



**Ca-PRI**

The Cancer and Primary Care  
Research International Network

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**Ca-PRI Online  
Conference 2021**  
Abstracts

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## Oral Parallel Sessions

O01

### Help-seeking experiences in primary care for symptoms related to colorectal cancer during COVID-19

**Presenters:** Katriina Whittaker & Athena Ip, University of Surrey, UK

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**Background:** COVID-19 has led to rapid changes in health care delivery, raising concern that these changes may exacerbate existing inequalities in patient outcomes. The aim of this study was to provide an in depth understanding of patient experiences of primary care during the COVID-19 pandemic when help-seeking for symptoms related to colorectal cancer.

**Method:** We carried out qualitative interviews with 39 participants (20 higher SES; 19 lower SES, indexed by education) across the UK who contacted primary care about symptoms of colorectal cancer during the pandemic. Interviews and framework analysis of the first 19 lower SES interviews have explored aspects of the candidacy framework to understand how people decided to seek medical help, how they navigated services, ease of accessing services, and their perception of the interaction with healthcare professionals. Further comparative thematic analysis will be used to explore differences between higher and lower SES groups.

**Findings:** Preliminary findings from people in the lower SES group (n=19) suggests there was hesitancy in accessing primary care. People reported uncertainty about navigating access, which centred on practicalities (e.g. getting an appointment, prescriptions), perceived safety of GP practices, and whether their help-seeking would be considered appropriate in the context of COVID restrictions. People legitimised help-seeking by rationalising their symptoms (comparative to COVID symptoms), emphasising their responsibility to their health, their families and being a responsible user of health services. Negative expectations of accessing primary care were often not realised, with people reporting efficiency in the use of technology to book/ attend appointments remotely.

**Conclusions:** We will present further detailed comparative analyses of challenges in help-seeking in the context of the pandemic, as well as potential positive changes in accessing care that emerged and whether these differed by socioeconomic group. The findings will help to develop recommendations for minimising negative impacts on patient care.

O02

## Missing cancer patients in the Covid era

**Presenter:** Diane Primrose, Centre for Sustainable Delivery - Golden Jubilee National Hospital, UK

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1 Public Health Scotland; 2 Cancer Performance & Early Diagnosis; 3 Cancer Access, Scottish Government

**Background:** Covid has had major impacts on cancer pathways from presentation to treatment. Restrictions around attendance in both primary and secondary care, a temporary pause of national screening programmes plus patient nervousness about risk of infection led to significant drops in cancer referrals, attendance for diagnostics and commencement of cancer treatments. There is now anxiety about possible “missed” cancer patients throughout the NHS, and where they are within our communities.

**Method:** We used Public Health Scotland’s data on pathologically confirmed cancers (28 types and by sex) comparing figures for the Covid year of 2020 with 2019.

**Results:** Figures showed the number of patients with cancer in 2019 and 2020 were virtually identical until the week of 22 March. Thereafter, weekly-confirmed cancers fell around 40%.

Rates have slowly recovered but as of late November 2020, numbers remained below those of 2019 - overall, around 17% lower, equating to around 7,000 fewer cancer patients. There was variation by cancer; for example, pancreatic cancer patients showed almost 100% decrease in numbers in April, a gradual increase, then a surge of diagnoses above 2019 by late September. Lung cancer patients showed an overall drop of 40% in April, with this being more notable for females. Meanwhile, breast cancer patients also demonstrated an April drop of around 40% partly due to the screening pause, with a rapid rebound, almost surpassing 2019’s figures by September, which is anecdotally an ongoing trend by NHS Boards.

**Discussion:** Covid’s impact on the diagnosis of cancer patients varies across cancers, partly reflecting the pause of national screening programmes for between 3-6 months, as well as variable access to diagnostics like endoscopy and imaging. Despite some signs of recovery, concerns remain about undiagnosed patients, how to identify them and to accelerate their onward referral and treatment. Limited staging data is available for 2020 patients to date, but this will help provide insight into the impact of Covid on cancer patients’ outcomes. All these data are integral in shaping future cancer policy in Scotland to support the recovery of cancer pathways and re-design of services.

\*figures that cover the whole of 2020 are due in the near future

**O03**

## **Cancer detection via primary care urgent referral in England 2009/10-2018/19 and the association with practice characteristics**

**Presenter:** Thomas Round, King's College London, UK

**Names and affiliations of co-authors:** Dr Mark Ashworth<sup>1</sup>, Dr Veline L'Esperance<sup>1</sup>, Dr Henrik Møller<sup>1</sup>

1 King's College London

**Background:** Increased cancer detection via urgent suspected cancer referral (two week wait/2WW) is associated with improved cancer patient outcomes. There is substantial variation in use of 2WW between practices which is under-researched.

**Aim:** To examine change in use of 2WW referrals in England over ten years (2009/10 to 2018/19) and practice and population factors associated with cancer detection.

**Design and Setting**

Retrospective cross-sectional study of English general practices and their 2WW referral and cancer waiting times (CWT) detection data (all cancers other than non melanoma skin cancers) 2009/10 to 2018/19.

**Methods:** Descriptive statistics of changes over ten years in 2WW referral data. Yearly linear regression models to determine the association between cancer detection rates and quintiles of practice and population characteristics. Predicted cancer detection rates were calculated and the difference between lowest (Q1) to highest (Q5) quintiles.

**Results:** Over the ten years studied there were 14.89m 2WW referrals (2.2m 2018/19), 2.68m new cancer diagnoses of which 1.26m were detected following 2WW. The detection rate increased from 41% to 52%. There were an additional 66,172 cancers detected via 2WW compared to 2009/10 (a 68% relative increase). If cancer detection rate had been maintained at 41% (rather than yearly increases) 165,899 fewer cancers would have been detected via 2WW over the ten year period. Higher cancer detection via 2WW referrals was associated with larger practices and those with younger GPs. From 2016/17 onwards more deprived practice populations were associated with decreased cancer detection.

**Conclusions:** From 2009/10 to 2018/19 2WW referrals increased on average by 10% year on year. Higher cancer detection was found in larger practices, with relatively younger GPs and more recently, less deprived populations. COVID-19 has led to significant impacts on 2WW referral activity and the impact on patient outcomes will need to be studied.

O04

## **Morbidity and measures of the diagnostic process in primary care among patients subsequently diagnosed with cancer**

**Presenter:** Monica Koo, University College London, UK

**Names and affiliations of co-authors:** Ruth Swann<sup>2,3</sup>, Sean McPhail<sup>2</sup>, Gary A Abel<sup>4</sup>, Cristina Renzi<sup>1</sup>, Greg P Rubin<sup>5</sup>, Georgios Lyratzopoulos<sup>1,2</sup>

1 University College London; 2 National Cancer Registration and Analysis Service, Public Health England; 3 Cancer Research UK; 4 University of Exeter Medical School; 5 Population Health Sciences Institute, Newcastle University

**Background:** Pre-existing chronic conditions (morbidities) may influence the processes of cancer diagnosis. We examined the association between morbidity and measures of the diagnostic process among patients subsequently diagnosed with cancer.

**Methods:** We analysed English National Cancer Diagnosis Audit (NCDA) 2014 data for 11,716 patients who presented in primary care before cancer diagnosis. Morbidity was measured using GP-assigned morbidity status and burden (0, 1, 2, or 3+ morbidities) based on primary care records; and Charlson Comorbidity Index (CCI) score (0, 1, 2, or 3+) based on hospital records. We examined variation in the primary care interval, diagnostic interval, number of pre-referral consultations, use of primary care-led investigations, and referral type by morbidity status/burden.

**Results:** Morbidity prevalence was much higher based on primary care vs hospital record data: 75% vs 28% of patients had 1+ conditions using NCDA morbidities and CCI score respectively. Adjusted analyses indicated limited variation by morbidity status/burden in the primary care interval, pre-referral consultations, and use of investigations. However, patients with at least one morbidity in hospital records were less likely to be investigated compared to those without morbidity (OR, 95% CI: 0.73, 0.65–0.82), while 3+ primary care morbidities or a CCI score of 3+ were associated with longer diagnostic intervals. Morbidity status/burden was associated with higher odds of emergency referral compared to urgent or routine referrals (OR, 95% CI for patients with 1+ vs no primary care morbidities: 1.27, 1.05–1.55), with comparable findings by CCI score.

**Conclusion:** Effects of chronic conditions on the diagnostic process seem to be concentrated in patients with multimorbidity/severe morbidity, although associations may be attenuated due to challenges in ascertaining the start of the primary care interval in patients with morbidities.

**O05**

## **Using action planning to explore acceptable interventions to improve the recognition and referral of cancer in primary care: an exploratory study**

**Presenter:** Daniel Jones, University of Leeds, UK

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1 Hull York Medical School; 2 Hull York Medical School

**Objectives:** Studies consistently show the UK compares poorly with other countries in cancer survival. As the majority of cancers are diagnosed following symptomatic presentation to primary care there is an opportunity for interventions to be undertaken in primary care. However we do not know which interventions are acceptable to the general practice workforce. Audit and feedback followed by practice led action planning could enable an exploration of interventions which are both acceptable and feasible in routine general practice.

The aim of this study was to explore the development of novel interventions to improve the recognition and referral of cancer symptoms in general practice following audit and feedback and practice led action planning.

**Method:** Design and Setting: An exploratory study of an audit and feedback intervention followed by action planning in general practices in the East Riding of Yorkshire

**Method:** A cancer specific audit tool was used to collect qualitative and quantitative data on all patients diagnosed with lung or colorectal cancer in the last two years. The data generated was presented in a feedback meeting to staff in each general practice. Following this, a general practice led action planning session was undertaken. The study design was informed by behaviour change theory, in particular the behaviour change wheel and normalisation process theory.

**Results:** Nine general practices took part in the study with data from 192 patients used to complete the audit. Following the feedback visits, action planning was successfully undertaken and enabled the development of 35 novel interventions which were implemented by the practices to improve safety netting, the use of investigations, referrals, continuity of care and activities in the consultation. The interventions included better use of the electronic patient record, leaflets and posters for patients, specific learning points to be shared and consultation based activities.

**Conclusions:** This exploratory study shows audit and feedback followed by action planning can be successfully used to stimulate the development of multiple, novel practice based interventions by practice staff aiming to improve the recognition and referral of cancer symptoms in primary care. Several types of interventions are possible, acceptable and feasible in routine general practices.

O06

## **Guideline discordant diagnostic care: when do primary care referrals not reflect guidelines for suspected cancer?**

**Presenter:** Gary Abel, University of Exeter, UK

**Names and affiliations of author and co-authors:** Bianca Wiering<sup>2</sup>, Georgios Lyratzopoulos<sup>1</sup>, Willie Hamilton<sup>2</sup>, John Campbell<sup>2</sup>

1 University College London; 2 University of Exeter

**Background:** A key service aimed at improving UK cancer survival rates (through improved diagnostic timeliness) is the fast-track referral system known as the two-week wait pathway. Clinical guidelines advise general practitioners (GPs) in England which patients warrant an urgent referral for suspected cancer. This study assessed how often GPs follow the guidelines and whether certain patient groups are more or less likely to be referred.

**Methods:** We used linked primary care (Clinical Practice Research Datalink) and secondary care (Hospital Episode Statistics) data. Patients presenting with haematuria, breast lump, dysphagia, iron-deficiency anaemia, postmenopausal bleeding or rectal bleeding for the first time during 2014-2015 were included (for ages where guidelines recommend urgent referral). Logistic regression was used to investigate whether receiving a referral is associated with feature type and patient characteristics.

**Results:** A high percentage of patients did not receive an urgent referral within 14 days of presentation with a recorded feature, varying from 83.1% for patients presenting with dysphagia to 31.7% for women presenting with a breast lump. Young patients and those with comorbidities were less likely to receive a referral ( $p < 0.001$ ). Associations between patient characteristics and urgent referrals differed across presenting features: among patients presenting with anaemia, breast lump or haematuria those with multi-morbidity, and additionally for breast lump, more deprived patients, were less likely to receive a referral.

**Conclusions:** Guideline recommendations for action are frequently not followed in patients presenting with common features of possible cancer. Appreciating those patient groups which are at greater risk of non-referral when compared with guideline recommendations may help target improvement efforts in cancer diagnosis in primary care. For example, these findings may be used alongside schemes such as CRUK's cancer facilitators and Macmillan GPs to directly influence practice. Alternatively, they could inform educational materials and novel interventions targeting early diagnosis.

O07

## Could ovarian cancer diagnostic prediction models improve the triage of symptomatic women in primary care?

**Presenter:** Garth Funston, University of Cambridge, UK

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1 University of Exeter; 2 Gynaecological Oncology Research Group; University of Manchester; 3 Department of Public Health and Primary Care, University of Cambridge

**Background:** Cancer antigen 125 (CA125) is advocated as an initial test for ovarian cancer in women presenting with relevant symptoms in English primary care. This study sought to develop and internally validate CA125 based diagnostic prediction models, and to explore potential diagnostic implications of implementing model derived risk thresholds in primary care.

**Methods:** This cohort study used routinely collected primary care and cancer registry data from symptomatic, CA125 tested women in England (2011-2014). In total, 29,962 women were included, of whom 279 were diagnosed with ovarian cancer. Logistic regression was used to develop two models to estimate the probability of undiagnosed ovarian cancer: Model 1 consisted of age and CA125 level; Model 2 included additional test results, risk factors, and symptom information. Model discrimination (AUC) was evaluated using 10-fold cross-validation. The sensitivity and specificity of various model risk thresholds ( $\geq 1\%$ ,  $\geq 2\%$  and  $\geq 3\%$ ) were compared with that of the standard CA125 cut-off ( $\geq 35\text{U/ml}$ ).

**Results:** Model 1 showed excellent discrimination (AUC: 0.94) on cross-validation. The inclusion of additional variables (Model 2), did not improve performance. At a risk threshold of  $\geq 1\%$ , Model 1 exhibited greater sensitivity (86.4% vs 78.5%) but lower specificity (89.1% vs 94.5%) than CA125 at the standard cut-off ( $\geq 35\text{U/ml}$ ). When applying the  $\geq 1\%$  model threshold to our cohort, in place of the CA125 cut-off, 1 in every 74 additional women identified had ovarian cancer.

**Conclusions:** A model incorporating age and CA125 level performed well for the identification of ovarian cancer in symptomatic women. It could be used as part of a risk-based triage system, in which women at high risk of undiagnosed ovarian cancer are selected for urgent specialist investigation while women at 'low but not no risk' are offered non-urgent investigation or interval CA125 re-testing. Such an approach could expedite ovarian cancer diagnosis. Further evaluation is warranted.

O08

## Missed/delayed referrals for investigation of suspected cancer: a candidate indicator of practice-level care quality

**Presenter:** Luke Mounce, University of Exeter, UK

**Names and affiliations of co-authors:** Dr Bianca Wiering<sup>1</sup>, Dr Monica Koo<sup>2</sup>, Hardeep Singh<sup>3</sup>, Georgios Lyratzopoulos<sup>2</sup>, Gary Abel<sup>2</sup>

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**Background:** Assessing the quality of cancer diagnostic activity in general practice is difficult with outcome indicators dependant on small numbers of patients. We investigated the utility of a novel indicator tracking NICE guideline-concordant referrals following 'red flag' cancer symptoms.

**Methods:** Clinical Practice Research Datalink electronic primary care records for patients reporting (2014-2015) one of six cancer symptoms for which expedited referral is suggested under NICE NG12 guidance (dysphagia, breast lump, rectal bleeding, post-menopausal bleeding, haematuria, iron-deficiency anaemia) were linked to Hospital Episode Statistics referrals data. Practices' proportion of patients receiving an expedited referral within 14-days of presentation was assessed for adequate variation ( $\geq 50\%$  difference between 10th and 90th centiles) and reliability (median $\geq 0.70$ ). The effect of case-mix adjustment on performance was explored.

**Findings:** Altogether, 19,787/48,847 (40.5%; 95%CI 40.1%-40.9%) patients from 279 practices received an expedited referral; median practice performance was 40.1% (IQR 33.5%-46.5%). The odds ratio for the difference in performance between the 10th and 90th centiles was 2.55, indicating considerable variation in performance. Sufficient reliability was also demonstrated, with a median of 0.82 (IQR 0.70 to 0.88), and was sustained when using a single year of data. Single symptom indicators for dysphagia, breast lump, post-menopausal bleeding, and haematuria individually showed sufficient variability and reliability. Adjustment for age, gender, and symptom led to modest reordering of practices and is recommended (Kendall's tau=0.74).

**Conclusions:** Practice-level proportion of patients receiving an expedited referral following six red flag cancer symptoms has the potential to be an effective care quality indicator, with one year of data sufficient for adequate reliability. Practice case-mix should be accounted for.

**O09**

**Coordination between specialized cancer care teams and non-profit community organizations: a multiteam system perspective**

**Presenter:** Dominique Tremblay, Université de Sherbrooke, Canada

**Objective:** This presentation highlights critical coordination issues that arise between specialized cancer care teams and community-based non-profit organizations. The multiteam system perspective offers a new lens to examine and understand care and services provided by multiple providers and organizations.

**Method:** A qualitative case study design was used to illustrate the coordination between teams within their particular contexts. Cases were two regional cancer networks in the province of Quebec (Canada). Interviews were conducted with key informants (n=41) from cancer team professionals, members of non-profit community organizations and cancer survivors. Interviews explored perceptions of community services, the perceived centrality of cancer care and the coordination mechanisms between teams: information sharing, information flows, referrals, cross-team feedback. Structural coding was followed by interpretive analysis that built on core multiteam system concepts.

**Results:** All participants in the study acknowledged the potential benefits of a coordinated multiteam cancer system. However, motivation for overcoming silo functioning relied not just on individual factors, but also on formal processes. There was widespread concern that the model must involve real coordination and not substitution. Responsibilities for team tasks remained unclear due to the complexities of cancer care and the poor visibility of community service providers' work. A lack of proximity impeded trust between teams. Information sharing was frequently incomplete, if not absent. Consequently, cancer survivors struggled with way finding, resulting in wasted efforts and lack of access to support.

**Conclusions:** Despite national cancer program recommendations, there is as yet little coordination between specialized cancer teams and community services teams. The multiteam system perspective raises three critical issues that need to be addressed: define responsibilities for tasks; provide better visibility of community organizations' work; facilitate of the transition from one team to another through care pathways.

O10

## Home-based Physical Activity to Alleviate Fatigue in Cancer Survivors: A Systematic Review and Meta-analysis

**Presenter:** Famke Huizinga, University Medical Center Groningen, Department of General Practice and Elderly Care Medicine, The Netherlands

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**Purpose:** Physical activity (PA) affects fatigue and mental health in cancer survivors favorably, but participation in PA interventions tends to be low. More patients may be reached by home-based PA due to greater accessibility and self-monitoring. This systematic review therefore evaluated the effects of home-based PA of low to moderate intensity on symptoms of fatigue, depression, and anxiety among cancer survivors.

**Methods:** PubMed, CINAHL, PsycINFO, and Web of Science were systematically searched for randomized controlled trials. We included investigations of home-based PA interventions in patients treated curatively for cancer and evaluating fatigue, depression, or anxiety as outcomes. We performed a random-effect meta-analysis for the effects of PA interventions on fatigue in the short and long term. Sub-group analyses were performed for the frequency of counselling. Standardized mean differences (SMD) and 95% confidence intervals are reported.

**Results:** Eleven articles comprising 1167 patients were included: seven included survivors of breast cancer only, one included breast and other cancer survivors, and one each included survivors of prostate, colorectal, and ovarian cancer. Concerning the outcomes, nine articles reported on fatigue and two reported on depression or anxiety. Meta-analyses showed a significant effect of home-based PA on fatigue immediately post-intervention (SMD = 0.22 [0.06–0.37]), at 3 months' follow-up (SMD = 0.27 [0.04–0.51]), and at 6–9 months' follow-up (SMD = 0.31 [0.08–0.55]). PA interventions that used frequent counselling were associated with larger improvements in fatigue than those using no or infrequent counselling.

**Conclusion:** Home-based PA interventions can reduce fatigue among cancer survivors for up to 9 months, and frequent counselling may improve the benefits of these interventions.

O11

## Receipt of active surveillance care for men with favorable-risk prostate cancer: can we leverage primary care?

**Presenter:** Archana Radhakrishnan, University of Michigan, USA

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1 University of Michigan

**Background:** Receipt of guideline-recommended active surveillance (AS) for men with favorable-risk prostate cancer—prostate-specific antigen (PSA) testing and either MRI or prostate biopsy—remains sub-optimal. Primary care providers (PCPs) can collaborate with urologists to improve adherence to surveillance protocols.

**Methods:** MUSIC (Michigan Urological Surgery Improvement Collaborative) comprises 46 academic and community urology practices across Michigan, and maintains a prospective clinical registry. We combined MUSIC and insurance claims data to identify favorable-risk prostate cancer patients who chose AS for their primary treatment between 2014-2018. Because the MUSIC roadmap for low-intensity AS recommends annual PSA, and MRI/biopsy every 3 years, we restricted our sample to men with  $\geq 36$  months of follow-up (N=246). We assessed receipt of recommended surveillance (3 PSAs, 1 MRI/biopsy), and urologist and PCP visits. We examined bivariate associations between number of provider visits (PCP and urologist separately) and patient clinical and demographic characteristics. We examined whether number of provider visits was associated with receipt of each component of recommended surveillance using multivariable analysis.

**Results:** Only 56.5% of men received recommended AS: 69.9% received yearly PSA while 72.8% received an MRI/biopsy. While on AS, men, on average, had 2.88 urologist visits and 1.72 PCP visits. Black men (vs. White; 3.8 vs. 1.3 visits), men with comorbidities (vs. none; 3.0 vs 1.3 visits), and <10-year life expectancy (vs.  $\geq 10$ -year life expectancy; 4.4 vs. 1.5 visits) had more PCP visits (all  $p < 0.05$ ). Increasing PCP or urologist visits were not significantly associated with receipt of each component of recommended AS.

**Conclusions:** Nearly half of the men did not receive recommended surveillance, and provider visits did not improve surveillance. PCPs are an underutilized resource in AS care delivery, especially for vulnerable populations of men. Understanding how to leverage PCP expertise in chronic disease management, presents a promising opportunity to improving adherence to surveillance protocols.

O12

## Specialist versus primary care prostate cancer follow-up: a process evaluation of a randomized controlled trial

**Presenter:** Barbara Wollersheim, Division of Psychosocial Research and Epidemiology, The Netherlands Cancer Institute, Antoni van Leeuwenhoek Hospital, Netherlands

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**Background:** To address the follow-up care needs of the growing population of prostate cancer survivors, a randomized controlled trial (RCT) is currently comparing the effectiveness of specialist- (usual care) versus primary care (intervention) prostate cancer follow-up. This process evaluation assessed the recruitment, execution and implementation of primary care follow-up in a RCT setting.

**Methods:** A mixed-methods approach was used through the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework and the Consolidated Framework for Implementation Research (CFIR). We used quantitative data to evaluate recruitment and execution of the RCT and qualitative data (interviews) to indicate the perspectives of patients, general practitioners (GPs) and specialists. Thematic analysis was used to analyze the interview transcripts.

**Results:** In total, 569 patients with localized prostate cancer from 12 hospitals were invited to participate in the trial. 18 patients were not eligible, 145 patients declined (of whom most preferred follow-up in the hospital), whereas 21 GPs declined to participate. Finally, 385 patients were randomized to specialist- (n=192) or to primary care (n=193) follow-up. In addition, we interviewed 15 patients, 10 GPs and 8 specialists. Participants identified several advantages of primary care versus specialist follow-up: it is closer to home, more accessible, the relationship is more personal, and the hospital can focus on patients undergoing active treatment. Nevertheless, participants also identified challenges: evidence-based guidelines should be implemented, communication and collaboration between primary and secondary care should be accessible and transparent, quality indicators (i.e. PSA levels) should be collected, and GPs expect compensation (money or extra capacity).

**Conclusion:** If the RCT shows that primary care- is equally effective as specialist follow-up, this study could enable the transition of prostate cancer follow-up to primary care by presenting information on the reach and adoption of an RCT and by providing advantages and challenges of primary care prostate cancer follow-up.

**O13**

## **Novel biomarkers ready for evaluation in low-prevalence populations for the early detection of lower GI cancers**

**Presenter:** Paige Druce, The University of Melbourne, Australia

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**Introduction:** Lower gastrointestinal (GI) cancers are a major cause of cancer deaths worldwide. Prognosis improves with earlier diagnosis, and non-invasive biomarkers have the potential to aid with early detection. Substantial investment has been made into the development of biomarkers, however studies are often carried out in specialist settings and few have been evaluated for low-prevalence populations.

**Methods:** We aimed to identify novel biomarkers for the detection of lower GI cancers that have the potential to be evaluated for use in primary care. MEDLINE, Embase, Emcare, and Web of Science were systematically searched for studies published in English from January 2000 to October 2019. Reference lists of included studies were also assessed. Studies had to report on measures of diagnostic performance for biomarkers (single or in panels) used to detect colorectal or anal cancers. We included all designs and excluded studies with less than 50 cases/controls. Data were extracted from published studies on types of biomarkers, populations and outcomes. Narrative synthesis was used, and measures of specificity and sensitivity were meta-analysed where possible.

**Results:** We identified 142 studies reporting on biomarkers for lower GI cancers, for 24 844 cases and 45 374 controls. A total of 378 unique biomarkers were identified. Heterogeneity of study design, population type, and sample source precluded meta-analysis for all markers except methylated septin 9 (mSEPT9) and pyruvate kinase type tumour M2 (TuM2-PK). The estimated sensitivity and specificity of mSEPT9 was 80.6% (95% CI 76.6-84.0%) and 88.0% (95% CI 79.1-93.4%) respectively; TuM2-PK had an estimated sensitivity of 81.6% (95% CI 75.2-86.6%) and specificity of 80.1% (95% CI 76.7-83.0%).

**Conclusion:** Two novel biomarkers (mSEPT9 and TuM2-PK) were identified from the literature with potential for use in lower prevalence populations. Further research is needed to validate these biomarkers in primary care for screening and assessment of symptomatic patients.

O14

## The costs and benefits of risk-stratification for colorectal cancer screening based on phenotypic and genetic risk

**Presenter:** Juliet Usher-Smith, University of Cambridge, UK

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**Objectives:** Colorectal cancer (CRC) is the second leading cause of cancer-related death in the UK. There is good evidence that screening adults in the general population reduces CRC incidence and mortality. Stratified screening, in which the age of first invitation is based on additional personal factors, has been proposed as a means to improve the efficiency of screening programmes. In this study we assessed the cost-effectiveness, clinical outcomes and resource impacts of using estimated risk based on phenotypic and/or genetic risk factors to determine the age at which individuals are invited for faecal immunochemical test (FIT) screening for colorectal cancer (CRC) in the UK.

**Method:** We performed an economic analysis taking a UK National Health Service perspective. Biennial FIT, with a threshold of 120 ug/g, starting at an age determined through risk-assessment at age 40, was compared to FIT screening starting at a fixed age for all individuals.

**Results:** Compared with inviting everyone from age 60, using a risk score with area under the receiver operating characteristic curve of 0.721 to determine FIT screening start age, produces 418 QALYs, costs £247,000, and results in 218 fewer CRC cases and 156 fewer CRC deaths per 100,000 people, with similar FIT screening invites. There is 96% probability that risk-stratification is cost-effective, with net monetary benefit (based on £20,000 per QALY threshold) estimated at £8.1m per 100,000 people. The maximum that could be spent on risk-assessment and still be cost-effective is £114 per person. Lower benefits are produced with lower discrimination risk scores, lower mean screening start age, or higher FIT thresholds.

**Conclusions:** Using risk to determine age at first FIT screen is likely to be cost-effective and to reduce CRC incidence and mortality without using significantly more resources compared to starting screening in all individuals at a fixed age.

O15

## Lung cancer screening risk score in Primary Care

**Presenter:** Bhautesh Jani, University of Glasgow, UK

**Names and affiliations of co-authors:** Jennifer Lees<sup>1</sup>, Michael Sullivan<sup>1</sup>, Frank Sullivan<sup>2</sup>, Sara MacDonald<sup>1</sup>, Barbara I Nicholl<sup>1</sup>, Frances S Mair<sup>1</sup>, Patrick Mark<sup>1</sup>

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**Background:** Various risk prediction models have been proposed as means to improve the predictive power of lung cancer screening criteria. These models require patients to provide extensive information on smoking exposure and family history by completing a questionnaire. However, evidence shows that response rates to such questionnaires remain low.

**Objective:** To develop a risk prediction score for lung cancer screening using information routinely recorded in primary care. We used a community research cohort (UK Biobank-UKB) to develop a risk score and plan to validate findings in a large routinely collected primary care dataset (SAIL databank).

**Methods:** UKB subset, based on the lung cancer screening eligibility criteria (age>54, current/former smokers), was used for analysis. Record linkage with cancer registry was used to capture lung cancer incidence. Least absolute shrinkage and selection operator variable selection/Cox proportional hazards regression were used to build a final lung cancer risk prediction model. The newly developed model was compared against existing best performing model (PLCOM2012) using the Area Under Curve (AUC) statistics.

**Results:** In the UKB subset(N=106,354), lung cancer incidence was 1,213 (1.14%) at six years. The variables included in the new risk score were age, socio-economic status, smoking status, history of previous cancer and presence of long-term conditions (COPD, emphysema, coronary heart disease, peripheral vascular disease, heart failure, inflammatory bowel disease, alcohol addiction, dementia). The AUC for the new scoring system was 72.7% (95% confidence intervals-CI 71.4-74%), compared to AUC for PLCOM2012 of 77.5% (95% CI 76.4-78.7%). These results will be validated in SAIL databank (analysis in progress).

**Conclusion:** A risk score, using variables routinely recorded in primary care, can offer modest accuracy for lung cancer screening and it does not rely on patient response. The use of such a score may improve targeting of screening to those at high risk of lung cancer.

## Performance of screening tests for Oesophageal Squamous Cell Carcinoma: a systematic review and meta-analysis

**Presenter:** Martin Wong, The Chinese University of Hong Kong, Hong Kong

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**Background:** Various screening tests have been applied for Oesophageal Squamous Cell Carcinoma (ESCC). This systematic review and meta-analysis aims to compare the pooled diagnostic accuracy of the commonly used ESCC screening tests.

**Methods:** The study was registered in PROSPERO (CRD42021220586). A comprehensive literature search of Embase and Medline (up to October 31, 2020) was performed to identify eligible studies. We pooled sensitivity, specificity, positive likelihood ratio (PLR), negative likelihood ratio (NLR), and diagnostic odds ratio (DOR) for ESCC screening tools using a bivariate random-effects model. The summary receiver operating characteristic (sROC) curves were constructed to estimate the area under the curve (AUC) for each screening test.

**Findings:** We included 186 studies in 95 articles involving 35,793 subjects. The pooled sensitivity, specificity, PLR, NLR, DOR and AUC (95% CI) of the major screening tools were: (1). Endoscopy: 0.93 (0.89-0.96), 0.90 (0.86-0.93), 9.2 (6.5-13), 0.07 (0.04-0.12), 125 (68-230), and 0.97 (0.95-0.98); (2). MicroRNA: 0.77 (0.75-0.80), 0.78 (0.75-0.80), 3.5 (3.1-4.0), 0.29 (0.26-0.32), 12 (10-15) and 0.85 (0.81-0.87); (3). Autoantibody: 0.45 (0.36-0.53), 0.91 (0.89-0.93), 5.1 (4-6.5), 0.61 (0.53-0.70), 8 (6-12), and 0.84 (0.81-0.87); and (4). Cytology: 0.82 (0.60-0.93), 0.97 (0.88-0.99), 29.7 (7.4-119.6), 0.19 (0.08-0.45), 160 (42-610), and 0.97 (0.95-0.98). There was high heterogeneity, but no publication bias was detected.

**Interpretation:** The diagnostic accuracy was comparable between Cytology and endoscopy, whilst autoantibody and microRNAs bear potential as future non-invasive screening tools for ESCC. To reduce ESCC-related death in the high-risk populations, it is important to develop a more accurate and less invasive screening test.

## O17

### Routes to diagnosis and the association with the prognosis in patients with cancer in Denmark

**Presenter:** Henry Jensen, Research Unit for General Practice, Aarhus, Denmark

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**Background:** The prognosis of cancer is related to how the cancer is identified, and where in the healthcare system the patient presents, i.e. routes to diagnosis (RtD). We aimed to describe the RtD for patients diagnosed with cancer in Denmark by using routinely collected register-based data and to investigate the association between RtD and prognosis measured as one-year all-cause mortality.

**Methods:** We conducted a population-based national cohort study in Denmark. We categorized each patient into one of eight specified RtD: death certificate only (DCO), screening, cancer patient pathway (CPP) from primary care, CPP from secondary care, unplanned admission, planned admission, other outpatient, and unknown. We described the proportions of patients with cancer diagnosed by different RtD. We examined associations between RtD and one-year all-cause mortality using logistic regression models adjusting for sex, age, cancer type, year of diagnosis, region of residence, and comorbidity.

**Results:** We included 144,635 cancers diagnosed in 139,023 patients in 2014-2017. The proportion of patients diagnosed through each RtD were: DCO (0.4%), screening (7.4%), CPP from primary care (47.9%), CPP from secondary care (24.2%), unplanned hospital admission (8.5%), planned admission (1.2%), other outpatient (7.4%), and unknown (2.9%). The one-year all-cause mortality ranged from 1.3% in screened patients to 55.9% in patients diagnosed through unplanned hospital admission. Patients with an unplanned admission were more likely to die within the first year after diagnosis (OR=3.53 (95%CI: 3.36-3.71)) compared to patients diagnosed through the CPP from primary care.

**Conclusion:** The majority of cancer patients were diagnosed through a cancer patient pathway; two-thirds of these patients were referred from primary care. The RtD were associated with the prognosis, and the prognosis was worst in patients diagnosed through unplanned admission. Screening and elective admission aside, CPP referral from primary care was the RtD associated with the best prognosis.

## O18

### Exploring complexity in international primary care referral pathways for the management of suspected cancer

**Presenter:** Charlotte Lynch, Cancer Research UK

**Names and affiliations of co-authors:** Dr Brian Nicholson<sup>1</sup>, Dr Cathy Clelland<sup>2</sup>, Professor May-Lill Johansen<sup>3</sup>, Professor Jon Emery<sup>4</sup>, Professor Ross Lawrenson<sup>5</sup>, Professor David Weller<sup>6</sup>, Dr Claire Collins<sup>7</sup>, Professor Dorte Ejg Jarbøl<sup>8</sup>, Dr Kirubakaran Balasubramaniam<sup>9</sup>, Dr Alun Wyn Surgey<sup>10</sup>, Dr Laurence Dorman<sup>11</sup>, Ms Samantha Harrison<sup>12</sup>

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International variation in cancer outcomes persist. Differences across the cancer patient pathway between countries may be driving this variation, including to some extent, variations in timely diagnosis and stage distribution. There are many hidden complexities within the time taken until a diagnosis is confirmed for cancer patients, with various elements affecting how swiftly patients move through healthcare systems. The manner of these complexities and possible solutions have not previously been compared internationally.

We aimed to explore the variation in primary care referral pathways for the management of suspected cancer across countries within the International Cancer Benchmarking Partnership (ICBP). We consider how complexity may play a role in factors contributing to international variation in cancer outcomes. This is in order to provide further insights into international differences in primary care management of suspected cancer and develop recommendations to improve timely navigation to enable prompt diagnosis. Schematics displaying the overall referral pathways for suspected cancer in 10 countries have been developed from exploration of existing literature and expert insight from primary care representatives in each country. A thematic analysis was undertaken to identify key contributing factors to complex systems. A descriptive comparative analysis of these factors and the referral pathways is being undertaken across the 10 countries.

GP empowerment, cancer specific pathways, clear pathways for non-specific symptoms and communication/coordination/collaboration in the primary and secondary care interface have been identified as key factors likely to drive or reduce complexity. Complexity of the referral pathways may play a detrimental role in health systems already under stress (e.g. under resourced), particularly in light of the COVID-19 pandemic. The schematics developed within this project provide key learning points from international best practice to streamline the primary care interval, which can be discussed further within the CaPRI forum, to develop wider consensus on our recommendations.

O19

## **Perspectives on referrals for suspected cancer: A qualitative study with patient's and healthcare workers**

**Presenter:** Thomas Round, King's College London, UK

**Names and affiliations of co-authors:** Dr Elise Crayton<sup>1</sup> Professor Henrik Møller<sup>1</sup>, Professor Chris McKeivitt<sup>1</sup>, Dr Mark Ashworth<sup>1</sup>

<sup>1</sup> King's College London

**Background:** Primary care referrals for suspected cancer (2WW) in England have substantially increased. Few studies have explored views of patients who are not diagnosed with cancer, including different pathways and in deprived/multi-ethnic areas. Most healthcare worker (HCW) research reports on GP perspectives, with limited evidence from other staff. To our knowledge, no studies have combined patient-HCW perspectives towards 2WW referral across primary-secondary care.

**Method:** Qualitative study with patients and HCW in London using semi-structured interviews and focus groups to January 2020. Patients referred 2WW for main cancer types (breast, colorectal, lung, prostate) were recruited. GP practices recruited using purposive sampling based upon 2WW referral patterns. Interviews were recorded and transcribed verbatim. Following data familiarisation, a coding framework was developed for emergent themes and subthemes (framework analysis).

**Results:** A total of 106 participants were recruited: 1) 39 patient interviews (10 breast, 7 colorectal, 15 lung, 7 prostate). 9/39 patients had cancer; 2) 62 GP practice clinical and non-clinical staff across 10 focus groups with a range of 3-14 attendees (3 low, 3 intermediate and 4 high referring practices); 3) 5 Secondary care interviews. Themes include: a) Patient - influence of pre-existing problems, bodily changes and normalisation, advice from others; b) HCW - symptom appraisal, risk assessment and thresholds, safety netting, gatekeeping and pressures on referrals; c) System - overall positive experiences, patients feeling "lost", HCW concern of patients "bouncing around". Pressurised system and concerns of being "swamped".

**Conclusions:** With over 2 million 2WW referrals per year in England, there is a need to understand impacts on patients, HCWs and wider system. Ideas for change included; 2WW pathways for serious pathology; utilising wider teams; routine data for quality improvement; improved primary care diagnostic access; patient, primary/secondary care interface. The findings have the potential to impact upon referral pathways, and on patient-HCW interactions.

**O20**

## **Exploring ethnic differences in the routes to diagnosis of common cancers: a retrospective cohort study using Clinical Practice**

**Presenter:** Tanimola Martins, University of Exeter, UK

**Names and affiliations of co-authors:** Associate Professor Gary Abel, Associate Professor Obioha, Ukoumunne, Professor Yoryos Lyratzopoulos, Professor William Hamilton

**Background:** Ethnic minorities in the UK have poorer outcomes for some cancer types and are less likely to report a positive care experience. Part of this may be related to the route to diagnosis (RTD): whether cancer diagnosis followed participation in screening, GP referral, two-week wait (2WW), other-outpatient, inpatient elective, emergency presentation, or death certificate only. Previous analysis of RTD examined cases identified between 2006 and 2013, with very little analysis by ethnicity. In this study, we examined ethnic differences in RTD for four cancers (breast, lung, prostate, and colorectal) diagnosed between 2006 and 2016.

**Methods:** A quantitative study using the CPRD linked to cancer registry and hospital data. Multinomial logistic regression models were used to examine the association between ethnicity (Asian, Black, and White) and RTD (screening, GP referral, 2WW, hospital, and emergency presentation). Potential confounding variables included were gender, age category, deprivation score, and morbidity score.

**Preliminary results:** 135,074 patients diagnosed with breast (28%), lung (25%), prostate (25%), and colorectal (23%) were included in the study. The majority of patients were White (94%), 3% were Black and 3% were Asian. Black and Asian patients were typically younger and lived in more deprived areas than their White counterparts. Across all four cancer sites, the most common RTD was via 2WW (38%), followed by GP referral (24%), emergency (19%), screening (10%), and hospital routes (10%). Compared to White patients, Black patients were less likely to be diagnosed via screening, hospital, or emergency routes and more likely to be diagnosed following GP referral, rather than 2WW. Asian patients were more likely to be diagnosed via screening or GP referral and less likely to be present as emergencies.

**Discussion:** Preliminary findings suggests that ethnic minorities in our cohort followed more favourable routes to diagnosis compared to the British White groups. Results of fully adjusted analyses will be presented at the conferences.

**O21**

## **Cancer in Primary Care Research Priorities in Australia**

**Presenter:** Kristi Milley, Centre for Cancer Research, University of Melbourne, Australia

**Names and affiliations of co-authors:** Paige Druce<sup>1</sup>, Mairead McNamara<sup>1</sup>, Rebecca Bergin<sup>1,2</sup> and Jon Emery<sup>1</sup>

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The Primary Care Collaborative Cancer Clinical Trials Group (PC4) is funded to support the development of new cancer in primary care research. To underpin our 2021-2024 strategic plan, we undertook a research prioritisation exercise to determine the most important areas for cancer in primary care research in Australia.

The study used an adapted nominal group technique and the Cancer Care Continuum as a framework for mapping priorities to research areas. Firstly, we conducted a systematic literature scan of Medline, Embase, Emcare & PsycInfo for papers, in English, describing cancer research priorities which involved primary care in some capacity and published between January 2010 and February 2020. This was followed by an online priority identification stakeholder survey. The combined priorities were reviewed and refined by PC4's Scientific Committee and Community Advisory Group. This process included an eight-question weighted scoring rubric to rank priorities. The refined priorities were shared via a second online survey where stakeholders were asked to allocate hypothetically up to AUD\$100 of research funding between priorities. Both surveys were distributed to a broad range of stakeholders including consumers, health care professionals, researchers and policy makers.

We identified 218 priorities from existing literature with an additional 93 identified through the first stakeholder survey. These 311 priorities were consolidated by consensus to a final list of 50, comprising 10 priorities in five areas of the continuum: prevention, early detection, survivorship, palliative care, and cross-cutting research. The final ranking of these priorities will be completed in April 2021. Currently over 300 responses have been received.

This is the first cancer in primary care research prioritisation exercise conducted in the Australian context. It provides a foundation for the development of new clinical trials in areas that are of importance to a broad range of stakeholders invested in primary care and cancer care.

## Impact of multimorbidity clusters on primary care and hospital use among long-term breast cancer survivors: results from the SUR

**Presenter:** Anna Jansana, Hospital del Mar Institute for Medical Research, Barcelona, Spain

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**Background:** Long-term breast cancer survivors (BCS) are those women who survive at least 5 years after breast cancer diagnosis. Comorbidities derived from breast cancer treatment make breast cancer a chronic disease and require specific follow-up by health professionals. The aim of this study was to describe multimorbidity clusters among long-term BCS using hierarchical cluster analysis and to assess its impact on the use of primary care and hospital services.

**Methods:** Retrospective study using primary care electronic health records from women diagnosed with breast cancer between 2000 and 2006 and a survival period of at least 5 years during the follow-up period (2012-2016) from 5 Spanish regions. Chronic diagnoses were extracted using 290 clinical blocks from the Clinical Classification Software as of ICD-9 and ICD-10 codes. Multimorbidity clusters were identified through hierarchical clustering and Observed/Expected ratios were used to identify associated-comorbidities. Adjusted Cox regression models by age, tumor behavior, Charlson Index, visits to healthcare services and stratified by survival time were fitted in order to estimate the impact of clusters on healthcare services use.

**Results:** 6512 long-term BCS were included in the analysis (mean age: 66.0, SD: 12.6). Five multimorbidity clusters were identified: C1-Unspecific (29.9%), C2-Metabolic and degenerative (28.3%), C3-Anxiety and fractures (9.7%), C4-Musculoskeletal and cardiovascular (9.6%), C5-Thyroid disorders (5.3%) plus the group of long-term BCS without comorbidities (17.3%). C1 showed the highest median of contacts to primary care (17 annual visits) however, adjusted models showed that all clusters were associated with increased use of healthcare services compared to BCS without comorbidities. BCS in C3 were the most likely to use both primary care (RR=2.01 95%CI 1.90-2.12) and hospital services (RR=2.75 95%CI 2.60-2.93) compared to BCS without comorbidities.

**Conclusions:** These results help to identify sub-groups of long-term breast cancer survivors with specific needs and to orientate clinical practice to multimorbidity.

O23

## Fatigue among Long-Term Breast Cancer Survivors: A Controlled Cross-Sectional Study

**Presenter:** Saskia Maass, University Medical Center Groningen, University of Groningen, Netherlands

**Names and affiliations of co-authors:** Daan Brandenburg<sup>1</sup>, Liselotte M. Boerman<sup>1</sup>, Peter F. M. Verhaak<sup>2</sup>, Geertruida H. de Bock<sup>3</sup>, Annette J. Berendsen<sup>1</sup>

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**Background:** Fatigue is the most common and persistent symptom among women in the first five years after a breast cancer diagnosis. However, long-term prevalence of fatigue, among breast cancer survivors, needs further investigation.

**Aim:** To compare fatigue experienced by long-term breast cancer survivors with that in a reference population and to evaluate the determinants of that fatigue.

**Design and Setting:** A cross-sectional cohort study of 350 breast cancer survivors  $\geq 5$  years after diagnosis and a reference population of 350 women matched by age and general practitioner.

**Method:** Fatigue was measured using the Multidimensional Fatigue Inventory (MFI-20), and a sum score of  $>60$  (multidimensional fatigue) was the primary outcome. Logistic regression was applied to compare the prevalence of multidimensional fatigue between the survivor and reference populations, adjusted for body mass index (BMI) and for cardiovascular and psychological variables. Odds ratios (ORs) and 95% confidence intervals (95% CIs) were estimated. Logistic regression was applied to evaluate the determinants of multidimensional fatigue among the survivors.

**Results:** Breast cancer survivors (median 10 years after diagnosis), more often experienced multidimensional fatigue than the reference population (26.6% versus 15.4%; OR, 2.0 [95%CI, 1.4–2.9]), even after adjusting for confounders. The odds of multidimensional fatigue were also higher among survivors with symptoms of depression (32.2% versus 2.7%; OR, 17.0 [95%CI, 7.1–40.5]) or anxiety (41.9% versus 10.1%; OR, 6.4 [95%CI, 3.6–11.4]).

**Conclusion:** One in four breast cancer survivors experience multidimensional fatigue and fatigue occurs more frequently than in women of the same age and general practitioner. This fatigue appears to be associated with symptoms of depression and anxiety.

## Risk prediction models for recurrence and survival after treatment of localised kidney cancer: a systematic review

**Presenters:** Lanxin Li and Lydia Roberts, University of Cambridge, Cambridge, UK

**Names and affiliations of author and co-authors:** Juliet Usher-Smith<sup>1</sup>, Hannah Harrison<sup>1</sup>, Sabrina H. Rossi<sup>1</sup>, Stephen J. Sharp<sup>1</sup>, Carol Coupland<sup>2</sup>, Julia Hippisley-Cox<sup>3</sup>, Simon J. Griffin<sup>1</sup>, Tobias Klatte<sup>4</sup>, Grant D Stewart<sup>1</sup>

1 University of Cambridge, Cambridge, UK; 2 University of Nottingham, Nottingham, UK; 3 University of Oxford, Oxford, UK; 4 Royal Bournemouth Hospital, Bournemouth, UK

**Background:** Current international guidelines recommend the use of prognostic models to inform when to discharge patients to primary care after treatment for localised renal cell cancer (RCC). However, a number of different models are used and their comparative performance remains unclear. This review aimed to identify and compare the performance of risk models that provide estimates of survival or recurrence of localised RCC following surgery.

**Method:** We performed a systematic review and meta-analysis according to a published protocol (PROSPERO 2019 CRD42019162349). We systematically searched Medline, EMBASE and the Cochrane Library from 2000 to 12 December 2019 to identify studies reporting a quantitative measure of the performance of one or more risk model(s) that predict recurrence-free survival (RFS), cancer-specific survival (CSS) or overall survival (OS) in patients who had undergone surgical resection for localised RCC. We excluded studies including only non-clear cell RCC. For each outcome we performed univariate and multivariate random-effects meta-analysis of the logit transformed C-statistic to calculate summary estimates and ranked the discrimination of individual models using the surface under the cumulative ranking curve (SUCRA).

**Results:** From 13,549 articles, 59 include 148 measures of the performance of 22 risk models in external populations. C-statistics ranged from 0.59-0.90. For RFS the eight best performing models (SUCRA $\geq$ 0.6) have pooled C-statistics between 0.75-0.81. For CSS, the seven models with SUCRA $\geq$ 0.6 have pooled C-statistics 0.79-0.83 and for OS there are five models with SUCRA $\geq$ 0.6, four with pooled C-statistics between 0.73-0.74. Three models (Sorbellini, Karakiewicz and Leibovich) ranked highly for all three outcomes. All include pathological or symptom prognostic markers routinely available within clinical practice.

**Conclusions:** Several models have good discriminative ability, with there being no single 'best' model. The choice of model in each setting should be informed by both the comparative performance and availability of prognostic factors included in the models.

## Oral Plenary Session

O25

### What is the impact of COVID-19 on cancer symptom experience and help-seeking behaviour in the United Kingdom?

**Presenters:** Harriet Quinn-Scoggins and Rebecca Cannings-John, Cardiff University, UK

**Names and affiliations of co-authors:** Dr Rebecca Cannings-John<sup>1</sup>, Ms Yvonne Moriarty<sup>1</sup>, Dr Victoria Whitelock<sup>2</sup>, Dr Katriina Whitaker<sup>3</sup>, Dr Detelina Grozeva<sup>1</sup>, Dr Jacqueline Hughes<sup>1</sup>, Dr Julia Townson<sup>1</sup>, Ms Kirstie Osborne<sup>4</sup>, Mr Mark Goddard<sup>1</sup>, Dr Grace McCutchan<sup>1</sup>, Dr Jo Waller<sup>5</sup>, Prof Michael Robling<sup>1</sup>, Ms Julie Hepburn<sup>6</sup>, Prof Graham Moore<sup>1</sup>, Dr Ardiana Gjini<sup>7</sup>, Prof Kate Brain<sup>1</sup>

1 Cardiff University; 2 Cancer Research UK; 3 University of Surrey; 4 Cancer Research UK; 5 Kings College London; 6 Public Involvement Community; 7 Public Health Wales

**Background:** The impact of COVID-19 on timely symptomatic diagnosis of cancer is likely to be considerable. We examined symptom help-seeking behaviour in the UK population during the pandemic.

**Methods:** A population-based sample of 7,543 UK adults aged 18+ was recruited online August-September 2020. Measures included experiences and perceptions of 15 potential cancer symptoms, help-seeking barriers and behaviour. Multivariable logistic regression was used to model correlates of help-seeking behaviour in participants who experienced at least one potential cancer symptom during the previous six months. Qualitative interviews were conducted with a purposive sample of 30 survey participants and analysed thematically.

**Results:** Frequently endorsed help-seeking barriers included worries about wasting the doctor's time (15.4%), putting strain on healthcare services (12.6%) and not wanting to be seen making a fuss (12.0%). Of 3,025 (40.1%) participants who experienced a potential cancer symptom, 44.8% (1,355/3,025) had not contacted their General Practitioner (GP). Odds of seeking help were higher among participants with disability (95% CI 1.11-1.71, aOR=1.38) and who experienced more potential cancer symptoms (95% CI 1.56-1.82, aOR=1.68) and lower among those who perceived COVID-19 as the cause of symptom(s) experienced (95% CI 0.25-0.52, aOR=0.36). Qualitative data revealed a reluctance to contact the GP due to concerns about catching or transmitting COVID-19. Participants were fearful of seeking help in hospitals and described putting their health concerns on hold to avoid burdening healthcare services. When experienced, remote GP consultation were well received.

**Implications:** Many people stayed away from healthcare services during the first six months of the UK pandemic, despite experiencing potential cancer symptoms. Continued investment in evidence-led campaigns is needed to signal that cancer cannot wait and that services are open safely for those with unusual or persistent symptoms. As the COVID-19 pandemic continues, research must continue to monitor the influences on help-seeking for potential cancer symptoms.

## The impact of the COVID pandemic on presentations to general practice with cancer-related symptoms in the Netherlands

**Presenter:** Matthew Grant, Department of Cancer Epidemiology, Julius Centre, UMC Utrecht, The Netherlands

**Names and affiliations of co-authors:** C van Gils<sup>1</sup>, C Helsper<sup>2</sup>, N van Erp<sup>2</sup>, H van Weert<sup>3</sup>, N de Wit<sup>2</sup>

1 Department of Cancer Epidemiology, Julius Centre, UMC Utrecht; 2 Department of Primary Care, Julius Centre, UMC Utrecht; 3 Department of General Practice, Amsterdam UMC and on behalf of COVID and Cancer-NL consortium

**Introduction:** The COVID-19 outbreak and the measures introduced in response have a major impact on the accessibility, availability and patterns of care provision for serious health conditions, including cancer. In the Netherlands, the onset of the pandemic saw shifts in primary health service provision away from physical consultations, cancer-screening programs were temporarily halted, and government messaging focused on remaining at home. In March and April 2020, weekly cancer diagnoses were decreased to 73% of their pre-COVID levels, and 39% for skin cancer (1). This study aimed to explore the effect of the COVID pandemic on the incidence of presentations with cancer-related symptoms in general practice in the Netherlands.

**Methods:** Primary care codes for presentations to general practices in the Julius General Practice Network with cancer-related alarm symptoms were analysed from 2018 to 2020. This database contains routine health care data from general practices in Utrecht province (The Netherlands) including the records of 370,657 patients. Monthly incidences of these symptoms were analysed over time. Joinpoint regression analysis identified time-points where trend changes occurred.

**Results:** During the initial COVID period (March-June 2020) there was a 33% ( $p < 0.01$ ) reduction in the incidence of cancer related symptoms compared with the pre-COVID mean incidence, with the greatest change in April (45%). This reduction was most apparent in cancer related symptoms that were insidious in onset (weight loss, prostate symptoms), required face-to-face consultation (naevus), or related to fear/anxiety of cancer. The incidence of post-menopausal bleeding, swallowing problems and breast lump presentations demonstrated no significant change through the COVID period. Between group analysis did not demonstrate any significant differences in incidence according to sex, age groups, comorbidity status, or previous history of cancer.

**Conclusion:** Presentations for cancer-related symptoms to general practices during the COVID period were significantly reduced, correlating with the decreased number of cancer diagnoses during this period.

O27

## **Impact of the COVID-19 pandemic on the clinical assessment of possible cancer in primary care: a qualitative study of GP views**

**Presenter:** Natalia Calanzani, The Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK

**Names and affiliations of author and co-authors:** Stephanie Archer<sup>1</sup>, Natalia Calanzani<sup>1</sup>, Stephanie Honey<sup>2</sup>, Margaret Johnson<sup>1</sup>, Richard Neal<sup>2</sup>, Suzanne Scott<sup>3</sup>, Fiona M Walter<sup>1,4</sup>

1 The Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge; 2 Leeds Institute of Health Sciences, University of Leeds; 3 Faculty of Dentistry, Oral and Craniofacial Sciences, King's College London, London, UK; 4 Institute for Population Health Sciences, Queen Mary University of London, UK

**Background:** Early diagnosis is vital to improve cancer outcomes, and most cancers are diagnosed in primary care after initial symptomatic presentation. Emerging evidence suggests an increase in avoidable cancer deaths due to the COVID-19 pandemic. We aimed to understand general practitioners' (GPs) views on the impact of the COVID-19 pandemic on the clinical assessment of possible cancer.

**Methods:** A qualitative semi-structured interview study with GPs from the East of England. GPs were purposively sampled based on age, gender and years of experience. Interviews were conducted via Zoom/Microsoft Teams in August and September 2020. Transcribed recordings were analysed inductively by two health services researchers using thematic analysis. The Model of Pathways to Treatment guided the analysis.

**Results:** We identified three themes across 23 interviews: GP views on the impact of: (1) patient help-seeking on symptoms at presentation; (2) remote consultations on managing patients with possible cancer symptoms, and (3) the COVID-19 pandemic on triaging and referring patients with possible cancer. There were positive changes to practice, but concerns were raised about the adequacy of remote consultations for assessing symptoms. There was recognition of an increasing need to manage risk and uncertainty and the importance of safety-netting in this context. Non-invasive tests to triage patients with a suspicion of cancer (such as the faecal immunochemical test to rule out colorectal cancer) were being ordered more often, sometimes before the patient was seen face-to-face. Some GPs reported delayed cancer diagnoses, and uncertainty about how backlog in referrals would be managed.

**Conclusion:** This study provides new evidence on the impact of the COVID-19 pandemic on assessing symptomatic patients. Recommendations are made to inform safe and effective primary care clinical practice. Urgent action is needed to mitigate the impact of the COVID-19 pandemic and ensure appropriate symptomatic assessment now and in the future.

## Lightning Talk Sessions

### L01

#### Using co-design to develop the roll out of a lung cancer screening programme: Barriers and facilitators in primary care

**Presenter:** Lynsey Brown, School of Medicine, University of St Andrews, UK

**Names and affiliations of co-authors:** Prof Frank Sullivan<sup>1</sup>, Prof Shaun Treweek<sup>2</sup>, Dr Anne Haddow<sup>3</sup>, Mr Rodney Mountain<sup>4</sup>, Dr Colin Selby<sup>5</sup>, Dr Mara van Beusekom<sup>1</sup>

1 School of Medicine, University of St Andrews; 2 Health Services Research Unit, University of Aberdeen; 3 Fife Community Advisory Group for Primary Care (PPI); 4, Ninewells Hospital, NHS Tayside; 5 NHS Fife

**Background:** Lung cancer is one of the most common causes of cancer death globally. Adults aged 55+, (ex)-smokers and living in areas of deprivation are at greater risk from lung cancer. Screening with Low Dose CT Scans (LDCT) has been shown to diagnose lung cancer at an earlier stage. Autoantibody biomarker blood tests may play a role in identifying people suitable for LDCT screening. Identifying suitable ways of providing the screening service could improve uptake.

**Methods:** Phase 1 of a co-design process involving interviews and focus groups. Group 1-Aged 55+, (ex)-smoker, area of deprivation (N=16). Group 2-Healthcare and community professionals (N=11). Conversations focussed on barriers, facilitators and potential pathways for the uptake and provision of a biomarker blood test and lung cancer screening more generally. Data generated was transcribed and analysed using thematic analysis.

**Results:** Key barriers to provision expected to be faced by primary care were: 1. Capacity, 2. Covid-19 impact, 3. Attitude. Pathways for provision centred on a home test kit vs venesection in a range of community settings. Those working in primary care anticipated issues with the uptake of the home test kit. The potential input of community links practitioners to help patients overcome barriers to uptake was emphasised. Patients were hesitant to “bother” their GP but trusted their GP and other HCPs to explain and provide the blood test.

**Discussion:** The first phase of this co-design process has highlighted key barriers, facilitators and pathway options to consider across services, including primary care. Working with those who may use and/or provide the service has identified new knowledge regarding the successful roll out of a lung cancer screening programme using a biomarker. Future phases of this study will continue to work with services, including primary care, and the public to develop effective solutions and means of provision.

**L02**

## **First 5 years of a lung cancer screening program in a US healthcare system: Lung Cancer Screening Optimization in the US (LOTUS)**

**Presenter:** Robert Greenlee, Marshfield Clinic Research Institute, USA

**Names and affiliations of co-authors:** Oluwatosin Olaiya<sup>1</sup>, Erik Kronholm<sup>1</sup>, Kurt Schoen<sup>1</sup>, Lynda Kubacki-Meyer<sup>1</sup>, DeeAnn Polacek<sup>1</sup>, Diane Kohnhorst<sup>1</sup>, Terry Foss<sup>1</sup>, Roxy Eibergen<sup>1</sup>

1 Marshfield Clinic Research Institute

**Objectives:** One of five research sites in the Lung Cancer Screening Optimization in The US (LOTUS) consortium, Marshfield Clinic Health System (MCHS) provides care to 400,000 patients across several rural delivery regions in the Midwest US. MCHS has offered low-dose chest CT imaging to high-risk patients as a formal, but decentralized, lung cancer screening (LCS) program since 2014. Primary care providers are the entry point for identifying and referring patients for LCS, with eligibility based on age and long-term heavy smoking. The purpose of this analysis is to describe the first 5 years of LCS at MCHS.

**Method:** The LOTUS consortium is developing a centralized repository to characterize processes and outcomes of LCS delivery across healthcare systems. In this MCHS-specific analysis, LCS is quantified and characterized by demographics, over time, and by delivery region. LCS program patients and baseline results are compared to their MCHS counterparts who participated in the definitive National Lung Screening Trial. Annual screens following baseline are also described.

**Results:** Baseline LCS scans were provided to 1005 patients, increasing from 44 in 2014 to 351 in 2018. Average age was 65 years, and 48% were female, both significantly higher than among MCHS subjects in the NLST trial (63 years and 37% female). 20% of LCS patients had 'positive' baseline screens, compared to 35% among MCHS NLST. An additional 630+ annual screens followed the 656 baseline scans from 2014-2017. There is notable variation in utilization of LCS across MCHS delivery regions.

**Conclusions:** Patients screened in routine care may be older, more likely female, and less likely to have a positive result than trial subjects upon which current recommendations are based. Utilization of LCS is growing but not uniformly, highlighting the important role of primary care providers as entry points into a decentralized program, a topic for additional investigation.

## L03

### **Scoping literature review: Identifying target groups for lung cancer screening – the potential and limitations of primary care data.**

**Presenter:** Debbie Cavers, University of Edinburgh, UK

**Names and affiliations of co-authors:** David Weller<sup>1</sup>, Mia Nelson<sup>1</sup>, Christine Campbell<sup>1</sup>, Frank Sullivan<sup>2</sup>, Bob Steele<sup>3</sup>, Katie Robb<sup>4</sup>

1 University of Edinburgh; 2 University of St. Andrews; 3 University of Dundee; 4 University of Glasgow

**Background:** Lung cancer remains one of the most common and deadliest cancers in Scotland, most often diagnosed at a late stage when treatment options are limited and prognosis is poor. Growing evidence from international trials and pilot studies in England have shown that low-dose CT scanning those at high risk can identify and treat more lung cancers at an early stage, and improve outcomes. There remains debate around how best to identify those at high risk and avoid over diagnosis and unnecessary cost-ineffective procedures. There are numerous risk-stratification tools, many of which rely on information in primary care records. This presentation will examine this literature, and discuss implications for primary care. The work is part of a larger study to inform the development of a lung screening pilot intervention in Scotland.

**Methods:** A rapid scoping review of the literature following Arksey and O'Malley's scoping review method and the PRISMA-Sp guidance to identify literature that compares risk stratification tools for the identification of high-risk patients eligible for lung screening. Medline, EMBASE, CINAHL, Assia, PsychINFO, Web of Science and Sociological Abstracts were searched. Two reviewers screened titles, abstracts and full texts.

**Findings:** A total of 1647 articles underwent title and abstract screening by two reviewers, 142 full text articles were read and screened for inclusion and 16 papers met the final inclusion criteria. The majority of studies sought to independently validate the models using existing datasets. Few studies made actual recommendations for the most efficient model, and different outcomes were used. While primary care has much of the necessary information to stratify risk, there is a lack of consensus on how to extract this information and build it into risk models.

**Conclusions:** As national programmes for lung cancer screening are contemplated, there is a pressing need to refine risk prediction models, to ensure that the highest-risk individuals are screened. It seems logical to populate these models with primary care data, but we need to optimise our strategies for its inclusion.

L04

## **Awareness and support of HPV testing and patient self-collection for cervical cancer screening among primary care clinicians**

**Presenter:** Kathy McLaughlin, Mayo Clinic Department of Family Medicine and Robert D and Patricia E. Kern Center for the Science of Health Care Delivery, USA

**Names and affiliations of co-authors:** Robert M. Jacobson<sup>1,2,3</sup>, Jennifer L. St. Sauver<sup>1</sup>, Gregory D. Jenkins<sup>1</sup>, Chun Fan<sup>1</sup>, Lila J. Finney Rutten<sup>1</sup>

1 Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery; 2 Division of Community Pediatric and 3 Adolescent Medicine, Department of Health Sciences Research and all located at Mayo Clinic 200 First Street SW, Rochester

**Background:** Cervical cancer, although preventable, remains the fourth most common cancer among women worldwide. With recognition that persistent high-risk HPV infection is causative, screening paradigms have shifted to HPV-based screening, allowing the novel approach of patient self-collection. Uptake of primary HPV testing in the U.S. is unknown and previous studies highlight delays in clinician adoption of guideline updates.

**Methods:** We conducted a cross-sectional survey of primary care clinicians (n=252; response rate=30.9%) assessing awareness and support of guideline-based HPV screening and patient self-collection. Bivariate and multivariate Firth logistic regression analyses were performed to identify factors significantly associated with prior HPV test use and support of clinician and patient-collected HPV testing.

**Results:** Most clinicians (79%) were familiar with HPV screening guidelines. Support for clinician-collected (89%) and patient-collected (82%) HPV testing was high, but only 34% reported prior use. Guideline familiarity was positively associated with prior use of HPV testing ( $p=0.0001$ ). Support of clinician-collected testing was positively associated with more years in practice ( $p=0.03$ ), internal (vs. family) medicine specialty ( $p=0.03$ ) and familiarity with guidelines ( $p<0.0001$ ). Male clinicians more frequently (than female) supported patient-collection for patients overdue for screening ( $p=0.013$ ). Physicians more frequently than advanced practice providers (APPs) supported patient-collection for previously adherent women ( $p=0.021$ ). Multivariable analysis showed those unfamiliar with guidelines were less likely to have used HPV testing [OR 0.10 (0.03-0.32)] or to support clinician-collected HPV testing [OR 0.16 (0.07-0.37)]. No significant predictors were identified in the multivariable model for clinician support of patient-collected primary HPV testing among women overdue for screening. APPs were less likely than physicians to support patient-collected HPV testing among previously adherent women [OR 0.42 (0.20-0.87)].

**Conclusions:** We observed high levels of guideline awareness and clinician support for primary HPV testing despite less than half reporting use of HPV tests for cervical cancer screening. This merits further exploration.

L05

## **“Bridging the Gap” between Oncology and Primary Care for Underserved Complex Cancer Survivors – Project CONNECT**

**Presenter:** Bijal Balasubramanian, University of Texas Health Science Center at Houston -School of Public Health, USA

**Names and affiliations of co-authors:** Robin Higashi<sup>1</sup>, Katelyn Jetelina<sup>1</sup>, Patricia Chen<sup>1</sup>, Udoka Obinwa<sup>1</sup>, Simon Lee<sup>1</sup>

1 University of Texas Southwestern Medical Center

**Objective:** To examine healthcare utilization patterns of underserved cancer survivors with chronic conditions and describe factors related to delivering coordinated, comprehensive primary care.

**Method:** Sequential, mixed-methods study. 631 patients diagnosed with breast or colorectal cancer with at least one chronic condition between 2010-2016 were randomly sampled from electronic health records, then matched 1:1 on sex and Charlson comorbidity index to non-cancer patients with at least two chronic conditions. Multivariable regression compared primary care, emergency department, and oncology visit patterns, and completed [vs. no show or missed] appointments between cancer and non-cancer patients. We used immersion-crystallization methods iteratively to analyze field notes (participant observation and meetings with health system stakeholders) and transcripts from semi-structured interviews to characterize care coordination factors.

**Results:** In an urban, county safety-net health system, complex cancer survivors were seen in primary care less often than non-cancer patients with chronic conditions (Incidence Rate Ratio=0.18; 95% CI: 0.16, 0.20). However, they were more likely to complete appointments (Odds Ratio=4.83; 95% CI: 4.32, 5.39). Health system challenges included delays securing primary care appointments, inconsistent communication between oncology and primary care teams, and role confusion about who was primarily responsible for survivors' care. Patients emphasized their most acute health care need, which often was not cancer, and assumed that their physicians had access to both their cancer and chronic disease history.

**Conclusion:** Barriers to delivering coordinated care occur at multiple levels and are often inter-dependent. Although cancer survivors also had multiple chronic conditions, they were less frequently seen in primary care. The system-wide electronic health record did not facilitate easy access to cancer clinical data for primary care clinicians. Innovative models to “bridge the gap” between oncology and primary care will need to address multi-level factors acknowledging the complex and highly dynamic nature of primary care and oncology care teams.

L06

**Implementation study of an online communication system in St. John's, Canada:  
eOncoNote challenges and lessons learned**

**Presenter:** Bojana Petrovic, Department of Family & Community Medicine, University of Toronto;  
Dalla Lana School of Public Health, University of Toronto, Canada

**Names and affiliations of co-authors:** Clare Liddy <sup>1,2</sup>, Amir Afkham <sup>3</sup>, Kara Laing <sup>4</sup>, Gerard Farrell <sup>4</sup>, Jonathan Sussman <sup>5</sup>, Jim Julian <sup>5</sup>, Mary Ann O'Brien <sup>6</sup>, Eva Grunfeld <sup>6,7</sup>

1 Bruyère Research Institute; 2 Department of Family Medicine, University of Ottawa; 3 Champlain Local Health Integration Network; 4 Faculty of Medicine, Memorial University; 5 Department of Oncology, McMaster University; 6 Department of Family & Community Medicine, University of Toronto; 7 Ontario Institute for Cancer Research

The Canadian Team to Improve Community-Based Cancer Care along the Continuum (CanIMPACT) is a pan-Canadian multi-disciplinary group of researchers working to improve cancer care coordination. In Phase 1, the team conducted quantitative, qualitative and mixed methods research. Results suggested that patients, PCPs and cancer specialists encountered challenges with care coordination and communication with patients and between healthcare providers (e.g., confusion regarding healthcare provider roles, concerns about access to timely information, duplication of services due to communication problems, etc.). Following a consultative workshop, stakeholders recommended testing an online communication system for PCPs and cancer specialists. In Phase 2, CanIMPACT collaborated with Champlain BASE eConsult™ to develop eOncoNote, a secure online communication platform. We conducted a mixed methods implementation study in St. John's, Newfoundland and Labrador, Canada with patients who were discharged from the care of a medical oncologist to their PCP. Patients who met inclusion criteria (at least 18 years old, completed primary treatment for breast cancer, and no previous history of cancer in the past 5 years), were invited to participate by their medical oncologist. After the patient provided informed consent, the medical oncologist sent the patient's PCP an invitation to communicate via eOncoNote, allowing them to communicate for 1 year. 22 patients, 19 PCPs and 5 medical oncologists participated in the study. Data collection included: patient questionnaires (examining continuity of care, anxiety, depression, and patient experience with healthcare); PCP surveys; eOncoNote usage data; hospital data abstraction; and qualitative interviews with patients, PCPs, and medical oncologists. This presentation will highlight preliminary findings, and discuss implementation challenges and lessons learned.

L07

## Impact of Race and Ethnicity on Metabolic Syndrome Treatment Prevalence among U.S. Colorectal Cancer Survivors

**Presenter:** Denalee O'Malley, Rutgers-RWJMS, USA

**Names and affiliations of co-authors:** Denalee M. O'Malley PhD MSW, Tracy Andrews PhD, Cilgy M. Abraham PhD RN, Benjamin F. Crabtree PhD, Shawna V. Hudson PhD, Anita Y. Kinney PhD RN FAAN FABMR

**Objective:** Risk-stratified survivorship models optimize care delivery based on need. This study aims to examine the impact of race on treated prevalence of metabolic syndrome (MetS) among colorectal cancer (CRC) survivors to identify care disparities.

**Methods:** We pooled Medical Expenditure Survey (MEPS-HC) household component consolidated data and Office Based Visit files (2010-2016) to identify CRC survivors. Groups were constructed based on self-reported race: Non-Hispanic Whites (NHW), Non-Hispanic Blacks (NHB), and Hispanics. The likelihood of MetS (e.g.,  $\geq 2$  diagnoses of diabetes, obesity, hypertension and hyperlipidemia) was compared to survivors with <two conditions. Separate logistic models estimated the impact of race on MetS adjusting for sociodemographics, smoking status and medical team composition.

**Results:** Among the 790 colorectal survivors, 60% had MetS with significant differences by race/ethnicity [58% NHW, 69% NHB, 52% Hispanic;  $p=0.01$ ]. Medical team composition varied significantly by race/ethnicity [ $p=0.004$ ], shared care was the predominant model among NHWs and Hispanics [45% and 48%, respectively]; however differed among NHBs (37%) whose predominant model was primary care-only (47%). Among NHWs ( $n=474$ ), age [adjusted (a)OR: 1.01; 95% CI: 1.02-1.05], high school [aOR: 0.56; 95% CI: 0.34-0.93], and private insurance [aOR: 0.46; 95% CI: 0.24-0.85] were associated with MetS. Among NHBs ( $n=191$ ), high school [aOR: 0.36; 95% CI: 0.16-0.82] and college degree [aOR: 0.24; 95% CI: 0.08-0.75], and no source of usual care [aOR: 0.1; 95% CI: 0.03-0.37] were associated with MetS. Among Hispanics ( $n=124$ ), age [aOR: 1.02, 95% CI: 1.00-1.07], current smokers [aOR: 0.25; 95% CI: 0.07-0.95] and having specialist-only care team [aOR: 0.1; 95% CI: 0.02-0.52] were associated with MetS.

**Conclusions:** NHB CRC survivors report the highest level of MetS and the lowest levels of shared care. Our findings suggest a need for care delivery research to align care team composition with clinical and social risk factors associated with optimal management of MetS.

**L08**

## **First results of the BLANKET-trial: treating fear of cancer recurrence in primary care**

**Presenter:** Yvonne Luigjes, Helen Dowling Institute and University Medical Center Utrecht

**Names and affiliations of co-authors:** Prof. dr. Marije van der Lee<sup>1</sup>, Prof. dr. Charles Helsper<sup>2</sup>, Prof. dr. Niek de Wit<sup>2</sup>

1 Helen Dowling Institute, University Medical Center Utrecht; 2 University Medical Center Utrecht

**Background:** About one third of successfully treated cancer patients, experience fear of cancer recurrence (FCR). While specialized psycho-oncology professionals offer effective treatments for FCR, these are not widely available and may not be necessary for all. To improve accessibility and suitability, we investigated whether a short primary care FCR intervention is effective for patients who do not require specialised treatment.

**Methods:** 21 general practices (GP) participated in the study and were randomized. They sent invitation letters to all their patients who had finished successful cancer treatment between three months and ten years ago. In the intervention arm, GPs offered the FCR intervention under investigation, which includes five sessions with a mental health nurse and an online program. In the control arm, practices provided usual care. The primary outcome was FCR severity, measured with the FCRI-SF.

**Results:** Out of 1341 patients who were invited, only 61 patients (4.5%) chose to participate. Reasons not to participate included: not experiencing fear (74%) and not desiring support (38%). FCR decreased 2.9 points in the intervention group and 1.9 points in the control group. For the 12 patients who received the intervention as intended, FCR decreased 3.7 points. Practitioners and patients who received the intervention generally recommended it.

**Conclusion & discussion:** Though care for FCR ranks high on the list of unmet needs, uptake of our primary care FCR intervention was low. This may signify a smaller need for care for FCR, or that our intervention was unattractive for this need. However, patients and GPs who did participate were generally positive about the intervention. Therefore, we recommend additional research to further investigate the need for care for FCR, the effectiveness of this intervention, and the best setting to provide it to patients.

L09

## Cancer and Primary Care in Denmark: Monitored Effects of COVID-19

**Presenter:** Soren Worsoe Laursen, The Danish Cancer Society, Denmark

**Names and affiliations of co-authors:** Lisbeth Hoeg-Jensen<sup>1</sup>

<sup>1</sup> The Danish Cancer Society, MS (Econ) / MScPH,

**Background:** In Denmark the effects of COVID-19 are officially monitored nationally with regards to the activity levels, types of activity in primary care and outcomes with regards to time to cancer treatment.

**Methods:** The data presented is from official monitoring efforts of activity levels regarding screening, levels and type of contacts to GP's, referrals to cancer care pathways and the timeliness of the diagnostic interval from referral to treatment.

**Results:** Updating and analysis of data is currently ongoing. All results will be presented at the conference

**Preliminary findings:** The Danish Health Care system has been continuously "open for business" with regards to cancer care. Nonetheless, the first lock down period during the spring of 2020 resulted in far lower levels of activity leading to an estimated 33 pct. fewer Danes who were diagnosed with cancer, compared with the average of the previous five years over the same period. A decrease corresponding to approximately 2,800 fewer new diagnoses. However the rapid and large decrease in activity due to the spring lockdown did not impact overall levels of activity for the entire year of 2020, but did lead to some changes with regards to the forms of activity (contact patterns to GP's) and for some types of cancer.

**L10**

## **Impact of COVID-19 on cancer screening services and the role of multi-cancer early detection (MCED) testing**

**Presenter:** Velicia Bachtiar, Grail Bio UK Ltd, UK

**Background:** The NHS Long Term Plan has an ambitious target of detecting three-quarters of cancers at an early stage, when treatment is more effective. However, COVID-19 has significantly impacted cancer screening programmes and symptomatic cancer diagnosis in the UK. The significant backlog of some two million people delayed for breast, bowel and cervical cancer screening, will have knock-on effects on diagnosis and treatment for these cancers. Diagnosis has been further impacted by the strain on services and fewer people going to their GP with symptoms. The long-term effects of this disruption will have far reaching implications that require novel solutions. Multi-cancer early detection testing (MCED) is a novel screening paradigm that has the potential to provide a meaningful contribution towards recovery from the impact of COVID-19 and shift the proportion of cancers diagnosed at an early stage.

**Methods:** Clinical utility of MCED testing on a population level needs to be carefully assessed. The NHS-Galleri trial, a partnership between NHS England and developers of MCED test, GRAIL, will be the first randomized controlled trial (RCT) in the UK to test the performance and clinical utility of a MCED test when used in population screening for cancer. The trial aims to recruit 140,000 participants, men and women aged 50 to 77, prior to symptoms. The results of this study would be expected by 2024 and a full health economic assessment will accompany the trial.

**Conclusions:** Measures need to be put in place to ramp up cancer screening programmes and innovative technologies such as MCED testing may provide a meaningful contribution towards earlier detection of cancers for the UK population.

L11

## **The impact of remote consultation on GPs delivery of cancer prevention advice and support during the Covid-19 pandemic.**

**Presenter:** Lindsay MacDonald, Cancer Research UK, UK

**Names and affiliations of co-authors:** Julia Hugason-Briem<sup>1</sup>

<sup>1</sup> Cancer Research UK

**Background:** During the COVID 19 pandemic many services to help people quit smoking or lose weight were paused or offered remotely. We aimed to investigate how the pandemic affected GPs delivery of smoking cessation and weight management.

**Method & Sample:** Online survey of 640 UK GPs conducted in August 2020 administered to a healthcare professional panel by a market research agency. The survey comprised closed and open-text questions. Open questions were coded using framework analysis.

**Results:** 63% of GPs reported that COVID-19 impacted the advice and support they provide for smoking cessation and 51% agreed that consultation via phone or video makes having conversations with patients about smoking more difficult. For weight management, slightly more GPs (69%) reported this had been impacted by COVID-19 and 65% found having conversations with patients about overweight and obesity more difficult via remote consultation. Specific challenges presented by COVID-19 from open-text comments included; loss of visual triggers, GPs unable to check CO2/BMI, limited services to refer to. Positive impacts (reported by fewer GPs) included; patients increased motivation to change behaviour (smoking cessation and weight loss), links between COVID-19 and health outcomes providing a segue into the topics.

**Conclusion:** GPs appeared to find having conversations remotely on smoking cessation and weight management challenging with weight being more challenging than smoking. There was less scope for opportunistic and routine health promotion, it was more challenging to monitor progress and there were fewer referral options available. However, for some GPs, links between COVID-19, smoking and obesity provided motivation and opportunity for patients and GPs to discuss behavioural change. Many of the challenges were outside of a GPs control, however, if remote consultation continues, it is worth exploring the effectiveness of remote very brief advice (VBA) and GPs may benefit from guidance/training on effective delivery.

L12

## **GP use of Chest x-ray for patients with suspected lung cancer and perception of factors contributing to diagnostic delays.**

**Presenter:** Lindsay MacDonald, Cancer Research UK, UK

**Names and affiliations of co-authors:** Dr Jodie Moffat<sup>1</sup>

<sup>1</sup> Cancer Research UK

**Background:** There has been a keenness to understand and optimise the diagnosis of lung cancer in recent years. This research explored GPs use and understanding of CXR and perception of factors contributing to delay in order to inform our efforts to achieve change.

**Method & Sample:** Quantitative online surveys with UK GPs during 2020/21, administered by healthcare market research agencies; Cancer Research UK Health Professional Tracker (August 2020, n=640) and monthly GP Omnibus surveys (June 2020-March 2021, n=1000 per month)

**Results:** In August, 46% of GPs reported having suspicion of lung cancer for a quarter of the patients they referred for CXR, however in November, 62% reported increased CXR waiting times, potentially delaying diagnosis for patients. GP knowledge of CXR limitations could also potentially impact diagnostic time, knowledge of false negative rates was quite low (29%), with GPs more likely to underestimate (38%) than overestimate. However, 99% reported taking action on negative CXR results when they had a suspicion of cancer.

In December 2020, 82% of GPs reported concern about delays to lung cancer diagnosis due to the pandemic. Factors most commonly selected as causing a 'significant' delay in February 2021 were patient-related (reluctance to attend hospital, 35% and not presenting to primary care 23%), and diagnostic related (increases in diagnostic turnaround time, 28%).

**Conclusion:** A more detailed understanding of how GPs use and understand CXR can be useful to inform efforts to expedite lung cancer diagnosis. In these times of crisis, a range of factors may impact delays to lung cancer diagnosis from patient reluctance to attend, to how patients with symptoms are managed, from waiting times for diagnostic tests to safety netting. Although there are knowledge gaps, which should be addressed, almost all GPs take action when they have a cancer suspicion regardless of negative CXR.

L13

## Assessing patient-reported impact of COVID-19 among cancer survivors in a primary-care centered survivorship clinic

**Presenter:** Aamna Kabani, Johns Hopkins University School of Medicine, Baltimore, MD, USA

**Names and affiliations of co-authors:** Youngjee Choi<sup>1</sup>, Sydney Dy<sup>2</sup>

1 Division of General Internal Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States; 2 Division of General Internal Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States

**Background:** The COVID-19 pandemic has caused significant disruptions and distress internationally and may disproportionately affect cancer survivors, who often have long-term cancer-related physical, financial, and psychosocial needs. We aimed to examine ways in which the pandemic has impacted the health and healthcare of cancer survivors.

**Methods:** We conducted a cross-sectional survey of cancer survivors attending the Johns Hopkins Primary Care for Cancer Survivors Clinic (PCCS), a primary-care centered survivorship clinic, from August-December 2020. The survey included 17 items on a 5-point Likert scale (strongly disagree=1, strongly agree=5) and addressed the impact of COVID-19 across three domains: healthcare access, financial health-care burden, and emotional health. We selected items through literature review of COVID-19-related challenges in cancer survivors. PCCS clinicians reviewed the survey questions for face validity. We calculated the frequency of items rated  $\geq 4$  and used descriptive statistics to analyze responses.

**Results:** We approached 69 patients and 53 responded (77% response rate). Internal consistency reliability (Cronbach's alpha) for the 3 domains ranged from 0.73-0.87. Nineteen percent of survivors reported a delay in their healthcare overall, while 12% reported a delay in cancer-specific healthcare. Approximately 29% reported decreased income due to the pandemic, while fewer (11%) reported challenges in paying for healthcare needs. Many (60%) reported feeling anxious due to COVID-19, with 40% expressing concerns about returning or continuing to work during the pandemic. Almost half (48%) felt isolated during the pandemic and 57% were worried that their cancer history places them at higher risk of dying from COVID-19.

**Conclusions:** Cancer survivors experienced significant emotional disturbances due to the pandemic; disruptions in healthcare and financial concerns were less common. Our findings highlight a need for prioritization of mental health services to address challenges caused by the pandemic. Future efforts will aim to understand longer-term impacts of COVID-19 on cancer survivorship care.

L14

## Addressing problem-related distress among cancer survivors during COVID-19: findings from the Johns Hopkins Primary Care for Cancer Survivors (PCCS) Clinic

**Presenter:** Aamna Kabani, Johns Hopkins University School of Medicine, Baltimore, MD, USA

**Names and affiliations of co-authors:** Youngjee Choi<sup>1</sup>, Sydney Dy<sup>2</sup>

1 Division of General Internal Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States; 2 Division of General Internal Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States.

**Background:** As cancer survivors live longer, there has been increased demand on primary care to address survivors' healthcare and psychosocial needs, which have been further exacerbated by the COVID-19 pandemic. We established the Johns Hopkins Primary Care for Cancer Survivors (PCCS) Clinic in 2015 to improve survivorship care delivery. To inform survivorship priorities during COVID-19, we aim to examine differences in distress and need for support among recent and long-term survivors in the PCCS clinic.

**Methods:** From August-December 2020, survivors completed a validated distress survey with 48 problems (1-5 scale) grouped into 4 distress domains: physical, practical, functional, and emotional. Patients indicated their need for support for each problem (nothing, written information, or direct assistance). We defined clinically significant distress as a rating of  $\geq 3$  on at least one problem in the survey, and domain-specific distress as a rating of  $\geq 3$  on a problem in a particular domain. Recent survivors were  $< 5$  years from diagnosis; long-term survivors were  $\geq 5$  years from diagnosis. We used Chi-square tests to assess associations among survivorship duration, distress, and need for support services.

**Results:** We approached 69 patients and 56 completed the survey (81% response rate). Recent survivors were statistically significantly more likely to report clinically significant distress (96%) compared to long-term survivors (63%) ( $p < 0.05$ ). There were no statistically significant differences among recent and long-term survivors in the frequency of physical, practical, functional, or emotional distress. Recent survivors were statistically significantly more likely to request any support (66%), either written information or direct assistance, compared to long-term survivors (33%) ( $p < 0.05$ ).

**Conclusions:** Almost all cancer survivors seen in the PCCS clinic during COVID-19 reported distress, with decreasing but still clinically meaningful distress in longer-term survivors. Future directions include following patients longitudinally beyond the pandemic and assessing the impact of the PCCS clinic on cancer survivor distress.

L15

## Innovations during the Covid-19 Pandemic

**Presenter:** Saloni Jain, Macmillan GP Facilitator, Hywel Da University Health Board, UK

**Names and affiliations of co-authors:** Dr Savita Shanbhag<sup>1</sup>, Dr Sion James<sup>2,1</sup>, Dr Catherine Burrell<sup>2</sup>

1 Hywel Da University Health Board, 2 Primary Care and Community Service, Hywel Da University Health Board

**Background:** The Covid-19 pandemic created significant challenges in supporting patients with suspected or confirmed cancer. Primary and secondary care teams rapidly responded by embracing virtual platforms for collaboration, and diagnosis and treatment pathways for these patients were amended.

**Content:** Early on in the pandemic, the need to manage 354 Urgent Suspected Cancer (USC) referrals provided the focus of weekly virtual meetings with the Medical Directorate (Primary Care) team and secondary care colleagues. USC pathways and specific patient-related concerns were discussed. Innovations included the production of a bilingual patient leaflet entitled 'Your urgent referral explained' and bilingual video encouraging patients with symptoms suggestive of cancer to seek help. Negotiation with secondary care Consultants resulted in the 'watch list' feature of Welsh Clinical Portal being used to monitor patients requiring imaging prior to an USC clinic appointment. Facilitated by the GP Cancer Leads, departmental updates were collated in regular USC newsletters and e-mailed to GP practices, and 9 lunchtime webinars (attended by 213 primary care clinicians) delivered by secondary care colleagues.

**Relevance:** Whilst balancing daily learning about Covid-19 with putting necessary measures in place to safely manage patient care, the goal of intercepting the potential redirection of primary care USC referrals, was to reduce the GPs' workload. Co-production with secondary care colleagues enabled clearer communication with GPs regarding changes to cancer pathways, and thus patient care was streamlined.

**Discussion:** Though the pandemic has posed many challenges, the adopting of new technology has aided the management of USC referrals. Virtual dialogue between primary and secondary care teams, allowed the resolution of issues at a pace far swifter than that prior to the pandemic. Communication via regular USC Update newsletters and on-line learning via webinars was well-received by primary care clinicians and resulted in increased awareness of rapidly changing diagnostic and treatment cancer pathways.

L16

## **Covid 19: Impact on delivering Cancer Education in Primary care**

**Presenter:** Saloni Jain, Macmillan GP facilitator, Hywel Da University Health Board, UK

**Names and affiliations of co-authors:** Dr Mary Craig<sup>1</sup>, Dr Ruth Corbally<sup>2</sup>, Dr Jenny Liddell<sup>3</sup>, Dr Elise Lang<sup>4</sup>, Dr Gemma Eccles<sup>5</sup>, Michelle Wozencraft<sup>6</sup>, Amanda Pallister<sup>1</sup>

1 Macmillan Primary Care Framework (MPCCF) Programme; 2 Macmillan GP Lead Powys Teaching Health Board; 3 Macmillan GP, Betsi Cadwaladri University Health Board; 4 Macmillan GP Lead Velindre; 5 Macmillan GP lead Swansea Bay University Health Board; 6 Macmillan Cancer Quality Toolkit Communication and Engagement Manager

**Objectives:** In Wales, the Macmillan Primary Care Cancer Framework (MPCCF) is a successful model for collaborative working in cancer.

Primary and secondary care were both quick to respond to the COVID-19 pandemic, embracing virtual platforms to adapt working patterns. Protocols and pathways were amended for cancer services relating to diagnosis and treatment

**Content of presentation:** MPCCF supported primary and secondary care with communication and on-line educational events Supported by an expert programme team, the MPCCF colleagues delivered a series of lunchtime webinars with a variety of specialities for primary care clinicians to raise awareness/highlight the changes in protocols and pathways. In addition, the MPCCF enhanced communication between healthcare sectors by producing topical podcasts and newsletters. From 3rd June 20, to date team delivered 26 webinars which had a total attendance of excess of 585 health care professionals and received excellent feedback. The MPCCF Nursing team worked hard in developing and delivering Holistic Cancer Care Review training for practice nurses and cancer buddy training for practice administrative staff.

**Relevance:** GPs were kept informed of new and changed pathways for cancer referrals. Training Primary care nurses helped them feel more confident and knowledgeable in delivering better quality holistic Cancer Care Review. Cancer Buddies training helped non-clinical primary care staff increase confidence and awareness of cancer support services. Remote working and Teams meetings enabled a medium for better communication for a team that work across Wales.

**Outcomes:** Covid-19 has challenged the framework to innovate and function collaboratively. Our quick uptake of online platforms and adopting new technology revolutionised our ability to work across Wales. During our initial on-line educational sessions, we encountered some challenges in recording attendance and capturing quantitative feedback. We were however quick to evaluate /respond /adapt and improve.

L17

## Time from presentation to pre-diagnostic chest X-ray among symptomatic lung cancer patients in England

**Presenter:** Kirsten Arendse, Médecins Sans Frontières, South Africa, Belgium Trust, Belgium

**Names and affiliations of co-authors:** Kirsten D Arendse<sup>1</sup>, Fiona M Walter<sup>2</sup>, Mark Pilling<sup>2</sup>, Willie Hamilton<sup>2</sup>, Yin Zhou<sup>2</sup> and Garth Funston<sup>2</sup>

<sup>1</sup> Médecins Sans Frontières, South Africa, Belgium Trust; <sup>2</sup> The Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge

**Background:** National guidelines in England recommend prompt chest X-ray (within 14 days) in patients presenting in general practice with unexplained symptoms of possible lung cancer, including persistent cough, shortness of breath, or weight loss.

**Aim:** To examine time to chest X-ray in symptomatic patients in English general practice before lung cancer diagnosis and explore demographical variation.

**Design and setting:** Retrospective cohort study using routinely collected general practice, cancer registry, and imaging data from England.

**Method:** Patients with lung cancer who presented symptomatically in general practice in the year pre-diagnosis and who had a pre-diagnostic chest X-ray were included. Time from presentation to chest X-ray (presentation–test interval) was determined and intervals classified based on national guideline recommendations as concordant ( $\leq 14$  days) or non-concordant ( $> 14$  days). Variation in intervals was examined by age, sex, smoking status, and deprivation.

**Results:** In a cohort of 2102 patients with symptomatic lung cancer, median age was 72 years, 1149 (55%) were male and majority were smokers (70%) or ex-smokers (23%). The median presentation–test interval was 49 (interquartile range [IQR] 5–172) days. Of these, 727 (35%) patients had presentation–test intervals of  $\leq 14$  days (median 1 [IQR 0–6] day) and 1375 (65%) had presentation–test intervals of  $> 14$  days (median 128 [IQR 52–231] days). Intervals were longer among patients who smoke (equivalent to 63% longer than non-smokers;  $P < 0.001$ ), older patients (equivalent to 7% longer for every 10 years of age  $27$ ;  $P = 0.013$ ), and females (equivalent to 12% longer than males;  $P = 0.016$ ).

**Conclusion:** In symptomatic primary care patients who underwent chest X-ray before lung cancer diagnosis, only 35% were tested within the 14-day time frame recommended by national guidelines. Females, older patients, and smokers experienced longer intervals. These findings could help guide initiatives aimed at improving timely lung cancer diagnosis.

L18

## Smoking status and barriers for healthcare seeking with lung cancer symptoms – a population-based study

**Presenter:** Lisa Maria Sele Sætre, Research Unit for General Practice, Institute of Public Health, University of Southern Denmark, Denmark

**Names and affiliations of co-authors:** Assistant Professor Sanne Rasmussen<sup>1</sup>, Assistant Professor Kirubakaran Balasubramaniam<sup>1</sup>, GP Jens Søndergaard<sup>1</sup>, Professor Dorte Ejg Jarbøl<sup>1</sup>

<sup>1</sup> Research Unit for General Practice, Institute of Public Health, University of Southern Denmark

**Background:** Smoking is a risk factor for developing lung cancer and associated with late stage diagnosis and incurable disease. Most often, lung cancer is diagnosed based on symptoms presented to the general practitioner (GP). However, only 31 % of current smokers with lung cancer symptoms (LCS) seek healthcare. The literature shows that smoking is related to both stigmatising and normalisation of LCS before diagnosis.

**Objectives:** To analyse the association between smoking status and barriers of healthcare seeking with LCS in the general population.

**Methods:** A population-based study comprising 100,000 adults randomly selected in the general population and invited to participate in a web-based survey. Items regarding LCS, contact to the GP, barriers of healthcare seeking, and smoking status were included in the questionnaire. The included barriers were 'being too embarrassed', 'being worried about wasting the doctor's time', 'being worried about what the doctor might find', and 'being too busy'.

**Results:** In total 49,706 individuals completed the questionnaire. At least one LCS were reported by 16% (7870) and 39% had contacted their GP. Among current smokers 33 % reported LCS and 31 % had contacted their GP. 'Being too busy' and 'being worried about wasting the doctor's time' were the most frequent barriers for healthcare seeking with all LCS. Furthermore 'being worried about what the doctor might find' were three times more likely for current smokers with dyspnoea (OR 3.3 95% OR:2.7-4.9) and prolonged coughing (OR 3.4 95% OR:2.0-4.8) than for never smokers. Data is currently being analysed and more results will be presented at the conference.

**Implications:** Smokers are less likely to seek healthcare with LCS, but more likely to worry about being ill. This emphasise the necessity of more nuanced and open-minded communication to the general population about symptoms and risk factors, to enhance timely diagnoses of lung cancer.

L19

## **Cancer incidence after guideline discordant GP referral behaviour for potential cancer features.**

**Presenter:** Bianca Wiering, University of Exeter, UK

**Names and affiliations of co-authors:** Prof Georgios Lyratzopoulos<sup>1</sup>, Prof Willie Hamilton<sup>2</sup>, Prof John Campbell<sup>2</sup> and Prof Gary Abel<sup>2</sup>

1 University College London; 2 University of Exeter

**Background:** A key service aimed at improving UK cancer survival rates (through improved diagnostic timeliness) is the fast-track referral system known as the two-week wait pathway. Clinical guidelines advise general practitioners (GPs) in England which patients warrant an urgent referral for suspected cancer. However, our research suggests that for many patients with certain features where the guidelines recommend urgent referral, those guidelines are not implemented. This study therefore assessed how many patients were diagnosed with cancer within one year of non-referral.

**Methods:** We used linked primary care (Clinical Practice Research Datalink), secondary care (Hospital Episode Statistics) and cancer registration data. Patients presenting with haematuria, breast lump, dysphagia, iron-deficiency anaemia, postmenopausal or rectal bleeding for the first time during 2014-2015 were included (for ages where guidelines recommend urgent referral). Cancer incidence was based on the existence of a cancer diagnosis date in the cancer registry within one year of the index consultation. ICD-10 neoplasm codes C00 to C97 (excluding C44) were used to identify invasive neoplasms.

**Results:** Of the 19670 patients who received an urgent referral, 1950 (9.9%) were diagnosed with cancer within one year. Of the 29045 patients who did not receive an urgent referral, 1047 (3.6%) patients were diagnosed with cancer within one year. The percentage of patients diagnosed with cancer without having received an urgent referral varied between features, from 2.8% for rectal bleeding to 9.5% for patients with iron-deficiency anaemia.

**Conclusion:** Guideline-recommended actions often do not occur for patients presenting with common possible cancer features. Although GPs referred the majority of patients who were later diagnosed with cancer within two weeks of the patients' GP visit, a significant number of patients were not referred. Better adherence to the guidelines may help improve the cancer diagnostic process and ultimately, improve cancer survival rates for many patients.

**L20**

## **How do and how can GP waiting rooms best raise awareness of the signs and symptoms of different cancers? Patient survey results**

**Presenter:** Laurie Dunn, Hull York Medical School, UK

**Names and affiliations of co-authors:** Alison Bravington<sup>1</sup>, Trish Green<sup>1</sup>, Judith Dyson<sup>2</sup>, Liz Mitchell<sup>1</sup>, Stephen Duffy<sup>3</sup>, Una Macleod<sup>1</sup>

1 Hull York Medical School; 2 Birmingham City University; 3 Queen Mary University London

The overall aim of this multi-method study is to understand how GP waiting rooms are used to present information about cancer, especially in relation to cancer screening and the signs and symptoms of different cancers, in the UK. The phase one qualitative component (waiting room observations and interviews with practice staff) informed the design of a patient survey (phase two). In summer 2019, the survey was sent to a random sample of 2,693 patients across 12 participating practices. 763 questionnaires were returned (response rate= 28%). The questionnaire explored patients' awareness of and engagement with health information within GP waiting rooms. Demographic questions were also included.

Eighty-eight percent of respondents reported visiting their GP surgery numerous times a year, signifying multiple opportunities for patients to engage with cancer and other health information within the surgery. Patients were asked about the kinds of information they looked for within GP waiting rooms. Health information was not the main source of information sought by patients in waiting rooms. The majority of patients (74%) primarily sought information about the practice, followed by information about prescriptions, NHS online services and also the local area, reflecting the community nature of practices. Twenty-six percent of respondents looked for information about cancer. This figure was comparable to information sought about other health conditions, such as diabetes, heart disease and stroke. Patients were also asked about the kinds of activities they engaged in when waiting. There were notable differences between self-reported waiting room activities and activities observed during phase one of the study.

The ongoing analysis of qualitative data, along with analysis of open text fields from patient surveys, will support a greater understanding of the differences between observational data, patient survey data and staff interviews, which will enable the key policy questions to be addressed.

L21

## **Cancer Diagnosis in the Time of Covid-19: A Qualitative study of GPs' experiences during the Covid-19 pandemic**

**Presenter:** Claire Friedemann Smith, University of Oxford, UK

**Names and affiliations of co-authors:** Yasmin Hirst<sup>1</sup>, Susannah Fleming<sup>2</sup>, Brian D Nicholson<sup>2</sup>, Clare Bankhead<sup>2</sup>

1 University College London; 2 University of Oxford

**Background:** Prior to the emergence of the Covid-19 pandemic, most GP consultations occurred in-person in the surgery. Even with this personal contact there was concern that some patients with vague symptoms had repeated consultations before diagnosis. Since the start of pandemic, GP services have seen a substantial shift towards remote consulting. We aimed to examine the effect that this shift had on caring for patients with symptoms that could indicate cancer.

**Methods:** Seventeen GPs from across England took part in semi-structured interviews conducted either over the telephone or via Microsoft Teams.

**Results:** A thematic analysis of the interviews is ongoing but initial results suggest that GPs experienced a steep decline in the numbers of patients presenting during the first lockdown. Many of the GPs have described patients wanting to protect the NHS at a time when the strain that Covid-19 was putting on services was widely publicised. Counter to this messaging, a number of the GPs described the first lockdown as being relatively quiet, but that demand for consultations has increased since the summer of 2020. Several of the GPs raised issues with access to investigations for patients including limited direct access tests and greatly increased waiting time for two-week-wait pathways. GPs also discussed the adaptations that were made to accommodate remote and Covid-safe consulting, the ways in which they thought Covid-19 would change primary care practice, and their concerns for the future.

**Conclusion:** Our initial analysis shows GPs experienced a rapid and significant shift in how primary care was accessed and delivered over the year since the pandemic began. GPs expressed substantial concerns over the damage that Covid-19 has done to future health and healthcare in terms of cancer diagnosis as well as a range of other illnesses. Further analysis will refine these and explore new findings.

L22

## The risk of gastrointestinal cancers in patients with new unexplained abdominal pain and concurrent weight loss in primary care

**Presenter:** Niamh Gibson, University of Exeter, UK

**Names and affiliations of co-authors:** Dr Elizabeth Shephard, Dr Sarah Price, Professor Willie Hamilton

**The problem:** COVID-19 increases the challenge of meeting the UK target of 75% of early-stage cancer diagnoses by 2028. Clinicians need data on cancer risk in patients with symptoms not meeting the 3% referral threshold.

We quantify common undiagnosed gastrointestinal (colorectal, pancreatic, oesophagogastric) cancer risk posed by abdominal pain with weight loss.

**The approach:** This prospective cohort study examined 125,793 Clinical Practice Research Datalink (CPRD) patients aged  $\geq 40$  years with new-onset abdominal pain. Cancer Registry and CPRD records were searched for gastrointestinal cancer codes in the year after the abdominal pain date. Weight loss codes  $\pm 3$ -months of the abdominal pain date identified patients with concurrent weight loss. We used logistic regression, stratified by age band (40-59, 60-69, 70+) and sex, to predict the probability of gastrointestinal cancers in patients with abdominal pain with/without weight loss.

**Findings:** Gastrointestinal cancer risk rose with age and was higher in men (40-59: men 0.64%, 0.54%–0.73%; women 0.28%, 0.23%–0.34%; 60-69: 1.78%, 1.56%–1.99%; 1.03%, 0.86%–1.20%; 70+: 2.85%, 2.57%–3.14%; 1.56%, 1.39%–1.73%). Concurrent weight loss increased gastrointestinal cancer risk above 3% for both sexes  $\geq 40$ . In  $\geq 70$ s, colorectal cancer was most likely (men 4.05%, 1.42%–6.69%; women 1.58%, 0.21%–2.95%), then pancreatic (men 2.70%, 0.75%–4.65%; women 1.27%, 0.03%–2.50%) or oesophagogastric in men (2.70%, 0.32%–5.08%).

**Implications:** These results guide cancer investigative strategies in patients with abdominal pain and weight loss. Colonoscopy/faecal immunochemical tests for colorectal cancer are recommended for men  $\geq 70$ , followed by gastroscopy and CT scan/ERCP for possible oesophageal or pancreatic cancer in those testing negative.

L23

## **A systematic review investigating the role of GP factors on decisions to investigate symptoms of possible cancer**

**Presenter:** Victoria Hardy, University of Cambridge, UK

**Names and affiliations of co-authors:** Adelaide Yue<sup>1</sup>, Dr. Stephanie Archer<sup>1</sup>, Dr. Samuel Merriel<sup>2</sup>, Prof. Matthew Thompson<sup>3</sup>, Prof. Jon Emery<sup>4</sup>, Prof. Fiona Walter<sup>1</sup>

1 University of Cambridge; 2 University of Exeter; 3 University of Washington; 4 University of Melbourne

**Background:** Clinical guidelines of symptoms most predictive of cancer are used in many countries to promote timely diagnosis through standardizing use of diagnostic tests and referral pathways. Nevertheless, unaccounted for variations in appropriate use of referral pathways persist in practice. GP factors are known to contribute to decision-making in the broader literature, but their role in decisions to investigate possible cancer remains poorly understood.

**Methods:** We searched MEDLINE, EMBASE, Scopus, CINAHL and PsycINFO between January 1990 and December 2019 for studies reporting the influence of GP factors on testing and referral decisions for any cancer. Quality assessment and data extraction were undertaken independently by two authors. Quantitative and qualitative findings were analyzed using a convergent segregated approach and combined in a narrative synthesis.

**Results:** Twenty-four studies met review eligibility criteria. We identified a total of twelve GP factors. The most substantive evidence related to suspicion of cancer, years of experience, gut feeling, and age. Other factors included gender, continued medical education participation, fear of malpractice, tolerance for uncertainty, assessment of cancer risk, first impressions, attitude to risk, and gatekeeper role. Odds of non-urgent investigation increased when GPs' suspected cancer. GPs' felt unsupported by referral criteria and were less likely to act on their suspicion when symptoms were non-specific. GPs became willing to act outside of referral recommendations as years of experience increased. Gut feeling at referral predicted subsequent cancer and facilitated management of non-specific symptoms. The influence of age differed across cancer sites.

**Conclusions:** Decisions to investigate possible cancer was facilitated by GP factors that reflected knowledge sources beyond clinical guidelines. Existing referral criteria for suspected cancer may offer insufficient scope for individual judgment when symptoms are non-specific but concerning. The utility of these GP factors for optimizing testing pathways promoting more timely diagnosis of harder-to-detect cancers warrants focused attention.

L24

## Validation and Public Health Modelling of Risk Prediction Models for Kidney Cancer using UK Biobank

**Presenter:** Hannah Harrison, Department of Public Health and Primary Care, University of Cambridge, UK

**Names and affiliations of co-authors:** Lisa Pennells<sup>1</sup>, Angela Wood<sup>1</sup>, Simon J. Griffin<sup>1</sup> and Juliet A. Usher-Smith<sup>1</sup>, Sabrina H. Rossi<sup>2</sup>, Grant D. Stewart<sup>2</sup>

1 Department of Public Health and Primary Care, University of Cambridge; 2 Department of Surgery, University of Cambridge

In the UK, kidney cancer is responsible for 4500 deaths annually. Although early detection is associated with improved survival rates, 25% of newly diagnosed kidney cancers are metastatic. Risk stratified screening could improve early detection, while minimising the harms to individuals. This requires a model able to identify individuals at high risk of undiagnosed kidney cancer. Although several models have been developed most have not been externally validated, and their potential application to a screening programme has not been assessed.

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

We included 30 models in the review. Eight had reasonable discrimination (AUROC>0.62), however, many of the models had poor calibration in UK biobank. Public health modelling demonstrated the accuracy of the best models over a range of thresholds (6-year risk: 0.1%-1.0%). At any particular threshold, the models performed very similarly. At all thresholds considered they showed a small improvement in ability to identify high-risk individuals compared to age- and sex- based screening. Given their similar performance in a UK population, selection of a suitable model is likely to depend on the availability of data. However, these models should be applied with caution, very few people are predicted to have a 6-year risk >1% and they have worse performance in women. Future research may consider the potential benefits of adding biomarkers or genetic risk factors to phenotypic models.

## Process Evaluation of the ABACus3 trial: a targeted cancer awareness intervention for adults living in deprived areas of the UK

**Presenter:** Harriet Quinn-Scoggins, Cardiff University, UK

**Names and affiliations of co-authors:** Ms Yvonne Moriarty<sup>1</sup>, Ms Stephanie Gilbert<sup>1</sup>, Dr Stephanie Smits<sup>1</sup>, Dr Vicky Shepherd<sup>1</sup>, Dr Jacqueline Hughes<sup>1</sup>, Mr Peter Buckle<sup>2</sup>, Dr Polyxeni Dimitropoulou<sup>1</sup>, Prof Adrian Edwards<sup>1</sup>, Ms Julie Hepburn<sup>3</sup>, Ms Vasiliki Kolovou<sup>4</sup>, Ms Mandy Lau<sup>1</sup>, Ms Maura Matthews<sup>5</sup>, Dr Caroline Mitchell<sup>6</sup>, Prof Richard Neal<sup>7</sup>, Ms Sioned Owen<sup>5</sup>, Ms Louise Padgett<sup>8</sup>, Dr Rebecca Playle<sup>1</sup>, Prof Michael Robling<sup>1</sup>, Dr Bernadette Sewell<sup>9</sup>, Dr Julia Townson<sup>1</sup>, Dr Robert Trubey<sup>1</sup>, Prof Fiona Wood<sup>1</sup>, Prof Kate Brain<sup>1</sup>

1 Cardiff University; 2 Marie Curie Research Voices; 3 Public Involvement Community; 4 Cardiff Metropolitan University; 5 Tenovus Cancer Care; 6 University of Sheffield; 7 University of Leeds; 8 University of York, , Swansea University

**Background:** The ABACus 3 trial tested the effectiveness of a theory-grounded facilitated cancer awareness intervention delivered to adults living in deprived communities. The intervention aims to improve cancer symptom awareness and increase motivation to seek help through delivery of personalised behaviour change techniques (BCTs). The nested process evaluation assessed intervention fidelity, dose, contamination and contextual influences.

**Methods:** A purposeful sample of intervention delivery sessions (20%) was audio-recorded, with 50% of these additionally observed. Paired interviews with lay advisors were conducted post-training and post-intervention delivery. Purposefully sampled participant interviews were conducted 2-4 weeks and 6 months post-intervention delivery. Interviews were transcribed verbatim and analysed thematically.

**Results:** The intervention was delivered with high fidelity in terms of format and content across all lay advisors. Intervention dose varied between lay advisors (mean proportion of tailored BCTs delivered according to health check results by lay advisor ranged from 92.7% to 34%). Six lay advisor interviews (n=3) and 37 participant interviews were conducted (n=15 2-4 weeks, n=22 6-months). Personalisation was considered key to successful engagement; however, concerns were raised by lay advisors regarding whether personalisation detracted from the main symptom awareness message and primary outcome. Participants reported high cancer symptom knowledge (across both arms), and the control group reported increased knowledge following completion of the baseline questionnaire. Contamination was present, especially within community settings; however, this in-turn could be viewed as positive social diffusion and thus increased reach.

**Conclusion:** The intervention was delivered as expected, however dosage varied considerably by lay advisor. Results suggest new knowledge gained on effective methods of engaging and retaining high-risk disadvantaged populations in research; however, personalisation of interventions that may increase participant engagement may dilute intervention messages. Findings help to shed light, and a complementary lens, on the primary and secondary trial outcomes.

## A bibliometric analysis of cancer in primary care research 2013-2019

**Presenter:** Mairead McNamara, Centre for Cancer Research, Department of General Practice, University of Melbourne, Australia

**Names and affiliations of author and co-authors:** Kristi Milley<sup>1</sup>, Sophie Chima<sup>1</sup>, Napin Karnchanichari<sup>1</sup>, Karalynne Cummings<sup>1</sup>, Paige Druce<sup>1</sup>, Jon Emery<sup>1</sup>

<sup>1</sup> Centre for Cancer Research, Department of General Practice, University of Melbourne, Australia, 3000

The role of primary care in cancer is increasingly recognised as a vital component of cancer services world-wide. The aim of this bibliometric analysis was to map cancer in primary care research publications to recognize research hotspots, identify evidence gaps and inform future research directions.

Medline and EMBASE were searched for publications between 2013-2019. Publications were included where cancer was included in the research question or outcome measures and the setting substantially involved general practice. Titles and abstracts of 5,962 papers were reviewed. The research areas were mapped across the cancer continuum and further categorised by cancer type, country, study type, journal impact factor (IF) and author gender. Research hotspots were identified through analysis of MeSH terms.

2798 publications were included and published within 714 different journals with a median impact factor of 2.51. Research was conducted in 79 countries, with the USA, UK, Australia, Canada and the Netherlands representing the top 5 publishing countries. The distribution of research across the continuum varied by country. Observational studies were the most common study design (54.4%) followed by cross-sectional (24.9%). Interventional studies represented 10% of publications and implementation research only 0.7%. 63.9% of first authors were females dropping to 45.4% of last authors. Overall, between 2013 and 2019 there was a 3% increase in the number of publications.

To the best of our knowledge, this is the first bibliometric analysis of cancer in primary care research outputs. The results provide an indirect measure of the status and trends in cancer in primary care research. They provide a foundation to better understand the distribution of research and highlight how different countries focus on specific areas of the cancer continuum. Lastly, they suggest a need for greater investment in clinical trials and implementation studies to improve translation of evidence into clinical practice.

L27

## **Reworking routines in primary healthcare: Adapting standardized cancer patient pathways while continuing practice**

**Presenter:** Petter Fjällström, Department of Nursing, Umeå University, Sweden

**Names and affiliations of co-authors:** Senada Hajdarevic<sup>1</sup>, Anna-Britt Coe<sup>2</sup>, Mikael Lilja<sup>3</sup>

1 Department of Nursing, Umeå University; 2 Department of Sociology, Umeå University; 3 Department of Public Health and Clinical Medicine, Umeå University

**Background:** The aim was to explore how primary healthcare centers (PHC) had adjusted working routines using Cancer Patient Pathways (CPP). CPPs are intended to shorten time to diagnosis, improve access to care and reduce inequality in cancer care. In addition to these intended changes, CPPs have unintended consequences for organizations that utilizes them. In Sweden, PHCs are particularly affected because they are the first and main entrance into healthcare and also important actors of CPP for timely diagnosis. When Sweden in 2015 introduced CPPs, there was an opportunity to explore unintended consequences of using CPPs in PHCs.

**Method:** Grounded Theory method was used to collect and analyze qualitative data. Six PHCs were included with a variation in size and location. Data was collected through group interviews with nurses and physicians at each PHC, for a total of 41 participants in nine interviews.

**Results:** Our analysis resulted in a process consisting of three distinct but connected work routines. Each routine encompassed a dimension ranging from continuing working as usual to adapting CPPs in their work. The PHCs continued working broadly with patient needs while adapting to speeding up patient flows. Additionally, the PHCs continued to be in a position of dependency on secondary care while adapting to “easier” referral of patients. Lastly, the PHCs continued to draw upon their longstanding know-how while adapting to work with alarm symptoms in new ways.

**Conclusion:** PHCs in our study had not been involved in planning the introduction of CPPs. Instead, as our results show, the PHCs developed their own process to manage using CPPs as a tool. The process illuminated their adeptness to deal with new tools and procedures. Our study suggests that decision-makers in healthcare could make better use of the know-how within PHCs when developing and introducing new tools such as CPPs.

**L28**

## **Risk of cancer and other serious diseases among patients with unexpected weight loss: a large matched cohort analysis**

**Presenter:** Diana Withrow, Nuffield Department of Primary Care, University of Oxford, UK

**Names and affiliations of co-authors:** Jason Oke<sup>1</sup>, Claire Friedemann Smith<sup>1</sup>, Brian Nicholson<sup>1</sup>

1 Nuffield Department of Primary Care, University of Oxford

**Background:** Unexpected weight loss (UWL) can be a sign of cancer. To contextualize cancer risk among patients presenting to primary care with UWL and inform diagnostic work-up, we estimated the absolute and relative risks of cancer compared to other serious diseases.

**Methods:** This retrospective matched cohort study used electronic health records from the UK's Clinical Practice Research Datalink between 2000 and 2014. Multivariate time to event analyses examined the association between UWL and 12 serious diseases (cancer, thyroid disorders, diabetes, depression, chronic obstructive pulmonary disorder, dementia, rheumatoid arthritis, eating disorders, coronary heart failure, irritable bowel disease, malabsorption, and alcohol addiction).

**Results:** Just over 70,000 patients with internally validated UWL were matched to approximately 296,000 patients without UWL. In the first two months after presentation, cancer the second most common outcome to present in men with UWL (diabetes: 11.8/1,000 person-years [p-y]; cancer: 8.9/1,000 p-y) whereas in women cancer was the third most common outcome (4.1/1,000 p-y) behind thyroid disorders (9.7/1,000 p-y) and depression (6.0/1,000 p-y). Cancer was the most common outcome among patients aged 80 and older with UWL (11.5/1,000 p-y) whereas in younger patients (<60) the most common outcomes were thyroid disorders (9.6/1,000 p-y) and diabetes (7.9/1,000p-y). Relative to patients without UWL, patients with UWL were at four-fold higher risk of a cancer diagnosis (hazard ratio [HR] 4.00, 95% confidence interval: 3.54-4.51). The highest relative risks were for eating disorders (HR: 19.3, 11.4-32.6), thyroid dysfunction (HR: 13.1, 11.1-15.4), and diabetes (HR: 10.8, 9.3-12.4).

**Conclusion:** We highlight serious disease diagnoses to prioritise for investigation in patients presenting with UWL, many of which can be diagnosed with simple investigations in primary care prior to referral for invasive investigation.

L29

## Should we provide advice about prevention and early detection of other cancers as part of the breast cancer screening programme?

**Presenter:** Suzanne Scott, King's College London, UK

**Names and affiliations of co-authors:** Betul Rauf<sup>1</sup>, Jo Waller<sup>1</sup>

<sup>1</sup> King's College London

**Objectives:** Breast cancer screening could be an opportunity (sometimes referred to as a 'teachable moment') to encourage the prevention and early detection of other cancers but little is known about women's views on this potential initiative. The research aimed to compare women's willingness to receive advice about cervical and bowel cancer screening participation and advice on cancer symptom awareness when attending breast cancer screening.

**Methods:** Women (n=322) aged 60-64 years who had previously taken part in the UK national breast cancer screening programme completed an online survey assessing willingness to receive advice, potential impact of advice on breast screening participation, prospective acceptability and preferences for mode and timing of advice. Screening history, health-related behaviours and sociodemographic variables were also assessed.

**Results:** Most women indicated they would be willing to receive information about cervical cancer screening, bowel cancer screening and early symptoms of other cancers at a breast cancer screening appointment. Those who were not up-to-date with cervical cancer screening were less willing to receive advice about encouraging cervical cancer screening and advice about early symptoms of other cancers. Prospective acceptability was high for all three forms of advice and was associated with willingness to receive advice. Women would prefer to receive advice through a leaflet or discussion with the mammographer either before the appointment, at the appointment or with their results.

**Conclusions:** Whilst there is high willingness and high acceptability towards using breast cancer screening as a teachable moment for advice about prevention and early detection of other cancers, some women find it unacceptable and this may reduce their likelihood of attending a breast screening appointment. The few women who find it unacceptable may be the intended target of such an intervention and the very women who would benefit most.

**L30**

## **Exploring the social and ethical implications of risk stratified screening for society – a community jury study**

**Presenter:** Rebecca Dennison, University of Cambridge, UK

**Names and affiliations of co-authors:** Dr Juliet Usher-Smith<sup>1</sup>, Ms Rachel Boscott<sup>1</sup>, Prof Simon Griffin<sup>1</sup>, Dr Hannah Harrison<sup>1</sup>, Dr Stephen John<sup>1</sup>, Dr Sowmiya Moorthie<sup>2</sup>, Dr Sabrina Helena Rossi<sup>1</sup>, Prof Grant Stewart<sup>1</sup>, Dr Chloe Thomas<sup>3</sup>, Dr Rae Thomas<sup>4</sup>

<sup>1</sup> University of Cambridge; <sup>2</sup> PHG Foundation; <sup>3</sup> University of Sheffield; <sup>4</sup> Bond University

Stratified screening according to individuals' modelled/estimated risk of disease could advance early cancer detection by better targeting screening tests to the population most likely to benefit. However, the social and ethical implications of moving from age and/or sex-based population screening to a more personalised stratified approach have not been widely considered in previous research.

We aim to explore the implications of introducing risk stratification into screening programmes from a societal perspective and elicit views on the most acceptable stratification strategies, plus the key points to consider when communicating this to the public.

We will conduct three community juries on Zoom in April/May, each including 8–10 participants from across the UK. On the first day, participants will hear a series of presentations from experts covering current cancer screening approaches, including the potential benefits and harms, and risk stratification. We will then focus on the implications of different ways of introducing stratification using a series of scenarios, including phenotypic and genetic risk scores. Each presentation will be followed by a Q&A with the experts. On the second day, the participants will deliberate on the acceptability of the different stratification strategies, considering the collective societal perspective. The first deliberation will be co-facilitated by at least one PPI member and researcher, followed by an un-facilitated deliberation.

All jury deliberations and feedback will be recorded, with consent. The transcripts will be analysed using thematic analysis to explore the key reasons underlying jurors' support or rejection of particular scenarios or points of discussion. We will also compare participants' individual attitudes to cancer screening before and after the juries through a questionnaire. Findings will be presented at the conference.

Findings will inform decision makers during the development of health policies, as well as a future discrete choice experiment about introducing stratification into an existing screening programme.

## L31

### **Development and user-testing of a brief decision aid for low-dose aspirin use as a preventive approach alongside screening for colorectal cancer to an age eligible screening population in Wales (UK)**

**Presenter:** Lenira Ferreira Semedo, Cardiff University, UK

**Names and affiliations of co-authors:** Kate Lifford<sup>1</sup>, Adrian Edwards<sup>1</sup>, Kate Brain<sup>1</sup>, Kathy Seddon<sup>1</sup>, Stephanie Smits<sup>1</sup>, Sunil Dolwani<sup>1</sup>

<sup>1</sup> Cardiff University, Cardiff, UK

**Background:** Colorectal cancer screening using biennial faecal occult blood testing followed by colonoscopy and polypectomy in those testing positive is associated with reduced colorectal cancer deaths by approximately 16%. Despite the benefits of aspirin use in reducing colorectal cancer incidence and mortality, there are associated risks, mainly gastrointestinal bleeding, and haemorrhagic stroke. Combining the two strategies could additionally impact on the prevention of colorectal cancer. This is not currently recommended in the UK.

**Aim:** To develop and user-test a brief decision aid for aspirin use to enable informed decision-making which is aligned to individuals' values and preferences.

**Method:** Clinical evidence synthesis was agreed by a scientific reference group. Screening responders' focus groups and healthcare professionals' interviews provided feedback on decision aid content and format. Interviews with screening responders explored its acceptability and utility. A framework approach was used for analysis.

**Results:** Participants (focus groups n=14; healthcare professionals n=10) wanted more information about aspirin use (e.g., bleeding events), preferred the risk information in pictograms and wanted tailored risk information. Users (n=11) found the decision aid clear and succinct, however minor changes were requested. There were differing views regarding implementation pathways for the decision aid in both phases. Individuals discussed sending the decision aid alongside the screening invite, before this point through a public health campaign or following a positive test result. Involving healthcare professionals (GPs, community pharmacists and/or screening practitioners) was also highlighted. Practical issues to implementation included time pressures to discuss the options.

**Conclusions:** The final decision aid was acceptable and useful to inform decision-making. It could therefore support an innovative approach to colorectal cancer prevention alongside screening. Considering risk stratification and identifying the best timing and strategies to deliver this information could optimise clinical outcomes for patients who may benefit from aspirin therapy.

## **A systematic review of effectiveness, and factors affecting implementation, of Community-Based Resources to increase cervical cancer screening in sub-Saharan Africa**

**Presenter:** Danladi Adamu, Usher Institute, University of Edinburgh, UK; College of Medical Sciences, Gombe State University, Gombe, Nigeria

**Names and affiliations of co-authors:** Nicole Robertson<sup>1,2</sup>, David Weller<sup>1</sup>, Christine Campbell<sup>1</sup>

1 Usher Institute, University of Edinburgh; 2 University of Kentucky College of Medicine, Lexington

**Background:** Community-based resources (CBRs) such as community health workers (CHWs) and community-based civil society organisations (CBOs) are key components of primary health care in sub-Saharan Africa (SSA). There has been no systematic review on the role of CBRs in cervical cancer screening in SSA. We reviewed the literature for evidence of effectiveness and factors influencing implementation of interventions by CBRs in increasing uptake and /or continuing participation in cervical cancer screening in SSA.

**Methods:** We searched MEDLINE, EMBASE, PsycINFO, Global Health, CINAHL Plus, Web of science, ASSIA, Cochrane central, Open grey, Google scholar, ProQuest dissertation and Thesis global, AIM, AJOL and AORTIC databases from January 1980 to March 2019. We looked for studies with a community focus, reporting impact of CBRs in SSA with and without comparison groups. No language or study design restrictions. We identified 22,710 articles, and after de-duplication and screening, 132 full-text articles were assessed for eligibility. 45 articles (reporting on 49 studies) met the inclusion criteria.

**Results:** The 49 studies were representative of four SSA regions: Eastern (n=20), Western (n=13), Southern (n=9), and Central (n=4). 29 cross-sectional, 6 RCTs, 6 pre-test/post-test, 1 controlled before and after study and 5 qualitative studies were included. CHWs mainly provided educational interventions, reducing structural barriers, and supporting or conducting screening, while CBOs were mainly involved in providing educational interventions and supporting screening provision within their organisations. Interventions by CBRs were effective and showed multilevel contextual influences. Three major domains of factors affecting implementation of community-based cervical screening identified were demand, access, and sustainability.

**Conclusions:** Implementation of interventions for cervical screening in SSA should draw on the skills and established roles of CBRs in the community. Future research should be designed to influence multiple levels of contextual influence that affect cervical screening uptake, incorporating improved methodological rigour and implementation approaches.

## Cervical and bowel cancer screening intentions during the Covid-19 pandemic: a mixed-methods study

**Presenter:** Yvonne Moriarty, Centre for Trials Research, Cardiff University, UK

**Names and affiliations of co-authors:** Rebecca Wilson<sup>1</sup>, Harriet Quinn-Scoggins<sup>2</sup>, Martin Nemeč<sup>3</sup>, Steph Smits<sup>4</sup>, Jacqueline Hughes<sup>1</sup>, Mark Goddard<sup>1</sup>, Rebecca Cannings-John<sup>1</sup>, Victoria Whitelock<sup>5</sup>, Katriina L Whitaker<sup>6</sup>, Detelina Grozeva<sup>1</sup>, Julia Townson<sup>1</sup>, Kirstie Osborne<sup>5</sup>, Michael Robling<sup>1,7</sup>, Julie Hepburn<sup>8</sup>, Graham Moore<sup>7</sup>, Ardiana Gjini<sup>9,10</sup>, Kate Brain<sup>2</sup>, Jo Waller<sup>5</sup>

1 Centre for Trials Research, Cardiff University; 2 PRIME Centre Wales, Division of Population Medicine, School of Medicine, Cardiff University; 3 Cancer Prevention Group, School of Cancer and Pharmaceutical Sciences, King's College London; 4 Division of Population Medicine, School of Medicine, Cardiff University; 5 Cancer Intelligence, Cancer Research UK; 6 School of Health Sciences, University of Surrey; 7 DECIPHer (Centre for Development, Evaluation, Complexity and Implementation in Public Health Improvement), School of Social Sciences, Cardiff University; 8 Public Involvement Community, Health and Care Research Wales Support Centre; 9 Public Health Wales; 10 Cardiff University

**Background:** Cancer screening programmes were effectively paused from late March 2020 to at least around June, depending on the programme/country. This risks long-term adverse impacts on cancer outcomes due to changes in public attitudes towards cancer screening affecting screening uptake. We examined correlates of intentions to take part in cervical and bowel screening during the first six months of the UK pandemic.

**Methods:** A population sample of 7,543 UK adults were recruited to take part in a cross-sectional online survey conducted between Aug-Sept 2020. The sample for this analysis included 2,206 participants who were eligible for cervical screening and 2,676 who were eligible for bowel screening. Logistic regression analyses were used to identify correlates of screening intentions. Qualitative interviews were conducted with a sub-sample of 30 participants. Interviews were recorded, transcribed and analysed thematically.

**Results:** Most participants said they would 'definitely' attend cervical screening (77%) or complete a bowel screening home-test kit (86%) when next invited. Previous non-participation was associated with greater odds of not intending to take part in future cervical (aOR 26.83, 95%CI 17.96-40.08) and bowel (aOR 98.23, 95%CI 43.76-220.52) screening. The most common cervical screening barriers were worry about pain(12%), a previous bad experience(9%) and embarrassment(9%). Bowel screening barriers included the test being too messy(4%), not having symptoms(3%) and embarrassment(3%). Interviewees described being keen to participate in screening and many were not aware that it had been disrupted. Although some expressed concerns about visiting healthcare settings due to fear of COVID-19, there was a strong view that cancer screening is important and should continue.

**Conclusions:** Despite disruption to cancer screening programmes, there was little evidence that participants' intentions to engage with future screening services were reduced. It will be important to monitor uptake closely as services resume and ensure that people feel safe to attend (where appropriate).

## Healthcare practices that increase quality of care in cancer trajectories from a general practice perspective: A scoping review

**Presenter:** Gitte Bruun Lauridsen, Research Unit for General Practice, Department of Public Health, University of Southern Denmark, Denmark

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1 Research Unit of General Practice, Department of Public Health, University of Southern Denmark; 2 Center for Joint Decision Making, Lillebelt Hospital

**Objective:** General practice plays a significant role in patients' cancer trajectories. The many evidence-based guidelines are not all directly applicable to general practice, and knowledge about translation into healthcare practices is requested. This study's objective was to identify healthcare practices that increase quality of care in cancer trajectories from a general practice perspective.

**Design:** A scoping review was conducted according to the PRISMA-ScR guidelines, including peer- and non-peer-reviewed literature published in both English and Danish from 2010 to 2020. Data were collected through searches in five different databases, as well as reports from selected health political, research- and interest organizations' websites. Studies that described healthcare practices in terms of, i.e. testing interventions or everyday experiences/healthcare practices in cancer trajectories were included. All cancer types as well as age groups were included. The identified healthcare practices were grouped into four contextual domains for each of seven cancer trajectory phases, from awareness of bodily sensations until palliative care. The WHO definition of healthcare quality was applied.

**Results:** A total of 45 peer-reviewed and 6 non-peer-reviewed articles and reports were included. We found that quality of care increases in all phases of the cancer trajectory when the general practitioners listen carefully to the full story and use action plans. After diagnosis, quality of care increases when general practitioners and practice staff have a proactive care approach, act as interpreters of diagnosis, treatment options and its consequences, and engage in care coordination with specialists in secondary care involving the patient.

**Conclusion:** This scoping review has identified healthcare practices that increase quality of care in cancer trajectories from a general practice perspective. We will present the identified healthcare practices and possibilities for quality improvement.

## A meta-ethnography of cultural influences on cancer-related psychological interventions

**Presenter:** Dipesh Gopal, Queen Mary, University of London, UK

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1 University of Portsmouth; 2 Queen Mary, University of London; 3 King's College London– University of Westminster on behalf of the SURECAN Investigators

**Introduction:** Two million people in the UK are living with or beyond cancer and one in three report poor quality of life (QoL). Our trial, Survivors' Rehabilitation Evaluation after CANcer (SURECAN), developed a new talking therapy based on Acceptance and Commitment Therapy for people who have completed treatment for cancer, but experiencing poor QoL. We conducted a systematic review and meta-ethnographic synthesis of qualitative research related to cultural influences on cancer-related psychological interventions to inform the design of our intervention to ensure cultural-sensitivity with specific relevance to British ethnically minoritised populations.

**Methods:** Nine major databases were searched for studies of minority ethnic groups (as specified in the UK census) describing their experiences of using UK oncological or mental health services. Recurring concepts were identified, and first order (participant) and second order (authors' interpretations) constructs extracted by three reviewers. Third order constructs (the review team's interpretations) will be identified iteratively and via group analytical sessions. Review protocol: PROSPERO 2018 CRD42018107695.

**Results:** The search resulted in 11,142 unique citations, and 28 papers met the inclusion criteria. Interim analysis of 20 papers yielded 10 preliminary recurring themes. Key influences on patients' experiences of healthcare included health beliefs, aspects of the patient-practitioner relationship (such as power imbalances, degree of person-centredness), the role of family (including guiding access to care), stigma, the role of spirituality and religion, as well as language and communication issues not accommodated by services. Tertiary order constructs will be developed in the final phase of the project.

**Conclusions:** The results of this study have implications for the development of interventions that are suitable for diverse British patient groups. Our findings can inform clinicians', researchers' and policy makers' understanding of the support required in order to develop services and trials suitable to the needs of people from ethnic minorities.

L36

## General practitioner- versus surgeon-led colon cancer survivorship care, with or without access to an eHealth application

**Presenter:** Julien Vos, Amsterdam UMC, location AMC, the Netherlands

**Names and affiliations of co-authors:** Laura A.M. Duineveld, MD, Thijs Wieldraaijer, PhD, Jan Wind, PhD, Wim B. Busschers, MSc, Edanur Sert, MSc, Prof Pieter J. Tanis, Prof Irma M. Verdonck-de Leeuw, Prof Henk C.P.M. van Weert and Kristel M. van Asselt, PhD

**Background:** Colon cancer is a prevalent disease resulting in high burden for healthcare practices. With increased risk of physical and psychosocial morbidity, care by a general practitioner (GP) could be beneficial. We aimed to compare quality of life (QoL) between GP- and surgeon-led survivorship care after colon cancer treatment. Furthermore, the effect of an eHealth application (Oncokompas) on QoL was assessed.

**Methods:** This was a pragmatic 2 x 2 factorial non-blinded randomised controlled trial. Stage I-III colon cancer patients were recruited from 8 Dutch hospitals and randomly assigned (1:1:1:1) to care by GP or surgeon, with or without access to Oncokompas, stratified by age and tumour stage. The primary outcome was QoL as measured by EORTC questionnaires at baseline (after treatment), 3-, 6-, and 12- months. Differences in change of QoL between trial arms were estimated using linear mixed effects models (intention-to-treat and per-protocol). Change of 10 units was considered relevant (superiority design with alpha 0.05, power 80% and drop-out 15%). Netherlands Trial Register; NTR4860.

**Findings:** Between March 26, 2015 and November 21, 2018, 303 (25%) of 1238 patients eligible for participation were included. Of these, 141 were randomised to GP- (68 with Oncokompas) and 162 to surgeon-led care (83 with Oncokompas). At baseline, high levels of QoL were seen in all trial arms. At 12-months, no meaningful differences in change of QoL were seen on any subdomain (difference in summary score of -2.3 [95% CI -5.0-0.4]). Oncokompas did also not result in higher QoL (-0.1 [95% CI -2.8-2.6]).

**Interpretation:** With respect to QoL, there was no preferred health professional to provide survivorship care within the first year after surgery for colon cancer. Also Oncokompas did not show benefit. Other outcomes including patient and physician preferences can be decisive when deciding on type of care.

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L37

## **Ecological Momentary Assessment for the early detection of depression in survivors of cancer in primary care**

**Presenter:** Jolien Alissa Panjer, University of Groningen, University Medical Center Groningen, Department of General Practice and Elderly Care Medicine, Netherlands

**Names and affiliations of co-authors:** Dr. M.E. Stegmann<sup>1</sup>, Dr. H. Burger<sup>1</sup>, Dr. D. Brandenburg<sup>1</sup>

<sup>1</sup> University of Groningen, University Medical Center Groningen, Department of General Practice and Elderly Care Medicine, Groningen

**Introduction:** Depressive symptoms are common in survivors of cancer. Early recognition followed by preventive psychological care could decrease the incidence of depression by 20%, and subsequently lead to better quality of life and reduced depression-related morbidity and mortality. Early recognition of depressive symptoms in survivors of cancer is complicated due to atypical presentation of depression and the high frequency of cognitive symptoms. This can hamper the reliability of questionnaires.

An alternative way to detect depressive symptoms is by Ecological Momentary Assessment (EMA). EMA is based on frequently sent short, often digital, questionnaires during a period of a few weeks, thereby reducing the risk of recall bias. EMA is successfully used in psychiatry and showed promising results for monitoring fatigue among survivors of cancer. Whether EMA is feasible and valid in primary care is still unknown. In a pilot study, we investigated the feasibility and validity of using EMA for timely detecting depressive symptoms in survivors of cancer in primary care.

**Methods:** Survivors answered a one minute questionnaire about their mood (giving scores to positive and negative affect from 0-100) three times a day for a period of 6 weeks. We calculated average scores for positive and negative affect overall, and per time block and activity. Survivors received a personal report every week. We evaluated autocorrelation, variance and cross-correlation over all measurements. Results were compared to a questionnaire filled in at baseline and at the end of study. As it is a pilot study, reach, response, dose delivered and dose received data were also evaluated.

**Results:** The first survivors just started the EMA measurements. We expect to present the results at the Ca-PRI conference.

**Conclusion:** We hope by using EMA we can develop an easy method for early detection of depressive symptoms in survivors.

## Evaluating an interactive acceptance and commitment therapy (ACT) workshop for trained therapists working with cancer patients

**Presenter:** Elisavet Moschopoulou, Queen Mary University of London, UK

**Names and affiliations of co-authors:** Debbie Brewin<sup>1</sup>, Damien Ridge<sup>2</sup>, Sheila Donovan<sup>3</sup>, Stephanie Taylor<sup>3</sup>, Liam Bourke<sup>4</sup>, Gail Eva<sup>5</sup>, Imran Khan<sup>3</sup>, Trudie Chalder<sup>6</sup>

1 Mind-Growth Mastery; 2 University of Westminster; 3 Queen Mary University of London; 4 Sheffield Hallam University; 5 Oxford Brookes University; 6 King's College London, on behalf of the SURECAN Grant Investigators

**Introduction:** SURECAN (SURvivors' Rehabilitation Evaluation after CANcer) is a multi-phase study developing and evaluating an Acceptance and Commitment Therapy (ACT) intervention integrated with exercise and work when highly valued (thus we called the intervention ACT+), for people who have completed treatment for cancer but who have low quality of life. We developed a training package for therapists working in different psychological services to be delivered over several days. Our aim was to evaluate the extent to which the training could improve therapists' knowledge and confidence in a trial setting, to deliver ACT+ to cancer patients.

**Methods:** Three interactive workshops were delivered to 29 therapists from three clinical settings in London and in Sheffield. A mixed-methods approach was taken. Questionnaires were designed to assess knowledge and confidence in using ACT+ with people who have low quality of life after cancer treatment and were self-administered immediately prior to and after each workshop. Here, open text-based questions were used to elicit feedback about the workshops alongside a satisfaction scale. Semi-structured interviews were conducted with a purposive sample of therapists (n=12) to explore their views about the training more deeply, and how it might be optimised.

**Findings:** Quantitative analysis showed that knowledge of ACT, as well as confidence in using a modified form of ACT in this setting increased significantly after training (28.6% and 33.5% increase in the median score respectively). Similarly, qualitative analysis suggested that most therapists were satisfied with the content and structure of the workshop, they valued the rich resources provided and enjoyed the practice-based approach. Potential barriers/facilitators to participation in the trial and to the successful implementation of ACT+ were also uncovered.

**Conclusions:** Training can effectively improve the knowledge and confidence of therapists from varying clinical backgrounds to deliver a modified ACT intervention to cancer patients in a trial setting.

**L39**

## **Feasibility of seamless care transitions using structured active handovers from oncology nurse navigators in secondary care to district nurses in primary care**

**Presenter:** Claire Micaux, Karolinska institutet; Health Care Services Stockholm County, Sweden

**Names and affiliations of co-authors:** Marie Nilsson<sup>1</sup>, Lena Törnkvist<sup>2</sup>, Erika Berggren<sup>2</sup>

1 Health Care Services Stockholm County; Karolinska University Hospital; 2 Health Care Services Stockholm County

The goal of the planned intervention is to improve continuity, coordination and communication in cancer care, and to promote long-term health in survivors.

After a cancer treatment, it is common to experience late and long-term effects as well as unmet rehabilitation needs. In Sweden, recently adopted policies require the implementation of survivorship care plans (SCPs) throughout the cancer continuum and transferring part of the responsibility for survivorship care to primary healthcare centers. To optimize these change processes, at the Academic Primary Care Centre for development and research, the feasibility of introducing structured care transitions from oncology nurse navigators (ONN) to specialized district nurses (DN) in primary care will be investigated.

An extensive work is currently underway in secondary care to establish the consistent usage of SCPs and a systematic assessment of rehabilitation needs. Starting September 2021, we plan to educate DNs on specific cancer survivorship issues. Sixty persons diagnosed with breast, prostate, colorectal or gynecological cancer will then be invited to have their SCP actively handed over from the ONN to the DN, when appropriate according to the respective care pathways. The DN will follow up on the SCP on at least two occasions, with a person-centered structured health dialogue focusing on prevention and health-related aspects of cancer survivorship, planning and coordinating subsequent rehabilitation with other healthcare professionals.

The feasibility of this working procedure will be evaluated using interviews with stakeholders (patients, nurses, managers) to assess the relevance and acceptability of cancer rehabilitation in primary care, as well as possible organizational barriers to its implementation.

Preliminary efficacy will be assessed with a study-specific questionnaire evaluating the DNs' cancer-specific knowledge. Validated instruments measuring symptom burden, perceived continuity of care, and health literacy of participating patients will be used to identify appropriate outcome measures for further efficacy testing of the intervention.

## **Substitution of follow-up for patients with breast and colorectal cancer: views of general practitioners**

**Presenter:** Geertje Liemburg, University of Groningen, University Medical Center Groningen, department of General Practice, Groningen, The Netherlands

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**Objectives:** The number of cancer survivors has increased rapidly and is expected to rise further. Therefore, hospital-based follow-up is expected to lead to an increased demand on health care resources. Many countries are currently debating whether other models of follow-up care may alleviate this burden, while maintaining or even improving quality and patient-centeredness. We performed a qualitative study in which we explored opinions of GPs regarding substitution of follow-up for patients with breast and colorectal cancer.

**Method:** Focus groups and individual semi-structured interviews were conducted among Dutch GPs, in which we aimed to explore potential facilitators, potential barriers, and requirements about possible involvement of primary care in cancer follow-up. Interviews were recorded and transcribed verbatim. Data were analysed by two independent researchers using thematic analysis.

**Results:** 22 GPs and a general-practice-based nurse were included. Opinions about involvement of primary care were ambiguous. Three main themes were identified: perceived benefits, perceived barriers and requirements. Perceived benefits were better accessibility and continuity of care, closer to patients' homes. Insecurity about competences and experience, and practical objections were perceived as barriers. Many requirements were mentioned: shared care with hospitals, sufficient resources both in terms of facilities and remuneration, clear guidelines and training, quality control, and support of patients, specialists and GPs. The majority preferred no distinction between certain patient groups, but felt elderly with comorbid conditions, and long travel times to be suitable candidates to start with.

**Conclusions:** Overall, most GPs were only willing to perform parts of oncologic follow-up in a shared care model in close cooperation with secondary care if certain requirements are met. GPs were most comfortable with care they already practice daily, like history taking, physical examinations and blood tests. In order to possibly implement such a shared care step-by-step, a clear and broad-supported protocol needs to be developed and tested in pilot studies.

## L41

### End-of-life cancer care provision in NSW Australia, does geographic variation play a role?

**Presenter:** Jessica Cerni, The University of Wollongong, Australia

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**Background:** The projected increase in ageing populations with medical complexity including new cancer cases poses an increased burden on healthcare services in regions across Australia for many years ahead. More research is needed to fully understand the crucial role primary health care can play in addressing the many challenges and barriers affecting end-of-life (EOL) cancer care across urban and rural settings.

**Aim:** This study aimed to examine the influence of geographic variation on the patterns of EOL cancer care provision in an adult decedent cancer cohort of Illawarra Shoalhaven Local Health District (ISLHD) residents including the impact of availability and access to primary health care services.

**Methods:** This population-based, retrospective, cohort study used linked administrative health databases using a common unique identifier to analyse the contribution of covariates to EOL service utilisation patterns among all decedents with metastatic cancer who died in an ISLHD facility between 2015 and 2019. Indicators of acute and life-sustaining care (>1 ED visit, ICU visit, chemotherapy, radiotherapy, mechanical ventilation), primary care and palliative care in the last 12 months of life were examined.

**Findings:** Among the 3,586 study cohort 60% were male, the mean age at death was 74 and lung cancer was the most common primary cancer type (n=650). The findings will also discuss the correlation between travel times to nearest hospitals and cancer centres, the relative availability of Medicare subsidised primary health care services such as GPs, allied health and the patterns of EOL cancer care usage.

**Implications:** The results of this research will provide evidence to inform the better integration of primary health care systems in the provision of EOL care in people with cancer. Supporting interprofessional collaboration between specialist palliative care and primary health care will help to ensure greater resource efficiency and broaden access to quality EOL care particularly among EOL populations where geography remains a barrier.

L42

## Treatment goals and changes over time in older patients with non-curable cancer

**Presenter:** Mariken Stegmann, University of Groningen, University Medical Center Groningen, Department of General Practice and Elderly Care Medicine, Netherlands

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**Purpose:** To investigate treatment goals of older patients with non-curable cancer, whether those goals changed over time, and if so, what triggered those changes.

**Methods:** We performed a descriptive and qualitative analysis, using the Outcome Prioritization Tool (OPT) to assess patient goals across four conversations with general practitioners (GPs) over 6 months. Text entries from electronic patient records (hospital and general practice) were then analyzed qualitatively for this period.

**Results:** Of the 29 included patients, 10 (34%) rated extending life and 9 (31%) rated maintaining independence as their most important goals. Patients in the last year before death (late phase) prioritized extending life less often (3 patients; 21%) than those in the early phase (7 patients; 47%). Goals changed for 16 patients during follow-up (12 in the late phase). Qualitative analysis revealed three themes that explained the baseline OPT scores (prioritizing a specific goal, rating a goal as unimportant, and treatment choices related to goals) Another three themes related to changes in OPT scores (symptoms, disease course, and life events) and stability of OPT scores (stable situation, disease-unrelated motivation, and stability despite symptoms).

**Conclusion:** Patients most often prioritized extending life as the most important goal. However, priorities differed in the late phase of disease, leading to changed goals. Triggers for change related to both the disease (e.g., symptoms and course) and to other life events. We therefore recommend that goals should be discussed repeatedly, especially near the end of life.

L43

## **Symptoms perceptions and help seeking behaviors of Omani patients diagnosed with late stage colorectal cancer: a qualitative study**

**Presenter:** Mahera AL-Suqri, Department of Psychiatry, Samail Hospital, Ministry of Health, Oman

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**Objective:** Colorectal cancer (CRC) is the fourth leading cause of mortality in Oman, with most patients diagnosed at advanced stages. Early diagnosis of CRC improves prognosis and survival rate. The aim of this study was to explore the symptom perceptions and help-seeking behaviours (HSBs) of Omani patients diagnosed with late-stage CRC.

**Methods:** Semi-structured individual interviews were conducted with 16 patients.

**Results:** Four main themes emerged, including normalisation and ignorance (patients felt healthy, perceived symptoms as not being serious and related to dietary habits, concealed them or prioritised work and family commitments), self-empowerment and self-management (patients were stubborn, employed 'wait and see' approach, used symptomatic or herbal treatments), disclosure and seeking help (patients disclosed symptoms to family members or friends, sought medical help only when symptoms worsened, visited faith healers or travelled abroad for treatment) and healthcare professionals (patients attributed treatment or diagnosis delays to lack of continuity of care, loss of trust in doctors or delays in referral).

**Conclusion:** Patients attributed delays in CRC diagnosis to several factors based on their perceptions of symptoms. Most HSBs driven by sociocultural and emotional causes. Increased awareness of CRC symptoms and modifying HSBs can encourage early diagnosis. Prompting patients to disclose CRC-related symptoms may aid referral decisions.

L44

## Healthcare workers perspectives on potential delays in cancer diagnosis: A systematic review of qualitative research

**Presenter:** Elise Crayton, University College London, Centre for Behaviour Change, UK

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**Introduction:** Delayed cancer diagnosis impacts survival. Many healthcare workers (HCWs) can be involved in cancer diagnosis across primary and secondary care, with General Practitioners (GPs) often playing a gatekeeping role to accessing specialist services in many healthcare systems. To our knowledge, this will be the first review to explore and compare HCW perspectives of the barriers and enablers to timely cancer diagnosis across countries, healthcare systems and professions.

**Methods:** A systematic review of qualitative research (CRD 42019162335) following PRISMA guidance. Electronic databases were searched from inception to March 2021. Deductive content analysis applying the categorisation of delay model and inductive thematic analysis was undertaken. Identification of second-order constructs (interpretations of original researchers) and third-order constructs (new interpretations) took place. Quality appraisal was conducted (Dixon-Woods et al checklist).

**Results:** Twenty-one papers reporting HCWs (n=495) perspectives from ten countries (5 high and 5 low/middle income), were included. Participants were clinical and non-clinical, primary and secondary care staff (including GPs, oncologists and nurses), working with varying cancer types and referral pathways. Perceived 'Patient Timepoints' (e.g., navigating healthcare systems), 'HCW Timepoints' (e.g., variations in adherence to guidelines), and 'System Timepoints' (e.g., problems within referrals), were identified. 'Patient Timepoints' were similar across countries. Differences regarding 'System Timepoints' between low- and middle-income countries (LMICs) and higher income countries were found, with LMICs finding access to clinics challenging. 'HCW Timepoints' varied between primary and secondary HCWs perspectives, with concerns about appropriateness of referrals in secondary care, and missing potential cancer in primary care.

**Conclusion:** Quality improvement recommendations including patient empowerment to navigate healthcare, improved access to testing and diagnostic clinics and a greater impetus on clinician expertise as a basis for referral could reduce delayed diagnosis. Variation of factors influencing timely cancer diagnosis across country and healthcare system suggests cultural and context specific recommendations are warranted.

L45

## Can artificial intelligence/machine learning (AI/ML) aid the early detection of skin cancer in primary care settings?

**Presenter:** Owain Jones, University of Cambridge, UK

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Most people who are concerned about a skin lesion first present in primary care, where primary care clinicians need to distinguish rare melanomas and other skin cancers from common benign lesions. There has been a recent boom in the application of AI/ML in medicine, including in diagnosis of skin cancer. There is some evidence that these algorithms can match the diagnostic performance of experienced dermatologists.

Our aim was to identify AI/ML algorithms that have the potential to be used in primary care settings to aid early detection of skin cancer. We performed a systematic review of four bibliographic databases from 01/01/2000 to 25/08/2020, looking for primary research that provided evidence on the accuracy of AI/ML algorithms in the assessment of skin cancer, and their potential for implementation in primary care.

10,456 studies were identified; 198 met inclusion criteria. Two-thirds of studies used a neural network-based approach. Most studies used secondary care data, 2 used a mixture of primary and secondary care data, and none used primary care data alone. Half the studies included images from the International Skin Imaging Collaboration image database. Only 6 studies performed validation of their AI/ML algorithm in an independent dataset, and only 2 studies were prospective. Marked heterogeneity between study design and outcomes measures made meta-analysis unfeasible.

AI/ML algorithms applied to the assessment of skin lesions have the potential to support the early detection of skin cancer in primary care, potentially leading to improved outcomes for patients, and reduced burden on secondary care services. However, there is a notable absence of primary care data in the development and validation of these algorithms. Further research is required to build the evidence base and ensure these technologies are safe, effective, and acceptable to patients and clinicians, before they can be considered for implementation into primary care clinics.

## **Future Health Today: Development of an evidence-based support tool to increase follow-up in people at risk of undiagnosed cancer**

**Presenter:** Javiera Martínez- Gutiérrez, Department of General Practice, University of Melbourne, Australia; Pontificia Universidad Católica de Chile, Santiago, Chile

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**Introduction:** Missed opportunities to diagnose cancer early in general practice may be due to failure to consider the diagnosis in the presence of unspecific symptoms or inadequate follow-up of abnormal test results. Clinical decision support systems (CDSS) can bring evidence-based practices into the clinics' electronic medical records (EMR) and help clinicians follow-up on patient's symptoms and/or test results. We have previously reported a quality improvement tool, "Future Health Today" (FHT), which combines CDSS, point of care prompts and audit and feedback functionality, to assist in diagnosis and treatment of various chronic diseases.

The aim of this study is to develop a cancer decision support tool within FHT, allowing practices to follow up abnormal test results which are associated with increased risk of undiagnosed cancer.

**Design:** We identified commonly ordered blood tests and clinical practice guidelines in primary care that are associated with or refer to the risk of undiagnosed cancer.

Guidelines were used to develop algorithms for early detection of abnormal results and recommendations for follow-up. Algorithms were tested on an anonymized general practice database to estimate the number of abnormal results and recommendations flagged by the support tool.

**Results:** Anaemia and raised platelets were selected as common markers with relatively high positive predictive values for certain cancers (>5% and up to 18% respectively). Abnormal prostate specific antigen (PSA) was selected due to recent changes in national guidelines lowering thresholds for investigation from >4ng/mL to >3ng/mL.

In the database of ~2.4M adult patients, algorithm recommendations applied to 8.4% of people with anaemia, 1.9% with raised platelet counts and 3.8% with an abnormal PSA result. These algorithms are currently being tested in a pre-trial optimisation study through a point of care prompt and a dashboard for audit and quality improvement.

**Conclusion:** We have developed an evidence-based CDSS for follow-up of people at risk of undiagnosed cancer using commonly ordered blood tests in general practice. Next steps will be the testing and implementation of the tool in primary care settings. The tool could be further developed to incorporate additional cancer diagnostic algorithms including symptoms, signs, and other blood test results.

L47

## **Guideline-concordant chest X-ray imaging for suspected cancer among individuals with dyspnoea or haemoptysis**

**Presenter:** Monica Koo, University College London, UK

**Names and affiliations of co-authors:** Luke Mounce<sup>1</sup>, Hardeep Singh<sup>2</sup>, Gary A Abel<sup>1</sup>, Georgios Lyratzopoulos<sup>3</sup>

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**Background:** National guidelines in England recommend urgent chest x-rays for certain symptomatic presentations in primary care. We examined variation in guideline-concordant chest imaging among individuals with dyspnoea or haemoptysis.

**Methods:** We analysed Clinical Practice Research Datalink data linked to hospital imaging data for patients aged 30+ years presenting with new onset dyspnoea or haemoptysis between 1 April 2012 and 31 March 2017. We examined variation in guideline-concordant chest imaging (GP-ordered chest x-ray/CT within 2 weeks of symptomatic presentation) by sex, age group, deprivation, smoking status, and subsequent cancer status.

**Results:** In total, 22,584/162,161 (14%) dyspnoea and 4,097/8,120 (50%) haemoptysis patients received guideline-concordant chest imaging. Women and younger patients were less likely to receive prompt imaging in both cohorts. Current/ex-smokers and more deprived patients who presented with dyspnoea were less likely to receive prompt imaging but this was not observed among haemoptysis patients. Sensitivity analyses indicated 21% of dyspnoea and 58% of haemoptysis patients received chest imaging within 4 weeks of presentation.

More dyspnoea patients who had prompt imaging were diagnosed with lung/other cancer in the year following presentation than patients who did not receive imaging (1.1%/0.6% lung cancers and 2.1%/1.4% other cancers diagnosed in imaging/no imaging group respectively). Similarly, more lung cancers were diagnosed among haemoptysis patients who received imaging compared to those who did not, although there was no difference in other cancers diagnoses (3.5%/2.7% lung cancers and 1.6%/1.5% other cancers diagnosed in imaging /no imaging group respectively). Adjusted logistic regression findings indicated similar patterns of variation.

**Conclusion:** Large proportions of individuals who present with new onset dyspnoea or haemoptysis do not receive prompt imaging. Individuals subsequently diagnosed with cancer are more likely to have been investigated promptly. Nevertheless many individuals who are not investigated are subsequently diagnosed with lung cancer and warrant further exploration.

L48

## Targeted encouragement of GP consultations for possible cancer symptoms: randomised controlled trial

**Presenter:** Jean-Pierre Laake, University of Warwick, Warwick Medical School. 2. Queen Mary University of London, Centre for Cancer Prevention, UK

**Names and affiliations of co-authors:** Daniel Vulkan<sup>1</sup>, Stephen Duffy<sup>1</sup>

1 Queen Mary University of London, Centre for Cancer Prevention

**Background:** For some common cancers, survival is lower in the UK than in other comparable high-income countries. There are also geographic and socioeconomic inequalities in cancer survival across the UK. Increased mortality is believed to be largely due to delays in diagnosis which may be due to patient, clinician and system factors. Patients have reported that factors which may contribute towards delayed help-seeking include lower awareness of cancer symptoms, negative beliefs about cancer and a reluctance to “waste the doctor’s time”. This trial assessed the effectiveness of a targeted postal intervention, promoting both awareness of cancer symptoms and help-seeking at General Practice, on subsequent patient consultation rates.

**Methods:** 1,454 subjects across 23 practices in England who had not consulted their GP in the last 12 months and had at least two other risk factors for late presentation with cancer were included. Subjects were individually randomised to receive either the postal intervention or not (749 and 705 respectively). The primary outcome measure was the number of GP consultations in the subsequent 6 months.

**Results:** There was a significantly higher rate of consultation in the intervention arm (RR = 1.40, 95% CI 1.11-1.77, p=0.004), 436 consultations versus 335 in the control arm. There was, however, no difference in the numbers of persons consulting their general practitioner, with 165 in each arm.

**Conclusions:** The intervention did alter consultation behaviour, though in this case it resulted in increased frequency of attendance rather than increased number of patients attending. There is a desire to increase symptom awareness and encourage help-seeking among patients at greatest risk of late presentation; targeted interventions such as this have the potential to alter patient behaviour. There is a need to develop interventions which can be more effective at engaging the broader less engaged population with primary care services.

L49

## Variation in the use of blood tests in primary care among patients subsequently diagnosed with cancer

**Presenter:** Ben Cranfield, University College London, UK

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**Background:** Increasing evidence indicates commonly used blood tests, such as full blood count, liver function tests and inflammatory markers have relatively high predictive value for cancer. Understanding how blood tests are used before cancer diagnosis may help target interventions to support GP decision-making.

We examined variation in common blood test use among patients presenting in primary care before subsequent cancer diagnosis.

**Methods:** English National Cancer Diagnosis Audit data on 10,154 patients were analysed. We assessed the proportions of patients with 1+ primary care ordered common blood tests and used crude and adjusted logistic regression to examine blood test use by age group, sex, ethnicity, IMD quintile, morbidities, symptoms and cancer site. Primary care intervals (PCI) and diagnostic intervals (DI) were compared by blood test use.

**Results:** Approximately two-fifths of patients had a common blood test prior to cancer diagnosis (39%, 3992/10154), ranging from 2% of melanoma to 80% of leukemia patients. Women were less likely to have a blood test (adjusted OR: 0.87, 95% CI: 0.78-0.98), and the likelihood of blood test use increased with age (0.60, 0.38-0.96 for 15-29 years and 1.12, 1.01-1.24 for 70+ years vs 50-69 year olds). There was no evidence for variation in blood test use by ethnicity and number of morbidities. Blood test use varied by IMD quintile (joint  $p=0.004$ ), while those presenting with non-alarm symptoms only, or both alarm and non-alarm symptoms were more likely to have blood tests (1.37, 1.21-1.56 and 1.97, 1.73-2.23 respectively) vs alarm symptoms only. Median (IQR) intervals were longer among patients having blood tests (PCI: 15 (3-45) days; DI: 60 (31-120) days) compared to those who did not (PCI: 1 (0-21) days; DI: 37 (15-82) days).

**Conclusions:** Blood-based investigations are commonly used before cancer diagnosis but vary across patient characteristics, possibly indicating unmet need in some patient groups.

L50

## **Interventions for improving early diagnosis of lung cancer – a community partnership approach**

**Presenter:** Ross Lawrenson, Medical Research Centre, Te Huataki Waiora, School of Health, The University of Waikato, New Zealand

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Outcomes from lung cancer in New Zealand are poor with 85% presenting with advanced disease and with 5 year mortality at 15%. Māori have 3-4 times the mortality. Improving early diagnosis in Māori communities and reducing the equity gap is a key target.

We worked with local Māori Health Organisations to identify high needs Māori communities across the region. Four communities agreed to work with the research team. A community driven approach was used including a number of initial meetings to identify the perceived community needs around lung cancer diagnosis and management. The team supported community members to design a local intervention which was then developed and trialled.

The interventions included:

- 1) a community designed lung health website
- 2) a series of promotional videos featuring a waiata (song in the Māori language)
- 3) an education program on lung cancer diagnosis and treatment for Māori nurses and community workers
- 4) a community health navigator.

Lessons learned include the need for community-driven engagement; a desire to focus on lung health not lung cancer; the importance of Māori designed interventions that include whānau (the whole family); the importance of tailoring interventions that are relevant – rather than a standardized ‘one-size-fits-all’ approach.

L51

## **Informed choice and attitudes regarding a genomic test to predict risk of colorectal cancer in general practice**

**Presenter:** Sibel Saya, The University of Melbourne, Australia

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**Objective:** A genomic test to predict personal risk of colorectal cancer (CRC) that targets screening and could be feasibly implemented in primary care. We explored informed decision-making and attitudes towards genomic testing in this setting.

**Methods:** A CRC genomic test was offered to 150 general practice patients with brief discussion of its implications. We measured informed choice about the test, consisting knowledge, attitudes and test uptake. Sixteen purposively-sampled participants were interviewed.

**Results:** 73% made an informed choice about the test. Interviews revealed that participants with inadequate knowledge on the informed choice scale still understood the gist of the test. While positive attitudes were most prevalent, some had concerns, and many were indifferent to the test. Positive attitudes included: that risk information could facilitate risk reduction; negative attitudes included: that risk results could cause worry and be used for insurance discrimination; indifferent attitudes included: that the test seemed benign and it was easy to do.

**Conclusions:** Our study adds to the evidence that genomic tests for future disease risk do not pose significant concern to patients in community settings.

**Practice Implications:** As genomic tests become more prevalent, this study's findings can be used to facilitate informed decision-making and ensure equitable access.

## Poster Presentations

P01

### Primary Care's Contributions to Cancer Care Continuum Research and Innovation: Are We Keeping up with Population Trends?

**Presenter:** Youngjee Choi, Johns Hopkins University School of Medicine, USA

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**Background:** In 2020, an estimated 19.3 million new cancer diagnoses occurred globally, and the 5-year prevalent cases was 50.6 million cancer survivors. Primary care physicians (PCPs) care for patients across the cancer continuum and should have knowledge and skills to meet the needs of this growing population. Societal conferences are a venue for medical education and dissemination of innovative research findings.

**Objective:** To characterize cancer research topics presented at annual meetings of the Society of General Internal Medicine (SGIM), a US organization of over 3,000 academic general internists.

**Methods:** We analyzed all scientific (n=3,437), Innovation in Medical Education (n=756), and Innovation in Clinical Practice (n=664) abstracts for content across the cancer continuum: prevention, screening, diagnosis, treatment, survivorship and palliative/end-of-life care (P/EOL). We compared abstracts addressing primary/secondary prevention (prevention and screening) to tertiary prevention (diagnosis, treatment, survivorship, and P/EOL) per year.

**Results:** Of 3,437 abstracts, 304 (8.8%) related to cancer. Prevention, screening, diagnosis, treatment, survivorship and P/EOL were addressed in 52 (17.1%), 145 (47.7%), 18 (5.9%), 57 (18.8%), 12 (4.0%) and 29 (9.5%) abstracts, respectively. Some addressed multiple categories, and 6 were classified as "other." Significantly more abstracts addressed primary and secondary (mean=39.40, SD=5.03) than tertiary prevention (mean=23.2, SD=5.17),  $t(8)=5.02$ ,  $p<.01$ . Breast (mean =18.2, SD=4.66), colorectal (mean=12.8, SD=3.11) and lung (mean=8.2, SD=2.29) cancers were most presented. Five (0.66%) of the 756 Innovation in Medical Education abstracts and 41 (6.2%) of the 665 Innovation in Clinical Practice abstracts addressed cancer. Similarly, they primarily focused on screening and prevention.

**Conclusions:** Cancer-related abstracts presented at a US general internal medicine conference has mainly included prevention and screening. In order to lead innovation in clinical care, education, and policy across the cancer continuum and prepare the future workforce, PCPs should expand their focus to later phases, particularly survivorship and P/EOL.

P02

## **Attitudes Towards Cancer and Cancer Patients: A Cross-Sectional Study of Omani Public Attending Teaching Hospital**

**Presenter:** Mohammed Al-Azri, Sultan Qaboos University, Department of Family Medicine and Public Health, College of Medicine and Health Sciences, Oman

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**Objectives:** Many cancer patients experience social difficulties and feelings of isolation. The aim of this study was to evaluate attitudes towards cancer patients among patients and attendees at the Sultan Qaboos University Hospital (SQUH), Oman.

**Methods:** A cross-sectional study was conducted of patients and attendees attending SQUH from December 2018 to March 2019.

**Results:** A total of 1,190 people participated. The majority (90.7%) did not express reluctance to help cancer patients. Most agreed that cancer patients were productive (76.2%) and were respected by the public (75.0%). However, many participants (63.1%) felt that cancer patients might face difficulties getting married. A multivariate analysis showed that participants who had a family history of cancer or had previously been a caregiver for cancer patients were more likely to believe that cancer patients could be productive (odds ratio [OR] = 1.92, 95% confidence interval [CI]: 1.31–2.82). Less educated participants were more likely to believe that cancer patients feared not being productive (OR = 1.49, 95% CI: 1.01–2.19). Male and single participants were more likely to perceive that cancer patients faced difficulties in getting married (OR = 1.56, 95% CI: 1.20–2.02 and OR = 1.68, 95% CI: 1.22–2.32, respectively).

**Conclusion:** Patients and attendees attending SQUH in Oman appeared to have positive and supportive attitudes towards cancer patients, although some felt that cancer patients might encounter social obstacles. Healthcare professionals should consider reassuring cancer patients of such positive sentiments. Governmental and non-governmental organisations should act to promote a supportive environment for cancer patients in Oman.

P03

## Global Incidence and Mortality of Thyroid Cancer: a trend analysis

**Presenter:** Junjie Huang, The Chinese University of Hong Kong, Hong Kong

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**Background:** Thyroid cancer is one of the most common malignancies and induces a substantial global disease burden. The detection of thyroid cancer had been improved by more advanced ultrasonography and other diagnostic techniques. This study aimed to examine the recent trends in incidence and mortality of thyroid cancer by age and sex for 48 countries.

**Method:** We retrieved incidence and mortality of thyroid cancer from the Cancer Incidence in Five Continents (CI5) volumes I-XI, Nordic Cancer Registries (NORDCAN), Surveillance, Epidemiology, and End Results (SEER) and World Health Organization (WHO) mortality database up to 2017. We calculated their country-specific Average Annual Percent Change (AAPC) and 95% confidence interval (C.I.) in the past 10 years using joinpoint regression analysis.

**Result:** In male population, 29 countries showed an increasing trend of thyroid cancer, with Korea (AAPC=22.53, C.I.=20.19 to 24.90,  $p<0.001$ ), Malta (AAPC=19.66, C.I.=3.03 to 38.98,  $p=0.024$ ), and China (AAPC=15.16, C.I.=11.03 to 19.44,  $p<0.001$ ) showing the most evident increase. The incidence increase was more marked in the younger population < 50 years old (25/44) than the older population  $\geq$  50 years old (22/44). In female population, 32 countries showed an increasing trend, with Korea (AAPC=18.29, C.I.=15.80 to 15.80,  $p<0.001$ ), Cyprus (AAPC=14.85, C.I.=10.98 to 10.98,  $p<0.001$ ), and Turkey (AAPC=13.85, C.I.=10.47 to 10.47,  $p<0.001$ ) showing the most evident increase. The incidence increase was more marked in the younger population < 50 years old (32/48) than the older population  $\geq$  50 years old (28/48). However, its mortality was decreasing in seven countries, including Finland (AAPC=-5.85, C.I.=-9.45 to -2.10,  $p=0.007$ ), Korea (AAPC=-4.98, C.I.=-6.28 to -3.66,  $p<0.001$ ), and France (AAPC=-2.33, C.I.=-4.37 to -4.37,  $p=0.033$ ).

**Conclusion:** The incidence of thyroid cancer was increasing in the past decade, especially among female and younger populations. By contrast, its mortality had been decreasing. The reasons behind these epidemic changes need to be further explored.

**P04**

**A questionnaire study of rural and urban patients' requirements and experiences of Out-of-hours medical services**

**Presenter:** Wei Lynn Khor, Centre of Academic Primary Care, Institute of Applied Health Sciences, University of Aberdeen, UK

**Names and affiliations of co-authors:** Dr Rosalind Adam<sup>1</sup>, Prof. Peter Murchie<sup>1</sup>

<sup>1</sup> University of Aberdeen

**Background:** Rural cancer patients have poorer survival outcomes compared to their urban counterparts. Recently diagnosed cancer patients have higher acute care needs. Rural patients could face barriers accessing out of hours (OOH) care, contributing to poorer outcomes.

**Methods:** A questionnaire study was conducted in Grampian, Scotland. Individuals diagnosed with cancer within the past 12 months were invited. The questionnaire contained quantitative and free text responses. It explored experiences, attitudes, and other determinants of help-seeking. Scottish Urban Rural Classification (2016) designated rurality by postcode. Descriptive statistics and binary logistic regression were used to analyse quantitative data.

**Results:** 228 out of 1200 (19.0% response rate) questionnaires were analysed. Respondents were female (n=109, 50.9%), average age 70 years (IQR 62-76). 81 (37.9%) lived rurally. Analysis is ongoing (preliminary results reported). 39% of rural and 40% of urban respondents found it difficult to get an appointment with their daytime GP. Rural and urban respondents perceived OOH services to be for emergencies only (74.5%, and 81.3%, respectively). 40.4% of urban respondents reported having OOH facilities close by, compared to 17.6% of rural respondents, but only 22.6% of rural respondents and 16.6% of urban respondents reported that where they lived made it difficult to access OOH care. There were high levels of confidence in OOH services in general.

**Conclusion:** Experiences and attitudes towards accessing OOH care are similar between urban and rural patients. Physical distance to OOH medical care is not necessarily perceived as a barrier to access.

P05

## GP and cancer patient perceptions/experiences of remote consultations

**Presenter:** Charlotte Ide-Walters, Cancer Research UK, UK

**Names and affiliations of co-authors:** Dr Lindsay MacDonald<sup>1</sup>, Dr Jodie Moffat<sup>1</sup>, Miss Kirstie Osborne<sup>1</sup>

<sup>1</sup> Cancer Research UK

**Background:** Since the pandemic started in March 2020, remote consultations have become more routine. Cancer Research UK (CRUK) have been conducting surveys with GPs and cancer patients, aiming to better understand the benefits and challenges of remote consultations.

**Method & Sample:** Quantitative online surveys during 2020/21: 1) monthly GP Omnibus surveys (June 2020-March 2021, n=1000 per month) administered by a healthcare market research agency. 2) CRUK's Cancer Patient Survey (Wave 1: May 2020, n=2000; Wave 2: December 2020- March 2021, n = 900), recruited through opportunistic and snowball sampling and paid online social adverts.

**Results:** Just under half of GPs agreed remote consultations resulted in multiple appointments for patients (46%), fewer believed these increased referral time (21%) and less than 1 in 10 GPs thought a face-to-face appointment is required prior to referral (9%). However, GPs acknowledged challenges with phone (excluding video) consultations for certain groups, including patients with a hearing/speech impairment (87%) learning disability (81%) and patients for whom English is not their first language (82%).

Just over half of cancer patients reported a positive experience of remote consultations (video 56% and telephone 57%). However, 57% disagreed remote consultations worked well for discussion of signs/symptoms, and 76% disagreed they worked well for receiving) a diagnosis.

**Conclusion:** Although remote consultations have had a mixed reception from both health professionals and patients. Efforts to unpick the cancer-specific considerations of the shift more carefully towards remote consultations are needed as well as development of approaches to mitigate any negative impact, so that the changing consultation landscape does not undermine efforts to diagnose cancer earlier and does not exacerbate inequality.

## **A RCT of a decision aid to support informed choices about taking aspirin to prevent colorectal cancer and other chronic diseases**

**Presenter:** Shakria Milton, The University of Melbourne, Australia

**Names and affiliations of co-authors:** Shakira Milton<sup>1,2</sup>, Jennifer McIntosh<sup>2,3</sup>, Finlay Macrae<sup>4,5</sup>, Patty Chondros<sup>2</sup>, Lyndal Trevena<sup>6</sup>, Mark Jenkins<sup>7</sup>, Fiona M. Walter<sup>2,8</sup>, Natalie Taylor<sup>9,10</sup>, Lucy Boyd<sup>1,2</sup>, Sibel Saya<sup>1,2</sup>, Napin Karnchanachari<sup>1,2</sup>, Kitty Novy<sup>1,2</sup>, Carmody Forbes<sup>1,2</sup>, Javiera Martinez Gutierrez<sup>1,2,11</sup>, Kate Broun<sup>12</sup>, Sara Whitburn<sup>13</sup>, Sarah McGill<sup>14</sup>, George Fishman<sup>15</sup>, Julie Marker<sup>15</sup>, Max Shub<sup>15</sup>, Jon Emery<sup>1,2,8</sup>

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**Background:** Australian guidelines were recently changed to include a recommendation that all people aged 50-70 years old actively consider taking daily low-dose aspirin (100–300mg per day) for 2.5 to 5 years to reduce their risk of colorectal cancer (CRC). In 2019, we were funded to conduct a trial in general practice to test the efficacy of a health consultation and novel decision aid to implement these aspirin guidelines: the Should I Take Aspirin (SITA) trial.

The COVID-19 pandemic restricted our ability to recruit patients in general practice waiting rooms. This paper describes the novel teletrial methods which we developed to allow us to continue the SITA trial during the pandemic.

**Methods:** To date, six general practices in Victoria, Australia have been recruited into the trial. The recruitment process involves recruiting patients 50-70 years old, who have an appointment with their general practitioner (GP) for any reason. Usually we would approach patients in the waiting room, invite them to be involved in the study. The new teletrial method involved calling patients who were scheduled for an appointment and checking their eligibility over the phone. We developed trial recruitment materials that were sent via email and developed videos that presented the information in a standardised way which could be presented via a zoom teletrial consultation.

**Results:** Between October 2020 and March 2021, we screened 475 patients for eligibility, 441 (92.8%) by telephone, and recruited 206 people (89% of eligible patients). We delivered the trial consultations using the teletrial model for 49 participants (24%).

**Discussion:** We have developed an effective teletrial model for the SITA trial which has allowed us to continue during the COVID-19 pandemic. We are now applying this to other trials in general practice as an effective approach to increase participation and improve the external validity of our research.

P07

## Primary care-based educational interventions to reduce morbidity and mortality from lung cancer and other respiratory illnesses in rural India

**Presenter:** Biswajit Paul, Christian Medical College, Tamil Nadu, India

**Names and affiliations of co-authors:** David Weller<sup>1</sup>, Liz Grant<sup>1</sup>, Rita Isaac<sup>2</sup>, Madelon Finkel<sup>3</sup>

1 University of Edinburgh, 2 Christian Medical College, 3 Weill Cornell Medical College

**Introduction:** Chronic respiratory diseases (CRDs) are major causes of mortality and morbidity worldwide and most burden from the disease is borne by low and middle income countries. Lung cancer in these countries typically occurs on a background of CRD, and is often undiagnosed. There is low awareness of risk factors for these diseases, and interventions to change preventive health behaviours face numerous cultural, financial and social barriers. This qualitative study sought to appreciate the lived experiences of people with lung cancer and other CRDs, in a rural low-literate community in southern India. It focused on their understanding of risk factors for these conditions, and their usual health behaviours relating to respiratory illness.

**Methods:** Qualitative data were collected between September and December 2018 through eight focus group discussions (FGDs), five in-depth interviews and four key-informant interviews from patients and community members. Inductive coding was used to thematically analyse the results.

**Results:** We found poor understanding of the various conditions which underlie chronic respiratory symptoms – including lung cancer. In particular, use of tobacco products, indoor cooking smoke from solid fuels and environmental/occupational exposures were poorly understood. As a consequence there was little motivation to change behaviour. The stigma of a serious respiratory illness (especially cancer) emerged as a major factor, and participants described the emotional challenges and psychological distress it could cause. These data informed the development of a primary care-based intervention (based on community health workers) addressing respiratory behaviours – we will present key components of this intervention.

**Conclusion:** Lung cancer and other respiratory illnesses present huge challenges in poor, rural, low-health-literacy populations. Primary care has considerable promise in delivering interventions which can address the very significant cultural, social and financial barriers to improved health behaviours.

**P08**

**Knowledge of symptoms, time to presentation and barriers to medical help-seeking among Omani women diagnosed with breast cancer.**

**Presenter:** Mohammed Al-Azri, Sultan Qaboos University, Department of Family Medicine and Public Health, College of Medicine and Health Sciences, Oman

**Names and affiliations of co-authors:** Khalid Al-Baimani, Huda Al-Awaisi, Zahid Al-Mandhari, Jasem Al-Khamayasi, Yaseen Al-Lawati, Sathiya Murthi Panchatcharam

**Objective:** To identify knowledge of breast cancer (BC) symptoms, time taken to consult a doctor and factors contributing to delays in medical help-seeking.

**Methods:** A cross-sectional study was conducted with Omani women recently diagnosed with BC in two main teaching hospitals in Oman: Royal Hospital and Sultan Qaboos University Hospital. The Breast Module of the Cancer Awareness Measure and the International Cancer Benchmarking Partnership questionnaire were used to collect data.

**Results:** A total of 300 women with BC participated (response rate: 91.0%). The mean age at diagnosis was  $43.0 \pm 12.50$  years and 33.5% were diagnosed at stage III or IV. Although most women (74.4%) recognised breast/armpit lumps to be a symptom of BC, less than half identified other symptoms, including breast/armpit pain (44.0%), changes in the position of the nipple (36.2%), redness (31.7%), fatigue (26.3%), weight loss (23.4%) and loss of appetite (20.8%). While most (91.6%) were aware that BC could be cured if detected early, only 66.4% sought medical help within a month of developing symptoms. Initial responses to symptoms included informing husbands (40.2%) or family members (36.5%). Barriers to seeking medical help included feeling scared (68.9%) and worried about what the doctor might find (62.8%). Highly educated women were more likely to recognise the following as BC symptoms: changes in nipple position (OR: 0.16, 95% CI 0.03 to 0.81), breast pain (OR: 0.10, 95% CI 0.01 to 0.86) and unexplained weight loss (OR: 0.18, 95% CI 0.04 to 0.88) (all  $p < 0.05$ ).

**Conclusions:** Although many Omani women with BC were aware of the importance of early diagnosis, most demonstrated inadequate knowledge of symptoms, did not prioritise seeking medical help and reported emotional barriers to help-seeking. More educational measures are needed to improve symptom recognition and address help-seeking barriers to minimize delays in diagnosis.

P09

## **A mixed methods study exploring symptom appraisal and help seeking in Australian upper gastrointestinal cancer patients**

**Presenter:** Napin Karnchanachari, Department of General Practice, University of Melbourne, Melbourne, Australia

**Names and affiliations of co-authors:** Shakira Milton<sup>1</sup>, Tjuntu Muhlen-Schulte<sup>2</sup>, Riati Scarborough<sup>2,3</sup>, Jennifer F Holland<sup>2</sup>, Fiona M. Walter<sup>1,5</sup>, John Zalcborg<sup>2</sup>, Jon Emery<sup>1</sup>

1 Department of General Practice, University of Melbourne, 2 School of Public Health and Preventative Medicine, Monash University, 3 Faculty of Veterinary and Agricultural Sciences, University of Melbourne, 4 The Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge

**Background:** Pancreatic cancer has the highest mortality rate in Australia, and oesophageal and gastric cancers have a five-year survival rate of 22.1% and 31.2%, reflecting diagnosis of these cancers at an advanced stage. To improve time to diagnosis, we must better understand symptom development and the pathway to diagnosis for these cancers.

**Aim:** This mixed-methods study is the first in Australia to explore symptom appraisal and diagnostic pathways in pancreatic and oesophagogastric cancer patients. A secondary aim was to examine the potential to recruit cancer patients through a cancer quality registry.

**Methods:** Patients diagnosed with pancreatic, oesophageal or gastric cancer were identified and recruited through Monash University's Upper Gastrointestinal Cancer Registry (UGICR). Data were collected from the UGICR, patient SYMPTOM upper gastrointestinal questionnaire, semi-structured phone interviews with patients, and general practitioner questionnaires. Data collection and analysis were informed by the Aarhus statement and the Model of Pathways to Treatment. Coding was inductive and emerging themes were mapped onto the Model of Pathways to Treatment.

**Results:** Between November 2018 to March 2020, 27 patients completed the SYMPTOM upper gastrointestinal questionnaire and 13 phone interviews were completed. Patients revealed a lack of awareness of pancreatic and oesophagogastric cancer symptoms, leading to the normalisation, dismissal and misattribution of symptoms. Patients initially tried managing their symptoms through lifestyle changes but the progressive worsening of symptoms, persistent pain, and jaundice often triggered patients to seek help from healthcare practitioners. Pancreatic cancer patients with jaundice had more immediate investigations and shorter times to diagnosis. Delays in help-seeking were due to competing priorities, personal beliefs about symptoms and illness, and difficulties in accessing healthcare.

**Conclusion:** Increased awareness of the subtle and insidious symptoms of pancreatic and oesophagogastric symptoms in both patients and general practitioners could prompt more urgent investigations, and lead to earlier diagnosis of these cancers.

P10

## Reasons for intending to accept or decline kidney cancer screening: thematic analysis of free text from an online survey

**Presenter:** Charlotte Freer-Smith, University of Cambridge School of Clinical Medicine, UK

**Names and affiliations of co-authors:** Laragh L.W. Harvey-Kelly<sup>1</sup>, Katie Mills<sup>2</sup>, Hannah Harrison<sup>2</sup>, Sabrina H. Rossi<sup>3</sup>, Simon J. Griffin<sup>2</sup>, Grant D. Stewart<sup>4</sup>, Juliet A. Usher-Smith<sup>2</sup>

1 University of Cambridge School of Clinical Medicine, 2 The Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge, 3 Department of Oncology, University of Cambridge, Addenbrooke's Hospital, 4 Department of Surgery, University of Cambridge, Addenbrooke's Hospital

**Background:** Kidney cancer has been identified as a disease for which screening might provide significant benefit for patients. The aim of this study was to understand in detail the facilitators and barriers towards up-take of a future kidney cancer screening programme, and to compare these across four proposed screening modalities.

**Methods:** An online survey of 688 members of the UK public assessed participants' self-reported intention to take-up kidney cancer screening with four different test methods (urine test, blood test, ultrasound scan, low-dose CT) and their approaches to decision making. We conducted thematic analysis of 2559 free text comments using an inductive approach.

**Results:** We identified five overarching themes that influenced screening intention: 'personal health beliefs', 'practicalities', 'opinions of the test', 'attitudes towards screening' and 'cancer apprehension'. Overall participants considered the tests presented as simple to complete and the benefits of early detection to outweigh any drawbacks to screening. Dominant facilitators and barriers varied with patterns of intention to take up screening across the four tests. Most intended to take up screening by all four tests, and for these participants, screening was seen as a positive health behaviour. A significant minority were driven by practicalities and the risks of the tests offered. A smaller proportion intended to reject all forms of screening offered, often due to fear or worry about results and unnecessary medical intervention or a general negative view of screening.

**Conclusions:** Most individuals would accept kidney cancer screening by any of the four test options presented because of strong positive attitudes towards screening in general and the perceived simplicity of the tests. Providing information about the rationale for screening in general and the potential benefits of early detection will be important to optimise uptake amongst uncertain individuals.

## P11

### **Perspectives of family physicians towards access to lung cancer screening for individuals living with low income**

**Presenter:** Ambreen Sayani, Women's College Hospital, Canada

**Names and affiliations of co-authors:** Dr. Aisha Lofters<sup>1</sup>

1 Women's College Hospital

**Background:** Individuals living with low income are less likely to participate in lung cancer screening (LCS) with low-dose computed tomography. Family physicians (FPs) are typically responsible for referring eligible patients to LCS; therefore, we sought to understand their perspectives on access to lung cancer screening for individuals living with low income in order to improve equity in access to LCS.

**Methods:** A theory-informed thematic analysis was conducted using data collected from 11 semi-structured interviews with FPs recruited from three primary care sites in downtown Toronto. Data was coded using the Systems Model of Clinical Preventative Care as a framework and interpretation was guided by the synergies of oppression analytical lens.

**Results:** Four overarching themes describe FP perspectives on access to LCS for individuals living with low income: the degree of social disadvantage that influences lung cancer risk and opportunities to access care; the clinical encounter, where there is often a mismatch between the complex health needs of low income individuals and structure of health care appointments; the need for equity-oriented health care, illustrated by the neglect of structural origins of health risk and the benefits of a trauma-informed approach; and finally, the multiprong strategies that will be needed in order to improve equity in health outcomes.

**Conclusion:** An equity-oriented and interdisciplinary team based approach to care will be needed in order to improve access to LCS, and attention must be given to the upstream determinants of lung cancer in order to reduce lung cancer risk.

## P12

### **An Audit to assess whether appropriate information was obtained and given for 2 week wait cancer referrals in a Suffolk Primary**

**Presenter:** Megha Anil, University of Cambridge, UK

**Names and affiliations of co-authors:** Natasha Thomas<sup>2</sup>, Paul Driscoll<sup>1</sup>

1 Haven Health, Suffolk Primary Care, 2 University of Cambridge

**Background:** Appropriate 2-week wait referrals to secondary care are critical to the functioning of the cancer service. As the specialist clinician is unfamiliar with the patient, it is essential that appropriate details and relevant investigations are included on the referral form

**Standards:** NG12 compliance.

**Method:** Data was collected from SystmOne for all patients with confirmed cancer who had fast-track cancer referrals between 31/10/2019 and 17/07/2020 in an urban Suffolk primary care practice with 8600 patients. 10 patients were identified, of which one was excluded due to difficulties accessing their records. Records were searched for the following:

- Cancer Pathway
- Referral Method
- On the referral form:
  - o Contact details
  - o Indication
  - o Drug history
  - o Patient told that cancer needed to be excluded
  - o Information leaflet provided
  - o Performance status
  - o Non-availability details
- Pre-referral symptoms
- NG12 compliance

**Results/conclusions:** All referrals were over e-Referral Service (eRS), the majority of which were appropriate, with adequate information provided. All referrals included contact details, drug history and relevant investigations. Although the entire cohort were told that cancer needed to be excluded, this was not always ticked on the eRS form. Two patients had attended with symptoms pre-referral and in both cases, it was due to waiting for the results of investigations when the referral criteria was already met. Encouragingly, 78% of referrals were NG12 compliant. However, only 56% of forms marked non-availability details.

#### **Recommendations:**

The main issue highlighted was over-investigation prior to referral. Possible improvements include:

- Automated system that texts patients with information on the 2 week-wait pathway when a referral is made, as many patients were not given information leaflets.
- Practice meeting to raise awareness of relevant box ticking when referring.
- Posters with NG-12 referral information placed in consulting rooms.
- Re-audit in 6 months.
- Audit patients where referral did not result in a cancer diagnosis.

**P13**

**Knowledge, attitudes and practices around cervical cancer screening amongst under- or never-screened women offered Pap tests**

**Presenter:** Kimberly Devotta, St. Michael's Hospital, Toronto, Canada

**Names and affiliations of co-authors:** Dr. Aisha Lofters<sup>1</sup>, Dr. Mandana Vahabi<sup>2</sup>

1 Women's College Hospital and St. Michael's Hospital, 2 Ryerson University

With appropriate screening (i.e. the Pap test, HPV testing), cervical cancer is highly preventable. While organized screening programs have led to significant decreases in cervical cancer incidence and mortality, participation rates still remain below the provincial targets in Ontario – one of Canada's most diverse and populous provinces. In particular, research demonstrates that certain subgroups of women, including immigrants and women of low income, are less likely to be screened.

Women who identify as South Asian, West Asian, Middle Eastern and North African have some of the lowest rates of cervical screening in the province and research suggests they have a higher burden of cervical cancer. Low levels of screening among these women has been related to such barriers as lack of a family physician, inconvenient clinic hours, problems with transportation, having a male physician, cultural barriers and indirect costs associated with screening. Additionally, misinformation and misconceptions can play a role. This presentation will focus on a multi-method study where we recruited 108 women who identify as South Asian, West Asian, Middle Eastern and North African, for a cervical cancer screening intervention that included the option to try an HPV self-sampling device. All women reported being under- or never-screened (UNS) for cervical cancer.

Sixty-nine women opted to try self-sampling. Thirty-nine women declined sampling (but participated in study interviews). Here we present the data from an interviewer-administered survey where all 108 participants were asked about their knowledge of cervical cancer, as well as their attitudes and practices around pursuing cervical screening.

**P14**

## **Factors associated with participation in lung cancer screening among Chinese smokers: a population-based study**

**Presenter:** Junjie Huang, The Chinese University of Hong Kong, Hong Kong

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1 JC School of Public Health and Primary Care, Faculty of Medicine, Chinese University of Hong Kong, Hong Kong SAR, China, 2 School of Public Health, Fudan University, Shanghai, China, 3 School of Public Health, Peking Union Medical College, The Chinese Academy of Medical Sciences, Beijing, China, 4 Melbourne School of Population and Global Health, The University of Melbourne, Victoria, Australia, 5 The Seventh Affiliated Hospital, Sun Yat-sen University, Shenzhen, Guangdong, China, 6 Department of Global Health, School of Public Health, Peking University, Beijing, China.

**Background:** Lung cancer remains to be the leading cause of cancer-related deaths globally and in China. Lung cancer screening by low-dose computed tomography has been recommended in asymptomatic Chinese smokers. We investigated their participation rate and factors associated with screening uptake in a Chinese population.

**Methods:** Data from 3,600 participants aged 61-70 were collected through telephone surveys by simple random sampling of telephone numbers in a territory-wide directory (from 2016 to 2018, Hong Kong SAR China). Smoking history, sociodemographic information, and other health-related factors were collected. A binary logistic regression model was constructed to identify the association between these factors and uptake of lung cancer screening.

**Findings:** The proportion of smokers among the participants was 10.8% (95% CI=9.8%-11.8%, n=387). The participation rate of lung cancer screening was 20.7 % (16.7%-25.1%, 80) among smokers vs. 22.1% (20.7%-23.6%, 711) among non-smokers. Among all study participants, individuals with higher education level (primary: referent; secondary: adjusted odds ratio (AOR)=1.32, 1.05-1.66, p=0.018; tertiary: 2.31, 1.89-2.81, p<0.001), subjects who retired (employed: reference; retired: 1.79, 1.23-2.28, p=0.001), and those with higher monthly income (HKD<10,000: referent; HKD>20,000: 1.31, 1.04-1.66, p=0.022) were more likely to join lung cancer screening. However, smoking history, age, gender, marital status, and self-perceived were not associated with screening participation.

**Interpretation:** The participation rate of lung cancer screening remained suboptimal among Chinese smokers. Our findings suggested that educational level, monthly household income, and working status, but not smoking history, were associated with uptake of lung cancer screening. These individuals represent population groups where more focused promotion of screening programmes should be targeted.

**P15**

## **COVID-19 and cancer screening in Scotland: a national and coordinated approach to minimising harm**

**Presenter:** Christine Campbell, The University of Edinburgh, UK

**Names and affiliations of co-authors:** Tasmin Sommerfield<sup>1</sup>, Gavin RC Clark<sup>1</sup>, Lorna Porteous<sup>2</sup>, Alison M Milne<sup>3</sup>, Tracey Syme<sup>4</sup>, Catherine S Thomson<sup>5</sup>

1 NHS National Services Scotland, 2 NHS Lothian, 3 Detect Cancer Early, NHS Lothian, 4 NHS Lothian, Public Health & Health Policy, 5, National Specialist and Screening Directorate (NSD), NHS National Services Scotland,

Screening is an important component of cancer control internationally. In Scotland, the National Health Service Scotland provides screening programmes for cervical, bowel and breast cancers. The Covid-19 pandemic resulted in the suspension of these programmes in March 2020. We will describe the integrated approach to managing the impact of the pandemic on cancer screening programmes in Scotland throughout 2020. We outline the policy context and decision-making process leading to suspension, and the criteria and framework informing the subsequent, staggered, restart in subsequent months.

The decision to suspend screening services in order to protect screening invitees and staff, and manage NHS capacity, was made after review of numbers of screening participants likely to be affected, and the potential number of delayed cancer diagnoses. Restart principles and a detailed route map plan were developed for each programme, seeking to ensure broad consistency of approach across the programmes and nationally. Early data indicates bowel and breast screening participation has increased since restart. Primary care has had to adapt to new infection prevention control measures for delivery of cervical screening. Cancer charities provided cancer intelligence and policy briefs to national bodies and Scottish Government, as well as supporting the public, patients and screening invitees through information and awareness campaigns.

Emerging from the pandemic, there is recognition of the need and the opportunity to transform and renew both cancer and screening services in Scotland, and in particular to address long-standing workforce capacity problems through innovation and investment, and to continue to prioritise addressing health inequalities.

P16

## Assessment of women's experiences of thermal ablation treatment within a cervical cancer 'screen and treat' service in Malawi

**Presenter:** Christine Campbell, The University of Edinburgh, UK

**Names and affiliations of co-authors:** Beatrice Kabota<sup>1</sup>, Copyce Nthenga<sup>1</sup>, David Morton<sup>1</sup>, Reynier ter Haar<sup>1</sup>, Nicole Robertson<sup>2</sup>, Heather Cubie<sup>3</sup>

1 Nkhoma CCAP Hospital, Malawi, 2 University of Kentucky College of Medicine, Lexington, 3 University of Edinburgh

**Background:** Malawi has the second highest global incidence of cervical cancer. Cervical cancer screening is carried out using visual inspection with acetic acid (VIA) in primary care settings. Thermal ablation has recently been approved by the WHO as a safe and effective alternative to cryotherapy for treatment of VIA-positive lesions. This study aimed to assess the experience of women receiving thermal ablation treatment and evaluate any predictors of pain and treatment sensation.

**Methods:** VIA-positive women were treated with one of three instruments: the WISAP Standard instrument or either of the newly available Liger or WISAP C3 thermal ablation devices, at Nkhoma Hospital and associated health centres. Following treatment, trained patient assistants administered a patient experience survey. Using a complete case analysis approach, we ran descriptive statistics to summarize experiences of pain, and used Fischer's exact test to evaluate associations between demographic characteristics and pain experience.

**Results:** Data were available from 217 women (124 treated with WISAP Standard, 49 with WISAP C3, 44 with Liger). Varying pain levels were reported: 5.5% of women experienced no pain, 79.7% mild pain, 11.5% moderate pain, and 3.2% severe pain. No statistically significant associations were found between pain experience and HIV status ( $p=0.700$ ), women's age ( $p=0.716$ ), or number of children ( $p=0.639$ ). Relative to the WISAP Standard instrument, women treated with either WISAP C3 or Liger had 2.2 times increased odds (95% CI: 1.02, 4.71) of experiencing elevated pain (moderate or severe pain) during thermal ablation ( $p=0.044$ ).

**Conclusions:** Health messages for women attending cervical screening should include information on the potential for experiencing pain if treatment is required. Further research is needed to understand variation in reported pain following treatment by different instruments, and how healthcare professionals can manage and mitigate the pain experience of women undergoing thermal ablation treatment.

## P17

### **An Audit to assess whether Faecal Immunochemical Tests were carried out with referrals on the colorectal cancer pathway in a Suffolk Primary Care Practice during COVID-19 pandemic**

**Presenter:** Natasha Thomas, University of Cambridge, UK

**Names and affiliations of author and co-authors:** Megha Anil<sup>2</sup>, Paul Driscoll<sup>1</sup>

1 Haven Health, Suffolk Primary Care 2 University of Cambridge

**Background:** Faecal Immunochemical Tests (FIT test) have become a routine part of primary care practice in recent years. Unlike the Faecal Occult Blood test, the FIT test requires a single stool sample and so improves ease of use for patients. 2 week-wait colorectal referrals require many investigations, including the FIT test.

**Standards:** NG12 compliance.

**Method:** Data was collected from SystmOne for all patients with a 2 week-wait colorectal referral from 23rd March 2020 – 13th October 2020 in an urban Suffolk primary care practice with 8600 patients. 30 patients were identified and their records were searched for whether a FIT test was carried out either directly before or with referral. FIT tests that were carried out over a month prior to referral were excluded.

**Results / Conclusions:** Of the 30 patients that were referred on the colorectal cancer pathway, 63% (19 patients) had a FIT test directly prior to or with referral. Of the remaining 11 patients, 4 had a FIT test more than a month before their referral. Given the relative ease of ordering a FIT test and how the results of this could streamline secondary care prioritisation, it is important to ensure that they are consistently being carried out with referral.

**Recommendations:** There is a need for a prompt to act as a reminder of the need for a FIT test. Possible options include:

- A digital alert that reminds clinicians of the need for a FIT test once a colorectal cancer form is opened.
- A poster in individual consulting rooms reminding of the need for a FIT test.
- Raising this issue at a practice meeting to increase awareness among clinicians
- Consider audit for other components requested in referral form for the 2 week-wait colorectal pathway including FBC, ferritin, eGFR, creatinine and coeliac testing.
- Re-audit in 6 months.

**P18**

## **Forming Scotland's first Early Cancer Diagnostic Centres**

**Presenter:** Diane Primrose, Centre for Sustainable Delivery, Golden Jubilee National Hospital, UK

**Names and affiliations of co-authors:** Nicola Barnstaple<sup>1</sup>, Dr Val Doherty<sup>2</sup>, Dr Andrew Waugh<sup>3</sup>

1 Cancer Performance & Early Diagnosis Programmes, Centre for Sustainable Delivery, 2 Clinical Lead, Cancer Access, Scottish Government, 3 Statistician, Scottish Government, Early Cancer Diagnostic Centres Oversight Group

Patients that do not meet the Scottish Referral Guidelines for Suspected Cancer criteria, or who present with non-specific but concerning symptoms, can cause GPs concern, especially if their 'gut instinct' is of a malignancy. Currently, Primary Care would have to coordinate numerous tests while having full clinical responsibility, or choose a single specialty to refer to which may not be most appropriate. This can result in delayed diagnosis and unnecessary examinations being performed with poor patient experience and outcomes.

The formation of Early Cancer Diagnostic Centres (ECDC) in Scotland will provide Primary Care with an alternative route to refer patients. The Scottish Government's recently published Cancer Recovery Plan includes a commitment to establish at least two ECDCs in 2021, within existing NHS infrastructure.

Driven through NHS Scotland's Centre for Sustainable Delivery (CfSD), a multidisciplinary oversight group was formed and key principles agreed.

### **Establishing the Centres**

Three pilot sites have been identified following a robust application and scoring exercise - NHS Ayrshire & Arran, NHS Dumfries & Galloway and NHS Fife. All three Boards will establish a person-centred fast-track diagnostic pathway for patients with non-specific symptoms suspicious of cancer.

### **Undertaking robust evaluation**

Discussions are underway with the University of Strathclyde to ensure independent evaluation is undertaken from the outset.

### **High quality patient information & support**

Work is underway with the third sector and patient representatives to ensure quality resources are available to patients from the point of referral, to enable them to make informed decisions about their care. Training opportunities are also being explored for 'navigators' that will be at the heart of the Centres.

### **Data collection**

Collecting consistent data across all three ECDCs is imperative in measuring outcomes. English and Welsh counterparts have been engaged around this and conversations continue with Public Health Scotland to explore data linkage opportunities. A minimum data set has been agreed and shared with Boards.

### **Next Steps**

- The three pilot sites are working towards 'go live' dates in May 2021.
- Consider future public awareness campaign as test of change.

**P19**

## **Finding Lung Cancer Early**

**Presenter:** Diane Primrose, Centre for Sustainable Delivery - Golden Jubilee National Hospital, UK

**Names and affiliations of co-authors:** Nicola Barnstaple<sup>1</sup>, Dr Val Doherty<sup>2</sup>, Dr Andrew Waugh<sup>3</sup>

1 Cancer Performance & Early Diagnosis Programmes, Centre for Sustainable Delivery, 2 Cancer Access, Scottish Government, 3 Statistician, Scottish Government

Data shows that urgent suspected cancer referrals (USC) for lung cancer remain below pre-Covid levels with around 25% fewer lung cancers being diagnosed across NHSScotland compared to 2019.

Advice to stay at home to protect people from Covid-19, people's anxiety around possible infection at NHS sites and the cross-over of symptoms with Covid-19 – such as a cough – is believed to have contributed to people delaying seeking help, and being referred for further tests.

The Scottish Government's Cancer Recovery Plan, published December 2020, includes a standalone section on lung cancer.

Working collaboratively with the Centre for Sustainable Delivery (CfSD) and clinical colleagues in primary and secondary care we have responded at pace to the reduction in lung cancer presentations including:

- Inclusion at First Minister's daily briefings to reinforce cancer as a priority.
- A national door-drop included a specific message on lung cancer symptoms.
- A Detect Cancer Early campaign, aimed at those aged 40+, ran February 2021.
- Clinical guidance on the management of suspected lung cancer referrals during Covid was published.
- Cancer Research UK's Clinical Engagement Team in Scotland funded for 18 months to support the recovery of the lung pathway.

That said, our latest attitudinal tracking suggests that there remains confusion around symptoms of Covid-19 and lung cancer, which may impact on presentation:

- Being short of breath that is unusual for you: 66% think this is a sign of Covid while only 47% think it is a sign of lung cancer.
- New or change in cough for 3 weeks or more: 51% think this is Covid v's 54% lung cancer.

Reassuringly however:

- 79% believe that cancer is a priority for the NHS at the moment;
- 87% say they are likely to contact their GP practice if they have a symptom that could be lung cancer;

Moving forward a new DCE lung cancer public awareness campaign is in development for launch early summer 2021 and work will focus on the creation of optimal lung cancer pathways to ensure those patients diagnosed with lung cancer have the best possible treatment options and outcomes.

**P20**

## **FIT for symptomatic patients; UK GPs access, use and knowledge**

**Presenter:** Lindsay MacDonald, Cancer Research UK, UK

**Names and affiliations of co-authors:** Dr Jodie Moffat<sup>1</sup>

<sup>1</sup> Cancer Research UK

**Background:** In England, the Faecal Immunochemical Test (FIT) is increasingly used in primary and secondary care to triage patients presenting with lower GI symptoms. To better support GPs, we investigated use, attitudes and knowledge of FIT for symptomatic patients.

**Method & Sample:** Online survey of 640 UK GPs conducted August 2020 administered to a healthcare professional panel by a market research agency. Results for GPs in England are presented (n=545).

**Results:** 61% of GPs were 'very aware' of the use of FIT for symptomatic patients. Potential knowledge gaps were identified; although many GPs felt clinical judgement was still necessary, 68% agreed that a FIT result in isolation shouldn't be used to remove patients from a referral pathway, 16% disagreed with this. Almost a quarter (24%) incorrectly believe that a negative FIT result means a patient does not have bowel cancer.

66% agreed that FIT is a useful tool for informing management of patients with lower GI symptoms and a higher proportion felt responsibility for requesting and acting on FIT should rest with primary (42% agree) compared to secondary care (27%).

In August 2020, 42% of GPs were using FIT for all symptomatic patients, regardless of risk or whether they met urgent cancer referral criteria, 22% were using it for only low risk symptomatic patients who did not meet those criteria.

**Conclusion:** GP reported access to and use of FIT for symptomatic patients indicates variation in use for triage. A minority of GPs hold incorrect views on the management of patients depending on FIT result and may not safety net appropriately. Timely development of evidence-based guidelines is needed, complemented by educational strategies to support GPs in knowing the limitations of FIT and the importance of remaining vigilant to bowel and other cancers in patients with ongoing or worsening symptoms.

**P21**

## **Are mental health conditions associated with an increased risk of emergency colorectal cancer diagnosis?**

**Presenter:** Cristina Renzi, University College London, UK

**Names and affiliations of co-authors:** Sara Benitez Majano<sup>1</sup>, Bernard Rachet<sup>1</sup>, Georgios Lyratzopoulos<sup>2</sup>, Niek J. de Wit<sup>3</sup>, Charles Helsper<sup>3</sup>

1 London School of Hygiene and Tropical Medicine, 2 University College London, 3 University of Utrecht

**Background:** Cancer patients often have pre-existing morbidities, which can influence the timeliness of cancer diagnosis. We examined variations in symptoms, investigations and risk of emergency cancer diagnosis by pre-existing mental health conditions among patients with as-yet undiagnosed colorectal cancer (CRC).

**Methods:** We used linked cancer registration, primary care and hospital records of 4,836 CRC patients (2011-2015), provided by CPRD-Clinical Practice Research Datalink, which has data from over 670 general practices and is representative of the UK population. We examined variations in the risk of emergency cancer diagnosis by pre-existing mental health conditions. Multivariable logistic regression was used to account for patient socio-demographic and clinical characteristics, such as physical morbidities (cardiovascular diseases, respiratory diseases, diabetes) and CRC-relevant symptoms recorded in primary care, including alarm symptoms (rectal bleeding, change in bowel habit, anaemia) and low risk symptoms (e.g. abdominal pain, constipation, fatigue).

**Results:** Among CRC patients, 16% had pre-existing mental health conditions recorded in primary care (most frequently anxiety/depression, 14%). CRC patients with relevant symptoms and mental health conditions were less likely investigated promptly with colonoscopy/sigmoidoscopy than those without mental health conditions (57% vs 63%,  $p < 0.05$ ). Individuals with versus without mental health conditions had slightly more frequently primary care records of low risk symptoms (e.g. abdominal pain, constipation, fatigue): 37% vs 34%,  $p = 0.09$ . Having a pre-existing mental health condition was associated with a higher risk of emergency CRC diagnosis (30% vs 22%,  $p < 0.05$ ), adjusted OR=1.29 (95%CI 1.05-1.60), accounting for socio-demographic and clinical characteristics.

**Conclusions:** Individuals with as-yet-undiagnosed CRC who present to primary care with potential cancer symptoms and have pre-existing mental health conditions are at higher risk of emergency cancer diagnosis compared to those without mental health conditions. A greater understanding of the interplay between symptomatic presentations, comorbidities and timely investigations is necessary for improving diagnostic timeliness in this higher risk group.

**P22**

## **Patient willingness to visit primary and secondary care during COVID-19**

**Presenter:** Charlotte Ide-Walters, Cancer Research UK, UK

**Names and affiliations of co-authors:** Dr Lindsay MacDonald<sup>1</sup>, Dr Jodie Moffat<sup>1</sup>, Miss Kirstie Osborne<sup>1</sup>

<sup>1</sup> Cancer Research UK

**Background:** Since the start of the pandemic, there has been reduced presentation at primary care. This could be for many reasons including social, psychological/emotional and practical/service-related barriers. Cancer Research UK has conducted surveys with GPs and the UK public to better understand patient presentation.

**Method & Sample:** 3 x Quantitative online surveys during 2020/21, administered by market research agencies. 1) monthly GP Omnibus surveys (June 2020-March 2021, n=1000 per month). 2) Public surveys (confidence to present; July, November 2020, January 2021, n=2000 per survey). 3) Public surveys (attitudes to delay; August, September and November 2020, n = 4000 per survey).

**Results:** In January 2021, 61% of the public reported it was more difficult to get a GP appointment than before the pandemic. In February 2021, GPs reported they were struggling to meet demand for face to face (41%) and remote appointments (38%).

In November 2020, GPs reported patients were less willing to attend appointments than before the pandemic at: general practice (59%), mobile unit (38%), and hospital (79%). In January 2021 public confidence they would be safe from coronavirus at appointments was lower for hospitals (56%) compared to general practice (70%) and mobile units (67%), confidence was lower in January (56%) 2021 compared November (62%) 2020 (hospital appointments).

From August-November 2020 (22% to 28%), the public reported increased concern about adding strain on the NHS. GPs also reported that specific patients coming forward less with symptoms included older adults (59%), patients with a learning disability (41%), and whose first language was not English (36%).

**Conclusion:** service-related and social/emotional/attitudinal barriers have affected people's willingness and ability to present to primary and secondary care. It will be important to keep this under review and to develop data/insight-led approaches. GPs have an important role to play in encouraging onward completion of pathways.

**P23**

## **What causes delayed lung cancer diagnosis of patients who have never smoked? A rapid review**

**Presenter:** Sandra van Os, Department of Applied Health Research, University College London, UK

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**Background:** Patients who have never smoked (never-smokers) represent approximately 14% of UK lung cancer cases. With an estimated 6,000 deaths annually, lung cancer in never-smokers is the eighth most prevalent cause of cancer-related death. Approximately 50% of UK lung cancer cases are diagnosed at Stage-4, where one-year net-survival is poorest. To achieve the NHS Long-Term Plan target of diagnosing 75% of all cancers at Stage-1 or Stage-2 by 2028, it is vital that delays in lung cancer diagnosis are reduced. Current evidence suggests that never-smokers may encounter delays during symptom appraisal and diagnosis, yet it is unclear how their experiences differ from current and former smokers. This review assessed literature in relation to lung cancer symptom appraisal, help-seeking and diagnosis, comparing patients with- and without a smoking history.

**Methods:** The rapid review method was used in response to an urgent need for information about lung cancer patients who have never smoked. MEDLINE, PsychInfo, and Google Scholar were searched for studies (2010-2010) that investigated experiences of the pathway to lung cancer diagnosis of never-smokers, current smokers, and former smokers.

**Results:** Analysis of seven quantitative and three qualitative studies revealed that some delays during symptom appraisal and diagnosis are unique to never-smokers. Due to the strong link between smoking and lung cancer, and low awareness of non-smoking related lung cancer risk factors and symptoms, never-smokers do not perceive themselves to be at risk of lung cancer. Never-smokers are also likely to evaluate their prognosis in comparison with other non-smoking related cancers, where prognosis is likely better, potentially leading to lower satisfaction with healthcare.

**Conclusion:** Never-smokers appear to have different experiences in relation to symptom appraisal and diagnosis. However, evidence relating to their experiences of help-seeking and GP referral, and what is driving diagnostic delays for never-smoker patients specifically is lacking.

**P24**

## **How do and how can GP waiting rooms best raise awareness of the signs and symptoms of different cancers? A staff interview study**

**Presenter:** Laurie Dunn, Hull York Medical School, UK

**Names and affiliations of co-authors:** Alison Bravington<sup>1</sup>, Trish Green<sup>1</sup>, Judith Dyson<sup>2</sup>, Liz Mitchell<sup>1</sup>, Stephen Duffy<sup>3</sup>, Una Macleod<sup>1</sup>

1 Hull York Medical School, 2 Birmingham City University, 3 Queen Mary University of London

Throughout England, there has been considerable activity in seeking to improve general awareness of cancer symptoms in order to facilitate the early diagnosis of cancer.

This study focuses on the display of cancer related information that specifically aims to raise awareness of the signs and symptoms of cancer and encourage help-seeking, within GP waiting rooms in England, UK. The aim of this study is to understand how GP waiting rooms are used to present information about cancer, especially in relation to cancer screening and the signs and symptoms of different cancers.

Lower socio-economic status (SES) has been linked to patient delay and disparities within initial cancer symptom presentation and eventual outcome. The study was conducted across demographically diverse locations. Nine GP practices (five in the North/North East of England and four in Greater London) were purposefully sampled to ensure a mix of practices with affluent and deprived patient populations and in urban, suburban and rural locations.

The study utilised a multi-method approach, encompassing participant observation in waiting rooms and semi-structured interviews with practice staff within phase one, and a patient survey in phase two. Here we will present preliminary findings from the qualitative interview component of the study.

Fourteen face-to-face semi-structured interviews were conducted with staff responsible for displaying information at their practice. Interviews explored decision-making around where and how information regarding cancer is displayed within practices, the dialogue between primary care and public health, engagement with patient groups, issues around the physical/built environment, and perceptions of patient engagement with information materials.

Analysis is currently ongoing. Key emerging themes will be presented and the main barriers and facilitators will be discussed. We will also consider issues around the future of patient engagement with cancer related materials within primary care settings, in the context of a COVID-19 era.

P25

## The GLANCE study: Exploring the role, use, and utility of General Practitioners' gut feelings for cancer and serious disease

**Presenter:** Claire Friedemann Smith, University of Oxford, UK

**Names and affiliations of co-authors:** Benedikte Moller Kristensen<sup>1</sup>, Rikke Sand Andersen<sup>2</sup>, Sue Ziebland<sup>3</sup>, Brian D Nicholson<sup>3</sup>

1 Aarhus University, 2 University of Southern Denmark, University of Oxford

**Background:** Gut feelings (GFs), described as a sense of alarm or reassurance for a patient's health, are increasingly accepted as a component of clinical reasoning in primary care. Our objective was to summarize the literature on GFs, and explore the views of GPs and patients about GFs in primary care.

**Method:** GLANCE is a mixed methods study incorporating three sub-studies: a systematic review and meta-analysis and two qualitative interview studies with 19 GPs and 21 patients. GPs and patients were identified and recruited through their use of an urgent referral pathway for non-specific symptoms that includes GP GF as a referral criterion.

**Results:** Twelve papers and four web resources were included in the systematic review. GPs conceptualised GF as suspicion that grew out of unease not necessarily based on clinical evidence which could lead to difficulties acting on them. The pooled odds of cancer diagnosis were four times higher when GFs were recorded (OR 4.24 (95% CI 2.26 to 7.94)).

The interviews showed that GPs and patients support the use of GFs and see them as a manifestation of clinician expertise. GPs described GFs as being useful to navigate the 'grey area' of primary care where the patient's presentation is not sufficiently dealt with in referral guidelines. Patients also acknowledged the uncertainty involved in primary care practice and described GFs as an important diagnostic tool. Both patients and GPs reasoned that the working environment of primary care and the longitudinal nature of the GP-patient relationship, made GFs part of the professional identity of the GP.

**Conclusion:** The presence of GPs' GFs has predictive value for cancer and patients and GPs are supportive of the use of GFs. GFs act as a prompt for further evidence gathering and are viewed as an important part of effective and efficient patient care.

**P26**

## **Healthcare Use by Men with Urinary Symptoms (HUMUS)**

**Presenter:** Tanimola Martins, University of Exeter, UK

**Names and affiliations of co-authors:** Fiona M Walter<sup>1</sup>, Clarissa Penfold<sup>2</sup>, Gary Abel<sup>3</sup>, William Hamilton<sup>3</sup>

1 University of Cambridge, 2 King's College London, 3 University of Exeter

**Objective:** To investigate primary care use by men with recent onset of lower urinary tract symptoms (LUTS) to identify any differences that may explain ethnic inequality in prostate cancer outcomes.

**Methods:** Multi-methods study of men presenting LUTS to primary care. 274 men completed a self-administered questionnaire, and 23 participated in face-to-face interviews. Analyses: Regression analyses investigated ethnic differences in: a) the period between symptom onset and first primary care presentation (patient interval); and b) the interval between first primary care presentation and investigation with prostate-specific antigen (PSA) and digital rectal examination (DRE). Interview data were analysed using thematic analysis.

**Results:** Half (144, 53%) reported a solitary first symptom, although multiple first symptoms were also common, particularly in Asian and Black men. There was no difference between ethnicities in patient interval or time from presentation to investigation. However, Asian men were offered less PSA testing (odds ratio 0.39; 95% confidence interval 0.17-0.92;  $p=0.03$ ). Qualitative data revealed ethnic differences in general practitioners' offer of DRE and PSA testing and highlighted important gaps in doctor-patient communication and safety-netting.

**Conclusion:** Our study showed only small differences in primary care experiences, insufficient to explain ethnic inequalities in prostate cancer outcomes.

**P27**

## **Systematic review of methodological approaches in the use of time intervals in research and dose-response meta-analysis**

**Presenter:** Allison Drosdowsky, Department of General Practice and Centre for Cancer Research, University of Melbourne, Australia

**Names and affiliations of co-authors:** Professor Maarten IJzerman<sup>1</sup>, Dr Karen Lamb<sup>2</sup>, Dr Rebecca Bergin<sup>3,4</sup> Lucy Boyd<sup>3</sup>, Dr Kristi Milley<sup>3</sup>, Professor Jon Emery<sup>3</sup>

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**Background:** Research on the time before diagnosis in cancer is crucial to improve early detection of cancer and to understand if improvements can be made. Understanding the methodological approaches currently used by researchers is required to inform recommendations to improve the quality of time interval studies.

In meta-analysis, traditional weighted estimate approaches do not allow for the consideration of a non-linear association. Dose-response meta-analysis represents a novel method to assess the role of a time interval on survival.

**Aim:** This systematic review aims to assess methodological approaches in the use of time intervals, with a focus on selection, justification and interpretation. The meta-analysis aims to use a novel technique to improve synthesis of findings in research using time intervals.

**Methods:** Medline, EMCARE, EMBASE, and PsychInfo databases were searched between database conception and November 2020. Eligible articles comprised: those reporting on original research in English, assessing the role of a time interval up to first treatment in symptomatic colorectal cancer, on any outcome (e.g survival, stage at diagnosis). Two reviewers assessed each article for eligibility at both the title/abstract and full text stage. Data extraction was performed with a study specific tool and included studies were assessed for bias. How and why a time interval was categorised, which limits the assessment of non-linear associations, known as the 'wait-time paradox', was considered. A dose-response meta-analysis will be performed to allow for a non-linear association between time intervals and survival.

**Results:** Initial screening produced 8357 articles after removing duplicates, with 146 being eligible for full text review. Data extraction is ongoing but is expected to be sufficient for meta-analysis.

**Conclusion:** This review will identify methodological challenges in time interval research. Findings will be used to inform recommendations to improve the quality of analyses and robustness of findings in this field of research.

**P28**

## **ThinkCancer!: Feasibility of a behaviour change intervention for early cancer diagnosis and safety netting in primary care**

**Presenter:** Jessica Roberts, Bangor University, UK

**Names and affiliations of co-authors:** Stefanie Disbesch<sup>1</sup>, Alun Surgey<sup>1</sup>, Annie Hendry<sup>1</sup>, Nia Goulden<sup>1</sup>, Nefyn Williams<sup>2</sup>, Richard Neal<sup>3</sup>, Clare Wilkinson<sup>1</sup>

<sup>1</sup> Bangor University, <sup>2</sup> University of Liverpool, <sup>3</sup> University of Leeds, on behalf of the WICKED team.

Wales, like other UK countries, has relatively poor cancer outcomes. Late diagnosis is a major contributor and early diagnosis facilitates better outcomes, including survival. Due to being the first point of contact for many patients, primary care plays a vital role in earlier cancer detection. ThinkCancer! is an educational and quality improvement workshop, aimed at whole practice teams, that includes teaching and awareness sessions for both clinical and non-clinical staff, evaluation of current practice based safety netting systems, and the appointment of a safety netting champion to implement a bespoke practice safety netting plan.

A randomised controlled feasibility trial to assess recruitment, retention, fidelity, data collection, primary outcome measures and health economic evaluation, and to iteratively adapt the intervention was designed for delivery to a sample of primary care teams across Wales. Recruitment began in Autumn 2019 by email invitation to all practices in Wales, with no exclusion criteria in place, aiming to recruit 23-30 practices at 2:1 intervention to control ratio. Due to COVID-19, recruitment was initially delayed and the workshop adapted for remote online delivery.

We received 45 expressions of interest (12% of all GP practices in Wales), randomising 30 practices, with 21 to intervention, surpassing progression criteria for recruitment. Practices report a keen desire to take part but arranging intervention delivery is challenging. Loss of protected educational time and increased workload due to staff shortages and additional demands on time due to Covid-19 are barriers to delivering workshops. Despite this, workshops have been delivered successfully. The majority (15) have been delivered as 3 separate sessions to better accommodate practice time and staff availability. Post-workshop feedback has led to adaptations to materials and positive comments received around learning and confidence. Data collection relating to 2WW referrals and primary care intervals is ongoing.

## General practitioner use of a faecal immunochemical test for patients with low-risk symptoms of bowel cancer in England

**Presenter:** Natalia Calanzani, The Primary Care Unit, Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK

**Names and affiliations of co-authors:** Merel M Pannebakker<sup>1</sup>, Max Tagg<sup>2</sup>, Hugo Walford<sup>3</sup>, Niek de Wit<sup>4</sup>, Willie Hamilton<sup>5</sup>, Fiona M Walter<sup>6</sup>

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**Background:** Patients presenting with symptoms of possible colorectal cancer may not meet criteria for fast-track referral but may still have cancer. The faecal immunochemical test (FIT) was introduced to triage patients with low-risk symptoms in English primary care from 2018. We aimed to assess FIT use in routine primary care.

**Method:** Multi-method quantitative study of patients offered a FIT between January-June 2020. Data were collected from consenting patients aged  $\geq 40$  years (questionnaire), their GPs (reported symptoms in lab requests) and labs (FIT and routine blood tests). We used descriptive statistics to characterise patient socio-demographic/clinical features, and bivariate analyses to identify associations between these and FIT results. We assessed concordance (% and kappa statistics) between patient- and GP-reported symptoms.

**Results:** Data were obtained for 507 patients, median age 68 (IQR 58-76); 52.4% female, and 23.6% FIT positive. Participants with a positive FIT result were more likely than those with a negative result to self-report as current/ex-smoker ( $p=0.011$ ), overweight/obese ( $p=0.037$ ), taking aspirin ( $p=0.003$ ) or anticoagulants ( $p<0.001$ ), and to have low haemoglobin ( $p=0.001$ ) or high C-reactive protein ( $p=0.003$ ). The commonest patient-reported symptoms were change in bowel habit (68.3%) and diarrhoea (66.0%), while the commonest GP-recorded symptoms were change in bowel habit (25.8%) and abdominal pain (24.9%). Comparing participants with both patient- and GP-recorded symptoms ( $n=309$ ) showed GPs reported on symptoms less often than patients, and concordance ranged from 44.4% (fatigue) to 80.1% (unexplained weight loss). Kappa agreement was low across all symptoms. Symptoms were reported more frequently by GPs if patients rated them as more severe.

**Conclusion:** This study demonstrates differences between primary care patients having a FIT for possible symptoms of colorectal cancer. GPs may not report all symptoms described by patients because they prioritise those with increased severity. It is important to consider whether this discrepancy can impact on patient care.

**P30**

## **Help-Seeking for symptoms of colorectal cancer among people in rural Yorkshire**

**Presenter:** Christina Dobson, Newcastle University, UK

**Names and affiliations of co-authors:** Jennifer Deane<sup>1</sup>, Sara Macdonald<sup>2</sup>, Peter Murchie<sup>3</sup>, Christina Ellwood<sup>4</sup>, Lorraine Angell<sup>5</sup>, Greg Rubin<sup>1</sup>

1 Newcastle University, 2 Glasgow University, 3 University of Aberdeen, 4 NHS Grampian, 5 PPI representative

**Background:** Rural cancer patients are 5% less likely to survive cancer and rural cancer inequalities have been evidenced, internationally, for 30 years. Rural patients have more advanced disease at diagnosis and there is evidence to suggest that there may be diagnostic delays prior to secondary care for this population, particularly in the 'patient interval'.

RURALLY examines symptom appraisal and help-seeking decision-making, to identify barriers to early presentation, amongst people with symptoms of colorectal cancer (CRC) in rural Yorkshire.

**Methods:** Postal surveys were sent to a random sample of 3400 patients aged 40 and over, registered at one of four GP practices in rural North Yorkshire. The survey asked patients about experiences of CRC symptoms, help-seeking, attitudes to accessing health care services and demographic information. We received 720 completed responses (21.2% response rate) and from these we interviewed 34 participants. Interviewees were purposively sampled for type of symptom, consulted (y/n), rural categorisation and occupation. A modified constructivist grounded theory approach to analysis was adopted.

**Findings:** Relationships with primary care staff were central to participants' willingness to consult (e.g. concerns about confidentiality in small communities) and confidence that they would receive adequate care ( e.g. breakdowns in GP/patient relationships). 'Rural migrants' and 'Indigenous rural residents' different narratives about illness management and access to health care. Rural migrants were confident navigators of the health care system, with concerns about a future in which they could no longer drive being their main reported barrier to consultation. Indigenous rural residents saw themselves as 'hardy' and 'self-reliant', independently managed symptoms and saw unnecessary consultation as a waste of both the GP's time and their own. Farmers also faced additional seasonal pressures that affected ability to consult. Study findings will inform a co-designed early presentation intervention for rural populations.

**P31**

**How do patients with advanced cancer (and close persons) experience continuity in primary palliative care? A mixed-methods review**

**Presenter:** Emilie Couchman, University of Sheffield, UK

**Names and affiliations of co-authors:** Dr Clare Gardiner<sup>1</sup>, Dr Sarah Mitchell<sup>1</sup>, Dr Steph Ejegi-Memeh<sup>1</sup>

<sup>1</sup> University of Sheffield

**Background:** Primary care teams have a key role in the provision of palliative care for patients with advanced cancer. Continuity is valued by patients with such needs, but is limited within current primary care systems.

**Aim:** To examine existing evidence on the experiences of continuity in primary palliative care among people with advanced cancer and/or their close persons.

**Design:** Mixed-methods systematic review with content and thematic analyses.

**Data sources:** Keyword searches were carried out in five databases (MEDLINE, EMBASE, CINAHL, Web of Science, and Cochrane), policy documents and grey literature search engines. Evidence was reviewed using relevant quality appraisal tools, and data were extracted and tabulated. Findings were reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement and the review was prospectively registered on PROSPERO.

**Results:** Seventeen studies were included. Six studies originated from the UK; six from Europe; three from Canada; and two from Australia. Two studies were mixed-methods, four presented quantitative data, and eleven papers reported on qualitative studies. Four themes were developed: (1) the role of GPs in facilitating continuity; (2) the role of patients and/or close persons in facilitating continuity; (3) changing needs throughout the disease trajectory; and (4) the organisational context in primary care.

**Conclusions:** There is a significant gap in the literature regarding how patients and/or their close persons experience continuity in primary palliative care. Specifically, the work required of them to achieve their desired level of continuity, and their capacity for action in this context, needs further attention.

**P32**

## **Understanding Needs of Cancer Survivors and Caregivers: Perspectives for Intervention Development from a Cancer Center in Southern India**

**Presenter:** Sudha Sivarar, Center for Global Health, US National Cancer Institute, US National Institutes of Health, USA

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It is estimated that 64% of the globally projected 28 million new cancer cases and 16 million annual cancer deaths will occur in low-and middle-income countries (LMICs) by 2040. Despite increasing number of cancer survivors in LMICs, cancer survivorship research is limited in these settings and is needed to inform future intervention development.

In this study, we report on qualitative research conducted in a regional cancer center in Chennai city in southern India. The goal of the study was to understand lived experiences and needs of cancer survivors and their care givers; seek perspectives from health providers on needs for survivorship care, research, and training; and identify barriers and facilitators for survivorship intervention development. We conducted in-depth interviews with policy makers and administrators (key informants -n= 4); health care providers (n=8); and cancer survivors (n=8). Preliminary results are organized into patterns of care seeking, experiences with diagnosis and treatment, post-treatment lived experiences and organizational factors. Our analysis suggests delays in initial care seeking and several medical consults, including with pharmacies and traditional medicine practitioners before consultation at a cancer center. Once a cancer diagnosis is made, cultural factors governing disclosure and unmet needs for support and information during treatment were observed. Narratives from survivors identified several areas for intervention including communication to manage disclosure and stigma. Practical concerns such as household responsibilities and childcare were particularly pressing for female survivors as was sustaining employment among both men and women. Significant gender differences in caregiving were observed and role of peer support, spirituality, and social capital were potential focus areas for intervention development. Organizational factors favoring survivorship include coordination of care, strong support of management and quality of care and support. We discuss these findings and offer a conceptual framework to guide survivorship-related intervention development in this setting.

## Identifying and Describing Cancer Survivors: Implications for Cancer Survivorship Research and Clinical Care

**Presenter:** Michelle Dose, Healthcare Delivery Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, Rockville, MD, USA

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**Background:** Studies gathering information directly from cancer survivors have provided foundational information on the experiences of cancer survivors. However, the current lack of a standard method to assess self-reported cancer history limits the ability to distinguish among potentially important subgroups of survivors. Our study aimed to systematically describe the current landscape of survey questions used to identify and describe cancer survivors.

**Methods:** Five databases were searched for available survey instruments administered in the United States within the past 15 years that included a question on self-reported history of cancer. We conducted additional online query search and requested surveys from cancer advocacy organizations. We excluded surveys from etiologic studies and when cancer was a study exclusion criterion. After abstracting questions and response items used to identify cancer survivors, we conducted a descriptive analysis of the survey questions.

**Results:** We reviewed 389 surveys and 24 met study inclusion criteria. The most common question used was: "Have you ever been told by a doctor or other health professional that you had cancer?" Most surveys asked participants to identify single cancer type (88%), multiple prior cancer diagnoses or types (79%), and time from diagnosis (92%). Questions addressing cancer stage (13%), subtypes (8%), metastatic status (21%), and recurrence (25%) were less frequently included. Two-thirds of surveys had a question about cancer treatment(s) received, varying from active treatment status to specific treatments received.

**Conclusions:** Current survey instruments vary in the type and depth of information collected. When researchers do not consider the heterogeneous populations of cancer survivors, broad and inappropriate interpretations of findings and generalizations may be made. Future studies that capture nuanced data elements, such as cancer types, stage/subtypes, metastatic/recurrent status, and treatments received, can help fill gaps in cancer survivorship research and clinical care in both oncology and primary care.

**P34**

**A multi-centre RCT comparing Acceptance and Commitment Therapy (plus) and usual care versus usual aftercare only: SURECAN Trial**

**Presenter:** Imran Khan, Queen Mary, University of London, UK

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**Introduction:** Two million people in the UK are living with and beyond cancer; around a third experience a diminished quality of life (QoL). Previous research suggests that both the psychological treatment, cognitive behavioural therapy, and exercise have some effect on improving the QoL of those living with and beyond cancer. Our trial, SURvivors' Rehabilitation Evaluation after CANcer (SURECAN), aims to develop and evaluate a new talking therapy based on Acceptance and Commitment Therapy for people who have completed treatment for cancer, but are experiencing poor QoL.

Acceptance and Commitment Therapy (ACT), puts patients' views about what they value most in their lives at the heart of the therapy. ACT helps patients to accept what they cannot change (e.g. that cancer might recur) and commit themselves to goals they are able and want to achieve, based on their own values (e.g. becoming closer to loved ones). Since we know that exercise is helpful and work is important to many patients, we will integrate ACT with options for physical activity and work support, if these are deemed important by the patient (thus: ACT+).

**Methods:** Multi-centre RCT (n=344 in total, including an internal pilot (n=45) to test recruitment and running), of ACT+ and usual care versus usual care only in patients nearing completion or within two years of completing treatment with curative intent/long term remission for breast, colorectal, prostate, haematological or head and neck cancer and low quality of life measured by the FACT-G instrument.

**Results:** Given the recent trial start, we will describe the protocol and adaptations we have made in light of the Covid-19 pandemic in order to recruit patients from secondary care sites.

**Conclusions:** By the trial end, in 2023, we will be able to determine if ACT+ is effective, safe, and cost-effective in improving the well-being of those living with and beyond cancer.

P35

## **Perspectives of Adolescent and Young Adult Cancer Survivors: Review of Community-Based Discussion Boards**

**Presenter:** Alexandra Smith, Frank H. Netter MD School of Medicine, Quinnipiac University, USA

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**Background:** Given the overall increase in the number of adolescent and young adult (AYA) cancer survivors, there has been a growing interest in identifying and implementing effective care for this patient population. However, there are remaining gaps in provision of quality clinical care in all settings, including primary care, as well as gaps in research, both of which may be partly due to challenges in reaching AYA survivors. Our study aimed to assess AYA cancer survivors' concerns using postings from the American Cancer Society Cancer Survivors Network, an online, publicly available forum.

**Methods:** Using qualitative methods, posts from AYA survivors or their family/friends in the "Young Cancer Survivors" discussion board from January 2010 – October 2020 were systematically assessed using a previously published cancer survivorship care framework.

**Results:** We identified 159 individuals, aged 15 to 39 years old, who contributed to 181 posts with concerns regarding cancer survivorship. A majority of posts pertained to surveillance and management of psychosocial effects, less than half related to concerns about the surveillance and management of physical effects, and a few regarding surveillance for recurrence and new cancers. Psychological concerns, including coping and depression, as well as interpersonal, including community support and non-family relationships, were the most prevalent psychosocial concerns. Some concerns across multiple domains were mentioned. Concerns pertaining to contextual health care delivery domains, such as communication, care coordination, and care experience, were less common.

**Conclusions:** Our study found that AYA cancer survivors and their family/friends expressed concerns in several survivorship care domains. Physical and psychosocial issues were most prevalent. Interventions tailored towards identifying and addressing the continued unmet needs of AYA cancer survivors are needed in all healthcare settings. Use of social media may provide opportunities to access this patient population for both clinical and research interventions.

P36

## **Perspectives and experiences of Canadian physiotherapists related to working with people diagnosed with advanced cancer: a mixed-methods study**

**Presenter:** Shirin Shallwani, University of Ottawa School of Rehabilitation Sciences, Ottawa, Ontario, Canada

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**Introduction:** People diagnosed with advanced cancer (AC) are fortunately living longer, but many experience diverse physical and psychosocial challenges, necessitating support from primary care providers. Physical activity (PA) is meaningful to people with AC and has been found to improve physical function and quality of life. However, the role of physiotherapists in assisting people with AC and optimizing their PA is not well understood within this context.

**Objective:** The objective of our study was to explore the perspectives and experiences of Canadian physiotherapists related to working with people diagnosed with AC.

**Methods:** In this mixed-methods study, we recruited Canadian physiotherapists with current or recent clinical experience with AC to complete an online survey. The survey included closed- and open-ended questions about their clinical practices, perspectives towards PA, as well as PA-related recommendations and concerns for people with AC. Post-survey completion, physiotherapists were invited to participate in follow-up interviews. Semi-structured interviews were conducted to gain further information on physiotherapists' general thoughts and experiences related to working with the AC population.

**Results:** Sixty-two physiotherapists completed the survey and 13 participated in the semi-structured interviews. The majority of survey respondents worked in hospital in-patient (42%), private practice (37%) or hospital out-patient (24%) settings and 79% had taken oncology-specific courses. Most respondents agreed or strongly agreed that PA is important (89%) and safe (86%) for people with AC and felt highly confident in their ability to prescribe PA (81%). Interview participants particularly emphasized the role of physiotherapy for symptom management and optimization of function in the AC population. However, several indicated the need for increased awareness in the medical community about the contribution of physiotherapy in cancer care.

**Conclusions:** Referral to physiotherapists for PA recommendations, symptom management and functional support can enhance the care of people with AC within the primary care context.

**P37**

**Primary care use after cancer treatment: findings from a population-based study in Nova Scotia, Canada**

**Presenter:** Robin Urquhart, Dalhousie University, Canada

**Names and affiliations of co-authors:** Lynn Lethbridge<sup>1</sup>

<sup>1</sup> Dalhousie University

**Background:** Primary care-led follow-up care is a safe and acceptable alternative to oncology-led follow-up. Nonetheless, follow-up care practices continue to vary widely across Canada. We sought to investigate patterns of primary care use during follow-up care and whether use of primary care is associated with patient or disease characteristics.

**Methods:** We identified all persons diagnosed in Nova Scotia, Canada, with an invasive breast, colorectal, gynecologic, or prostate cancer between January 2006-December 2013. We linked the resulting population-based dataset to cancer centre data, hospital discharge abstracts, physicians' billings, and census data. Descriptive statistics were computed to describe primary care use by follow-up year, disease site, and ongoing receipt of cancer centre follow-up care (CC-FUP). Multivariate regression was used to examine two outcomes: total number of primary care provider (PCP) visits (all reasons) and total number of cancer-specific PCP visits.

**Results:** The mean number of PCP visits (all reasons) and cancer-specific PCP visits per year for survivors who did not receive CC-FUP were 8.12 and 0.43 visits, respectively, and for survivors who continued to receive CC-FUP was 8.75 and 0.63 visits, respectively. Age, cancer type, stage at diagnosis, comorbidity scores, year of diagnosis, and receipt of CC-FUP were associated with both outcomes. Breast, colorectal, and gynecological survivors had 56%, 69%, and 56% lower risk of cancer-specific PCP visits, respectively, than prostate cancer survivors. Receipt of CC-FUP increased the risk of PCP visits (all reasons) by 12% and cancer-specific PCP visits by 50%.

**Discussion:** PCP visits (both all reasons and cancer-specific reasons) were higher in survivors who continued to see their oncology teams for routine follow-up. This suggests that survivors who receive CC-FUP have high needs not met by their oncology teams alone. Models of shared care should be designed and tested for this sub-population to ensure coordinated, high quality follow-up.

**P38**

## **Living with and beyond cancer with comorbid illness: qualitative insights to patient and carer experiences**

**Presenter:** Debbie Cavers, University of Edinburgh, UK

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**Background:** More people are living with and beyond cancer (LWBC), a significant proportion of whom have one or more other long term chronic health conditions. Efforts are being made to understand and support the needs of people living with and beyond cancer. However, less is known about the impact of additional chronic illness on patients' lived experience. Service development and provision would benefit from further in-depth research in this area.

**Aims:** To explore the views of patients and their informal carers of LWBC with additional chronic illness, including their psychosocial support needs and any challenges they have encountered in terms of service provision and support.

**Methods:** In-depth multi-perspective qualitative interviews using purposive sampling with patients and their informal carers, identified via primary care in five health boards in Scotland. Interviews were transcribed verbatim and analysed using Braun and Clarke's thematic analysis: familiarisation, open coding, theme development, and applying themes back across the data to consolidate, refine and discuss variations. Findings are reported in the context of existing research.

**Findings:** Four overarching themes were identified, based on data from 44 patient and 23 carer interviews: Physical and Psychological Impact of Cancer and Comorbidity; Dominant Stories and Meaning Making; Navigating Services and Treatments, and Caring for People with Complex Ill Health. People living with complex ill health experienced a high symptom burden and found their health and interactions with health services dominated their lives and contributed to increased social withdrawal and isolation. The burden of care for loved ones was minimised and mutual care was common.

**Conclusions:** Findings provide insights LWBC with comorbidity and contribute to understandings of the burden of treatment for health services, patients and carers, as well recommendations for policy on how best to provide psychosocial, holistic and person-centred support for this growing group of patients.

**P39**

## **Feasibility of seamless care transitions using structured active handovers**

**Presenter:** Claire Micaux, Karolinska Institutet, Health Care Services Stockholm County, Sweden

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The goal of the planned intervention is to improve continuity, coordination and communication in cancer care, and to promote long-term health in survivors.

After a cancer treatment, it is common to experience late and long-term effects as well as unmet rehabilitation needs. In Sweden, recently adopted policies require the implementation of survivorship care plans (SCPs) throughout the cancer continuum and transferring part of the responsibility for survivorship care to primary healthcare centres. To optimize these change processes, at the Academic Primary Care Centre for development and research, the feasibility of introducing structured care transitions from oncology nurse navigators (ONN) to specialized district nurses (DN) in primary care will be investigated.

An extensive work is currently underway in secondary care to establish the consistent usage of SCPs and a systematic assessment of rehabilitation needs. Starting September 2021, we plan to educate DNs on specific cancer survivorship issues. Sixty persons diagnosed with breast, prostate, colorectal or gynecological cancer will then be invited to have their SCP actively handed over from the ONN to the DN, when appropriate according to the respective care pathways. The DN will follow up on the SCP on at least two occasions, with a person-centered structured health dialogue focusing on prevention and health-related aspects of cancer survivorship, planning and coordinating subsequent rehabilitation with other healthcare professionals.

The feasibility of this working procedure will be evaluated using interviews with stakeholders (patients, nurses, managers) to assess the relevance and acceptability of cancer rehabilitation in primary care, as well as possible organizational barriers to its implementation.

Preliminary efficacy will be assessed with a study-specific questionnaire evaluating the DNs' cancer-specific knowledge. Validated instruments measuring symptom burden, perceived continuity of care, and health literacy of participating patients will be used to identify appropriate outcome measures for further efficacy testing of the intervention.

**P40**

## **Patients' perspectives on a talking therapy for cancer aftercare**

**Presenter:** Sheila Donovan, Queen Mary, University of London, UK

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on behalf of the SURECAN Grant Investigators

**Introduction:** Two million people in the UK are living with or beyond cancer. One third report poor quality of life due to problems such as fatigue, fear of cancer recurrence and concerns about returning to work. SURECAN (SURvivors' Rehabilitation Evaluation after CANcer) is a multi-phase study developing and evaluating a talking therapy based on Acceptance and Commitment Therapy (ACT), with integrated options for exercise and vocational support, for people who have completed treatment for cancer, but experience poor quality of life. In the development phase for the talking therapy, which we have named 'ACT+', we interviewed patients to explore their perceptions of, and responses to ACT+.

**Methods:** Four focus groups and 11 interviews were conducted with 31 individuals who were within 12 months of completing treatment with curative intent for breast, colorectal, prostate, haematological or head and neck cancer. Recruitment was via cancer clinics at study research sites. Participants' views were sought on ACT+. Thematic analysis was undertaken.

**Findings:** Participants' views of ACT+ were contextualised in their experiences of aftercare, which included being signposted to, or researching and accessing support services; membership of cancer support groups; and attending cancer follow up clinics. For some, follow-up clinic appointments were limited in terms of how psychological needs were addressed. A broad theme across the interviews was candidacy. This encompassed participants' views on why they would, or would not undertake ACT+ therapy, if offered; why others might, or might not be receptive to ACT+; and the eligibility criteria for the study, and how they were to be applied. ACT+ made sense to participants. The individual's values as a cornerstone of therapy and the integrated options for physical activity and vocational support had particular resonance.

**Conclusions:** ACT+ was seen as a beneficial resource for aftercare by patients who had undergone treatment for cancer.

**P41**

## **How well do healthcare professionals know of the priorities of their older patients regarding treatment outcomes?**

**Presenter:** Daan Brandenburg, University of Groningen, University Medical Center Groningen, Department of General Practice and Elderly Care Medicine, The Netherlands

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**Objectives:** For shared decision making, it is crucial to identify patients' priorities regarding health outcomes. Our aim was to study whether healthcare professionals know these priorities.

**Methods:** In this cross-sectional study we included older patients who had to make a treatment decision, their general practitioners (GPs) and their medical specialists. Agreement between the patients' main health outcome as prioritised by using the Outcome Prioritization Tool (OPT) and the perception of the same outcome by their healthcare professionals.

**Results:** Eighty-seven patients were included. Median age was 76 years, 87.4% of patients presented with malignant disease. The majority prioritised maintaining independence (51.7%), followed by extending life (27.6%). The agreement between patients and healthcare professionals was low (GPs 41.7%, kappa 0.067,  $p = 0.39$ ), medical specialists 40.3%, kappa 0.074,  $p = 0.33$ ). Positively related to agreement was patient's age > 75, and a longer relation with their patients (for GPs), and the patient having no partner (for medical specialist). Having a malignant disease, dependent living and functional deficits were negatively related to agreement.

**Conclusions:** Healthcare professionals have poor perceptions of their patients' priorities. To realise patient-centered care, it is crucial to discuss priorities explicitly with all patients.