patients presenting with non-specific respiratory symptoms can be enhanced by considering prescriptions data. This study can help identify high-risk patients for underlying cancer investigation and low-risk patients who can be safely monitored in primary care.

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What factors empower general practitioners for early cancer diagnosis? A 20-country European Delphi Study

Presenters: George Tzanis[1], Michael Harris[2,3], Mette Brekke[4], Mercè Marzo-Castillejo[5], Serap Çifçili[6], Maria Flamm[7,8], Nicola Buono[9], Galia Zacay[10,11], Ilze Skuja[12], Zlata Ožvačić Adžić[13,14], Mihai Iacob[15], Radost Asenov[16], Krzysztof Buczkowski[17], Pamela Curtis[18], Liina Pilv-Toom[19], Robert Hoffman[10], Manolis Smyrnakis[1]

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Background: Some symptoms are recognised as red flags for cancer, causing the General Practitioner (GP) to refer the patient for investigation without delay. However, many early symptoms of cancer are vague and unspecific, and in these cases, a delay in referral risks a diagnosis of cancer that is too late. Empowering GPs in their management of patients that may have cancer is likely to lead to more timely cancer diagnoses.

Aims: To identify the factors that affect European GPs' empowerment in making an early diagnosis of cancer.

Methods: In this Örenäs Research Group study, we presented GPs with 52 statements representing factors that could empower GPs to increase the number of early cancer diagnoses. Over three Delphi rounds, we asked GPs to indicate the clinical relevance of each statement on a Likert scale.

The final list of statements indicated those that were considered by consensus to be the most relevant.

Results: In total, 53 GPs from 20 European countries completed the Delphi process, out of the 68 GPs who had completed round one. Twelve statements satisfied the pre-defined criteria for relevance. Five of these statements related to screening, and four to the primary/secondary care interface.

The other selected statements concerned information technology (IT) and GPs' working conditions. Statements relating to training, skills and working efficiency were not considered priority areas.

Implications: The findings provide the basis for seeking actions and policies that will support GPs in their efforts in the timely diagnosis of cancer. European countries need establish reliable screening systems for cancer, where these do not already exist. Panellists' prioritisation of screening programmes that are more evidence-based implies that, in some countries at least, cancer screening programmes are based on unsound or outdated practices. Electronic health records may be a valuable tool to aid detection of people with high familial risk, and this maps across to the panellists' prioritisation of better IT.

The selected statements regarding the interface with secondary care relate to speed of access: efficient channels for communication and advice, and shorter waits for specialist assessment. Health services need to assess their performance on these measures and prioritise faster access to secondary care for patients that could have cancer.

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Healthcare professional use and public awareness of speculum size and lubricant use to reduce discomfort during cervical screening

Presenters: Victoria Whitelock, Claire Champ, Maddi Needham, Lindsay MacDonald, Amy Hirst, Hope Walters, Georgina Tharp, Jaimee Kerven

Cancer Research UK, London, United Kingdom

Background: Research shows that anticipation and experience of pain are key barriers putting people off taking part in cervical screening. Use of a different size speculum and application of lubricant to the sides of the speculum may reduce discomfort. Best practice guidance states that sample takers should choose the appropriate speculum and apply lubricant to the sides of the speculum.

Aims: This research aimed to understand healthcare professional use and public awareness of different size speculums and lubricant to reduce discomfort during cervical screening.

Methods: Online surveys were administered to GPs (n=1,006), practice nurses (n=165) and the public (questions about speculum size and lubricant were completed by 1,267 and 1,054 females aged 18+, respectively) in the UK.

Results: Almost half of practice nurses (48%) consider changing speculum size with every patient, and two thirds (66%) use lubricant with every patient. Only 26% of GPs said that their practice has processes in place which cover consideration of speculum size and application of lubricant.

A substantial proportion of females are not aware that they can ask for a smaller size speculum (60%) and lubricant (54%). After being told that this is an option, 55% are likely to ask for a smaller speculum and 60% are likely to ask for lubricant to be applied.

Implications: A multi-pronged approach that educates and restructures the environment is likely to be needed to address pain during cervical screening.

Practices should ensure they are implementing protocols, and healthcare professionals who conduct cervical screening should ask patients if they have concerns and offer adjustments that may reduce pain and discomfort (such as use of different size speculums and lubricant). People invited to cervical screening should be informed of ways they can reduce pain during the procedure and encouraged to ask for these during their appointments.

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Exploring Cancer Risk in Women with Type 2 Diabetes: The Mediating Role of Obesity in Hormone-Dependent Cancers

Presenters: Theresa Santhosh, Sarah Bailey, Lucy Kirkland, David Shotter, Melissa Barlow, Willie Hamilton

University of Exeter, Exeter, United Kingdom

Background: Type 2 diabetes (T2D) is associated with an increased risk of several cancers, including hormone-dependent cancers such as breast and endometrial cancer. Epidemiological evidence highlights this elevated risk, which may be further influenced by obesity. Obesity is a common long-term health condition alongside T2D, potentially amplifying this risk through mechanisms like insulin resistance or elevated oestrogen levels.

However, it remains unclear how varying levels of obesity can influence cancer risk in women with T2D. Given the rising rates of T2D and obesity, understanding their combined impact on cancer risk is crucial.

Aims:

• Explore the association between T2D and hormone-dependent cancers (breast and endometrial cancer) in women.

• Investigate the role of obesity as a mediator or moderator in this relationship.

• Assess whether cancer risk differs in women with T2D based on their level of obesity.

Methods: A search strategy was developed to identify relevant studies on T2D, obesity, and hormone-dependent cancers in women through Ovid Medline. The search strategy combined MeSH terms and keywords related to T2D, obesity, breast, and endometrial cancer. We recorded cancer type (breast and endometrial), incidence data, and quantitative risk estimates for each study that linked T2D and obesity with cancer risk.

Results: The review will provide an overview of the evidence linking T2D and obesity to breast and endometrial cancers in women. It will highlight the role of obesity, revealing whether women with higher BMI face greater cancer risks compared to those with lower BMI.

These findings could inform clinical approaches in primary care by clarifying how varying obesity levels influence cancer risk in women with T2D.

Implications: The findings of this review could have significant implications for clinical practice and public health policy. Clarifying how obesity and T2D jointly contribute to breast and endometrial cancer risk, may inform more targeted screening and preventive interventions for high-risk women. This could lead to the development of tailored guidelines for cancer risk management in women with T2D, particularly those who are obese, helping to reduce cancer incidence and improve outcomes in this population.

The findings could also help the integration of cancer risk assessments into routine diabetes management for women. For example, general practitioners could use risk profiles based on obesity and metabolic health to guide earlier and more frequent screenings for breast and endometrial cancers. Future research could include patient and public involvement through focus groups to ensure patient-centred interventions.

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Lessons from year one of the Catch-up Study

Presenters: Alex Young[1], Annelie Maskell[2], Clare Gilham[3], Christine Rake[3], Una Macleod[1], Emma Crosbie[2], Belinda Nedjai[4], Michelle Saul[4], Hannah Mohy-Eldin[4], Julian Peto[3]

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Background: The Catch-Up Screen study offers a home urine test for HPV to women aged 60-79 who have not had a primary HPV test as part of the NHS Cervical Screening Programme (CSP). The CSP prevents approximately 5000 deaths from cervical cancer a year, with most cancers being identified at stage 1 following screening. Although only 18% of cases are over 65, 45% of deaths from cervical cancer are among this age group. The Catch-Up study aims to test the efficacy of a home urine test for HPV in reducing risk and catching early cancer in the post CSP population.

Aims: To share lessons learned from both study sites in sending out the first 3000 home test kits of the Catch-Up Screen study.

Methods: Home testing kits are sent out to patients across two sites, Hull and Manchester, from recruited practices. Patients are first screened and sent a pre-invite with information about the study before being sent the testing kit. Patients then send completed samples and consent forms to the laboratory at Queen Mary University London, after which site researchers send out results to patients and update their GP practice. HPV positive patients are sent a second test after six months. Patients who remain HPV positive are referred to colposcopy in a process agreed with local hospital clinics.

In this first phase, recipients were randomised to receive either a follow up text or call from the site researcher to answer questions, and act as a reminder to complete their sample.

Results: To date around 3000 kits have been sent out across the two sites in Hull and Manchester. Each site has been presented with unique challenges, including how to integrate research activities in the recruited GP practices, manage the posting of research materials, and how best to communicate with patients. The latter has included not just the best methods for patient communication, but how to manage complex situations presented in the screening of eligible patients.

Implications: Understanding the challenges of sending out home research kits and communicating with patients will enable more effective expansion of similar research projects in primary care. This study also provides insight into perceptions of urine based HPV screening and its acceptability as an alternative screening method in this population.

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Systematic Review of Interventions to Enhance Public Awareness of Cancer Symptoms

Presenters: Logan Verlaque[1,2], Sam McGlynn[1,2], Riya Sharma[1,2], Ben Jacob[1,2], Kurdo Araz[1,2], Ricardo Zaidan[1,2], Natalie Lane[1,2], Ettaeyo Ita[1,2], Harnoor Kehal[1,2], Zaid Yacoub[1,2], Nicole Sim[1,2], Mariia Shpak[1,2], Conner Bullen[1,2], Kate Hamilton-West[3], Heather Burns[4], Rebecca Trower[5], Patrick Redmond[1,2]

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Background: Delayed cancer diagnoses contribute significantly to poor outcomes, with late-stage detection often limiting treatment options and worsening prognosis. Increasing public awareness of cancer symptoms is theorised to prompt earlier help-seeking behaviour, yet the effectiveness of these interventions remains uncertain. This systematic review evaluates the impact of various awareness interventions on cancer symptom recognition and early healthcare engagement.

Aims: The aim of this systematic review is to evaluate the effectiveness of interventions designed to enhance public awareness of cancer symptoms, with a focus on their impact on help seeking behaviour and diagnostic outcomes. This review seeks to synthesise current evidence to guide the development of public health strategies aimed at promoting early cancer detection.

Methods: This systematic review follows the PRISMA guidelines. We conducted a comprehensive search across MEDLINE, EMBASE, PsycINFO, and Scopus for studies published from November 2008 onwards. Eligible studies employed a comparative design and targeted adult populations to increase awareness of cancer symptoms; interventions for asymptomatic screening were excluded.

Data extraction focused on primary outcomes, including cancer-specific mortality and stage at diagnosis, as well as secondary outcomes related to healthcare utilisation and behavioural changes. Risk of bias was assessed using ROBINS-I for non-randomised studies and Cochrane RoB2 for randomised trials. Evidence quality was evaluated using the GRADE framework.

Results: The review identified 135 studies covering diverse intervention types, such as community education, digital campaigns, and print materials. Preliminary findings indicate that multi-component interventions integrating behavioural change theories are associated with improved early-stage diagnosis rates and increased help-seeking behaviour compared to single-modality approaches. Ongoing analysis aims to identify the most effective strategies for promoting early presentation and diagnosis.

Implications: Preliminary results suggest that multi-faceted, theory-based awareness interventions may be the most effective in enhancing early cancer detection. These findings can inform evidence-based public health campaigns and guide resource allocation in cancer control efforts. Policymakers should prioritise strategies that demonstrate success in increasing early-stage diagnoses, with a focus on community-targeted approaches to maximise impact. Full results and detailed recommendations will be presented at the conference.

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Using a Citizen Jury and Discrete Choice Experiment to Inform Personalised Lung Cancer Screening

Presenters: Emma Harty[1,2], Jessica O'Driscoll[1]

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Background: Conventional population-based lung cancer screening (LCS) approaches, typically targeting individuals by age and smoking history, risk overdiagnosis and unnecessary interventions, particularly among lower-risk groups. A risk-stratified, personalised screening model may offer a superior balance between the benefits and harms of screening. This study seeks to integrate public perspectives to inform the design of a tailored LCS programme aligned with the preferences of the Irish population.

Aims: To employ a two-phase approach—starting with a citizen jury, followed by a discrete choice experiment (DCE)—to identify public preferences regarding key attributes of LCS, guiding the development of a personalised, risk-based screening framework.

Methods: A representative citizen jury will deliberate on the advantages and disadvantages of personalised versus population-based LCS strategies. The jury's discussions will focus on critical aspects of screening, such as the risk of overdiagnosis and the implications of risk stratification.

Findings from the jury will inform the design of a subsequent DCE, which will be administered to a broader cohort of the public. The DCE will systematically assess preferences for LCS attributes, including screening modality, interval, false positive rates, and expected mortality reduction.

Quantitative data from the DCE will be analysed using conditional logit models to determine attribute importance and acceptable risk thresholds, while thematic analysis of jury deliberations will provide context to the quantitative findings.

Results: Preliminary findings from the citizen jury, along with the DCE design and initial feedback, will be presented at the conference, providing early insights into public priorities for LCS.

Implications: The findings will inform the development of a risk-stratified LCS programme that aligns with public preferences, supporting evidence-based policy and enhancing screening effectiveness in Ireland.

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General Practice Focused Strategies to Increase Participation in Lung Cancer Screening – A Systematic Review

Presenters: Áine Harris[1], Priya Patel[2], Benjamin Jacob[1], Gregory Erikson[1], Noshin Shermili[1], Barbara Clyne[3], Alice Le Bonniec[4], Samantha L. Quaife[5], Stephen H. Bradley[6], Patrick Redmond[1]

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Background: Lung cancer is the leading cause of cancer mortality worldwide, yet participation in lung cancer screening (LCS) with low-dose CT remains low, particularly among high-risk groups such as current smokers and socioeconomically deprived individuals. General practice plays a crucial role in identifying eligible patients, addressing barriers to participation, and supporting shared decision-making. Identifying effective strategies within general practice is essential for improving national LCS uptake.

Aims: To assess and quantify the effects of general practice-based strategies aimed at increasing participation in LCS.

Methods: This systematic review and meta-analysis followed PRISMA guidelines. Searches were conducted in PubMed, Embase, CINAHL, Cochrane Library, Web of Science, ClinicalTrials.gov, and the WHO International Clinical Trials Registry Platform. Eligible studies included randomised trials, non-randomised studies, and quantitative descriptive studies reporting on general practice-based recruitment strategies and LCS outcomes. Screening and data extraction were performed independently by two reviewers. Risk of bias was assessed using the MMAT, and overall certainty of findings was evaluated using GRADE.

The TIDieR checklist guided data extraction, while the Behavioural Change Techniques (BCT) Taxonomy was used to analyse intervention components.

Results: The review identified 21 interventions across 22 studies, with one study assessing two different strategies. Interventions were categorised into seven types: decision aids, decision counselling, health information leaflets, invitation letters, staff education, patient education, and patient navigation. Participation rates ranged from 12.4% to 88%. Patient navigation, decision counselling, and decision aids were the most effective interventions. A higher number of BCTs was associated with greater intervention effectiveness.

Implications: Preliminary findings indicate that patient navigation, decision counselling, and decision aids are promising strategies for enhancing LCS participation in general practice. These insights can inform the development of equitable and effective LCS programmes, ensuring that high-risk individuals are better supported in accessing screening services. Full results and a detailed analysis will be presented at the conference.

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Optimizing an e-questionnaire to detect elevated risk of having lung cancer: Insights from cognitive interviews with suspected lung cancer patients and controls

Presenters: Mark Albeek

Karolinska Institute, Stockholm, Sweden

Background: Early diagnosis of lung cancer is important for improving patient prognosis. However, initial symptoms are often non-specific, making timely detection challenging. A standardized electronic (e)-questionnaire has been developed and tested on individuals with suspected lung cancer, but it has yet to be validated in primary care settings among patients without suspected lung cancer. Addressing this challenge effectively is essential to develop tools that support healthcare providers in detecting patients with high risk of having lung cancer at earlier stages.

Aims: To further develop a standardized e-questionnaire, comparing its usability among individuals with suspected lung cancer and those without, intended to identify individuals with elevated risk of having lung cancer.

Methods: Qualitative study design with cognitive interviews, using think-aloud method. Approximately 30 participants are being recruited, including individuals with suspected lung cancer from the Lung Oncology Center at Karolinska University Hospital and individuals without suspected lung cancer from primary care centers, all following informed consent.

The modified e-questionnaire will be tested to evaluate question clarity, relevance, and validity, while assessing its ability to accurately measure the intended symptoms. Following each interview, findings are analyzed promptly to guide iterative modifications, which are subsequently tested with new participants.

Results: To date, 11 participants have been interviewed. Preliminary findings, which suggest notable differences in symptom interpretation between individuals with suspected lung cancer and those without, led to substantial modifications in the design and interrelations of the questionnaire items.

For instance, the framing and order of the questions affected the detection of relevant symptoms, and therefore it was important to capture the intended symptoms and how they were interpreted.

Implications: The results of this study highlight the challenges of designing a clinically relevant questionnaire applicable to all patients seeking primary care. Although the questionnaire has been tested on individuals undergoing investigation for suspected lung cancer, further evaluation is needed among patients in primary care without such suspicions.

Further analyses will help clarify the observed differences and their implications for the questionnaire development. Insights from this study emphasize the importance of carefully structured questions to capture relevant symptoms, laying the groundwork for development of evidence-based risk prediction tools that could enhance early diagnosis and improve survival rates for patients with lung cancer.

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A Cross-Sectional Analysis of GP Referrals for Suspected Cancer in Ireland (GRACCHUS Study)

Presenters: Conor Murphy[1,2], Benjamin Jacob[1,2], Katie Killeen[1,2], Yiren Yin[1,2], Sean O'Regan[1,2], Heather Burns[3,2], Kathleen Bennett[4,2], Patrick Redmond[1,2]

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Background: Cancer remains a leading cause of mortality in Ireland, accounting for nearly 30% of all deaths. Early diagnosis is crucial for improving survival rates and patient quality of life. Rapid Access Referral Clinics (RACs) were introduced to streamline diagnostic evaluations for suspected lung, prostate, and breast cancers, as well as malignant melanoma, through direct referrals from general practitioners (GPs). Despite their establishment, there is limited understanding of how these services are utilised by GPs or the diagnostic yield from these referrals.

Aims: This study aims to analyse the utilisation of RAC referral pathways by GPs in Ireland and evaluate patient outcomes. It will be conducted in two phases. Phase 1 will describe current referral practices for each cancer type, assessing trends and variations in RAC referrals based on GP practice size, patient demographics, and clinical features. Phase 2 will determine the conversion rate of referrals into confirmed cancer diagnoses for prostate and lung cancers and evaluate related patient outcomes.

Methods: This retrospective cross-sectional study involves approximately 20 GP practices recruited from a practice-based research network. Phase 1 includes a repeated cross-sectional analysis of GP electronic health records for RAC referrals made between 2013 and 2023, using an anonymised data extraction tool to collate information on patient demographics, cancer types, clinical features, and practice characteristics. Phase 2 consists of a retrospective chart review to determine conversion rates for prostate and lung cancer referrals and to analyse related clinical outcomes.

Results: Initial analysis from a pilot practice focusing on prostate cancer referrals has shown 50 RAC referrals (31.25 per 1,000 male patients; 4.54 referrals per year). The median age of referred patients was 61 years (IQR: 56–70). The conversion rate for cancer diagnosis was 34%, with Gleason scores of 7 (64.7%), 6 (17.6%), and 8 (17.6%). External beam radiotherapy was the most frequently reported treatment (47.1%).

Implications: Preliminary findings indicate potential areas for optimising and standardising GP use of RAC pathways in Ireland. The full analysis will provide detailed insights into referral trends and outcomes, informing quality improvement efforts and guiding future research on urgent cancer referrals in primary care. Complete results and recommendations will be presented at the conference.

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Delays in the diagnosis of gastric cancer: A systematic review

Presenters: John Queenan[1], Noor Breik[2], Monica Yuen[3], Ektarina Kosyachkova[4], Natalie Coburn[5,3], Amanda Ross-White[6], Alyson Mahar[1]

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Background: In high-incidence countries, gastric cancer (GC) screening enables early diagnosis, while in low-incidence countries without screening, many cases are diagnosed at a metastatic stage, limiting treatment options and worsening prognosis. Efficient diagnostic processes should reduce wait times, stress, and expedite treatment and supportive care. There is limited understanding of how GC patients proceed from symptom onset to diagnosis, and evidence is sparse to guide interventions that could mitigate the harms of prolonged diagnostic intervals.

Our primary focus is to gain a deeper understanding of the time between the onset of relevant symptoms and the receipt of a definitive diagnosis, including two key intervals: defined by the Aarhus Statement: 1) the patient interval, from symptom recognition (symptom appraisal) to first contact with the healthcare system (help-seeking), and 2) the diagnostic interval, from initial healthcare encounter to conclusive diagnosis.

Aims: The review question is: "What factors have been studied as predictors or risk factors for the symptom appraisal, help-seeking, and diagnostic intervals in gastric cancer patients?"

Methods: We followed PRISMA guidelines for peer-reviewed literature published from 2012 onward, synthesizing studies on patient and diagnostic interval lengths and their associated risk factors for gastric cancer. Searches were conducted across CINAHL, EMBASE, MEDLINE, and PsycINFO, with each title/abstract and full-text article reviewed by two team members. We doubly extracted publication details, study methodologies, variables, participant demographics, clinical descriptors, and time-related information, including interval lengths.

Results: Of 2,848 references screened, 14 GC studies were included: five focused on patient intervals and nine on diagnostic intervals, conducted across Australia, Europe, South America, Asia, and the USA. Patient interval studies included 4 to 187 participants, with median lengths ranging from 9 to 210 days; patient-reported intervals were generally longer than those based on health data.

More than 30 risk factors were assessed, including COVID-19, herbal remedy use, symptom misattribution, competing priorities, poor healthcare access, older age, and comorbidity. Diagnostic interval studies involved 69 to 2,788 participants, with median intervals of 24 to 84 days. Factors linked to longer diagnostic intervals included lower GP density, younger age, female sex, non-NICE symptoms, early-stage disease, and low diagnostic suspicion.

Implications: Long intervals between symptom onset and diagnosis remain significant challenges for gastric cancer patients in low-incidence countries, emphasizing the need for focused equity-based research to enhance timely diagnosis and early interventions. This information can inform high-risk screening programs, early detection guidelines, and patient education initiatives.

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A realist review of mHealth in lung cancer screening: Understanding mechanisms, contexts, and intervention characteristics for enhanced participation

Presenters: Ricardo Zaidan[1], Benjamin Jacob[1], Patrick Redmond[1], Irsoon Hassan[1], Seamus Cotter[2]

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Background: Lung cancer screening (LCS) can reduce lung cancer-specific mortality by 20%, yet uptake remains low, often around 15%. Barriers such as limited access, low awareness, and logistical issues hinder patient engagement. Mobile health (mHealth) interventions, using mobile technologies to provide tailored information and support, may help address these challenges and improve LCS uptake.

Traditional systematic reviews often fail to explain how and why interventions succeed in different settings. This realist synthesis aims to provide deeper insights into the mechanisms driving mHealth intervention outcomes across diverse contexts.

Aims: To use a realist synthesis approach with a Context-Mechanism-Outcome (CMO) framework to examine how mHealth interventions affect LCS uptake and patient experience. The analysis aims to identify which contextual factors (e.g., socio-economic status, healthcare access) activate mechanisms (e.g., motivation, patient engagement) leading to specific outcomes (e.g., increased screening uptake).

Methods: The study follows a realist synthesis methodology, guided by RAMESES standards. A comprehensive search was conducted across eight databases to identify studies on mHealth interventions in LCS. Eligible studies were analysed to develop and refine CMO configurations, exploring how and why interventions succeed or fail in various settings. Stakeholder engagement, including input from patients and healthcare providers, was used to validate and refine these configurations.

Results: The initial search identified 10 relevant studies. Eight focused on informed decision-making, while two addressed barriers to access.

Most studies targeted high-risk individuals in primary care, with two involving specific ethnic minority groups.

Multi-component mHealth interventions incorporating behavioural change theories showed promise in improving early-stage diagnosis and patient engagement.

Implications: Preliminary findings suggest that multi-faceted mHealth interventions tailored to specific patient needs may enhance LCS uptake and patient experience. The full analysis, including detailed CMO configurations and recommendations for implementation, will be presented at the conference. These insights will inform the design of evidence-based mHealth strategies for cancer screening, supporting targeted interventions in national programme

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Co-designing a recruitment strategy for lung cancer screening in high-risk individuals: protocol for a mixed-methods study

Presenters: Maeve Reilly[1], Ahmeda Ali[1], Frank Doyle[2], Seamus Cotter[3], Laura Heavey[4], Kate Brain[5], Nicole Rankin[6], Grace McCutcheon[5], Patrick Redmond[1], Sam McGlynn[1], Emma Harty[7]

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Background: Lung cancer is a major contributor to cancer-related mortality globally, with early detection through screening critical for improving survival rates. Despite the effectiveness of low-dose computed tomography (LDCT) screening, participation remains low, particularly among high-risk groups, including individuals from lower socioeconomic (SES) backgrounds.

Traditional recruitment methods often fail to engage these populations, leading to underrepresentation and reduced screening effectiveness. Evidence suggests that targeted recruitment strategies can significantly improve engagement and uptake, particularly when tailored to the needs and barriers faced by high-risk individuals.

Aims: To develop a co-designed, patient-centred recruitment strategy for lung cancer screening that addresses specific barriers faced by high-risk groups, using evidence-based methods and input from stakeholders, including a Patient and Public Involvement (PPI) panel.

Methods: This mixed-methods study follows the Medical Research Council (MRC) framework for developing complex interventions. The first phase involves in-depth interviews with high-risk individuals, including current and former smokers, to explore personal, cultural, and systemic barriers to screening.

Insights gained will inform the design of the recruitment strategy, which will be structured using the Behaviour Change Wheel framework, focusing on tailored messaging, culturally sensitive outreach, and supportive interventions. In the final phase, the strategy will be refined based on feedback from the PPI panel and stakeholders, including healthcare providers and community leaders, to assess its feasibility and acceptability. Workshops will be held to gather input on potential barriers to implementation and to finalise the approach.

Results: The co-designed strategy is expected to address specific barriers to lung cancer screening among high-risk populations, integrating tailored messaging and targeted outreach informed by PPI and stakeholder engagement. The feasibility testing will provide early indications of the strategy's effectiveness, with initial findings presented at the conference.

Implications: This study aims to generate actionable insights for enhancing recruitment strategies in a future all-Ireland lung cancer screening programme. By focusing on historically underrepresented groups, the tailored approach seeks to increase participation, improve inclusivity, and support earlier detection efforts. The findings will inform policy recommendations and guide the design of evidence-based recruitment strategies, ultimately contributing to better patient outcomes and more efficient screening programmes.

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Patterns of Diagnostic Assessment for Symptoms Associated with Endometrial Cancer: Insights from Linked Australian Primary Care Data

Presenters: Shaoke Lei[1], Alison Drosdowsky[1], Nicole Kinnane[2], Meena Rafiq[1], Jon Emery[1]

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Background: Symptoms associated with cancer, referred to as 'cancer symptoms,' often share characteristics with non-cancer conditions commonly seen in general practice. The diversity of potential diagnoses in primary care, combined with low cancer prevalence, can result in significant assessment variations, the full extent and implications of which remain unclear.

Aims: To enhance our understanding of diagnostic assessment patterns for common gyneacological symptoms associated with endometrial cancer in Victorian general practice.

Methods: Retrospective cohort study using a linked primary care database. Participants included de-identified patients aged 41 and over who presented with symptoms associated with endometrial cancer between 2008 and 2022. We examined the proportion of patients who underwent pathology, imaging, referral, endometrial biopsy or a test of treatment; differences across socioeconomic variables; proportion of patients diagnosed with endometrial cancer.

Results: The final cohort consisted of 72,436 patients with 104,103 consultations with a relevant symptom were analysed. The commonest symptoms were difficult or painful urination and pelvic or abdominal pain. There was variation in type of management by symptom type. Patients aged 50-60 years old were more likely to be investigated or referred (OR = 1.05, 95% CI: 1-1.08, p = 0.037). Patients from the least disadvantaged areas were approximately 1.1 times more likely to be investigated than those from the most disadvantaged areas (OR = 1.12, 95% CI: 1.07-1.18, p < 0.001). Patients with multiple symptoms and visits were more likely to undergo investigation (OR = 4.93, 95% CI: 4.6-5.28, p < 0.001).

A total of 117 patients were diagnosed with endometrial cancer within 12 months, representing 0.16% of the total cohort. The highest number of endometrial cancer cases first presented with post-menopausal vaginal bleeding (76 out of 3,534 patients, 2.15%), followed by difficult or painful urination, including some initially classified as urinary tract infection, (19 cases out of 43,514 patients, 0.04%).

The median time to diagnosis was longest for patients with difficult or painful urination (143 days; 1st - 3rd quartile: 67 - 210 days) and pelvic or abdominal pain (136 days; 1st - 3rd quartile: 89 - 280 days).

Implications: Significant variation in diagnostic investigations may lead to inequitable outcomes. Investigating the role of physician and patient factors, healthcare infrastructure, and policy environments could provide insights into these differences. Additionally, interventions aimed at reducing the impact of socioeconomic status on healthcare delivery are crucial. Addressing these gaps through targeted policies and practices will be vital in achieving equitable healthcare for all patients.

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Pancreatic cancer patients with vague symptoms present with later stage disease and have poorer survival: a population-based study

Presenters: Vinay Prasad[1], Helen Coleman[2,1,3], Sinead Hawkins[2], Helen Mitchell[2], Ralph Santos[1], Anna Gavin[2], Damien Bennett[2]

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Background: The majority of pancreatic cancer (PC) patients are diagnosed at late stage and have poor survival outcomes, with no substantial improvement in these trends in recent years. Patients with alarm symptoms such as jaundice, altered stool or urine colour, may be identified, referred and managed more effectively than patients with vague symptoms.

Aims: The aim of this study was to compare patient and tumour characteristics, routes to diagnosis, treatment and outcomes in PC patients according to their symptom profile.

Methods: Clinical details for all patients diagnosed with incident primary PC (ICD-O-3: C25) between 2019-2020 were extracted from the population-based, Northern Ireland Cancer Registry Pancreatic Audit dataset. Patients were categorised as having alarm symptoms or vague symptoms (including asymptomatic), as recorded in medical notes at diagnosis, and characteristics compared using □2 tests. Cox proportional hazards analysis was applied to evaluate risk of death between alarm and vague symptom patients, adjusting for potential confounders.

Results: Of 512 PC patients analysed, approximately four in ten (39.6%) presented with alarm symptoms and six in ten (60.4%) presented with vague symptoms. Compared with pancreatic cancer patients with alarm symptoms, those with vague symptoms were less likely to present via emergency admission (33.7% v. 66.0%, p<0.001) but were more likely to present with stage IV disease (62.1% v. 39.9%, p<0.001).

Pancreatic cancer patients with vague symptoms were less likely to survive one year after their diagnosis than patients with alarm symptoms (24.9% v. 33.7% patients alive at one year, p<0.001), with an increased risk of death even after adjustment for potential confounders (HR 1.47, 95%CI 1.14-1.89).

Implications: Six in ten pancreatic cancer patients present with vague symptoms, and these patients are more likely to have late-stage disease and poorer survival, compared with patients with alarm symptoms. Improved awareness of pancreatic cancer symptoms among the public and healthcare workers, especially regarding vague symptoms, is needed to increase opportunities for earlier diagnoses and improved survival outcomes.

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The relationship between the diagnostic interval and overall survival in a colon cancer cohort in Ontario, Canada

Presenters: Jonah Gorodensky[1], Rebecca Griffiths[2], Alyson Mahar[3],[4]

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Background: The diagnostic interval, defined as the time from first cancer-related healthcare encounter to eventual cancer diagnosis, is used as a way of measuring cancer time-to-diagnosis; it can be used to quantify delays in diagnosis and to understand the cancer diagnostic journey. The few studies investigating the relationship between the diagnostic interval and cancer outcomes have mixed results.

Aims: To investigate the relationship between the diagnostic interval and all-cause mortality in individuals with colon cancer.

Methods: We conducted a retrospective cohort study of individuals diagnosed with colon cancer in Ontario, Canada, from 2007-2019. We followed individuals until the first of: death, loss of provincial health coverage, or March 31st, 2024. Using an established algorithm, we calculated the diagnostic interval as the number of days from first colon-cancer-related healthcare visit to cancer diagnosis.

The main outcome of interest was all-cause mortality. We assessed crude survival rates and median diagnostic intervals across several variables of interest and modelled the relationship between the diagnostic interval and overall survival using Cox proportional-hazards models with a restricted cubic spline (RCS).

Results: We identified 52,916 individuals with colon cancer. 63.3% died during follow-up (median survival: 5.4 years [95% confidence interval [CI] 5.2 – 5.5]). Individuals living in neighborhoods with the lowest income quintiles had significantly shorter median survival (4.4 years [4.2 – 4.7]) compared to those neighborhoods in the highest income quintile (6.5 years [6.1 – 6.9]), as well as longer diagnostic intervals (lowest: 126 IQR [31, 280], highest: 116 [27, 260]).

Median survival ranged from 12.5 years (12.0 – 12.9) in stage I cancers to 0.7 years (0.7 – 0.8) in stage IV; stage I cancers tended to have longer diagnostic intervals (154 days IQR [60 – 287]) than stage IV (75 IQR [13 – 219]). Adjusted Cox proportional-hazards models with RCS modelling overall survival as a function of the diagnostic interval found a check-mark shaped curve.

Shorter diagnostic intervals were associated with higher mortality, while longer diagnostic intervals were not. For example, a 25%-ile diagnostic interval had a hazard ratio (HR) of 1.19 (1.15 – 1.22) compared to a median diagnostic interval, while a 75%-ile diagnostic interval had a hazard ratio of 1.01 (0.98 – 1.04).

Implications: Our study supports the waiting-time paradox: shorter diagnostic intervals may be associated with worse survival, while longer intervals may not. These results differ from much of the existing literature; further research is warranted to truly understand the relationship between the diagnostic interval and clinically-relevant outcomes.

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Assessment of recurrence and second primary cancers among Cancer Survivors in an NCI-designated Cancer Center

Presenters: Mary Reid, Christina Crabtree-Ide, Pragati Advani, Tessa Flores, Nicolas Schlecht, Sarah Mullin

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Background: Timely screening, surveillance, and early detection of second primary cancers is a core function of a well-run and effective survivorship program. Nearly one in five cancers diagnosed are classified as a second primary cancer, making them a leading cause of morbidity and mortality among cancer survivors, yet it is challenging to assess screening concordance due to the complexity of referral patterns and sparsity of readily available clean data.

There is a known health systems gap related to screening for second cancers among cancer survivors; providers frequently have the incorrect assumption that routine cancer screenings outside of the primary cancer disease site will be managed by other specialties, leading to gaps in care. Identifying gaps in assessment of eligibility for guideline-concordant referrals to screening for lung cancer would elucidate modifiable gaps in documentation, referral patterns, and patterns of healthcare access and utilization.

Aims: We aimed to enumerate the second cancers and recurrence, which can lead to the evaluation of guideline-concordant screening.

Methods: We were able to use clinical data in the pilot phases of building our novel database of Survivorship outcomes to identify and enumerate cancers diagnosed within the Survivorship clinic as an onramp toward building a larger data structure. Second cancers were defined as a cancer diagnosed after the primary cancer diagnosis, separate from the primary disease site.

Similarly, we enumerated recurrences of the primary disease site captured between January 1, 2012, and June 31, 2023.

Results: We identified 248 patients who have had recurrences and 520 with second cancers of the 3,120 patients with survivorship visits between January 1, 2012, and June 31, 2023. We plan to expand these methods to the additional 28,000 patients in the SURVIVE database and further characterize these cancers.

Implications: With an estimated 18 million cancer survivors in the US that require high-quality, long-term care involving screening for recurrence and second primary cancers, and prevention and management of physical and psychosocial symptoms, it is important that these needs are met. Survivorship care is often fragmented, and survivors typically seek care from multiple providers without a coordinated system.

As a result, many patients, including minority groups and those living in rural areas in the US, receive suboptimal or low-quality survivorship care, which leaves them with unmet needs and limited access to appropriate services which can increase the potential risk and burden of clinical sequalae like second primary cancers.

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Recruitment of culturally and linguistically diverse populations into primary care trials: a systematic review

Presenters: Sophie Chima[1], Georgia Ramsay[1], Janelle Jones[1], Audra de Witt[2], Vuong Kylie[3], Matthew Thoenig[1], Sibel Saya[1], Jon Emery[1]

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Background: Clinical research plays a significant role in advancing patient care, but culturally and linguistically diverse (CALD) populations are often under-represented in primary care trials. Equitable representation is vital when evaluating novel interventions in general practice, and a failure to identify and respond to differences in care needs in ethnic minorities compromises both the quality of care delivered in these populations and the generalisability of the research findings.

It is therefore important to understand effective strategies used to recruit ethnic minorities into general practice research, and the key barriers and enablers of CALD participation in primary-care trials through the lens of the patient, general practice and researchers.

Aims: Examine current strategies targeting CALD populations that are effective at improving engagement and recruitment into primary care-based clinical research.

Methods: We searched four electronic databases (MEDLINE, EMBASE, COCHRANE and CINAHL). The search included terms relating to general practice, clinical trials, recruitment, and CALD populations. Studies were included if they targeted the recruitment of CALD populations and reported on CALD participation in primary care. PRISMA reporting guidelines were followed, with two independent reviewers screening for inclusion. Joanna Briggs Institute Critical Appraisal Checklists were used to assess study quality and bias.

Results: The search resulted in over 4000 citations for title and abstract screening, and over 250 full texts reviewed. Final results will be presented at the conference as data extraction and analysis are ongoing.

The findings of this review will identify primary care-specific recruitment strategies, highlight key barriers, and explore potential solutions for engaging CALD populations in general practice research.

Implications: The results of this review will be used to inform the adaptation of an ongoing clinical trial for CALD populations. The results will also be used to develop resources for primary care researchers to support the design and conduct of future clinical trials, to optimise the inclusion of CALD populations in primary care and increase equity of access.

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ED Presentation Patterns in Cancer Patients: An Australian Perspective

Presenters: Silja Schrader[1,2], Jon Emery[1,2]

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Background: Patients who initially present to the emergency department (ED) often face poorer diagnoses, as the conditions prompting ED visits are frequently more advanced or acute by the time they seek care. While the reasons for arriving at the ED vary widely among patients, cancer-related admissions through the ED may signal missed opportunities for earlier diagnosis.

Aims: This study aims to assess ED diagnoses and attendance patterns prior to a cancer diagnosis.

Methods: Cancer patients from Victoria, Australia, with a recorded diagnosis in the Victorian Cancer Registry were linked to ED data from the Victorian Emergency Minimum Dataset. Patients were classified into 13 cancer types. Frequency of ED presentations were compared 12, 6, and 3 months prior and post diagnosis. Similarly, diagnoses were analysed based on ICD10 codes registered in patients' ED records.

The 10 most common symptoms for each cancer type were identified and clinically analysed to determine their likelihood of being related to the cancer diagnosis.

Results: In the year prior to diagnosis, 38.2% of all cancer patients attended the ED. The highest ED attendance rate was in neuro-oncology at 60.2% and cancers with unknown primary at 58%, while breast cancer patients presented the least (21.8%). The same trend was observed at 6 and 3 months prior to diagnosis. Notably, over 50% of neuro-oncology patients presented in the 3 months prior to diagnosis. Reasons for ED visits showed distinct patterns as well.

Out of the 10 most common symptoms patients presented with in the year prior to diagnosis, neuro-oncology patients had 6 reasons directly related to the cerebrovascular-, nervous system or cognitive symptoms. Both upper gastrointestinal and lung cancers also had 5 symptoms clinically associated with the area of the cancer, directly involving the digestive and respiratory systems respectively.

Implications: XAmong cancer-related ED admissions, there is significant variation in the type of cancer and the likelihood of at least one ED visit within the 12 months preceding diagnosis. Neuro-oncology patients, in particular, have a higher incidence of ED presentation closer to diagnosis.

It is known that ED patterns reflect the urgency and severity of cancer symptoms and may therefore reflect missed opportunities in earlier detection of cancer in primary care. Studying these patterns could help identify opportunities to improve early cancer detection and intervention, ideally before conditions become severe enough to require emergency care.

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Emergency Diagnosis of Cancer in United States Populations: Epidemiology and Implications

Presenters: Sarah Soppe[1], Sharon Peacock Hinton[1], Matthew Barclay[2], Megan Mullins[3], Nicholas Pettit[4], Matthew Thompson[5], Allison Kurian[6], Ellis Dillon[7], Sandi Pruitt[3], Georgios Lyratzopoulos[2], Caroline Thompson[1]

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Background: European studies have shown that a substantial minority of patients with cancer are diagnosed following emergency presentation (EP). The U.S. healthcare system, characterized by lack of universal coverage and high reliance on emergency department (ED) care, presents unique challenges, yet estimates of EP prevalence are unreported in the U.S., and the characteristics of US patients diagnosed via EP have not been explored.

Aims: Estimate the prevalence of EPs across various cancers and characterize the demographic and clinical profiles of patients diagnosed via EP in U.S. settings.

Methods: In a representative cohort of 615,000 US adults aged 66+ years diagnosed (2008-2017) with 14 cancer types, we identified patients with ED contact within 30 days before diagnosis as EPs. EPs were further distinguished by diagnosis setting: during emergency inpatient admission (EP-IP) or as outpatient following ED referral (EP-OP).

Using descriptive statistics and logistic regression to estimate odds ratios (ORs) adjusted for age, sex, cancer type, and stage, we compared demographics, clinical variables, and recent healthcare utilization between EP and non-EP patients, and by subtype of EP. We also contrasted EP prevalence in this population with recent metrics from the United Kingdom.

Results: Overall, 38% were EPs, with 68% of those diagnosed during an emergency inpatient hospitalization (EP-IP) and 32% following ED-mediated outpatient referral (EP-OPs). EP prevalence ranged from 19% (uterine) to 48% (pancreas). Among EPs, the proportion EP-OPs ranged from 20% (colon) to 61% (uterine).

Notable factors associated with EP (vs. non-EP) after adjustment included female sex (OR:1.12; 95%CI:1.10-1.13), older age (≥95 vs. ≤70 OR:3.75; 95%CI: 3.49-4.01), black race (OR:1.87; 95%CI: 1.83-1.9), 3+ comorbidities (OR:1.54; 95%CI:1.51-1.57) socioeconomic-status (lowest OR:1.59; 95%CI: 1.55-1.62), Medicaid eligibility (OR:2.06; 95%CI:2.03-2.10). EPs who were Native Americans (vs white OR:1.36; 95% CI:1.19-1.55) and rural residents (OR:2.40; 95%CI:2.24-2.57) had higher odds of EP-OP (vs. EP-IP). In the -365 to -120 days before diagnosis, frequency of ED visits were highest for EP-OPs and lowest for non-EPs; frequency of non-ED visits were highest for non-EPs. Cancer-specific rates of EP-IP were similar to UK EP estimates, but inclusion of EP-OPs reduced comparability.

Implications: 20-50% of U.S. patients have ED contact prior to diagnosis, but many of them are not admitted for urgent cancer work-up/evaluation and this outpatient EP route may reflect different diagnostic circumstances than emergency hospital admissions. Differences observed in EP prevalence by demographics and utilization patterns support the need for standardized care pathways for suspected cancer.

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Disability and Colorectal Cancer Screening: systematic review and meta-analysis

Presenters: Rita Cuciniello[1], Giovanni Emanuele Ricciardi[1,2], Emanuele De Ponti[1], Carlo Lunetti[1], Flavia Pennisi[1,2], Carlo Signorelli[1], Cristina Renzi[1,3]

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Background: Under the UK Equality Act 2010, a disabled person is defined as someone with a physical or mental impairment that significantly limits their everyday activities for a long time. According to WHO, 15% of the global population lives with a disability. In the UK, approximately one-in-four people have a disability.

People with disabilities may face challenges in accessing healthcare services, including timely cancer diagnoses. Colorectal cancer (CRC), the third most common cancer, presents a major public health concern, with 1.9million cases and 0.9million deaths reported in 2022. Screening is key for early CRC diagnosis and improved survival.

Aims: We aimed to perform a systematic review and meta-analysis examining CRC screening among people with functional, physical, hearing, or visual disabilities.

Methods: Published evidence from five databases (PubMed, EMBASE, Scopus, Google Scholar, medRxiv) was systematically reviewed, including quantitative epidemiological studies. Titles and abstracts were evaluated in double-blind by four researchers. Data were extracted from full texts on study type, number of participants, disabilities, and screening type. The association between various disabilities and CRC screening was estimated using a random-effects meta-analysis model with Stata-18.

Results: We identified 13 articles addressing one or more types of disabilities: 8 studies conducted in the USA, 2 in South Korea, and one in the UK, Japan, and Taiwan.

Of these, 69.2% were cross-sectional studies, while 30.8% were cohort studies. In more than half of the studies, disability was defined through ICD-codes, in the other studies disability was self-reported. One-third of the studies focused exclusively on CRC screening through fecal occult blood testing (FOBT) or fecal immunochemical testing (FIT), while the other studies considered either FOBT/FIT or colonoscopy.

Screening participation among people with disabilities ranged from a minimum of 20.3% to a maximum of 74.4% (median 44.8%), compared to 23.1% to 79.4% (median 45.8%) for non-disabled individuals. People with functional disabilities versus no disability had an Odds Ratio (OR)=0.59 (95%CI:0.47-0.73) for participation in FOBT/FIT screening. People with visual disabilities had an OR=0.74 (95%CI:0.61-0.89) for participating in any CRC screening (FOBT/FIT or colonoscopy).

Implications: People with disabilities are less likely to participate in CRC screening. Further studies are needed to identify barriers, such as specific communication or access obstacles and lack of adequate support. Consideration of specific needs associated with different disabilities will be key for providing more inclusive screening services, and for improving cancer diagnosis and cancer outcomes for all.

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Identifying evidence uncertainties and priorities for cancer research in rural and remote Scotland: the CORRECT study

Presenters: Natalia Calanzani[1], Carmen Brack[1], Aina Chang[2], Christopher Walker[1], Peter Murchie[1]

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Background: Primary care has a crucial role in cancer control in rural and remote communities, where accessing health services is a challenge, and cancer outcomes are often worse compared to urban areas. Identifying key areas of evidence uncertainty is vital, so future research can focus on elucidating why these variations exist (in Scotland and beyond).

Aims: To identify evidence uncertainties and prepare a list of research priorities (focus of this abstract) and create a list of top 10 priorities for future research.

Methods: The UK James Lind Alliance guidance informed research priority setting, through two workstreams: 1) gathering, verifying and listing evidence uncertainties; and 2) interim (eDelphi) and final priority setting (workshop) with cancer experts. This abstract reports on Workstream 1. Evidence from a consultation with 24 Scottish primary and secondary care professionals (who were asked about challenges in caring for rural and remote residents) was gathered alongside data from two reviews of cancer outcomes in rural and remote areas (scoping review in Scotland and international umbrella review).

Content analysis (consultation), descriptive analysis (scoping review), and narrative synthesis (umbrella review) were adopted. An evidence table was prepared describing areas of uncertainty, data source(s), and corresponding research priority. Priorities were checked by the research team for clarity and redundancy, and grouped into research areas through an iterative process, until consensus was reached.

Results: Sixty-four priorities were identified and 46 retained after checks. These were grouped into 13 research areas; seven are particularly relevant to primary care research: 1) determining consistent rural outcome inequality; 2) promoting comprehensive and inclusive research methods; 3) understanding access to care, how it is affected by geography and implications for outcomes; 4) understanding the importance of specific and rare cancer types and how they interact with person and geography to influence care and outcomes; 5) understanding the role of people's characteristics, their culture and their place in how they experience cancer care, and implications for outcomes; 6) understanding how geography influences decision-making about their cancer care and implications for outcomes; and 7) understanding the role of health care professionals - how geography affects workforce, professional attitudes, behaviour and practices.

Implications: Several research priorities can be targeted by primary care researchers; these refer to uncertainties regarding complex interactions between population, society, health, and geography. By elucidating these uncertainties, better models of care can be designed to tackle rural/urban inequalities in cancer outcomes.

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Cancer patients' needs assessment in primary care: Process theory evaluation of the need assessment tool cancer (CANAssess)

Presenters: Flavia Swan[1], Joseph Clarke[1], John Blenkinsopp[2], Alexandra Wright-Hughes[3], Emma McNaught[3], Terry McCormack[1], Miriam J Johnson[1]

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Background: The Needs Assessment Tool-Cancer (NAT-C) is a structured consultation guide to identify and triage holistic patient and carer unmet needs. We conducted an intervention arm process evaluation as part of a cluster randomised controlled trial (cRT) to test the clinical and cost effectiveness of the NAT-C in primary care for people with active cancer in reducing unmet patient and carer need, compared with usual care.

Aims: To explore the implementation of the NAT-C in UK General Practice (GP)

Methods: Setting; 21 GP practices, across 2 regions in England, participating in the NAT-C cRCT.

Mixed methods evaluation informed by Normalisation Process Theory (NPT). Two Normalisation MeAsure Development Questionnaire (NoMAD) surveys were distributed to clinicians before and after delivering ≥2 NAT-C consultations. Semi-structured interviews were conducted with intervention practice clinicians (≥2 NAT-C consultations), and key stakeholders in primary and cancer care. Survey data were analysed using descriptive statistics, and interview data were analysed using a deductive thematic framework approach informed by NPT constructs (Coherence, Cognitive Participation, Collective Action, Reflexive Monitoring). Key findings were cross-tabulated and data narratively synthesised.

Results: The study was conducted during the COVID-19 pandemic and an escalating workforce crisis in primary care. 14 paired before-after surveys showed baseline positive responses across all NPT domains, but whilst continuing to see relevance, usefulness and legitimacy, Survey 2 showed concerns about resources and management support to embed the NAT-C.

16 participants (8 GPs, 8 key stakeholders; 50% male) completed interviews. We identified 5 themes; i) 'Champions' are important at practice, regional and national levels. (Cognitive Participation) ii) Patient value must be experienced by individual clinicians (Coherence) iii) A network approach and additional resources are needed to extend implementation beyond practice level (Collective Action), iv) Effectiveness evidence is valued, but influences implementation indirectly through policy and resourced initiatives e.g., Quality Outcomes Framework (QOF) (Cognitive Participation), v) Policy is influenced by evidence of benefit, but implementation into practice is complex and driven largely by champions, appreciation of value, and resources. However, resourced initiatives (e.g., QOF payments) were also seen as a risk, leading to tick-box practice.

Implications: Implementation depends on champions and clinician 'buy in' to the patient value of the tool to legitimise use. In the context of current primary care pressures, resources were seen as essential to embed the NAT-C more widely but drivers such as QOF were viewed with mixed feelings and concerns about tick box practice.

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Impact of COVID19 pandemic on the breast cancer patient's experiences of healthcare services in the UK and Republic of Ireland: preliminary findings from a large-scale cross-sectional survey

Presenters: Meenakshi Sharma[1], Beth Moss[1], Lynne Lohfeld[1], Ann McBrien[2], Damien Bennett[3], Anna Gavin[3], Helen Mitchell[3], Sinead Hawkins[3], Gareth Irwin[4], Siobhan ONeill[4], Shreya Sengupta[4], Charlene M McShane[1]

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Background: The COVID-19 pandemic disrupted screening, appointments and treatment for breast cancer (BC), potentially impacting diagnosis and outcomes.

Aims: To explore BC patient's experiences of the impact of COVID-19 impact healthcare appointments and preferences for appointment modality in UK and ROI.

Methods: An anonymous, online, self-completed cross-sectional survey with closed and open-ended questions, available between September 2023 and April 2024. Descriptive and qualitative content analyses were performed.

Results: 1,579 responses were obtained from BC patients in England (57%), NI (13%), Scotland (11%), Wales (9%) and Ireland (10%). Most participants were female (99%), aged 51-70 (67%), employed (74.5%), had a university degree (54%), lacked private health insurance (65%) and had no comorbidities (58%). More respondents (36%) from NI were diagnosed prior to the pandemic.

Almost one-third (30%) of the respondents reported having appointments cancelled or postponed. For UK respondents, this included appointments with GPs (28%), oncology (27%) and breast screening services (27%). The greatest number of cancelled or postponed GP appointments were in NI (39%); 81% of them involved switching from in-person to phone or video appointments.

Forty percent of the Welsh respondents reported appointment changes, 85% of which were attributed to delays.

A significantly higher proportion of patients with comorbidities ($p<0.05$) reported appointment changes with GPs or oncology consultants (33% each), breast screening programs (30%); surgical consultants (24%) and nurses (22%). A significantly higher proportion of those diagnosed pre-pandemic also reported appointment changes in appointments with oncology consultants (55%),GPs (53%), surgical consultants (45%), breast screening programs (44%) and nurses (42%). Almost half the respondents preferred in-person appointments with their GP and/or consultant.

Most patients providing written responses to open-ended questions reported problems with telephone appointments (72%), with main issue being stress due to waiting for the appointment ('The anxiety of waiting for the call adds to the stress') and issues with communicating with healthcare professionals ('[I] didn't feel the call was private, and there were drops in the signal so [it was] difficult to continue a conversation'). A majority of patients (67%) also reported disadvantages with video calls compared to face-to-face consultations.

Implications: There is a need to develop country-specific strategies to mitigate healthcare disruptions and improve service delivery during future pandemics. This includes maintaining access to GPs and secondary care, and striking a balance between in-person and remote consultations.

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Clinical and Genetic Factors Associated with Neuroendocrine Neoplasms - a UK Biobank Study

Presenters: Harry Green[1], Marieline El-Asmar[2], Maria Moreno-Montilla[3], John Ramage[2]

[1]University of Exeter, Exeter, United Kingdom. [2]Hampshire Hospitals NHS Foundation Trust, Basingstoke, United Kingdom. [3]Maimonides Biomedical Research Institute of Córdoba (IMIBIC), Cordoba, Spain

Background: Incidence of neuroendocrine neoplasms (NEN) is rising globally, yet clinical and genetic factors remain poorly understood. Evidence for the role of obesity is conflicted and studies on prospectively collected data is sparse.

Aims: We aimed to identify clinical and germline genetic risk factors associated with NEN in the UK Biobank.

Methods: Cases of NEN were identified in the UK Biobank's cancer registry data. Using a combination of ICD-O3 codes for cancer site and histology, NEN cases were stratified into neuroendocrine tumour (NET), neuroendocrine carcinoma (NEC) and small / large cell lung cancer (SLCLC).

A Cox-proportional hazards model was used to test for an association between clinical phenotypes and increased NEN risk, and a gene burden test in Regenie was used to test for causal variants in the exome sequencing data.

Results: We identified 704 NET, 340 NEC, and 550 SLCLC cases. Increased NEN risk associated with increased obesity (body mass index or waist-hip-ratio) and lower cholesterol (LDL, HDL or total). Smoking and HbA1c associated only with SLCLC.

Air pollution was not significantly associated when adjustment was made for socio-economic status. We replicated a known germline association between loss of function variants in MEN-1 and NEC, but did not detect any novel association in exome variants.

Implications: This is the first large prospective population based study to identify clinical and genetic risk factors for NEN and defined a novel phenotype in the UK Biobank. More research is needed to establish whether these relationships are causal.

The exome study was underpowered, and future work in this area should focus on meta-analysing multiple large datasets.

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Obtaining consensus on priorities for cancer research in rural and remote Scotland: an e-Delphi with cancer experts

Presenters: Carmen Brack[1], Peter Murchie[1], Aina Chang[2], Christopher Walker[1], Natalia Calanzani[1]

[1]University of Aberdeen, Aberdeen, United Kingdom. [2]King's College Hospital, London, United Kingdom

Background: Those living in rural areas have worse cancer outcomes, the exact causes for this are not fully understood. As research in this area continues, it is important to identify and agree on critical areas for research to direct funding and resources. Particularly for primary care as the key point of contact for rural residents.

Aims: This e-Delphi exercise aims to reach consensus and produce a list of top 20 priorities for cancer research in remote and rural Scotland.

Methods: A three-round e-Delphi was deployed from Sep-Nov 2024 with 30 cancer experts from remote and rural backgrounds in Scotland, recruited through personal and professional networks. Cancer experts were defined as: 1. Cancer survivors; 2. Health and care professionals; 3. Cancer charity staff; or 4. Cancer network staff in patient facing roles.

Round 1 presented participants with 46 priorities (informed by literature review and consultation with health care professionals), which were ranked on a Likert scale from 1 (low importance) to 9 (high importance). Participants could also suggest additional priorities, two researchers independently inductively analysed these.

Round 2 presented participants with priorities with no consensus (median 4-6 Likert score) and any additional priorities. Round 3 asked participants to identify their top 20 priorities from those with median score 7-9 and over 75% agreement in rounds 1 and 2.

Results: Cancer experts were 70.0% healthcare professionals, 13.3% each of cancer survivors and cancer network staff, and 3.3% cancer charity staff. Over half, currently or previously lived and/or work in Northeast Scotland. In Round 1, 44 out of 46 priorities were ranked as important and four more were suggested by participants.

After Round 2, 37 priorities were both ranked as important and reached 75% agreement. Round 3 data show that all participants identify: 1. travel distance and burden on healthcare decision making and/or 2. the intersection of geography with patient characteristics, as key priorities for research.

Almost four in five experts also identified the need to use a wider variety of study types (qualitative, quantitative) to understand rural/urban variations as a top 20 priority. Response rate remained high between round (over 70% maintained for Round 3).

Implications: Results will inform a final prioritisation workshop to define top 10 priorities and ensure that research is aligned with both evidence and the perspectives of cancer experts.

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A Systematic Review of Machine Learning Tools for Identifying Individuals at High-Risk of Lung Cancer in Primary Care Records

Presenters: Wen Zhou Wang, Benjamin Jacob, Linda Henry, Alexander Carroll, Patrick Redmond

PriCAN Research Group, Dept. of GP, RCSI University of Medicine and Health Sciences, Dublin, Ireland

Background: Lung cancer often presents with non-specific symptoms, contributing to delayed diagnosis and poor survival outcomes. There is growing evidence that machine learning (ML) tools can detect patterns in primary care data indicative of undiagnosed lung cancer, potentially enabling earlier diagnosis and improving patient prognosis. This systematic review aims assess the current landscape of ML models designed to identify lung cancer using routine primary care data.

Aims: To summarise the evidence on the performance of ML models developed for lung cancer detection using primary care data, classifying them according to their machine learning techniques, input data, training and validation procedures.

Methods: This systematic review will be conducted in accordance with the Cochrane Handbook, pre-registered on the Open Science Framework, and reported using PRISMA guidelines. The search strategy, developed with an information specialist, will cover MEDLINE, Embase, Scopus, Web of Science, the Cochrane Library, clinical trial registries, and grey literature using terms related to "machine learning," "lung cancer," and "primary care." Studies will be included if they develop, validate, or evaluate ML models for lung cancer detection using primary care data and report performance metrics (e.g., sensitivity, specificity, AUC-ROC). Exclusions include non-ML methods, secondary care data, insufficient methodological details, or studies not published in English.

Two reviewers will independently screen studies using the "Rayyan" software and extract data using a piloted template, with discrepancies resolved by a third reviewer. Extracted data will include ML algorithms (e.g., Random Forest, deep learning), input data (e.g., clinical symptoms, prescribing, lab results), training and validation methods, and performance metrics. Study quality and risk of bias will be assessed using the PROBAST tool.

Results will be narratively synthesized, and a meta-analysis will be conducted if studies exhibit sufficient homogeneity in design and outcomes.

Results: Our pilot search and screening strategy on a sample of 241 records from the MEDLINE dataset revealed 6 new studies, not previously identified in the 2021 review by Owain Jones et al. ML techniques are bidirectional encoder representations from transformers (BERT), least absolute shrinkage and selection operator (LASSO), and Extreme Gradient Boosting (XGBoost).

Implications: This review will provide researchers with insights into effective machine learning approaches and validation strategies for lung cancer detection in primary care, while identifying areas requiring further study. For clinicians and policymakers, it will clarify the potential of these tools to support earlier diagnosis and inform decisions on their integration into routine practice.

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Optimizing General Practitioner Referrals to Non-Specific Symptom Pathways: A Multi-Method Study to Improve Cancer Diagnosis

Presenters: Olufisayo Olakotan[1], Judith Yargawa[1], Julie-Ann Moreland[2], Claire Smith[3], Brain Nicholson[3], Andrew Millar[4], Georgia Black[1]

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Background: In England, cancer patients presenting in primary care with non-specific but concerning symptoms (NSCS) such as weight loss and fatigue are eligible for referral to NSS pathways, enabling specialists to collaborate and expedite diagnosis.The information conveyed by primary care practitioners in referral forms to NSS pathways plays a critical role in ensuring timely diagnosis and effective treatment, significantly impacting patient outcomes.

Aims: This multi-method study aimed to explore and identify the optimal characteristics of cancer referrals forms from GPs to NSS pathways.

Methods: This study included a scoping review of evidence for the characteristics of optimal cancer referrals made by primary care clinicians, a content analysis of routinely collected referral form content, and qualitative interviews with primary care practitioners and NSS pathway staff. This talk will focus on the results of the content analysis: Microsoft Excel-based content analysis tool was developed to evaluate approximately 600 anonymised cancer referral forms from two Trusts that deliver NSS services in the South East of England.

Each referral form was assigned a unique identifier, and eight predefined quality criteria were generated through our scoping review findings and used to assess content: symptoms and presenting complaints, personal or family medical history, personal or social history, diagnostic test results, requests and recommendations for further investigation, ongoing treatments and medications, and GP reasons for referral. Each criterion was scored based on the presence or absence of relevant information in the free text section of the referral form.

Results: Interim content analysis findings reveal that the majority of referral forms contained a detailed description of symptoms (62.5%), and relevant personal or family medical history (57.3%) and relevant test results (71.9%). Few referral forms included details of clinical examinations (21.9%), social circumstances (9.2%), or ongoing treatments or medications (21.9%).

A significant minority of forms contained requests for specific tests (36.5%), as well as the referrer's rationale or main concern (51%). Interim qualitative findings from primary care and NSS staff suggest differing views about the ideal content of the referral form, and the perceived value of the information in clinical decision-making.

Implications: The results suggest significant variability in the depth and scope of information provided, suggesting targets for improvement that could be met through changes to referral criteria and form templates, as well as local audit and feedback mechanisms. Optimising referral form content may enhance prioritisation of referrals and appropriate patient management, and timely and patient-centred care.

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Mapping Post-Treatment Breast Cancer Survivorship Care in Pakistan: Insights for Interdisciplinary Care

Presenters: Ayesha Bibi[1], David Weller[1], Christine Campbell[1], Amjad Khan[2], Danica Du[1]

[1]University of Edinburgh, Edinburgh, United Kingdom. [2]Quaid-i-Azam University, Islamabad, Pakistan

Background: Effective post-treatment survivorship care for breast cancer women requires addressing medical, emotional, and social needs through coordinated, interdisciplinary care. In Pakistan, where healthcare systems often face resource and coordination challenges, it is essential to understand the existing landscape of post-treatment survivorship care. This review explores the current practices and gaps, emphasizing the need for a collaborative, interdisciplinary framework.

Aims: To explore the landscape of post-treatment breast cancer survivorship care in Pakistan, identify gaps in interdisciplinary care and research areas.

Methods: The scoping review followed JBI and PRISMA-ScR guidelines. Eligible studies published between 2006 and 2024 were identified using six databases and grey literature. Inclusion criteria encompassed studies focused on women aged 18+ who had completed initial treatment for breast cancer in Pakistan. Data extraction and narrative synthesis were guided by the IOM's framework, covering surveillance, intervention, prevention, and care coordination components.

Results: Sixteen studies met the inclusion criteria, primarily quantitative (n=13), with a minority adopting qualitative (n=2) or mixed methods (n=1). Key findings highlighted significant gaps in coordinated care, limited integration of psychosocial interventions, and insufficient focus on primary care providers in the survivorship phase.

While some studies addressed psychological interventions and physical rehabilitation, none explicitly included care coordination strategies. Survivorship outcomes, such as quality of life and mental health, were frequently assessed but lacked interdisciplinary integration.

Implications: The findings highlight an urgent need for a holistic, interdisciplinary model of survivorship care in Pakistan. Incorporating breast cancer specialists, psychologists, community pharmacists, and primary care providers into care plans could bridge existing gaps and improve patient outcomes. These insights also hold value for similar low-resource settings, offering a foundation for developing culturally and contextually relevant care models.

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Colorectal Cancer Risk in Patients with Type 2 Diabetes: a scoping literature review

Presenters: Ella Rideout, David Shotter, Lucy Kirkland, Melissa Barlow, Willie Hamilton, Sarah Bailey

University of Exeter, Exeter, United Kingdom

Background: Individuals with type 2 diabetes (T2D) are at an increased risk of developing cancer, particularly colorectal cancer (CRC), although the mechanisms underlying this association are not yet fully understood. Diagnosing CRC in patients with T2D remains challenging; T2D is linked to a higher prevalence of irritable bowel syndrome (IBS), affecting up to 75% of T2D patients.

CRC in T2D patients may be mistaken for IBS due to overlapping symptoms, leading to potential delays in CRC diagnosis. Therefore, it is critical to identify hallmarks of T2D associated with CRC, especially in primary care to improve rates of early-stage diagnosis. Early diagnosis of CRC can lead to survival rates of 85%-90%, compared to 10%-65% for patients diagnosed at an advanced stage.

Aims: The aim of this literature review is to investigate the relationship between T2D and CRC, and to explore the potential mechanisms underlying their association, including the role of the gut microbiome as a contributing factor to the development and progression of colorectal cancer.

Methods: The research will involve a comprehensive search of the Ovid Medline and EMBASE databases. Studies suggesting a correlation, or lack of correlation, between T2D and CRC carcinogenesis will be included. Studies focused on Type 1 Diabetes will be excluded.

Key words will include terms for CRC, T2D, incidence and risk, gut microbiome dysbiosis, and pathway. Included studies will be published from 01/01/2011 to present. Starting from this year will help make the number of returns more manageable. Cancer recording in the UK also improved from 2011 onwards. Results from included studies will be extracted and combined in a narrative synthesis.

Results: The initial search returned 111 publications. Abstract screening is currently underway, and I will present the findings of the narrative synthesis after full text screening and data extraction at the CaPRI conference in April 2025.

Implications: Understanding the link between T2D and CRC is critical for reducing their global burden and impacts on healthcare systems and may better equip primary care providers and policy makers to identify early CRC risk factors in patients with T2D.

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Examining the frequency and prognostic implications of emergency presentations of cancer using contextual definitions: a study of population-based health records

Presenters: Emma Whitfield[1,2], Becky White[1], Matthew Barclay[1], Meena Rafiq[1], Nadine Zakkak[1], Marta Berglund[1], Spiros Denaxas[2], Georgios Lyratzopoulos[1]

[1]University College London, Department of Behavioural Science and Health, London, United Kingdom. [2]University College London, Institute of Health Informatics, London, United Kingdom

Background: Previous research in England has used the 'Routes to Diagnosis' (RtD) algorithm to identify emergency presentations (EPs), however international studies typically use a simpler contextual definition – presence of an emergency hospital admission in the 30 days prior to cancer diagnosis.

Aims: This study aimed to evaluate the frequency and prognostic implications of an EP in England for five cancer sites (brain, colon, lung, ovary, pancreas) using contextual definitions of emergency presentation.

Methods: We used population-based linked longitudinal records from CPRD, HES, and ONS to identify patients with a first incident diagnosis of a cancer site of interest between 1/1/1999 and 31/12/2019. EP was defined as an emergency inpatient admission starting on, or up to, 30 days before the diagnosis date. As a sensitivity analysis, this definition was expanded to also include any cases with an A&E attendance in the 30 days before diagnosis.

For each cancer site, two regression models were used to evaluate the prognostic implications of an EP. The first evaluated the association between EP status and death in the year after diagnosis; the second evaluated the association with total duration of overnight hospital stays in the year after diagnosis. Models were adjusted for age and year of diagnosis, gender, deprivation level, comorbidity burden, and the diagnosis source (primary care, secondary care, death records).

Results: EP frequency ranged from 34.0% (colon cancer, 95% CI 33.7% to 34.3%) to 60.1% (brain tumours, 95% CI 59.6% to 60.6%). The inclusion of A&E attendances increased EP frequency estimates between 1.4% (colon cancer) to 3.9% (brain tumours).

Adjusted odds ratios for 1-year mortality in EP vs non-EP diagnosed patients ranged from 2.68 (pancreatic cancer, 95% CI 2.50 to 2.87) to 4.87 (lung cancer, 95% CI 4.72 to 5.03). Adjusted rate ratios for 1-year hospitalisation in EP vs non-EP diagnosed patients ranged from 1.34 (pancreatic cancer, 95% CI 1.30 to 1.39) to 1.94 (ovarian cancer, 95% CI 1.87 to 2.01).

Implications: Using a simpler definition of emergency presentation, estimates of the frequency and prognostic implications were comparable to previous estimates produced using the RtD algorithm. Risk of hospitalisation in the year after diagnosis in EP vs non-EP diagnosed patients – whilst still increased – is lower than 1-year mortality risk, as cancer patients are likely to require hospital care regardless of their route to diagnosis.

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Evaluating the Research Potential of Irish GP Data for Skin Cancer: A Comparative Analysis Using Australian Primary Care Data

Presenters: Fergus Poynton, Alexander Carroll, Benjamin Jacob, Patrick Redmond

Royal College of Surgeons in Ireland, Dublin, Ireland

Background: Primary care datasets are vital for cancer research, offering large-scale, longitudinal data on patient outcomes. While countries like the UK and Australia have developed extensive primary care data networks (e.g., CPRD, MedicineInsight), Ireland's infrastructure for cancer surveillance, especially for skin cancer, remains underutilised.

This study examines the capacity of Irish GP data for skin cancer research, using Australian data practices as a reference point for identifying potential areas of improvement.

Aims: To assess the utility of Irish GP data in studying the incidence of melanoma and non-melanoma skin cancers, validating these findings against the National Cancer Registry Ireland (NCRI). The study also aims to identify opportunities for improving data quality and consistency in Ireland, informed by a comparison with Australian primary care data.

Methods: A retrospective cohort study was conducted using anonymised data from 44 GP practices in Ireland, covering the period from January 2011 to April 2018. Skin cancer cases were identified using ICD-10 codes. Incidence rates per 100,000 population were compared with data from the NCRI and Australian cancer registries.

Variability in coding and data completeness across Irish practices was analysed to evaluate the quality and utility of the data.

Results: Initial findings show that Irish GP data captures skin cancer cases, but inconsistencies in coding and incomplete records limit its utility for accurate incidence reporting. Variation in coding practices across GP sites may impact the reliability of comparisons with NCRI and Australian registry data.

Implications: These preliminary results indicate a need for improved data standardisation in Irish primary care to enable more accurate cancer surveillance. Drawing on practices from Australia, consistent coding and better data integration could strengthen the role of Irish GP data in skin cancer research. Full findings and detailed recommendations will be shared at the conference.

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Cancer risk in patients with multiple or recurring symptoms in primary care: a systematic review of current evidence

Presenters: Yin Zhou[1], Natalia Calanzani[2]

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Background: Globally, the majority of cancer patients are diagnosed after symptomatic presentations to their clinicians.

Diagnostic pathways facilitating rapid investigations for cancer are typically supported by guidelines which are based on one alarm symptom and patient risk factors such as age, sex and smoking status. However, patients often first present to their doctors with combinations of undifferentiated symptoms, some of which are non-specific and have lower risk for cancer.

With just 14 common symptoms making up over 40% of primary care consultations, it is likely that many patients present with multiple symptoms multiple times before a diagnosis is made. Research on the diagnostic value of symptoms for cancer has largely focused on identifying high-risk symptoms, with most population evidence arising from the UK almost 20 years ago.

With increasing medical complexity in an ageing population, advancements in early diagnosis research and improvements in quality of data available, we seek to update the evidence on the cancer risk in patients presenting with two or more symptoms, or with recurrent and persistent symptoms.

We will describe the implications of our findings for patients, clinicians and health care systems, and provide clinical, policy and research recommendations to improve early cancer diagnosis and outcomes.

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Impact of the COVID-19 pandemic on Northern Ireland breast cancer patients' pathway and short-term survival – findings from a population-based study comparing 2020 and 2018

Presenters: Sinead Hawkins[1,2], Helen Mitchell[1,2], Nicole Lowans[1], Shreya Sengumpta[3], Gareth Irwin[3], Siobhan O'Neill[3], Ann McBrien[4], Lynne Lohfeld[2], Meenakshi Sharma[2], Charlene McShane[2], Anna Gavin[1,2], Damien Bennett[1,2]

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Background: The Northern Ireland (NI) Cancer Registry (NICR) undertook an audit examining the impact of COVID-19 on breast cancer (BC) services in NI by comparing a pre-COVID-19 period in 2018 and the initial COVID-19 period in 2020. During the initial COVID-19 period in 2020 breast screening services were paused for 4 months as part of pandemic lockdown measures.

Aims: To assess the impact of the COVID-19 pandemic on BC patients' pathways to NHS services, treatment intent, first treatment received and 3-year survival.

Methods: All patients diagnosed with incident primary BC (ICD-O-3: C50) between March-December 2018 (PRE-COVID) and March-December 2020 (COVID) were extracted from the population-based, NICR BC Audit dataset. Differences in referral route (e.g. GP, Breast Screening) and first treatment type (e.g. Surgery, Chemotherapy, Hormone Therapy) were examined using chi-squared test. 3-year survival was examined using Kaplan Meir survival curves and Log Rank Tests for significance.

Results: A total of 2,260 patients were included, with 1,205 diagnosed in 2018 and 1,055 in 2020. Median age at diagnosis was 61 years in 2018 and 62 years in 2020. The vast majority were female (n=2,250, 99.6%).

Referral pathways into breast cancer services shifted significantly (p=<0.001), with the proportion of patients referred via GPs increasing from 52.6% (634 patients) in 2018 to 59.0% (622 patients) in 2020. In contrast, referrals from Breast Screening services decreased from 30.2% in 2018 (364 patients) to 26.2% in 2020 (276 patients).

We found no significant impact on treatment intent (89%) Curative (PRE-COVID) and (86%) Curative (COVID). Initial analysis of first treatment type received found a significant increase in hormone therapy from 135 (11%) (PRE-COVID) to 225 (21%) (COVID), and a significant decrease in surgery from 958 (80%) (PRE-COVID) to 740 (70%)(COVID), suggesting that hormone therapy may have been used as a bridging therapy. We found no significant difference in short-term observed survival for those treated with curative intent (92%). 3-yr survival (PRE-COVID) to (93% 3-yr survival (COVID)).

Implications: The shift in referral patterns, with fewer patients diagnosed via breast screening, highlights the need to maintain access to cancer screening during future pandemics. Adaptations in treatment pathways, with higher levels of bridging endocrine therapy, alongside no significant shift in treatment intent or short-term survival, suggests treatment and care plans were effectively adapted to support good patient outcomes. Policies should focus on resilient cancer care pathways to ensure timely diagnosis and support during such disruptions.

Workshops

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Workshop International comparison of the role of the GP after cancer diagnosis

Presenters: Mariken Stegmann[1], Kirubakaran Balasubramaniam[2], Saskia Maass[3], Rosalind Adam[4], Carolyn Ee[5], Heidi Lidal Fidjeland[6], Rose Fok[7], Famke Huizinga[3], Linda Aagaard Rasmussen[8], Daan Brandenbarg[3], Robin Urquhart[9]

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Background: In 2022, there were an estimated 20 million new cancer cases worldwide and this number is rising each year, mainly due to ageing of the population. Furthermore, survival rates are improving, leading to vast numbers of patients surviving or living with cancer. In countries with a healthcare system based on primary care, the number of cancer patients per general practitioner (GP) is strongly increasing. However, those countries feel a high pressure on healthcare in general, including on primary care. We therefore need to optimize the role of the GP after cancer diagnosis.

During Ca-PRI 2024, we formed an international group aimed at comparing the role of the GP after cancer diagnosis in different countries and learning from each other with the following research questions:

1.What is the role of the GP in the care trajectory for patients with cancer after diagnosis in the different countries with a strong primary care?

2.When does the GP have contact with the patient, how, and for what reasons?

3.When does the GP have contact with secondary/tertiary care, how and for what reasons?

4.How are the health care systems in the different countries organized and can we explain differences in care trajectories by differences in health care system?

5.Which innovative models/recent developments in improving care trajectories do the different countries have?

6.What can we learn from those care trajectories and which ideas can be used to improve care trajectories in other countries?

Aims: During this interactive workshop, we will present the first draft of the answers on the first three questions and ask for input from all workshop participants. Furthermore, we will discuss the fourth question.

Session outline:

- Welcome and introduction
- Presentation of draft answers to question 1-3
- Interactive discussion about question 1-3
- Discussion in small groups about question 4 (what can we learn)
- Plenary summary and discussion of further proceedings

Outcomes:

For organizers: International input for our study of international comparison for the role of the GP after cancer

For participants: knowledge about care trajectories, healthcare systems and innovative developments in different countries; inspiration; opportunity to become involved in the project and/or form future collaborations

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Evidence based primary care referral guidelines

Presenters: Charlotte William[1], Lyndsy Ambler[1], Jaimee Kerven[1], Phil Hodkinson[2], Lorna Porteous[2], Jenny Johnston[2], Sarah Wink[2]

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Background: Primary care is crucial for the diagnosis of cancer and for most cancer types, the most common route to diagnosis is via a GP. However, recognising suspected cancer in primary care can be challenging, as there are relatively few effective tests and tools to support assessment, and most symptoms are not very predictive of cancer.

Guidelines play an important role, supporting healthcare professionals in their decision-making and helping to ensure a more consistent approach to investigation of suspected cancer. It's therefore important to ensure guidelines reflect the latest evidence and that their consistent use is supported.

There are many challenges to ensuring that evidence-based guidelines are implemented in a timely and effective manner in primary care, from gaps in the evidence base underpinning the guidelines, to implementation and assessing the impact of new guidelines. We also know that use of guidelines differ between health professionals, and international evidence has demonstrated that decision making g in primary care is influenced by a large variety of factors.

The Centre for Sustainable Delivery (CfSD, part of NHS Scotland) has undertaken a project to update the Scottish Referral Guidelines for Suspected Cancer (SRG). This was noted as a commitment in the 3-year action plan for the wider NHS Scotland 10-year Cancer Strategy. Cancer Research UK has supported this process in a variety of ways, including conducting evidence reviews to inform the guideline update. Several challenges were identified through this work, which could benefit from expert discussion and opportunities to share learning.

Aims: This session will bring together expert stakeholders to discuss key challenges related to the development and implementation of evidence-based referral guidelines and explore potential solutions.

Session outline:

• Introduction/scene setting: importance of evidence-based primary care guidelines, overview of current guidelines and their development, summary of key challenges to implementing evidence-based guidelines

• 2-3 discussion-based activities centred around key challenges, sharing best practice and exploring potential solutions (Topics could include: addressing evidence gaps, translating evidence into practice, measuring impact of guidelines, promoting use of guidelines)

• Feedback and wrap-up

Outcomes:

• Encourage international collaboration and sharing of best practice

• Identify key, actionable insights for different stakeholders, including academics, health systems leaders, organisation leaders and health professionals

• Identify potential actions and solutions to address key challenges

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Navigating diagnostic uncertainty with e–safety-netting tools in primary care: current evidence and development of an evaluation framework

Presenters: Georgia Black[1], Claire Friedemann Smith[2], Susannah Fleming[2], Brian Nicholson[2], Clare Bankhead[2], Lynn McVey[3], Rebecca Lawton[4], Andrea Cronin[5], Saira Parker-Deeks[5], Donna Chung[6], Samantha Machen[7], Afsana Bhuiya[8]

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Background: Electronic safety-netting (E-SN) tools help healthcare professionals manage diagnostic uncertainty, complementing traditional safety-netting methods. Despite their growing use, there is no standardised definition or evaluation framework for E-SN tools, and limited robust research on their effectiveness. This workshop will use data from three E-SN tools to explore how these technologies support patient safety and diagnostic accuracy. Participants will engage in group discussions and interactive feedback to refine an emergent framework for assessing E-SN tools.

Aims:

1. Introduce the concept of E-SN and its role in managing diagnostic uncertainty.

2. Present an emergent framework for evaluating E-SN tools.

3. Critically assess three case studies of E-SN tools, highlighting strengths and limitations.

4. Engage participants in refining the framework based on practical insights.

5. Identify research gaps and future directions in E-SN tool development.

Session outline:

1. Introduction to e-Safety-Netting (10 minutes)

2. Data Presentation from Three e-Safety-Netting Tools (20 minutes)

3. Audience Participatory Exercise: Framework Refinement (20 minutes)

Discussion Prompts:

- What are the most critical criteria for effective e-safety-netting tools?
- Which aspects of the framework need revision or additional criteria?
- How could these tools be better integrated within existing clinical workflows?

4. Future Directions and Research Priorities (10 minutes)

Outcomes:

- A clearer understanding of the strengths and limitations of current E-SN tools.
- Refinement of an emergent framework based on collaborative feedback.
- Prioritisation of research questions to guide future E-SN tool development and evaluation.

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Inequalities in cancer outcomes in rural and remote areas: a workshop to define top 10 priorities for primary care research

Presenters: Natalia Calanzani[1], Carmen Brack[1], Christopher Walker[1], Aina Chang[2], Peter Murchie[1]

[1]University of Aberdeen, Aberdeen, United Kingdom. [2]King's College Hospital, London, United Kingdom

Background: Cancer survival is often poorer in rural and remote areas compared to urban locations, but reasons for this are poorly understood. We consulted with health care professionals and carried out two reviews to identify research uncertainties regarding cancer outcomes in rural and remote areas. We outlined 46 research priorities, which were reduced to 20 after an eDelphi exercise with cancer experts (health and care professionals and cancer survivors) in Scotland.

In summary, evidence shows there is considerable variation in outcomes according to population characteristics, tumour type, and geography. There are inconsistencies in defining rurality and adjusting for it. While the current focus on early cancer detection is important, it is not sufficient to tackle disparities as these occur along the cancer care pathway, from symptom appraisal to end of life care. Primary care has a vital role across the cancer journey, particularly in the areas where there is most research uncertainty: before cancer is diagnosed and during/after cancer treatment.

Aims: To reach consensus on the top 10 research priorities, from a primary care perspective, and discuss how evidence could be generated to reduce uncertainties.

Session outline: First, we will present the top 20 priorities and explain the evidence underpinning them (10 min). Then, we will follow guidance from the UK James Lind Alliance for an adapted version of a nominal group technique, to reach consensus on the top 10 priorities, after two phases:

Phase 1 (20 min): Small groups discuss the 20 priorities, highlighting the ones they see as most important and relevant to primary care research. Printed cards with the 20 priorities are also given to each group, to be ranked in order of importance.

Phase 2 (20 min): Facilitators create an aggregated ranking of top 10 priorities, and everyone is invited to comment and agree on the order. If consensus cannot be reached, voting will take place.

Finally, everyone is invited to discuss what kind of primary care research they would carry out to address the top 10 research priorities (10 min).

Outcomes: Participants will 1) reflect on, and collaboratively discuss the role of primary care research in improving cancer outcomes in rural and remote areas; and 2) generate research ideas to contribute to addressing rural and remote inequalities. A summary of the discussions will be sent to all interested participants, so further conversations and collaborations can continue after the workshop.

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