

ALL POSTERS FROM 3RD NAEDI RESEARCH CONFERENCE

Thursday 26th March 2015

POSTER 1 – GARY ABEL

The size and sources of variation of different general practice ‘cancer profile’ measures, and the statistical reliability of potential performance comparisons

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Abstract:

Background: Recent evidence suggests the presence of substantial variation between general practices for a range of measures of diagnostic activity related to cancer. Broadly, two families of measures exist, some relating to incident cancer cases (‘two week wait’ referrals) and some relating to broader populations (e.g. endoscopy or imaging tests in symptomatic patients, or use of screening). Whilst a range of about 20 performance measures is reported by the ‘General Practice Profiles for Cancer’, the optimal way for using this information for quality improvement purposes is not clear.

Methods: We analysed publicly reported ‘General Practice Profile for Cancer’ data. Using a sequence of appropriate mixed effect regression models we characterised the size of overall practice variation for each indicator, accounting for the age-gender case-mix of the practice population. We further calculated the Spearman-Brown reliability for different measures.

Results: Interim findings indicate that the size of practice variation is substantial although not huge (e.g. generally up to 2-fold variation between the 75th and the 15th centiles of the distribution of practice scores, with up to 3.5-fold variation between the 90th and 10th centiles). The case-mix of the practice population explains some of the variation, differentially so for different measures. The reliability of these publicly reported measures is variable, but two broad families of measures exist: Those relating to incident cancer cases (e.g. % 2WW referrals or % emergency presentations) which have low reliability, well below thresholds required for high stake applications such as performance management, but appropriate for incentivising reflecting practice. And those relating to broader populations (e.g. patients under investigation or % of invited individuals participating in screening) which have acceptable or high reliability.

Conclusion: We provide intelligence about the size of practice variation in relation to measures of diagnostic activity, and evidence that can inform a more precise interpretation and use of these publicly reported measures.

POSTER 2 – ELLENA BADRICK

The early detection of cancers in patients with type 2 diabetes: the importance of understanding the detection time bias

Ms Ellena Badrick, Dr Matthew Sperrin, Dr Evan Kontopantelis, Dr Martin Rutter, Prof. Darren Ashcroft, Prof. Iain Buchan, Prof. Andrew Renehan

Background: Patients with Type 2 diabetes (T2D) are at increased risk of developing several common cancer types compared with the non-diabetes population. In the UK, the prevalence of T2D is 7%, a rate that is increasing, reflecting the rising trends in obesity and the ageing population. T2D is a diverse chronic disease characterized by a heterogeneity of metabolic phenotypes. Among this heterogeneity, there may be T2D sub-populations at particularly high-risk for cancer development. As patients with T2D have frequent contact with health professionals, it may be possible to identify these high-risk sub-populations with opportunities for early detection of cancer.

Against this background, we currently hold a NAEDI grant developing a risk prediction model for incident cancer among T2D patients. As the first phase of that project, we sought to characterise relationships of the coincidence of the two diagnoses, and explore whether the new diagnosis of T2D might exaggerate the association with cancer development i.e. a detection time bias.

Methods: We used the Salford Integrated Record (SIR), an electronic health record database from primary care in Salford, Greater Manchester, linked with the North West Tumour Registry (1995 to 2010). Of the 248,917 total adult population, there were 10,328 new diagnoses of T2D. We tracked for the subsequent development of new cancers using ICD10 codes and categorised as (i) obesity-related (breast, endometrial, ovarian, renal, oesophageal, pancreatic, gallbladder); and (ii) non-obesity (remainder) related first event cancers. We matched the T2D patients with individuals without diabetes by age and sex, and derived hazards using time-varying survival analysis.

Results: The number of incident cancers by T2D status is shown in Table 1. Cancers diagnosed in the first 12 months after T2D diagnosis accounted for 12%. For both obesity-related and non-obesity related cancers, there were 4 to 10-fold increases in cancer diagnoses compared with more 'stable' background rates by 2 to 5 years post T2D diagnosis, confirming detection time bias. By 10 years, there was a clear increase in risk of obesity-related cancer (HR: 1.426, 95% CI: 1.116-1.821), but not for non-obesity related cancers (HR: 1.028, 95% CI: 0.912-1.361), compared with matched non-diabetic population.

	T2D	non-T2D	Totals
Obesity-related cancers	323	634	957
Non-obesity related cancers	1026	2584	3610
Sub-totals	1349	3218	4567

Conclusion: To interpret and quantify cancer risk in patients with T2D, there is a need to account for detection time bias. In patients with T2D, cancer risk reducing strategies should be targeted against obesity-related cancers. Risk factors beyond excess weight may be relevant in the development of these cancer prevention strategies

POSTER 3 – SARAH BAILEY

Thrombocytosis: an underused risk marker of cancer in primary care?

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Background: Although the association between raised platelet count (thrombocytosis) and cancer has been reported in primary and secondary care studies, UK general practitioners are unaware of it, and it is insufficiently evidenced for laboratories to identify and warn of it. There is a relative dearth of research into the risk of underlying cancer in patients with thrombocytosis.

Research question: In patients with raised platelet count in primary care, what is the prevalence of cancer, and which cancers are diagnosed?

Methods: This prospective cohort study used electronic primary care records from the UK CPRD database between 2000 and 2013. 40,000 patients aged ≥ 40 years with a platelet count of over 400,000/ μl were included, alongside an age and sex matched sample of 10,000 patients with normal platelet counts. The positive predictive value (PPV) for cancer in male and female patients with thrombocytosis was calculated. Sub-analyses examined types of cancers occurring, sex and age differences, and risk at different platelet levels.

Results: Median platelet count in the thrombocytosis group was 470 (IQR 417-492) compared to 257 (IQR 214-300) in those with normal platelet counts. In males, PPV for cancer was 10.11% (95% CI 9.59-10.64%) in year after first raised platelet count. For females, the value was 5.62% (CI 5.35-5.90). The corresponding values in males with normal platelet counts was 3.80% (CI 3.17-4.53%) and for females was 2.16 (CI 1.83-2.54%). These values fell in the second year after the first raised platelet count; most diagnoses of cancer were made within the first nine months.

PPVs rose with increasing age, and values were higher in patients with thrombocytosis compared to those without across all age groups. In these patients, PPVs for males and females aged 70-79 were 13.12% (CI 12.02-14.29) and 6.56 (CI 4.99-8.43) respectively. In patients with normal platelet counts, PPVs for males and females aged 70-79 were 6.56% (CI 4.99-8.43) and 3.60% (CI 2.77-4.60). Higher platelet counts were also associated with increased PPVs; men with platelet counts of 701-800 had a PPV of 13.33% (CI 9.41-18.13), and for women the value was 11.96% (CI 8.92-15.58). Lung and colorectal cancer were the most strongly associated with thrombocytosis in both sexes; breast and prostate showed no association.

Discussion/conclusion: These results will be of use in primary care cancer diagnosis, for practitioners receiving blood results unexpectedly showing with thrombocytosis. Further analyses with these data will examine the level of raised platelets at which further investigation for cancer is warranted, with a view to developing an automatic alert on laboratory results showing thrombocytosis.

POSTER 4 – MATTHEW BARCLAY

Two regional pilot “Be Clear on Cancer” awareness campaigns – How does their impact compare? Assessment of the impact on urgent GP referrals for suspected cancer.

Matthew Barclay, Carolyn Gildea, Alexandra Thackeray

Background

In February - March 2014, two “Be Clear on Cancer” awareness campaigns were piloted regionally; for oesophago-gastric (OG) cancers in the North East and for ovarian cancer in the North West. These campaigns support initiatives to diagnose cancer earlier by raising public awareness of cancer symptoms and encouraging those with symptoms to see their GP.

Campaign evaluation included an assessment of the impact on urgent GP referrals for suspected cancer (Two Week Wait – 2ww) and related diagnostic metrics. This work will compare these 2ww related evaluation results for the two regional pilot campaigns.

Method

Cancer Waiting Times (CWT) data were used to consider changes in the number of 2ww referrals, the number and percentage of 2ww referrals resulting in a diagnosis of cancer (conversion rate), the number of CWT recorded cancers and the percentage of these which resulted from a 2ww referral (detection rate).

Results

Both campaigns resulted in increased numbers of 2ww referrals, with 52% more referrals for suspected upper gastrointestinal cancers in the OG pilot area in February-April 2014 than for the same months in 2013 (compared to 17% more in control areas); for the same time periods there was an 24% increase in referrals for suspected gynaecological cancers in the ovarian pilot area (compared to 16% for control areas).

Impact on the related diagnostic metrics will also be discussed.

Conclusions

The impact on 2ww referral activity and related diagnostics is an important part of the regional pilot campaign evaluation. This work reveals differences in the type and scale of the impact for the two campaigns. The oesophago-gastric cancer awareness campaign was extended to run nationally in early 2015.

Acknowledgements

Cancer Waiting Times data was obtained from the National Cancer Waiting Times Monitoring Dataset, provided by NHS England.

POSTER 5 – MATTHEW BARCLAY

Trends in usage of the urgent GP referrals for suspected cancer system

Matthew Barclay, Carolyn Gildea, David Meehan

Background

Early diagnosis is an important part of the cancer outcomes strategy and, within this, the urgent GP referral for suspected cancer (two week wait – 2ww) system plays a key role. Over recent years there have been many initiatives aimed at improving awareness and early diagnosis, for example, the Be Clear on Cancer awareness campaigns.

It is clear that these initiatives have led to changes in the usage of the two week wait referral system, at least in the short-term. However, long-term changes and trends have only been reported in limited settings. This analysis considers and quantifies how usage of the two week wait referral system has changed over the last five years.

Method

Cancer Waiting Times (CWT) data were used to derive three measures, which provide key ways to assess the usage of the two week wait referral system, namely:

- Referral rate – number of two week wait referrals as a standardised rate
- Conversion rate – percentage of 2ww referrals resulting in a diagnosis of cancer
- Detection rate – percentage of CWT recorded cancers which resulted from a 2ww referral

Analysis quantifies trends in the referral, conversion and detection rates, from 2009 until March 2014.

Results

There has been a large increase in the number of two week wait referrals, with 50% more referrals in 2013/14 than 2009/10. There was a substantial increase in the detection rate, from 43% to 49%, and the conversion rate decreased from 11.3% to 9.5%

Conclusions

Many factors and initiatives have affected usage of the two week wait referral system in recent years. There is evidence of large differences in the number of referrals made, and in how these referrals relate to cancer diagnoses.

Acknowledgements

Cancer Waiting Times data was obtained from the National Cancer Waiting Times Monitoring Dataset, provided by NHS England.

POSTER 6 – SALLY BENTON

GP Participation in increasing uptake in a national cancer screening programme: the PEARL (Practice Endorsed Additional Reminder Letter) Project

Authors: Piers Butler¹, Michelle Chesters², Stephen Halloran¹, Sally Benton¹

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Background: Uptake of bowel cancer screening in England is currently 55.7%, a figure that has changed very little since the programme began in 2006, despite national campaigns to raise awareness [1, 2]. The NHS Bowel Cancer Screening Programme (BCSP) in England is organised centrally, without the direct involvement of general practitioners (GPs). There is evidence to suggest, however, that people are more likely to respond to an invitation to screening if they are encouraged to do so by their GP [3, 4].

We report an initiative led by the BCSP Southern Hub to pilot a new method to engage subjects in bowel cancer screening by involving GPs. The method exploits GP knowledge about individual subjects and the BCSP's established and organised procedures for written communication to maximise the likely cost-effectiveness for the Programme with minimal burden on primary care. The initial pilot is the result of collaboration with a group of GPs in Wessex working for Macmillan Cancer Support in partnership with the Wessex Strategic Clinical Network.

Method: Each participating practice supplied a letterhead and electronic GP signature. An IT program was written by a Southern Hub data analyst to interrogate the BCSP database and identify subjects registered with a participating practice who had not returned a test kit within 30 days of a standard reminder letter. A list of those subjects was sent using secure e-mail to the practice and GPs were asked to identify people who should not be sent a further reminder (end-of-life-care, unable to have colonoscopy *etc*). The annotated list was then returned to the Hub and checked to confirm that subjects remained non-respondent. Subject details were mail-merged and a second reminder letter sent out with the appropriate GP letterhead and signature.

Results: Twenty-five general practices agreed to take part in the pilot study and supplied the Hub with a letterhead and electronic GP signature. Twenty-four practices received a list of non-responders (356 non-responders in total; no non-responders for one practice) and, to-date, 18 GPs had reviewed and returned a list (292 subjects). A GP-signed letter was sent to 265 subjects (27 subjects were excluded by the GP or because non-responder status had changed). The uptake of screening by subjects registered with participating practices will be monitored before and after the intervention, and compared with other practices in the same area that were not involved.

Discussion: A process has been set up to enable targeting of non-responders. The process can be extended to include more practices and, after three months, we aim to double the number of practices included in the pilot. The extra workload this process required at the Hub and practices will be evaluated against the benefits to subjects, and recommendations will be made about the viability of rolling this process out on a national level within the BCSP.

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The role of candidacy in colorectal cancer screening

Background and Aim

Colorectal cancer (CRC) is the fourth most common cancer in the UK. The majority of people diagnosed (95%) are aged 50 and above¹. In line with the focus of current policy on the early detection of cancer, the Scottish Bowel Screening Programme sends individuals aged 50-74 years a faecal occult blood test that they complete at home every two years. Recent figures show an average Scottish participation rate of 56.1%, with a higher uptake by women, and by people in areas of lower deprivation². Using Davison et al.'s concept of 'candidacy'³, the aim of this (still ongoing) study is to assess the extent to which individuals draw on culturally and collectively constructed images of 'typical' CRC sufferers (i.e. candidates) in order to evaluate their own risk and to ascertain the impact of candidacy on screening participation in CRC.

Methods

In-depth semi-structured interviews are conducted with 50 individuals who are invited to participate in the Scottish Bowel Screening Programme. Individuals who either did, or did not screen are matched in pairs for age, gender and deprivation status in order to reduce confounding variables that are often linked with screening behaviour. Data are analysed using an analytical coding frame drawing on the themes of symptoms, risk factors, and retrospective and prospective candidacy. Nvivo software is used to facilitate the analysis.

Results (anticipated)

- All study participants felt that anybody could be a CRC candidate.
- Although luck was perceived as the main factor for developing or not developing CRC most people highlighted risk factors that heightened the risk. These clustered around diet, genes, smoking, alcohol and the environment. Due to the perceived randomness of cancer the relative weight of risk factors was often unclear.
- All screeners' perceptions of their own risk of CRC were ambiguous, being both positive and negative. This was not the case for non-screeners who saw themselves either at risk or not. Also, non-screeners had a more symptom-driven approach to risk.
- The community experience of candidacy tended to be more positive for screeners than for non-screeners. Screeners could give examples of candidacy and in some cases this influenced their decision to take part. Non-screeners gave fewer examples of candidacy and for some these influenced their decision not to participate.
- All screeners believed in screening, valued early detection and saw screening as a way to reduce their risk. Non-screeners valued early detection less. Their reasons for non-participation varied widely, e.g. unwillingness to know outcome, already engaged with healthcare or difficulties with screening kit. At least half of the non-screeners were interested in participation.

Conclusion (anticipated)

Overall, the notion of candidacy seems to impact on screening participation for screeners and non-screeners. The results could potentially suggest that non-screeners with an interest in screening could be swayed through an intervention, while personal positive narratives could potentially benefit the non-screeners who are more averse to screening.

Presentation

The final results, including vignettes from matched pairs will be presented. The study completion date is 12/2014.

References

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Authors

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How effective are cancer awareness campaigns among the public: a review of recent literature

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Background

Lengthy patient intervals (time to presentation) in symptomatic cancer diagnoses are thought to relate at least in part to low cancer awareness, including knowledge of signs and symptoms of and risk factors for cancer. In recent years considerable investment has been made in campaigns designed to promote cancer awareness and address barriers to timely presentation: understanding the effectiveness of such interventions will inform future strategies.

Methods

We updated a previous systematic review, examining effectiveness of two types of intervention: interventions delivered to individuals, and interventions delivered to communities. A rapid review approach was adopted. Medline, EMBASE, PsychINFO, CINAHL, Cochrane Library were searched from December 2008 to March 2014: only English language papers were included, and all relevant study designs (RCTs, non-randomised trials, before and after studies and time series) were considered. Two reviewers independently checked titles and abstracts and carried out quality assessment on included papers. Grey literature included evaluation reports on NAEDI, LAEDI and initiatives such as 'Be Clear on Cancer' and 'Detect Cancer Early'. A narrative synthesis approach was taken to data synthesis due to heterogeneity of interventions and settings.

Findings

Forty three studies met the inclusion and quality criteria. The majority of interventions related to a single cancer type (lung, breast, bowel, melanoma, oral cavity, cervix). Four randomized controlled trials (RCTs) were identified: three were of individual-level interventions, the fourth of a community-level intervention. All three individual-level RCTs (relating to breast cancer in older women, knowledge of oral cancer, and skin cancer knowledge among deaf people) showed statistically significant differences in cancer awareness measure in the intervention compared with the control group: one study demonstrated sustained increase in awareness at one year. The one community RCT evaluated a spiritually-based educational intervention about colorectal cancer: no major difference was detected between intervention and control arms. Non-RCT studies provide some evidence of mass media campaigns having a short term effect on knowledge of symptoms and increased awareness of screening: however, the quality of the non-RCT studies varied considerably. Importantly, evidence from recent UK awareness campaigns also provides early evidence of effectiveness with reported increased awareness of symptoms, increased consultation in primary care, and some evidence of an increase in diagnoses of cancer. Effective awareness-raising campaigns included formative research to inform materials tailored for specific needs of target populations (cultural, health literacy and local context).

Discussion

The majority of identified studies focused on raising awareness of signs and symptoms of cancer, with few specifically addressing barriers to help-seeking. There is a need for further research into the science of evaluating cancer awareness campaigns in the real-world settings where the context is often complex: common reporting guidelines should be developed. It remains unclear whether awareness campaigns focusing on all potential symptoms of cancer compared to campaigns focusing in individual cancers are effective: developing better understanding in this area through both formative and intervention research is required.

POSTER 9 – ISABELLA CARNEIRO

Survival benefits of improvements in factors related to early diagnosis – Colorectal and Lung cancer in perspective

Authors: Isabella Carneiro¹, Nick Ormiston-Smith², Lucy Elliss-Brookes¹, Lucy Ironmonger², Mick Peake¹; ¹ National Cancer Intelligence Network [NCIN], Public Health England; ² Cancer Research UK [CRUK]

1–Introduction

The overarching goal of the National Awareness and Early Diagnosis Initiative (NAEDI) is to promote the early diagnosis of cancer and thereby improve survival and reduce cancer mortality. There is evidence that a smaller proportion of patients present with early stage disease in the UK compared with other countries, so successful implementation of this initiative should make a major contribution to the long-term goal of achieving world-class cancer outcomes in this country.

2–Objective

The aim of this analysis is to estimate the potential for increasing the proportion of cancer patients diagnosed with early stage disease through factors such as reducing the proportion diagnosed following an emergency presentation and improving public awareness of cancer symptoms, and then estimate the impact of such improvements on the number of patients surviving one year. The present analysis is based on published evidence related to colorectal and lung cancer.

3 – Methods

The proportion of colorectal and lung cancers diagnosed following an emergency presentation and for all other routes (non-emergency presentations), plus the stage distribution for cases diagnosed for these routes, was taken from peer reviewed literature. These figures were applied to the number of colorectal and lung cancers diagnosed in England in 2012. Scenarios of a reduction in the proportion of emergency presentations were analysed. One-year survival by stage estimates for 2012 were applied to the different scenarios to estimate the additional number of people surviving compared with no change in proportion diagnosed via an emergency presentation.

For lung cancer, the analysis also focussed on public awareness of lung cancer in a similar manner.

4 – Results

Published literature shows that 25% of colorectal cancer patients first presented as an emergency. We estimated that, had that proportion been lower at 15%, 12% and 5%, in 2012, there would have resulted in respectively 287, 373 and 574 potentially avoidable deaths in England that year. Similarly, cancer literature indicates that 36% emergency presentation for lung cancer patients. Lower levels, in 2012, at 28%, 15% and 5% would result in respectively 247, 624 and 915 potentially avoidable deaths. With regards to the public awareness for lung cancer, our analyses suggest that applying the improvements in staging at diagnosis seen in the months after the launch of a national public awareness campaign would result in 1,124 potentially avoidable deaths if the improvement was sustained over a year.

Further analysis is underway in regards to screening and peri-operative mortality in colorectal cancer. Also, 5-year survival figures will be applied to the calculations presented here.

5 – Conclusion

These initial results, based on single factors, build on previous studies, suggesting that the ‘size of the survival prize’ for early diagnosis might be substantial. Our analysis stresses the importance of further research efforts and practical initiatives targeted at ways of affecting a stage shift towards earlier diagnosis in colorectal and lung cancers.

Acknowledgement: This is a CRUK-NCIN Partnership project.

POSTER 10 – GEORGINA CHADWICK

Are we missing the opportunity to diagnose early oesophageal cancers at endoscopy?

Authors: Chadwick G, Groene O, Riley S, Hardwick R, Crosby T, Hoare J, Hanna G, Cromwell D.

Background and study aims: Several studies have suggested that a significant minority of esophageal cancers are missed at endoscopy. The aim of this study was to estimate the proportion of esophageal cancers missed at endoscopy on a national level, and to investigate the relationship between miss rates and patient and tumor characteristics.

Patients and methods: This retrospective, population-based, cohort study identified patients diagnosed with esophageal cancer between April 2011 and March 2012 in England, using two linked databases (National Oesophago-Gastric Cancer Audit and Hospital Episode Statistics). The main outcome was the rate of previous endoscopy within 3–36 months of cancer diagnosis. This was calculated for the overall cohort and by patient characteristics, including tumor site and disease stage.

Results: A total of 6943 new cases of esophageal cancer were identified, of which 7.8% (95% confidence interval 7.1–8.4) had undergone endoscopy in the 3–36 months preceding diagnosis. Of patients with stage 0/1 cancers, 34.0% had undergone endoscopy in the 3–36 months before diagnosis compared with 10.0% of stage 2 cancers and 4.5% of stage 3/4 cancers. Of patients with stage 0/1 cancers, 22.1% were diagnosed after ≥ 3 endoscopies in the previous 3 years. Patients diagnosed with an upper esophageal lesion were more likely to have had an endoscopy in the previous 3–12 months ($P = 0.040$). The most common diagnosis at previous endoscopy was an esophageal ulcer (48.2% of investigations).

Conclusion: Esophageal cancer may be missed at endoscopy in up to 7.8% of patients who are subsequently diagnosed with cancer. Endoscopists should make a detailed examination of the whole esophageal mucosa to avoid missing subtle early cancers and lesions in the proximal esophagus. Patients with an esophageal cancer may be misdiagnosed as having a benign esophageal ulcer.

POSTER 11 – GEORGINA CHADWICK

Proportion of oesophago-gastric cancers diagnosed early differs by Strategic Clinical Network

Authors: Chadwick G, Groene O, Riley S, Hardwick R, Crosby T, Hoare J, Hanna G, Cromwell D.

Introduction

5 year survival for oesophago-gastric cancer is poor, with only 1 in 7 patients surviving 5 years after diagnosis ([1](#), [2](#)). Key to improving survival is increasing the proportion of cancers diagnosed at an early stage. If tumours are limited to the most superficial layers of the epithelium, then 5 year survival may reach about 90% ([3](#)).

In view of this fact the government has recently launched a campaign to try and increase the proportion of cancers diagnosed early, “Be clear on cancer” ([4](#)).

We sought to investigate the whether there was nationwide variability in the proportion of cancers diagnosed at an early stage.

Methods

This study uses data collected for the National Oesophago-Gastric Cancer Audit, focusing on patients diagnosed between 1st April 2011 and 31st March 2013 in England and Wales. Outcomes considered were stage at diagnosis, patient characteristics, and the strategic clinical network (SCN) where the cancer was diagnosed. We estimated case-mix adjusted rates of early cancer diagnosis using logistic regression models.

Results

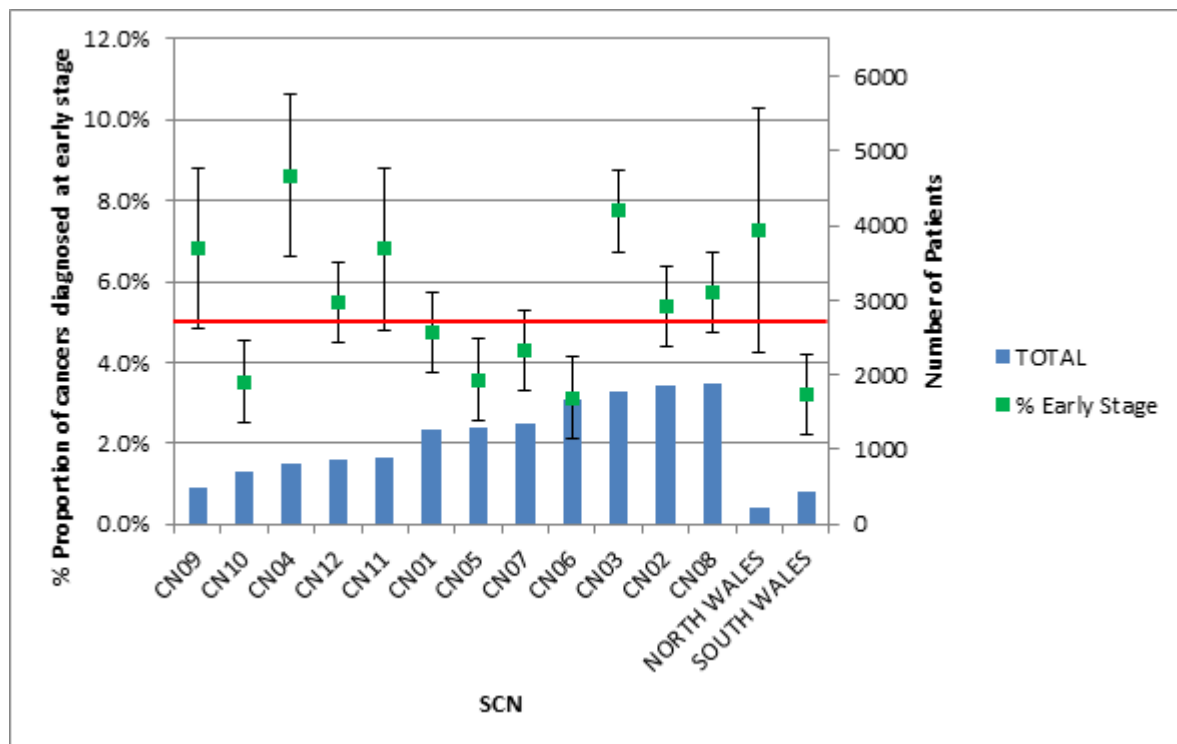
Full staging information was available for 15,638 patients (68.5%), of these 5.4% (n=837) were diagnosed at an early stage T0/1, N0 and M0, in England and Wales.

Patient characteristics associated with early diagnosis included, presence of co-morbidities and in particular history of Barrett’s oesophagus (9.6% vs 2.0%, $p < 0.001$). Patient’s age, sex, and performance status did not have a statistically significant effect on the proportion of cancers diagnosed early. Adenocarcinomas were also significantly more likely to be diagnosed early compared to squamous cell cancers (5.7% (95% CI 5.3-6.2%) vs 3.8% (95% CI 3.1-4.6%)). Finally patients referred by another hospital consultant were significantly more likely to be diagnosed at an early stage (11.1%), compared to those referred by their GP (3.6%) or an emergency (4.5%) ($p < 0.001$)

After adjusting for age, sex, number of comorbidities and type of cancer, we observed significant variation across SCNs in the proportion of cancers diagnosed at an early stage (Figure 1), ranging from 3.1% (95% CI 2.3-4.0%) to 8.6% (95% CI 6.7-10.7%).

See next page

Figure 1: Proportion of all OG cancers diagnosed at an early stage in England and Wales, adjusted for age, sex, number of comorbidities and type of cancer



Conclusion

The substantial nationwide variability in the proportion of cancers diagnosed at an early stage needs further research and investigation at a local level. Trusts should monitor the proportion of cancers diagnosed early, and where this is low aim to investigate causative factors. This may reflect the social demographic of the local population and recognition of symptoms by the patient, access to GP services for referral for endoscopy, or availability of endoscopy services at the local hospitals.

While the “Be clear on cancer campaign” aims seeks to address the first of these factors, SCNs need to take responsibility for the later two.

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POSTER 12 – NEIL CHAUHAN

Survival update on cancer diagnosis following A&E presentation

Authors: Neil Chauhan, Melanie Ridge and Kathy Pritchard-Jones

Background

National figures report a quarter of all cancer diagnoses follow presentation to A&E. *London Cancer*, the integrated cancer system for North East and Central London and West Essex, undertook a system wide audit across nine acute hospital trusts between January and August 2013. Having previously reported methodology, routes to diagnosis and patient motivation we now report on survivorship of our cohort.

Methods

Nine acute hospital trusts (with eleven A&E departments) identified all new cancers following A&E presentation as route to diagnosis. These secondary care centres provided demographics, cancer type, cancer stage and treatment intent. The audit closed end of August 2013 with 963 patients identified. In order to document cancer survivorship, these same trusts were re-contacted, in November 2014 to update the original patient lists on follow-up and survival data.

Results

All trusts returned data by January 2015. Of the original 963 patients, data was returned on 850 patients. At the end of 2014, 40% of the cohort were alive. Survival was at less than 15% in one trust but as high as 65% in another.

Conclusions

Cancer survival following A&E has always been reported as low due to the late presentation of advanced disease and often these patients being acutely unwell. Our findings confirm this and provide numerical data showing low median survival. Only two out of five patients alive one year from audit end.

Public awareness on cancer symptoms, screening rates, access to primary care and diagnostics all feed into incidental and late cancer presentations to A&E, with subsequent impact on mortality. National priorities to improve cancer survival must therefore focus on this vital route to diagnosis.

To strengthen understanding, further statistical analysis is being performed on one year mortality, as well as sub-analysis on cancer type, patient age and treatment intent.

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Funding NHS England

Low awareness of blood cancers and the impact on blood cancer patients

Author: Lauren Dias, Leukaemia & Lymphoma Research

Background: Blood cancers represent one in 10 of all new cancers diagnosed each year in the UK, corresponding to over 30,000 new cases. Overall, an estimated 230,000 people in the UK are living after a diagnosis of blood cancer or closely related condition. As part of a programme of work to understand patient need, we performed a series of qualitative analyses to understand the levels of awareness of blood cancers in the general public, with a view to using the results to increase symptom recognition and potentially encourage earlier presentation.

Method: As part of a programme to understand patient need, we held 13 focus groups and two facilitated supporter groups, as well as conducting an online survey with 1,725 people personally affected by cancer including 1,029 patients. This work was complemented by analysing the National Cancer Patient Experience Survey (NCPES) data by blood cancer condition in 2013 and 2014 and commissioning an online awareness survey through YouGov. The Awareness and Terminology Study surveyed over 2,000 individuals in August 2014. This survey focussed on public awareness of blood cancers and included a nationally representative sample of adults living in Great Britain.

Results: The focus groups and online survey highlighted that patients indicated a low awareness of blood cancers and the associated symptoms at the point of diagnosis. Patients mentioned that low awareness had an impact on seeking medical help and potentially delayed their diagnosis. There was a common perception that awareness of blood cancer and recognition of symptoms was not only low amongst patients but also amongst medical professionals in primary care. This is also evident in national data from the NCPES, which highlighted that 68% of blood cancer patients saw their GP only once or twice before being diagnosed in comparison to 75% for all cancer patients.

The YouGov survey showed that, when prompted, a high proportion of respondents recognised blood cancer terms. Over 90% of people in the study had heard of the term 'leukaemia' – this showed a similar level of awareness to arthritis (93%), prostate cancer (93%) and stroke (94%). There was a lower recognition of 'lymphoma' (78%) and the term 'blood cancer' (78%), and an even lower recognition of myeloma (38%). When the positive responders were asked how they would describe these to another person, leukaemia was most accurately linked to other key terms, such as 'cancer' (used by 70% of respondents) and 'blood' (used by 67% of respondents) in the survey than the other terms. Only 16% of people who said they were aware of the term 'leukaemia' didn't know how to describe it. This contrasted with higher proportions of positive responders not being able to describe lymphoma (36%) and myeloma (43%). For those who recognised the term 'lymphoma', only 50% described it as a cancer, using other terms such as 'lymph'/'lymphatic' and 'nodes'/'glands' instead. Similarly, of those respondents who recognised 'myeloma' only 50% linked it to the key term 'cancer', 16% to 'bone marrow', but 11% indicated the condition was related to 'skin' and 'melanoma'.

Conclusion and next steps: These results build on anecdotal evidence to show that understanding of certain blood cancers – namely lymphoma and myeloma – is low, with only half of those who recognised the disease terms knowing these were cancers. An important next step will be to test whether raising awareness and understanding, using these results as a benchmark, can increase earlier presentation and improve the patient experience. Our primary research has up until now been predominately undertaken with patients, but to get a complete picture we will similarly test awareness and understanding of blood cancers and related conditions amongst key health care professionals.

POSTER 14 - CONAN DONNELLY

Factors associated with early death in colon cancer: A nested case control study in a UK region

Authors: Conan Donnelly, Nigel Hart, Lesley Anderson, Michael Donnelly, Anna Gavin (Queen's University Belfast)

Background:

Population level studies of colon cancer survival have identified the first three months following diagnosis as critical in explaining international survival variation and survival differences between socio-economic groups in the UK. Not enough is known about the contributing factors for death in this early phase after diagnosis.

Methods:

This retrospective nested case-control study collected GP and hospital data on 1,000 colon cancer patients who survived less than 3 months from diagnosis (cases) to patients with survival greater than 6 months and less than 3 years (controls). Patients were matched by age, sex and year of diagnosis. A range of patient, disease, clinical and service characteristics were investigated including the time and pathway to diagnosis, number of service visits, treatment, co-morbidity and health seeking behaviours (e.g. uptake of flu vaccine), to identify population sub-groups who are more likely to die early with the ultimate aim of earlier interventions with such groups. Quality of cancer registration data was also assessed.

Results:

The mean age of patients that died within 3 months of diagnosis was 74.4 yrs (70.8 yrs for all colon cancer patients) and 52% were male (51.8% for all colon cancer patients). Being married, single, widowed, having an unknown marital status and increasing deprivation were associated with early death. While number of consultations (1-3 yrs pre-diagnosis) was not associated with early death, attendance for flu vaccine had a negative association (OR=0.62, CI:0.42-0.92). Increasing number of GP consultations in the 3 months before diagnosis was associated with early death (OR=1.16, CI:1.09-1.22) as was increasing out of hours appointments (OR=1.24, CI:1.11-1.41) and emergency presentations (OR=1.17, CI:1.06-1.29).

Conclusion:

This study presents important insights into the pathway to diagnosis for patients with the poorest survival as well as identifying characteristics of patients most likely to experience an early death. Further work on the role of symptom profile of patients and possible drivers of variation in patient pathways will be presented and discussed.

POSTER 15 – LINE FLYTKJÆR JENSEN

Health-related quality of life, perceived stress, and non-participation in breast cancer screening: a Danish cohort study

(The study is currently under peer-review)

Authors: Line Flytkjær Jensen^{1,2,3,4}, Anette Fischer Pedersen^{1,3}, Berit Andersen⁴ & Peter Vedsted^{1,3}

Purpose: Population-based breast cancer screening is offered in many countries to detect early stages of cancer and to reduce mortality. The efficiency depends on high participation. It is therefore important to study which factors are associated with non-participation, since many programmes are challenged by a group of non-participants. Women's assessment of own health and the amount of stress perceived may be an important factor for deciding whether to participate in the programme. These factors have only been studied scarcely with validated scales and never studied longitudinally. We investigated associations between health-related quality of life, perceived stress, and subsequent non-participation in breast-cancer screening.

Methods: This population-based cohort study included 4,512 women in the Central Denmark Region who had participated in a Health Survey in 2006 and who were also in the target group for the first public breast cancer screening programme in the same region in 2008-2009. Women between 50-69 years of age were invited to participate in the first screening round. Data on perceived stress and health-related quality of life were collected from the regional Health Survey in 2006, while data on screening participation were obtained from a regional administrative register. Data were analysed applying regression models and the results were also modelled applying cubic splines.

Results: Women with both low self-assessed physical health and women with high self-assessed physical health were more likely not to participate in the screening programme (PR=1.25, 95% CI 1.04-1.51 and PR=1.43, 95% CI 1.20-1.72, respectively) compared with women with self-assessed health status in the middle range. This together with cubic spline analysis indicated a U-shaped association between physical self-assesses health and screening non-participation and the results persisted after control for women's socio-demography. It was also found that women with the lowest mental health scores were less likely to participate than women with scores in the middle-range category (PR=1.42 (95% CI 1.21-1.67) and finally, women with the highest perceived stress scores were more likely not to participate compared with women scoring in the middle range of perceived stress (PR=1.24, 95% CI 1.04-1.47). *See next page*

Conclusions: This study indicates that women with the highest and lowest self-assessed physical health and women with lowest mental health, and highest perceived stress were more likely not to participate in breast cancer screening. This is the first study in its field which have studied this longitudinal and indicate that factors which are related to the women's own perception of health and stress are important for deciding whether to participation in screening. Targeting these groups in special interventions may be considered to promote equal participation in future breast cancer screening programmes.

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Socio-economic inequalities in stage at diagnosis, and in time from first symptom to diagnosis and treatment, for lung cancer: systematic review and meta-analysis

Authors: Dr LF Forrest ^{1,2}, Dr S Sowden ^{1,2}, Professor G Rubin ^{1,3}, Professor M White ^{1,2}, Dr J Adams ^{1,2}

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Background

Cancer diagnosis at an early stage increases the chance of curative treatment and of survival. It has been suggested that delays on the pathway from first symptom to diagnosis and treatment may be socio-economically patterned, and contribute to socio-economic differences in receipt of treatment and in cancer survival.

Lung cancer is the most common cancer, worldwide. In the UK it is the second most incident cancer, as well as the most common cause of cancer mortality, and fewer than 10% of those diagnosed with lung cancer survive for 5 years. Receipt of treatment and survival is socio-economically patterned.

This review aimed to assess the published and grey literature evidence for socio-economic inequalities in stage at diagnosis of lung cancer, and in the length of time spent on the lung cancer pathway. The interim patient, primary care, referral, diagnostic, and treatment intervals, where inequalities might occur, were examined

Methods

Systematic methods were used to identify relevant studies, assess eligibility for inclusion and evaluate quality. The online databases of MEDLINE, EMBASE and CINAHL were searched to locate cohort studies of adults with a primary diagnosis of lung cancer; where the outcome was stage at diagnosis, or the length of time spent within an interval on the care pathway (or a suitable proxy measure of this); analysed by a measure of socio-economic position. Meta-analysis was conducted when there were sufficient studies available with suitable data.

Results

Of the 454 titles screened, 34 papers were included in the review, with 15 of these from the UK. Of these 34, 13 looked at time intervals on the care pathway by socio-economic position, 20 examined stage at diagnosis (three studies looked at both time intervals and stage at diagnosis), and four used other proxy measures of delay.

There was no evidence of socio-economic inequalities in late stage at diagnosis in the most, compared to the least, deprived group (odds ratio=1.04, 95% confidence interval = 0.90 to 1.20). No consistent pattern was observed in pre-diagnostic intervals. No socio-economic inequalities in length of time from diagnosis to treatment were found.

Conclusions

Socio-economic inequalities in stage at diagnosis are thought to be an important explanatory factor for survival inequalities in cancer. However, socio-economic inequalities in stage at diagnosis were not found in a meta-analysis for lung cancer. Other patient, tumour and system factors, that might help explain socioeconomic inequalities in receipt of treatment and lung cancer survival, need to be investigated.

POSTER 17 – CAROLYNN GILDEA

Variations in usage of the urgent GP referrals for suspected cancer system in general practice

Authors: Carolynn Gildea, Matthew Barclay, David Meechan

Background

Early diagnosis is an important part of the cancer outcomes strategy and, within this, the urgent GP referral for suspected cancer (two week wait – 2ww) system plays a key role. Practice level information on referral, conversion and detection rates has been included in the GP practice profiles for cancer for all five releases.

Method

Cancer Waiting Times (CWT) data were used to derive three measures included in the GP practice profiles for cancer, namely:

- Referral rate – number of two week wait referrals as a standardised rate
- Conversion rate – percentage of 2ww referrals resulting in a diagnosis of cancer
- Detection rate – percentage of CWT recorded cancers which resulted from a 2ww referral

This analysis considers the distribution of and variation between practice-level referral, conversion and detection rates, and considers how these variations have changed over time.

Results

Since 2009/10, there has been a notable reduction in variation in referral, conversion and detection rates between practices. However, there remains considerable variation for all three metrics even when considering only the middle 50% of practices (and so excluding particularly low or high rates). For 2013/14, the interquartile ranges were:

- Standardised referral ratio - 67% to 110%
- Conversion rate - 6.8% to 12.3%
- Detection rate - 40.0% to 56.6%

Conclusions

There are significant differences in the way GP practices use the two week wait referral system for the diagnosis of cancer. With better understanding of the variations and reasons for this, it is hoped that information on best working practices can be shared for collective improvement.

Acknowledgements

Cancer Waiting Times data was obtained from the National Cancer Waiting Times Monitoring Dataset, provided by NHS England.

POSTER 18 – CAROLYNN GILDEA

Breast cancer in women over 70 “Be Clear on Cancer” awareness - What impact did it have on urgent GP referrals for suspected cancer?

Authors: Carolynn Gildea, Sue Wild, Matthew Barclay, Alexandra Thackeray

Background

In February - March 2014, a national “Be Clear on Cancer” awareness campaign ran to highlight the continuing risk of breast cancer in women over 70. The campaign supported initiatives to diagnose cancer earlier by raising public awareness of cancer symptoms and encouraging those with symptoms to see their GP.

This campaign differed from other Be Clear on Cancer campaigns by highlighted the continuing risk of cancer, rather than specific symptoms alone. With consideration of the target age group, it also ran with a more daytime focus than other campaigns.

Campaign evaluation included an assessment of the impact on urgent GP referrals for suspected cancer (Two Week Wait – 2ww) and related diagnostic metrics.

Method

Cancer Waiting Times (CWT) data were used to consider changes in the number of 2ww referrals, the number and percentage of 2ww referrals resulting in a diagnosis of cancer (conversion rate), the number of CWT recorded cancers and the percentage of these which resulted from a 2ww referral (detection rate).

Results

The campaign resulted in increased numbers of 2ww referrals. For women aged 70 and over, there were 67% more combined breast referrals (including referrals for suspected breast cancer and breast symptom referrals) in February-April 2014 than in February-April 2012.

For months during the campaign and immediately afterwards, the related diagnostic metrics showed significant increases in the number of breast cancer diagnoses resulting from a 2ww referral and recorded in CWT data, for women aged 70 and over.

Conclusion

The effect on 2ww referral activity is an important part of the campaign evaluations. This work demonstrates that the campaign captured public attention, resulting in many discussing symptoms with GPs and consequently accessing secondary care.

Acknowledgements

Cancer Waiting Times data was obtained from the National Cancer Waiting Times Monitoring Dataset, provided by NHS England.

POSTER 19 – TRISH GREEN

Title: Cancer detection in primary care: insights from general practitioners in England

Authors: Trish Green and Una Macleod, Hull York Medical School, University of Hull, UK

Abstract

Background: Although previous work has included GP perspectives in cancer specific studies, to date there has been limited investigation of GPs' understanding of awareness and early detection of cancer in relation to general practice. To address this gap we aimed with our study to explore the role of GPs with regard to cancer awareness, screening and early detection, and reveal the challenges GPs might experience in respect to these issues and in the context of ongoing changes within the NHS. The overall purpose of our study was to understand cancer diagnosis from the perspective of GPs, and to develop a framework for conceptualising the potential of the GP role to improve cancer recognition and referral in primary care.

Methods: Individual face-to-face semi-structured interviews were conducted from May 2012 to April 2013 with 55 GPs located in practices in the North and North East of England (n.40) and Greater London (n.15). Purposive sampling ensured the demographic diversity of practices. GP participants were equally diverse regarding gender, ethnicity, age, years in practice and position held. All interviews were recorded and professionally transcribed verbatim. Data were uploaded to the software package NVivo and repeated reading and co-coding engendered thematic analysis across the interview material.

Results: Data revealed GP ambivalence around some cancer screening programmes, which proved challenging in face-to-face interactions with patients. Public awareness campaigns were perceived to impact the 'worried well', with little effect on 'hard to reach' patient groups in some areas. The issues of insufficient consultation times, limited resources and poor access to diagnostic tests emerged as barriers to earlier cancer detection. The majority of GPs supported awareness raising campaigns and perceived their role was to reinforce public health messages during consultation. Participants raised concerns with regard to ongoing changes to the GP remit and articulated a tension between resource management and patient advocacy. We have categorised these findings into three main themes that we propose formulate the challenges GPs face as gatekeepers in the NHS; these are related firstly, to the burden of cancer as a potential diagnosis in general practice, secondly, GPs' perceived fragmentation of NHS services and care and thirdly, the interface between primary care and public health.

Conclusion: This paper provides extensive insight into the role of primary care in the earlier detection of cancer from the perspective of GPs, who occupy a challenging but pivotal role in this endeavour. It is crucial this role be supported by policy and research.

8 in 100 gastric cancers are potentially missed at endoscopy

Authors: Chadwick G, Riley S, Hardwick R, Crosby T, Hoare J, Hanna G, Cromwell D.

Abstract

Background & Aims: Single-centre studies have estimated that 4.6%–25.8% of gastric cancers are missed at endoscopy. We performed a population-based study to make a more precise estimate of factors associated with missed lesions in England.

Methods: We performed a retrospective population-based observational cohort study of 2727 patients diagnosed with gastric cancer from April 2011 through March 2012 in England, using linked records from 3 national datasets. The primary outcome was the proportion of patients who had undergone endoscopy in the 3–36 months before diagnosis of gastric cancer. We determined this proportion for the entire cohort and for subgroups.

Results: Of the 2727 patients in the cohort, 8.3% (95% confidence interval, 7.2%–9.3%) had undergone endoscopic evaluation in the 3–36 months before their diagnosis of gastric cancer. An endoscopy within 3–36 months of diagnosis was associated with diagnosis of early-stage cancer (stage 0 or 1, 11.5% vs stage 2, 7.9%; stage 3 or 4, 6.9%; $P=.01$ for stage 0 or 1 vs stage 2 or greater), younger age at diagnosis (<55 years, 13.3% vs ≥ 55 years, 7.8%; $P=.03$), and female sex (10% of women vs 7.3% of men; $P=.01$). Gastric ulcers were detected in 15% of endoscopies performed at any time in the 3 years prior to cancer diagnosis, and in 64% of endoscopies performed 3–6 months before a diagnosis of gastric cancer.

Conclusion: Based on a retrospective analysis of medical records in England, in 8.3% of patients with gastric cancer, their cancer was missed at endoscopy within the 3 previous years. Previous endoscopy detected benign gastric ulcers more frequently than any other lesion in patients later diagnosed with gastric cancer.

POSTER 21 – MUBARAK ISMAIL

Assessing, Developing and Piloting Information Support Tools to Increase Knowledge, Satisfaction and Awareness of Cancer, Screening and Treatment among the Muslim Communities.

Authors: Mubarak Ismail, Anil Gumber and Karin Collins

Background

Despite persuasive evidence that early cancer screening leads to early detection and treatment of cancer not all minority and ethnic groups have equal access to National Health Screening (NHS) programs in the UK (Szczepura et al. 2008). Furthermore there is a considerable knowledge gap in ethnic minority communities living in UK on cancer and cancer screening programs and earlier research has shown that the uptake of cancer screening is lower among ethnic minority groups. Additionally, some of the cancer screening programmes (e.g. the breast or cervical screening) are running over several years and despite media and social marketing efforts by the NHS, the cancer screening uptake in certain SA communities has not improved over time. The purpose of this study is to identify current knowledge prevalent in Muslim community about cancer in general, cancer screening programmes and their benefits as well as underlying socio-cultural and system barriers in using such services, and to identify sources of psychosocial cancer support within Muslim communities. As well as developing, and piloting effective health promotion materials on cancer after mapping their knowledge, attitudes, beliefs, and practices to cancer and its treatment services based on existing cancer screening promotional materials.

Methods

This project draws upon the principals of participatory research, where members of the Muslim communities and organisations have worked in partnership with the research team. In Manchester EHF was commissioned the field work in Manchester, recruitment of bilingual facilitators and conducting the focus groups. Six community bilingual facilitators were recruited, three male and three female by Ethnic Health Forum (EHF), this is to reflect diversity of age, gender, culture and social network. The facilitators spoke different languages mainly (Arabic, Somali and Urdu/Bengali) this was to reflect the ethnic diversity of the targeted population. Seven focus group discussions were carried out with 52 participants from the Muslim communities in Manchester and Sheffield. Men and women focus groups were held separately; plus one focus group with faith leaders, Imams and Islamic scholars, this to explore difference in attitudes, knowledge and perceptions among Muslims and their religious scholars and also to highlight the extent of faith in psychosocial support among Muslims. Focus groups had between 8 to 10 participants from different socio-economic backgrounds and age profiles to ensure maximum phenomena variation (Murphy et al.1998). In addition snowballing sampling techniques were used to identify participants who are not members of established community groups. All focus groups discussions were tape recorded. The FGD sessions were facilitated by community facilitators who speak the same language, same gender and observed by one member of the research team.

Findings

Health seeking behaviour was constrained by lack of knowledge of cancer symptoms and signs, limited awareness of cancer screening services, fear of being diagnosed, language barriers. Majority of the participants believed that if someone gets cancer it's "God's will" and it is "death sentence", believing that there is no cure for cancer. Participants positively associated the psychological support from reading the Quran, seeking advice from Islamic scholars, imams when a serious illness occurs. They also stated that the existing promotional material does not clearly indicate how to seek help and are not reaching the target groups. Participants suggested that communications strategies could be improved through outreach and working with local health providers particularly general practitioners.

Conclusion

The finding of this study suggest that cancer awareness and education programs and tailored health messages that are delivered in partnership with local Muslim community organisations will have the greatest potential to increase awareness and uptake of cancer screening programs among Muslim populations in the UK.

Keywords

Cancer, cancer screening programs, uptake of cancer services, Muslims, health promotion,

Standardised cancer patient pathways ('fast-track') in Denmark: How is it used by the GP and what impact did 'fast-track' have on diagnostic interval across time?

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Background: Standardised cancer patient pathways (CPPs) have been widely introduced in many countries (2-week-wait in the UK). The decision to initiate a CPP for a particular patient is a key issue in CPP standardisation. The GP's decision is assumed to be influenced by his or her suspicion of cancer based upon the interpretation of the patient's symptoms. Yet, no study has examined the relationship between the GPs symptom interpretation and CPP referrals. Furthermore, studies are sparse on the impact of CPP implementation on the diagnostic interval (DI) across time as most studies do not have a baseline measure nor distinguish between referral routes.

Aims: First, we aimed to estimate how often GPs suspect cancer among incident cancer patients presenting symptoms in general practice and to analyse to what extent the GP's interpretation of symptoms may predict the choice of referral to a CPP.

Second, we aimed to compare the length of the DI in 2010 with the length of the DI before and during the introduction of standardised CPPs in Denmark.

Materials and methods: To estimate cancer suspicion we conducted a cross-sectional study (n=3,823). We grouped patients according to the GP's symptom interpretation and estimated the prevalence ratios (PR) of initiating a CPP as a function of the GP's symptom interpretation using Poisson regression.

We compared the DI across time as a natural experiment by identifying incident cancer patients listed with a GP before (2004/2005), during (2007/2008) and after (2010) the implementation of CPPs (n=12,558). We used quantile regression analysis to estimate adjusted changes in DI at different percentiles accounting for case-mix.

Results: In 48.2% of cases, the GP suspected cancer, and the GP used CPP in 37.2% of all cases. Patients were less likely to be referred to a CPP if they presented with symptoms suggestive of other serious illnesses (PR=0.40 (95%CI: 0.34;0.48)) or with vague symptoms (PR= 0.53 (0.48;0.60)) compared to patients with alarm symptoms suggestive of cancer.

The median DI decreased significantly for all patients combined; from 49 (24;96) days in 2004/05, to 35 (16;78) days in 2007/08 (p<0.001) and 32 (14;73) days in 2010 (p<0.001). The median DI was 14 (95%CI: 11;16) days shorter during transition than before and 17 (95%CI: 15;19) days shorter after than before the implementation of CPPs.

The 75th percentile was 27 (20;34) days shorter after than before the implementation. For patients referred to a CPP, the 75th percentile was 46 (95%CI: 41;51) days shorter than before, and for patient not referred to a CPP the 75th percentile was 11 (95%CI: 1;21) days shorter compared to before the implementation. *SEE NEXT PAGE*

Discussion

The findings show that the GP suspects cancer more often than (s)he initiates a CPP, and that patients not presenting alarm symptoms of cancer are less likely to be referred to a CPP. Furthermore, we found that the DI was shorter after than before CPP implementation. However, the DI was significantly shorter after the implementation for patients referred to a CPP than patient not referred to a CPP.

Differences in information engagement between accepters and decliners of organised cancer screening in England: implications for communication and informed choice

Authors: Lindsay C Kobayashi, Jane Wardle, Christian von Wagner, Siu Hing Lo, Charlotte Vrinten, Jo Waller

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Background: We aimed to investigate whether accepters and decliners of the invitation to faecal occult blood test (FOBT) screening with the NHS Bowel Cancer Screening Programme appear to be making informed choices based on their reported reading of the programme's informational booklet.

Methods: Data were from 1,261 bowel cancer screening-eligible adults aged 60 to 70 years in a population-based survey ("Attitudes and Behaviour Cancer-UK Survey", ABACUS) conducted in England from January through March 2014. Survey respondents were categorised as being "informed" or "uninformed" based on whether they reported having read the standard informational booklet ("Bowel Cancer Screening: The Facts"). This variable was combined with self-reported completion of at least one FOBT to classify respondents as being "informed accepters", "uninformed accepters", "informed decliners", or "uninformed decliners" of the screening invitation. Knowledge about the purpose of screening was compared across these four groups.

Results: Overall, 71% (897/1,261) of respondents reported having completed at least one FOBT (screening accepters). The majority of screening accepters reported having read "The Facts" booklet (88%; 789/897; "informed accepters"), while 12% had not read it (108/897; "uninformed accepters"). By contrast, only 26% of screening decliners had read "The Facts" (93/364; "informed decliners"), while 74% had not read it (271/364; "uninformed decliners"). When knowledge about the purpose of screening was compared across groups, 35% of the informed decliners (33/93) and 50% of the uninformed decliners (133/268) incorrectly responded that bowel cancer screening is only for people with symptoms. By contrast, few screening accepters incorrectly responded to this question (9% [74/789] of informed accepters and 14% [15/108] of uninformed accepters).

Conclusions: The majority of adults who decline the offer of FOBT screening through England's national programme do not appear to have made an informed choice based on the provided informational material. In line with the policy of informed choice, more needs to be done to increase engagement with the cancer screening offer among those who have not screened.

Evaluation of a minimally-invasive cell esophageal cytology collection system, the Cytosponge™ Cell Collection Device, in patients with Barrett's esophagus

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Background: Barrett's esophagus (BE) predisposes to esophageal adenocarcinoma but remains commonly undiagnosed. While the main gastroenterology societies recognise that patients with multiple risk factors should be screened for BE, they also recognise that routine endoscopic screening is unfeasible. We have previously proven that the Cytosponge-TFF3 test allowed for a cost-effective and accurate diagnosis of BE. A more refined version of the device, the Cytosponge™ Cell Collection Device, has been developed by Covidien GI Solutions following the specifications of the original device with methods for reproducibility and automated manufacture, and with changes to maximise user acceptability. The aim of this study was to demonstrate the performance of the Cytosponge™ for diagnosing BE.

Material and methods: In this multicentre, secondary care, prospective study, we recruited 73 patients under surveillance for BE with recorded intestinal metaplasia and a minimal circumferential length of BE of C1 or at least a maximal length of M3 in patients without circumferential BE. Patients were invited to swallow the Cytosponge™ on the same day, before their surveillance endoscopy. Basic clinico-demographics were recorded and the patients scored their experience of the Cytosponge™ on a visual analog scale ranging from 0 to 10 (0 being the worse experience and 10 the best experience). Any Cytosponge™ induced abrasions seen at endoscopy were graded. The Cytosponge™ samples were processed as described previously (Ross-Innes PLoS Med, 2015) and stained for the BE marker TFF3.

Results: Seventy-two (98.6%) patients successfully swallowed the Cytosponge™. One patient who failed to swallow the Cytosponge™ was willing to try again on a different day. The median experience score for the Cytosponge™ was 8 (6-10). Chest pain was reported in 1 patient who underwent a planned 5 piece EMR during their post-Cytosponge™ endoscopy; the patient was admitted overnight. One patient was found not to have BE at endoscopy and was withdrawn from the study. The median maximal length of BE was 4 cm (IQR 3-6) with 11 patients having a length of COM1 or COM2 and 60 with at least C1, or at least COM3. Abrasions were seen in 95% of patients with 22.8% having oozing categorised as Grade 3 or 4 which is at worst similar to that seen from a biopsy site. The overall sensitivity of the Cytosponge™-TFF3 test was 91.5% (65/71 positive, 2 negative due to inadequate sampling (no columnar cells) and 4 TFF3 negative). When stratified for length the sensitivity was 90.1% for COM1-2 and 91.7% for patients with at least C1, or COM3.

Conclusions: The Cytosponge™ is safe, acceptable and has sensitivity above 90% for BE. Further validation is required to test specificity and to ensure that the performance is maintained in an enlarged study cohort.

What can ‘candidacy’ tell us about symptom appraisal? Accounts from colorectal cancer patients

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Introduction/Background: Colorectal cancer (CRC) is common and timely diagnosis in symptomatic patients can greatly improve outcomes. Previous work in this area has shown that early diagnosis may be impeded by patient, provider and system factors. Patient awareness of the warning signs of CRC is typically low and failure to appreciate seriousness of symptoms has been well documented. Making causal links between symptoms and possible cancer requires individuals to consider whether they may be at risk of cancer and appraise symptoms accordingly.

Candidacy has its origins in studies of heart disease and provides a shorthand aid to the collective estimation of risk. By drawing on an amalgam of evidence from personal, social and socio-cultural spheres ‘candidates’ are identified as those who are most, or least, likely to suffer illness. ‘Candidacy’ is essentially a heuristic device that shifts emphasis from individual risk attribution to a shared understanding of risk. Here we present findings from a study that explored the role of ‘candidacy’ in perceptions of colorectal cancer, and in particular the potential impact of ‘candidacy’ in symptom appraisal.

Method: We conducted a secondary analysis of 24 interviews with CRC patients which originated from a study that explored the patient experience of the primary/secondary care interface post-diagnosis. As the interviews contained unanalysed narrative accounts of responses to diagnosis we sought to explore whether cancer ‘candidacy’ featured in CRC patients’ retrospective accounts and whether this influenced symptom appraisal. Transcripts were re-analysed and coded by two researchers and an analytic framework that focused on three key themes: symptoms; diagnosis; and risk, was constructed. Nvivo software was used to organise the data.

Results: Few participants identified themselves as ‘candidates’ and many remained clear that they met none of the criteria for risk pre-diagnosis. Others re-evaluated their risk post-diagnosis and sought causal explanations, often centring on familial links. Although many had classic symptoms of CRC, most notably rectal bleeding patients consistently described their symptoms as mild and/or vague. Indeed many had a history of bowel symptoms which reinforced the tendency to normalise symptoms. Nevertheless accounts of delayed help-seeking were rare. All reacted to a CRC diagnosis with ‘shock’. Importantly, shock was contextualised by three issues: the ‘hazy’ and mild nature of symptoms; expectations, based on previous experience of benign bowel diagnoses; a feeling of general ‘wellness’. *SEE NEXT PAGE*

Conclusions: Symptom appraisal is often characterised as a deliberative decision by patients not to seek help for symptoms because they suppose they are minor. Our data show that few saw themselves as ‘at risk’ of CRC, many experienced mild symptoms and as such did not consider earlier help-seeking. Symptoms were retrospectively considered in the context of what cancer symptoms ‘should feel like’, and this did not match their experience. We conclude that appraising mild, vague symptoms is problematic for patients as this does not tally with the pervasive socio-cultural perception of cancer as the most serious of diseases. There is scope within existing frameworks of delay to include such features of the macro level socio-cultural context which will aid our understanding of the complex ‘appraisal phase’.

POSTER 26 – GRACE MCCUTCHAN

Title: A systematic review of cancer symptom knowledge, attitudes and beliefs about cancer symptom presentation.

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Abstract

Introduction: Early diagnosis of cancer can improve survival (Sant et al, 2003). This can be achieved through early detection of cancers, which in part relies on the patient presenting promptly to their GP with a symptom of cancer. It has been consistently reported that people from a low socioeconomic (SE) group present to their GP with more advanced stage cancers, and are less likely to survive cancer (Cancer Research UK, 2014). Possible reasons that people might delay going to see their doctor with a symptom are low awareness of cancer symptoms and negative beliefs about cancer (Richards, 2009); however, there has been little focus on socioeconomic inequalities within this.

The current systematic review aimed to examine the evidence regarding relationships between knowledge of cancer symptoms, beliefs and barriers to symptomatic presentation. Where studies measured SE group, findings are reported separately to understand the role of SE group differences in delayed symptomatic presentation.

Methods: The search was developed in accordance with systematic review guidelines. Four electronic databases were searched: EMBASE, MEDLINE, PsychINFO and CINAHL. Ten percent of references retrieved were reviewed independently by a second reviewer. Included studies measured two or more of the following: knowledge for cancer symptoms, beliefs about cancer, barriers to symptomatic presentation and time to symptomatic presentation.

Results: Database outputs were 1213 studies. 1010 studies were excluded by title and abstract. A further 203 studies were read in full, 103 studies met inclusion criteria. Sixty-nine studies measured SE group.

Although knowledge of 'classic' cancer symptoms (e.g. a lump) was good overall, knowledge for vague symptoms (e.g. fatigue) was poor. Studies measuring actual symptomatic presentation found poor knowledge was associated with longer delays in presenting to a primary care physician.

Fearful and fatalistic beliefs about cancer were usually based on personal experience (e.g. looking after family or friends with cancer). Fearful beliefs were typically associated with extremes of presentation i.e. either prolonged or immediate. Fatalistic beliefs about cancer led to long delays in symptomatic presentation.

When SE group was measured, a knowledge gradient was found: individuals from a low SE group had the lowest knowledge for cancer symptoms when compared to high SE groups. Those from a low SE group tended to report more fearful and fatalistic beliefs about cancer. Low SE groups reported the shortest time to intentioned symptomatic presentation, however when actual symptomatic presentation was measured, low SE groups presented late to their GP with more advanced stage disease. The time between symptom disclosure (to a family member or friend) and a visit to a primary care physician was longest in low SE groups.

Discussion: While knowledge is essential to be able to appraise potential cancer symptoms as requiring prompt medical attention, there are other psychological factors influencing the individual's decision to visit to a primary care physician with a symptom. Low knowledge combined with some negative beliefs about cancer may partly explain why people from low SE groups delay symptomatic presentation and are diagnosed with more advanced stage cancers.

Conclusion: There is a need for targeted interventions to improve cancer symptom knowledge, promote the benefits of early diagnosis and moderate negative beliefs about cancer in low SE groups.

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Risk factors for emergency diagnosis of colorectal and lung cancer: a systematic review

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BACKGROUND: Research using routinely collected health data shows that around a quarter of cancer patients are initially diagnosed during an emergency presentation to hospital. In the UK, patients who are diagnosed with cancer in this way have poorer outcomes than patients diagnosed following referral to hospital by their GP through the usual fast track system. While some of these emergency presentations will occur because of sudden onset of symptoms, we know very little about what happens to patients in the period before they present to hospital as an emergency. Understanding this in more depth will enable the development of interventions designed to prevent or reduce such diagnoses. The purpose of this study was to establish what is already known by conducting a literature review to identify patient and practitioner related risk factors that influence cancer diagnosis via emergency presentation, using colorectal and lung cancer as exemplars.

METHODS: We carried out a systematic review to identify world literature from 1996 to March 2014, using electronic bibliographies (MEDLINE, EMBASE, CINAHL, Science Citation Index, and Social Sciences Citation Index), evidence-based medicine resources (including Cochrane Database of Systematic Reviews), and the grey literature (Conference Proceedings Citation Index-Science and Conference Proceedings Citation Index-Social Science and Humanities). No language or study design restrictions were applied. We included studies involving individuals/groups of patients or primary care practitioners and considering colorectal or lung cancer diagnosed via emergency presentation.

RESULTS: A total of 927 articles were identified, of which 49 appeared to meet the inclusion criteria and were subject to detailed review. Twenty-two studies with over 200,000 emergency presentations (mean 10,125; median 178) were included in the final analysis. Older patient age was associated with emergency presentation for both lung and colorectal cancer (OR 1.11-11.03 for older lung cancer patients, and 1.19-5.85 for older colorectal cancer patients). Women were more at risk of emergency presentations for lung cancer but not colorectal cancer. Higher deprivation increased the likelihood of lung cancer EP but evidence for colorectal cancer was less conclusive. Being unmarried (or divorced/widowed) increased the likelihood of EP for colorectal cancer. It was also associated with symptoms of pain, obstruction and weight loss. Lack of a regular source of primary care, and lower use of primary care were negatively associated with emergency presentations. Patients diagnosed in the emergency department had significantly more ED visits before diagnosis than patients diagnosed in other settings (mean lung 0.61 vs. 0.33; colorectal 0.58 vs. 0.29; $p < 0.05$).

CONCLUSIONS: Evidence from this review has demonstrated that patient-related factors, such as age, gender and deprivation, have an influence on diagnosis of cancer during an emergency presentation, and that cancer symptoms and patterns of health care utilisation are also relevant. However, further work is needed to understand the context in which risk factors for emergency presentation exist and influence help-seeking.

POSTER 28 – MEL MORRIS

Ethnicity, deprivation and screening: an analysis of survival from breast cancer among screening-eligible women in the West Midlands diagnosed from 1989 to 2011

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Background

Previous research has found inequalities in breast cancer survival by ethnicity and deprivation. The impact of screening on these differences in survival has not been studied. Linked datasets and new analytic techniques are used in this study, which aimed to examine ethnic and deprivation-specific survival for women with screen-detected and non-screen-detected breast cancer, in order to establish whether there are disparities in the presence of a well-established screening programme.

Methods

We used cancer registry data from a centre of excellence, the West Midlands Quality Assurance Centre, linked with breast screening records, Hospital Episode Statistics and mortality data up to 2012. We analysed women aged 50-70 who would have been invited for screening continuously from around their 50th birthday onwards and who were diagnosed with breast cancer between 1989 and 2011 (N=20,283). Self-reported ethnicity data was 90% complete. We then imputed ethnicity for the remaining 10% using name recognition software. Ethnicity was categorised into the three main groups: Asian, Black and White. Deprivation was assigned on the basis of the woman's postcode. We applied either the Townsend score for 2001 or the Income Domain of the Index of Multiple Deprivation for 2001, 2004, and 2007. The score most contemporaneous to the woman's date of diagnosis was used. Results are reported for grouped categories of: less deprived (quintiles 1 and 2) and middle/more deprived (quintiles 3-5). We estimated net survival corrected for lead time bias. We used ethnic- and deprivation-specific life tables to correct for background mortality.

Results

Although Black women showed consistently lower overall net survival from breast cancer than the other groups, no significant differences in survival were found for the different ethnic groups. Survival by extent of disease was similar for all ethnicities. Adjusting for deprivation, there were no significant differences for Asian or Black women although Black women from the more deprived groups displayed a survival disadvantage. For the White group, where numbers in all deprivation groups permitted robust analysis, clear deprivation differences were found in five-year net survival: 90.0% (95% CIs 89.2%-90.8%) in less deprived groups, but 86.6% (95% CIs 85.9%-87.4%) in the more deprived. Screening benefitted all ethnic and deprivation groups with no evident ethnic differences within screening categories. Whether screen-detected or not, women in lower deprivation categories had significantly poorer survival, with a difference of 16% in five-year survival between less deprived women who were screen-detected (94.0%, 95% CIs 93.1%-95.1%) and more deprived women who were not screen-detected (78.0%, 95% CIs 76.7%-79.2%).

Conclusion

We estimated up-to-date net survival from breast cancer among ethnic and deprivation groups by screening status using newly-developed life tables. The three main ethnic groups differed little in their experience of breast cancer survival. While screening conferred a survival benefit to all, there were still wide disparities in survival by deprivation. Further research should examine the underlying reasons for these differences, in particular whether earlier diagnosis could improve survival among the more deprived groups.

POSTER 29 – PETER MURCHIE

Preliminary Results from the NASCAR database: The North of Scotland Cancer and Residence Database.

Authors: Yuhan Ong, Melanie Turner, Shona Fielding, Peter Murchie

Background: Cancer treatment in the UK is generally delivered in large-cancer centres within major cities. This could have a detrimental effect on outcomes for people from rural areas who develop cancer. There is some evidence from the world wide literature that rural dwellers present later and have poorer cancer outcomes than those from cities. However, it is currently unknown whether a persons' geographical location within the UK has implications for the timeliness of their receipt of a diagnosis and treatment for cancer. We have constructed a detailed database of over 11,000 people diagnosed with cancer in North Scotland since 2006 to explore this issue.

Aim: To discover if a person's distance to key health service facilities (GP practice, hospital of diagnosis, hospital of treatment) affects cancer pathway intervals and outcomes.

Method: A retrospective cohort of over 11,000 patients diagnosed with eight common cancers in North Scotland since 2006 has been formed from the NHS Grampian Cancer Care Pathway database. This is a clinical tracking database collected to determine compliance with Scottish NHS cancer targets. We are in the process of linking these data to the Scottish Cancer Registry; Death Registry, and accurate GIS measures of travelling distances to key health service facilities. A preliminary analysis has been conducted to determine the effect of distance from services on cancer intervals, metastatic disease at diagnosis, treatment received and survival.

Results: Of the 11 277 patients included in the preliminary analysis (mean age 66.8 ± 12.9 years, 45.7% male), the highest proportion lived within one mile of their GP practice (34.4%) and five miles of the cancer centre (29.7%). Distance to GP practice was not a significant predictor of any outcome. Distance to cancer centre was not associated with survival. However, increased distance to cancer centre predicted shorter diagnostic intervals (not clinically significant) and treatment intervals (5–10 miles [OR, 0.795; CI, 0.675–0.938], 30–60 miles [OR, 0.849; CI, 0.743–0.971] and >60 miles [OR, 0.707; CI, 0.617–0.811]); metastatic disease (30–60 miles [OR, 1.290; CI, 1.000–1.665] and >60 miles [OR, 1.356; CI, 1.049–1.752]; and surgical treatment (30–60 miles [OR, 1.323; CI, 1.137–1.541] and >60 miles [OR, 1.194; CI, 1.027–1.388]).

Conclusion: In this preliminary analysis increased distance to cancer centre is associated with shorter diagnostic and treatment intervals, and increased likelihood of metastatic disease at diagnosis and receiving surgical treatment. No effect on survival has been observed. Analysis is ongoing and further explanatory variables are being added to the dataset. Further interim analyses will be available for presentation at the conference in March.

Evaluation of Talk Cancer, a cancer awareness training programme for community-based health staff and volunteers

Authors: Kirstie Osborne, Emily Power, Leanne Crook, Caroline Philpott, Helen George

Background

Cancer Research UK's cancer awareness training programme, Talk Cancer, aims to equip and empower frontline health staff and volunteers to raise cancer awareness and promote health behaviour change in their community. Each interactive workshop aims to increase knowledge of messages around prevention, screening and early diagnosis, and improve confidence in talking to the public about these issues. This study assessed the effect of workshops conducted across England between April, 2013, and March, 2014.

Methods

Surveys before and after each workshop were completed by 346 (73%) of 473 trainees on the same day as training, and 14 in-depth qualitative telephone interviews were conducted with attendees recruited opportunistically. Surveys measured awareness of nine risk factors for cancer and of the three National Health Service cancer screening programmes, associations with the word cancer, and confidence to discuss four cancer-related topics with members of the public. Differences in responses before and after the workshops were analysed using chi-square. Interview transcripts were analysed thematically, and themes were independently verified by two researchers. Quantitative telephone interviews are currently being conducted with 200 trainees, two months after training. This will identify the sustainability of any changes made and the impact of training on conversations about cancer.

Findings

Survey data indicated that awareness of all nine risk factors significantly increased (from 28% [67/240] before the workshops to 52% [131/251] after, $p < 0.0001$) as did awareness of all three screening programmes (76% [218/287] to 98% [280/286], $p < 0.0001$). Feeling fairly or very confident to discuss all four cancer-related topics also increased significantly (35% [92/263] to 98% [263/269], $p < 0.0001$). Trainees most commonly associated words related to hope and survival with cancer after the workshops and words related to death and fear before the workshop. Interviewees reported feeling more open to the topic of cancer and more able to initiate and manage conversations about cancer. They also reported learning about the link between lifestyle and cancer and the importance of early diagnosis and said they were disseminating early diagnosis messages.

Interpretation

Talk Cancer training increased awareness of prevention and early diagnosis and increased confidence to talk about cancer. It helped trainees feel more open about cancer and more able to have conversations with the public, particularly about the importance of early diagnosis. Although post-workshop surveys were completed immediately after the workshops and the sample for interviews was small and self-selected, use of quantitative and qualitative methods helped verify findings and enrich results.

Barriers to early diagnosis of symptomatic breast cancer a qualitative study of black African, black Caribbean and white British women living in the UK

Objectives: To understand barriers to early diagnosis of symptomatic breast cancer among Black African, Black Caribbean and White British women living in the UK.

Design: In-depth qualitative interview study using grounded theory methods to identify themes. Findings validated through focus groups.

Participants: 94 women aged over 18 years. 20 Black African, 20 Black Caribbean and 20 White British women diagnosed with symptomatic primary breast cancer were interviewed. 14 Black African and 20 Black Caribbean women with (n=19) and without (n=15) breast cancer participated in 6 focus groups.

Setting: Eight cancer centres/hospital trusts in London (n=5), Somerset (n=1), the West Midlands (n=1) and Greater Manchester (n=1)

Results: There are important differences as well as similarities in barriers to early diagnosis of breast cancer between Black African, Black Caribbean and White British women in the UK. Differences were influenced by country of birth, time in UK and age. First generation Black African women experienced most barriers and longest delays. Second generation Black Caribbean and White British women were similar and experienced fewest barriers. Absence of pain was a barrier for Black African and Black Caribbean women but not White British women. Older White British women (≥ 70 years) and first generation Black African and Black Caribbean women shared conservative attitudes and taboos about breast awareness. All women viewed themselves at low risk of the disease, and voiced uncertainty over how to be breast aware and difficulty appraising non-lump symptoms. Focus groups findings validated and expanded themes identified in interviews.

Conclusions: Findings challenged the reporting of Black women homogenously in breast cancer research. This can mask distinctions within and between ethnic groups. Current media and health promotion messages need reframing to promote early presentation with breast symptoms. Working with communities and developing culturally appropriate materials may break down taboos and stigma, raise awareness, increase discussion of breast cancer and promote prompt help-seeking for breast symptoms among women with low cancer awareness.

Supplementing factual information with patient narratives in the cancer screening context: A qualitative study of acceptability and preferences

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Abstract

Objective: To explore people's responses to narrative information in the context of bowel cancer screening.

Methods: 19 in-depth interviews were conducted with men and women (aged 45 to 59). Participants were given two types of bowel screening information to read: factual and narrative. Participants gave their views on both types of information. Data were analysed using Framework Analysis.

Results: The most frequent responses to the narrative information were that they were reassuring, made bowel screening more vivid, participants could relate to the people in the stories, and they liked the range of narratives presented. Despite the narrative information being seen as more persuasive by some, this was not regarded as manipulative or negative. Both types of information were seen as equally credible. Participants felt a combination of facts and narratives would be useful when considering an offer of bowel cancer screening.

Conclusion: Overall, participants were positive about the addition of narrative information to the currently provided factual information about bowel cancer screening. Supplementing existing factual information in bowel cancer screening invitations with narrative information may provide participants with a more complete understanding of bowel screening participation.

POSTER 33 – LESLIE ROBINSON

Word of Mouth Mammography e-Network (WOMMeN) project

Authors: Leslie Robinson, Cathy Ure, Julie Wray, Marie Griffiths, Cathy Hill, Geraldine Shires, Julie Stein-Hodges, Kathryn Burke, Bev Hilton

Our aim is to create and critically evaluate a digital social network (DSN) to enable women to share stories of breast-screening mammography in order to improve experience and inform choice.

In the UK, women within a specific age range are invited for mammography screening every three years. During this examination the breasts are compressed tightly between two plates. This is associated with high anxiety, not only due to expectations of pain, but also the potential for a positive diagnoses (i.e. that a cancer could be discovered), false positive results, and the application of radiation to the breast. Research has shown anxiety related to such fears can result in non-attendance (Dibble et al 2005) and, for some, heightened experiences of pain (Robinson et al 2013).

However, we found that women attending for mammography do not appear to be well informed (Robinson et al 2013). Although they received NHS Breast Screening Programme information leaflets, women in our study said these were not memorable and preferred listening to stories told by their friends and relatives in order to visualise just what breast screening might entail. Others have found a similar preference for word of mouth methods (Bilodeau and Degner 1996, and Poulos and Llewellyn 2005).

Furthermore, 73% of women between 30 and 49 years of age use *on-line* social networking sites reflecting the up-coming population of first-time attenders for mammography breast screening (Brenner 2012). The purpose of our DSN is therefore to respond to women's preferences for word-of-mouth methods to reduce their anxieties about breast screening mammography by exploiting the notion of on-line social networks. This also reflects NHS policy to improve patient access to on-line user-generated information (DOH 2010).

The project has three distinct units:

- i) User-involved design of the DSN:
- ii) On-line Evaluation of the DSN:
- iii) Targeted awareness-raising of the DSN with one low up-take group:

This presentation will report the outcomes of a feasibility study undertaken to determine whether our proposals were valid. The study explored the attitudes of women towards social media for support about breast screening mammography. It sought their ideas about content, structure and how/whether they would network with other women and health professionals.

Data comprised 94 survey questionnaires and two focus groups; one comprised women in the breast screening population age group, the other was a younger group. A socio-ecological framework was used to analyse the results.

The study identified issues related to three intersecting concepts which are essential to consider in the development of our network: on-line conversations about health in general; on-line conversations about breast screening mammography and the culture of privacy which makes conversing about intimate health (either face to face or on-line) difficult. Also, the transient nature of the mammography episode (three yearly), might mean an on-line breast screening community is difficult to sustain. Super-users will be needed to continue on-line conversations. The health professional was also seen as essential for moderating potential misinformation shared by women although the participants were also insistent that 'truth' be shared.

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Screening individuals at high risk for anal cancer in a clinical context: the ANALOGY study

Authors: Schofield AM, Sadler, L, Sukthankar A, Hill J, Desai M, McMahon R, Sargent A, Patnick J, Kitchener HC

Background: Anal cancer and its precursor, anal intraepithelial neoplasia (AIN), are uncommon in the general population but incidence is greater in high-risk populations. The ANALOGY study is being performed to strengthen the evidence base required to determine the case for anal screening by evaluating its feasibility and acceptability in high-risk groups. We report findings of two of these high-risk groups, HIV+ and HIV- men who have sex with men (MSM) and transplant recipients (TR) that receive life long immunosuppression.

Methods: ANALOGY is a prospective cohort study. HIV+ and HIV- MSM along with male and female TR were recruited from sexual health and outpatient department transplant clinics. All participants received screening 3-6months apart. Screening including liquid based cytology (LBC), human papilloma virus (HPV) testing and high-resolution anoscopy (HRA) with an anal tissue biopsy if abnormal. A self-completed questionnaire evaluating knowledge, views of anal cancer and screening were given at both visits. All patients with high-grade tissue biopsies were referred urgently for examination under anaesthetic. All patients who had low grade abnormality tissue biopsies after two visits were referred to the colorectal team for long-term follow up.

Results: Since March 2013, 239 MSM (176 HIV+ and 63 HIV-), and 101 TR have been recruited. Overall 67.7% (162/239) of MSM and 26.7%. The prevalence of high-risk HPV in MSM and TR is 97.4% (233/239) and 17.8% (18/101) respectively. (27/101) TR had an abnormal HRA requiring biopsy. The overall prevalence of AIN grades 1/2 was 43.9% (105/239) and AIN 3+ 6.6% (16/239) respectively in MSM. Amongst TR the prevalence of AIN grades 1/2 was 16.8% (17/101) and AIN3+ 0.9% (1/101) respectively. All patients found to have AIN3+ were referred urgently for examination under anaesthetic. Cytology testing was negative in 56.7% (105/185) of MSM and TR. 40% (74/185) of negative cytology had histology demonstrating $\leq$ AIN 1 and 16.7% (31/185) had histology AIN2/3+. Data collected from 260 MSM and 95 TR demonstrated that 67.0% of participants had heard of anal cancer, 55.5% were aware of HPV and 38% already knew they were at increased risk of anal cancer. 95.2% believed those at increased risk should be offered screening. To date 149 follow-up questionnaires have been completed; 91.9% agreed they would attend screening again with the majority willing to attend every year (71.1%).

Conclusion: Anal screening in some high-risk groups is feasible in terms of diagnostics and acceptability with evidence of significant disease prevalence particularly amongst MSM. HPV and cytology negative lesions can be detected by HRA, which is feasible and acceptable to patients. Cytology screening alone would have missed 56.7% (105/185) cases of AIN and in MSM, HR-HPV is too prevalent to be a useful screen. Optimal management protocols and cost effectiveness will be required, but if adopted, screening would require new anoscopy services to be established.

Diagnostic journeys in myeloma: how long does it take to diagnose? Methodological issues and progress to date.

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Background: A dearth of information relating to diagnostic journeys in myeloma exists. It is acknowledged as ‘hard to diagnose’ with multiple complexities contributing and influencing time-to-diagnosis. Myeloma is rare, occurs in an elderly population; has vague non-specific symptoms; presents alongside comorbidities which can mask pre-diagnosis symptoms and has low public and GP awareness. Studies undertaken in clinical settings, generally reply on retrospective analysis of contemporaneously collected data; analysis is underpinned by traditional biomedical or scientific paradigm with emphasis on ‘objective’ measurements; the subjective and socially situated experiences and interactions within the journey to diagnosis of myeloma is not considered. To give a complete and clear picture of the influences surrounding time to diagnosis in myeloma, we report on the progress made in our unique mixed methods study -Diagnostic journeys in myeloma: how long does it take to diagnose?

Research questions:

- How do diagnostic journeys occur in myeloma patients across Wales?
- What factors, interactions and experiences influence the pathway to individual diagnosis?
- What factors can facilitate timely diagnosis?

Methods: We report on the progress of this prospective mixed methods study:

- **Phase 1 Quantitative study:**
 - Disease specific questionnaires to patient, the GP and diagnosing specialist (usually a haematologist) collects the complexities of the journey with data on pre-diagnosis symptomology and duration; routes and frequency of health care access, demographics; comorbidities
 - Triangulation facilitates cross referencing
 - Prospective recruitment reduces recall bias in patient and clinician
 - Recruitment direct from MDTs minimises gatekeeper bias in primary care
 - Utilisation of research/clinical infrastructure and pragmatic protocol design facilitates recruitment
 - Questionnaires utilise some open ended free text questions in all participant questionnaires to aid identification of potential information rich cases for Phase II interviews
- **Phase 2 Qualitative study:**
 - Qualitative semi structured interviews with groups of patients and their GPs collects data on personal subjective, contextual experiences and interactions associated with the individual diagnostic journeys
 - Purposeful sampling from prompt, longer and asymptomatic presentations groups of myeloma patients identify information rich pathways

- An evolving interview process is conducted by running back and forth over the two datasets and informing the interview/topic guide
- Framework analysis gives structure to results and conclusions to present recommendations to clinicians and policy makers

Discussion: Rare cancers that are difficult to diagnose need researching. Methods must extract both quantifiable intervals in the pathways and, moreover, collect the different subjective, social context and experiences of the interaction between the patient and professional. We present here the progress of running such a study with these novel methods of investigation. We report the current recruitment status against recruitment potential and target, along with analysis of the applicability of such methods in the secondary and primary care settings; this we hope will be useful background for other investigators as they plan to explore diagnostic journeys in other rare, hard to diagnose cancers.

A faecal immunochemical test for haemoglobin (FIT) markedly increased participation in a colorectal cancer screening pilot in England

Sue Moss, Christopher Mathews, TJ Day, **Steve Smith** and Stephen P. Halloran

Background: The NHS Bowel Cancer Screening Programme (BCSP) in England has used a guaiac-based faecal occult blood test (gFOBT) since its inception in 2006. In April 2014, the BCSP commenced a six-month FIT Pilot study to assess the clinical, financial and organisational implications of adopting FIT in England.

Methods: Two of the five regional BCSP Hubs (Southern Hub and Midlands & North West Hub) and associated Screening Centres participated in the pilot study. One in 28 invitees for screening was offered FIT rather than gFOBT. 30,000 FIT invitations provided adequate power for statistical analysis of uptake compared with the gFOBT programme. The OC-SENSOR DIANA FIT system (Eiken Chemical Co. Ltd., Japan) was used with a cut-off for positivity of 20 µg haemoglobin [Hb]/g faeces (100 ng Hb/mL buffer).

Results: As of 15 October 2014, 39,460 subjects had been sent a FIT and 1,067,120 a gFOBT during the pilot period. Uptake of FIT was significantly higher than for gFOBT (67.6% vs. 60.1%; OR 1.38, 95%CI 1.35,1.41). The increase in uptake was significantly greater for previous non-responders (FIT 26.6% vs. gFOBT 14.5%; OR 2.13, 95%CI 2.04,2.22), compared with subjects invited for the first time (61.4% vs 50.2%; OR 1.58, 95%CI 1.50,1.66) and those who had participated previously (91.0% vs 86.6%; OR 1.57, 95%CI 1.50,1.65). The increase in uptake was higher in males (FIT 65.5% vs. gFOBT 57.0%; OR 1.89, 95%CI 1.82,1.96) than females (69.6 % vs. 63.2; OR 1.67, 95%CI 1.61,1.74) and was apparent for all quintiles of deprivation. Of particular note is the increase in uptake with FIT compared with gFOBT in the most deprived and traditionally 'hard-to-reach' quintile (55.1% vs 46.9%; OR 1.39, 95% CI 1.33,1.46).

Overall positivity was 7.8% with FIT (cut-off 20 µg Hb/g faeces) and 1.7% with gFOBT (OR 4.87, 95%CI 4.64,5.12). The increase in positivity was similar in males and females and in all deprivation quintiles, but increased with age. Significantly more colorectal cancers (CRC) (0.22% FIT vs. 0.10% gFOBT; OR 2.25, 95%CI 1.72,2.94) and advanced adenomas (1.56% vs. 0.30%; OR 5.21, 95%CI 4.69,5.80) were detected with FIT. The PPV for all neoplasms was significantly higher with FIT (54.7% vs. 50.5%; OR 1.18, 95%CI 1.07,1.31). At a cut-off of 150 µg Hb/g faeces (750 ng Hb/mL buffer), which yielded a positivity for FIT (1.8%) similar to gFOBT, FIT had a higher detection rate and PPV for advanced adenomas and all neoplasms.

Conclusions: FIT significantly increased uptake of screening and provides an opportunity to adjust the faecal Hb concentration cut-off for positivity and thus the burden on colonoscopy resource. Further analysis will determine how the faecal Hb concentration measured by FIT could be incorporated into a multivariate risk score for CRC to increase its PPV for CRC.

POSTER 37 – STEPHANIE SMITS

Development and pilot evaluation of the Tenovus health check: a targeted cancer awareness intervention for people from deprived communities

Authors: Stephanie Smits, Ben Carter, Adrian Edwards, Ian Lewis, Mike Robling, Shantini Paranjothy, Julia Townson, Fiona Wood, Kate Brain.

Introduction:

Evidence suggests that delayed help-seeking and poorer cancer survival may be linked to low cancer awareness and fatalistic attitudes in deprived populations. To date, interventions designed to increase cancer awareness and encourage help-seeking have not been targeted at socioeconomically deprived communities. The cancer charity Tenovus has developed an innovative intervention using a tablet-based interactive questionnaire delivered face-to-face by a trained lay advisor in the most disadvantaged communities.

Aims:

ABACus (Awareness and Beliefs About Cancer intervention study) is being undertaken in partnership with Tenovus to evaluate the acceptability and feasibility of the health check with key local stakeholder groups.

Methods:

The research is being conducted in two phases of development and evaluation, targeting adults aged 40 and over living in Communities First areas of Wales.

During Phase 1 development, focus groups will be held to explore local community stakeholder views regarding the format and delivery of the health check. The groups will include members of the public, health professionals and public health specialists from Communities First areas. The focus groups will start with a demonstration of the health check followed by discussions covering strengths, weaknesses, location, format and delivery of the health check. A focus group guide will be developed to ensure that similar topics are covered in each group, with flexibility to allow issues of importance to emerge. Field testing involving think-aloud techniques will then be undertaken with a purposive sample of users in a range of naturalistic community settings.

In Phase 2 evaluation, a prospective, non-randomised evaluation of the adapted intervention will be conducted to test the feasibility of recruitment in different community settings, and to pilot the quantitative measurement of outcomes including cancer symptom knowledge, risk factor awareness, beliefs and help-seeking intentions/behaviours. A process evaluation will be conducted including observations of health check usage, and qualitative interviews with health check users to understand how the intervention works and whether it is used as intended.

How the results will be used:

Should the intervention demonstrate acceptability and the potential to improve outcomes relating to cancer early diagnosis in disadvantaged communities, this research will form the basis for a future trial of effectiveness.

Development of an ovarian cancer symptom awareness tool with tailored content for women at increased genetic risk of developing ovarian cancer

Authors: Stephanie Smits, Jacky Boivin, Usha Menon, Kate Brain.

Background:

In the absence of a routine ovarian screening programme, ovarian cancer symptom awareness is a potential route to earlier symptom presentation and disease diagnosis. However, information materials to support this strategy may need to be tailored according to risk. Determinants of anticipated symptom presentation for women at increased genetic risk of ovarian cancer were identified and explored in relation to determinants in a general population sample. Identified health beliefs were addressed in a draft ovarian cancer symptom awareness tool (OvSTAT) which was then pilot tested.

Methods:

A mixed-method approach was used to identify determinants of anticipated symptom presentation, including comparative surveys with two risk populations (n=283 women at increased genetic risk, n=1043 women from general population), and in-depth qualitative interviews with 8 women at increased genetic risk of ovarian cancer. Core symptom information was identified using systematic search and expert reference group methods. Cognitive interviews were undertaken to pilot the draft OvSTAT tool for acceptability and usability with 9 potential users and providers.

Results:

Statistical modelling of survey data demonstrated that endorsing more benefits than barriers to presentation was associated with earlier anticipated presentation in both risk populations; however, differential effects of underlying health beliefs on anticipated presentation were identified. In women at increased genetic risk, emotional (worry) rather than cognitive aspects of risk perception were the predominant influence on earlier anticipated presentation. Underlying themes relating to personal experience of ovarian cancer shaped these women's beliefs about the disease. The identified health beliefs were addressed in OvSTAT, with core content applicable for women from the general population and tailored content to address the specific needs of women at increased genetic risk. OvSTAT was well received in user testing. Content and layout was viewed favourably with the information within the tool perceived to be useful and easy to understand. Criticisms were also reported, with most suggestions for improvement relating to consistency or clarification. Improvements to OvSTAT were then made to make the final version of OvSTAT.

Conclusions:

OvSTAT is a promising tool for supporting efforts to improve the earlier detection of ovarian cancer through appropriate symptom presentation. For women who are at increased genetic risk, tailored content is important for maintaining psychological wellbeing in the absence of routine ovarian screening. Research is required to further evaluate the acceptability of OvSTAT and its impact on ovarian cancer symptom awareness, worry and presentation.

POSTER 39 – LAURA TURNER

The Diagnostic Study: A prospective evaluation of the accuracy of simple tests (a faecal immunochemical test and iron deficiency anaemia tests) for colorectal cancer in patients presenting to general practice with lower risk symptoms

Authors: Paul Greliak, Natalie Marchevsky, Bhavita Patel, Urvi Shah, Laura Turner, Kate Wooldrage and Wendy Atkin. Cancer Screening and Prevention Research Group, Department of Surgery and Cancer, Imperial College London.

Colorectal cancer (CRC) is the second commonest cause of cancer death in the UK. It is often diagnosed at a late stage, with 26% of cases presenting as an emergency, and only 27% of CRCs diagnosed by the urgent referral route. As many of the symptoms of CRC are non-specific, when patients present to general practice with lower-risk bowel symptoms (not meeting NICE guidelines for urgent referral), GP's face a significant problem deciding whether the symptoms have a benign cause or whether there is a need to refer to secondary care. Routine referral of lower-risk patients would overwhelm diagnostic resources and substantially increase NHS costs (already >£0.4billion/year). Instead, we hypothesise that simple quantitative tests currently available within the NHS could be performed in primary care as a means of stratifying patients with lower-risk CRC symptoms. This could transform the diagnostic pathway by increasing early diagnoses, reducing emergency presentations, ensuring costly hospital investigations have high yield, and providing reassurance for a "watch and wait" approach where appropriate.

The Diagnostic Study is a prospective multicentre diagnostic accuracy study that aims to investigate the ability of two simple cheap tests, a stool test for haemoglobin (faecal immunochemical test/FIT) and a blood test for iron deficiency anaemia/IDA (whole blood count/ferritin levels), to determine which patients need rapid referral for further investigation when presenting to general practice with lower-risk symptoms of CRC. Eligible patients (those referred by their GP for investigation of symptoms, excluding any who attend hospital as an emergency, for CRC screening, or for a known colorectal condition) will be recruited from secondary care, and we will determine the sensitivity and specificity of the tests for diagnosis of CRC vs standard care investigations, using CRC diagnosis within 6 months as the primary outcome.

Past experience of large studies has shown us the benefit of conducting feasibility and pilot studies before committing significant resources to a main study. We have therefore separated the study into three phases: a feasibility study (phase 1 – non-interventional), in which we will collect data to help understand existing referral/diagnostic pathways, investigate the feasibility of patient identification/data collection, and select centres for the main study; a pilot study (phase 2), where we will test our protocol and identify and correct recruitment problems; and a main study (phase 3) in which 20,000 participants from up to 10 hospitals will be invited to take FIT/IDA tests in addition to their standard care diagnostic consultation or examination.

We received funding for phases 1 and 2 of this study from the Bobby Moore Campaign for Cancer Research UK. We have completed a feasibility study at St Mark's hospital, Guildford, and we are repeating this study at the Royal Surrey County Hospital and one further centre, to allow us to assess the variation in the potential cohort and logistics of the study by centre. At St Mark's, over a four week sham recruitment period, we identified 325 eligible patients. We are now analysing this cohort to examine their referral/diagnostic pathways, outcomes, and symptoms at presentation.

POSTER 40 – RICHARD WAGLUND

Prevalence of symptoms potentially indicative of lung cancer within a primary care population and their GP consulting behaviour

Background: Cancer survival rates remain stubbornly poor among patients with lung cancer, and late diagnosis is an important factor. Previous research indicates individuals experience a range of symptoms prior to lung cancer diagnosis, but often fail to interpret these as serious and so do not present them to their GP. Little is known about the prevalence of symptoms that might indicate lung cancer in primary care populations or how individuals perceive and behave in relation to these symptoms.

Study aims: To determine the prevalence of symptoms potentially indicative of lung cancer amongst an 'at risk' primary care population of older (≥ 50 years old), current or former (within last 10 years) smokers, and to explore their GP consulting behaviour.

Methods: A self-completed symptom and risk-assessment questionnaire (IPCARD), previously developed by members of the research team, was mailed out to primary care patients via eight GP practices identified from practice lists. The questionnaire asked respondents to indicate presence, severity and duration of nine symptoms potentially indicative of lung cancer. Clinical notes reviews then explored GP consultation patterns of patients two years prior and one year following questionnaire completion. Data were entered into SPSS and descriptive and multivariate regression analysis conducted.

Findings: A 25% response rate provided 1172 completed questionnaires and notes reviews were conducted for 754 patients. High symptom prevalence was identified with 59% of participants reporting at least one symptom, and 35% reporting two or more symptoms. A high proportion of respondents (between 21% ($n=235$) and 8% ($n=93$) for separate symptoms) reported having first experienced symptoms >12 months ago. Two respondents went on to be diagnosed with lung cancer in the following 12 months, and one with mesothelioma. Notes reviews found an overall 7% increase in GP consultations in the 12 months following questionnaire-completion, from 2929 to 3165. GP consultations for symptoms indicative of lung cancer were predominantly for cough ($n=151$), followed by chest infections ($n=100$); breathlessness ($n=96$); chest pain ($n=37$); tiredness ($n=33$), unintentional weight loss ($n=11$), sweats ($n=10$), haemoptysis ($n=7$) and voice changes ($n=3$). The review of clinical notes also found 10% of participants had not contacted their GP for 12 months prior to questionnaire-completion, many of whom were symptomatic. Forty (5.3%) symptomatic, non-consulting participants with no comorbidities to explain these symptoms were identified. These patients were mainly white, male, retired and within the lowest social deprivation quintile. Of these participants, following survey-completion, 9 (22.5%) then consulted their GP within days and were investigated for their symptoms. Regression analysis found associations between the number of GP consultations, a participant's total number of reported symptoms, older participant ages, employment status, and the patient's self-perceived severity of specific symptoms, especially chest pain and cough.

Conclusions: Findings provide significant new insights into how more targeted approaches for raising awareness and early detection might be evaluated, particularly amongst symptomatic, non-consulting primary care patients, and suggest new avenues for NAEDI in promoting earlier diagnosis of lung cancer.

POSTER 41 - SARAH WALKER

UNIVERSITY OF EXETER

Other authors: William Hamilton, MD, FRCP, FRCGP, Professor of Primary Care Diagnostics, University of Exeter Medical School, College House, St Luke's Campus, Magdalen Road, Exeter, EX1 2LU; Chris Hyde, MBBS, MRCP, FFPH, Professor of Public Health and Clinical Epidemiology, University of Exeter Medical School, Veysey Building, Salmon Pool Lane, Exeter, EX2 4SG

Introduction:

In the UK there are approximately 3,100 women diagnosed with cervical cancer each year. Although this contributes just 2% to all female cancer diagnoses, it is the most common cancer in women under 35 years of age. Between 2009 and 2011, nearly 80% of cervical cancers were diagnosed between the ages of 25-64; 11% of cases were diagnosed in women aged 75 years and over.

In England, all women aged between 25 and 64 are invited for regular cervical screening, equating to more than 4 million women per year. Cervical cancers detected symptomatically rather than via screening require early recognition of symptoms by both the patients and their GP. Suspicion of cancer is essential if delays in diagnosis are to be reduced, especially in those who have not been screened.

Research Question:

To identify and quantify the features of cervical cancer in symptomatic primary care patients to aid selection of patients warranting further investigation.

Methods:

Recognised features of cervical cancer will be identified in the year pre-diagnosis, and odds ratios calculated using conditional logistic regression. Positive predictive values (PPVs) will be calculated for consulting women.

Results: [these will be available well before the conference]

Women aged ≥ 40 years diagnosed with cervical cancer between 2000-2009 and up to five age, sex and practice-matched controls will be selected from the Clinical Practice Research Database. Any features significantly associated with cervical cancer will be presented with Odds Ratios and 95% confidence intervals. We will compare the number of cases and controls reporting the most common symptoms in the year before diagnosis and present PPVs of cervical cancer with these symptoms.

We expect that most symptoms reported from secondary care studies will also be strongly associated with cervical cancer in primary care. We will quantify the risk of cervical cancer in women presenting to their GP with common symptoms and pairs of symptoms. Should age be a significant factor in the analysis we will produce age-specific PPVs. We will also test for any clinical plausible interactions.

POSTER 42 – FIONA WALTER

Symptoms and co-morbidities associated with diagnostic intervals and stage at diagnosis of colorectal cancer: a prospective cohort study

Authors: FM Walter^{1,2}, J Emery^{2,1}, S Mendonca¹, N Hall³, K Mills¹, C Dobson³, H Morris¹, C Bankhead⁴, W Hamilton⁵, G Rubin³.

¹University of Cambridge, UK; ²University of Melbourne, Australia; ³Durham University, UK;

⁴University of Oxford, UK; ⁵University of Exeter, UK.

Background

The UK has lower survival rates for colorectal cancer than other comparable countries. This prospective cohort study aimed to identify symptom and patient factors that influence the time from symptom onset to diagnosis (total diagnostic interval), including to first presentation in primary care (patient interval) and from first presentation to diagnosis (healthcare interval). Influences on colorectal cancer stage at diagnosis were also examined.

Methods

Data relating to symptoms were collected from patients upon referral with symptoms suspicious of colorectal cancer to 5 English hospitals in 2 English regions (East and North East) between December 2010 and March 2013. We also examined primary care and hospital records for diagnostic routes and diagnoses. Descriptive and regression analyses were used to investigate associations between symptoms and patient factors with diagnostic intervals and stage.

Results

The response rate was 21.8%. Among 2,507 participants, 6.1% (152) were diagnosed with colorectal cancer. A further 2.0% (50) were diagnosed with other intra-abdominal malignancies (e.g. lymphoma, prostate, oesophageal, anal), and 91.9% (2,305) with non-malignant conditions (e.g. polyps, diverticular disease, haemorrhoids). Participants diagnosed with colorectal cancer were more likely to be male and older than those with non-cancer. The colorectal cancer group included more patients with late stage (55.9%) than early stage disease. Only half the cohort had an isolated first symptom (1,339, 53.4%); synchronous first symptoms were common.

There were time-dependent effects of specific symptoms on diagnostic intervals. Rectal bleeding, reported as first symptom by 24.6% cases, was initially associated with shorter patient and healthcare intervals, but this effect declined with longer symptom duration. A change in bowel habit, first symptom in 45.3% cases, was also associated with shorter patient and healthcare intervals; however, while it was initially associated with longer patient intervals, this effect reversed for more prolonged change. The less specific initial symptoms of abdominal pain, back pain, decreased appetite and fatigue were associated with shorter patient intervals; abdominal pain was also associated with a longer healthcare interval. Having co-morbid conditions of the gastrointestinal tract increased the healthcare interval, while anxiety and/or depression increased both the patient and healthcare intervals.

Those with late stage cancer had shorter total diagnostic intervals than those with early stage (100 vs 157 days, $p=0.023$), suggesting a possible waiting time paradox. We did not find any symptoms or patient factors associated with stage at diagnosis. *SEE NEXT PAGE*

Discussion

Rectal bleeding is the symptom that is associated most with shorter patient and healthcare intervals, but occurs in only a quarter of patients and is time-dependent. This suggests that the longer a patient has had rectal bleeding, the less likely they are to seek help or be investigated. While some less specific initial symptoms also shortened the patient intervals, some of these symptoms and co-morbid conditions had the opposite effect on the healthcare interval. Both public awareness and healthcare professional programmes for expediting earlier diagnosis would benefit from focusing on multiple and less specific symptoms and their evolution over time.

A brief intervention in primary care for non-responders to bowel cancer screening – feasibility study in general practices in Lothian

Authors: Debbie Cavers, Natalia Calanzani, Gaby Vojt, David Weller, Christine Campbell (*University of Edinburgh, Centre for Population Health Sciences, Medical School*)

Background: Colorectal cancer is the fourth most common cancer in both males and females in the UK, with 41,581 new cases diagnosed in 2011¹. Bowel cancer screening programmes have the potential to significantly contribute to reducing mortality from this disease^{2,3}, yet uptake remains low, particularly among low socio-economic groups. The Scottish Government has made screening a priority as part of its Detect Cancer Early campaign and is working with general practices in NHS Lothian to promote greater informed participation.

Objective: To test the feasibility of a primary-care based brief intervention to increase the uptake of bowel screening among non-responders in six general practices in Lothian.

Methods: A brief intervention, designed to be delivered by GPs or practice nurses during routine consultations, has been developed. The structure and content of the intervention was informed by psychological theory (drawing on health behaviour and behaviour change literature), implementation science, guidance for complex interventions, and recent evidence regarding bowel cancer and screening.

The intervention pack comprises 3-4 questions to guide discussion to address concerns around or barriers to bowel screening; a flowchart for health care professionals; and an information leaflet for patients (with a 'FAQs' component, implementation intention wording to support decision-making, and the opportunity to request a new test kit (via telephone number or a FREEPOST slip)). The feasibility of the intervention is being tested in six general practices in late 2014/ early 2015.

Details of all delivered interventions will be recorded (noting gender and year of birth of patient, whether or not the intervention was accepted and whether a new test kit was requested). Between-rounds requests for screening kits per practice will be logged by the Scottish Bowel Screening Centre. End of study questionnaires will assess time spent on the intervention and associated increase in workload. Qualitative interviews with GPs, practice nurses and practice managers will provide insight into acceptability of the intervention. Qualitative data will be analysed using qualitative thematic analysis using QSR NVivo while univariate and bivariate statistics will be used to analyse quantitative findings using SPSS.

Findings: Based on quantitative and qualitative data from the feasibility study, we will ascertain the willingness of GPs and practice nurses to deliver the intervention, as well as the willingness of non-responders to engage in discussion on the topic, and the acceptability of the intervention. We will report on the number of interventions delivered over the study period, time taken on average, and how many patients returned a completed test request form to the Bowel Screening Centre.

Conclusions: It is anticipated that this intervention will provide a tool for use in primary care to support health professionals in discussing bowel screening participation with non-responders: ultimately, this should increase uptake of bowel screening and has the potential to promote earlier diagnosis.

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POSTER 44 – KATRIINA WHITAKER

What drives a cancer attribution?

Authors: Whitaker KL, Winstanley K, Cromme S, Macleod U, Scott SE, Wardle J.

Background: Normalising early cancer symptoms is one risk factor for longer time to presentation and may result in later diagnosis. We explored the frequency and demographic correlates of attributing 'alarm' symptoms to cancer in a community sample.

Methods: A questionnaire was mailed to adults (n=9771, ≥50 years, no cancer diagnosis) through primary care, asking about symptom experience in the past 3 months. The survey was presented as a health survey to avoid cancer focus. Respondents were asked, within a longer symptom list, whether they had experienced any of 10 cancer 'alarm' symptoms. Follow-up questions addressed perceived cause (what do you think caused it?) and demographic characteristics including; marital status, age, sex, socioeconomic status (SES; indexed by education) and ethnicity. Knowledge of warning signs was assessed with items from the Cancer Awareness Measure (CAM), embedded among questions about other illnesses.

Results: Response rate was 39% (n=3766). Nearly half (46%) had experienced an 'alarm' symptom, of whom 63/1732 (4%) mentioned cancer as a possible cause. Education was associated with being more likely to make a cancer attribution (7% with a degree made a cancer attribution vs. 3% without a degree: OR=2.92, CI, 1.72-4.97), as was white ethnicity (5% of people from white ethnic backgrounds vs. 1% of people from non-white ethnic backgrounds: OR=4.86, CI, 1.18-20.03). The demographic associations were not explained by lower awareness scores on the CAM.

Conclusion: People with less education or from non-white ethnic backgrounds were less likely to consider cancer as a possible cause of their 'alarm' symptom. This, in addition to lower cancer awareness in these sub-groups may hinder symptomatic presentation and result in inequalities in stage at diagnosis.

POSTER 45 –MATTHEW WICKENDEN

Cancer statistics in the news – what makes the headlines?

Authors: Sarah Beardon, Casey Dunlop, Katrina Brown, Matthew Wickenden, Simon Shears, Nick Ormiston-Smith. On behalf of Cancer Research UK.

Background

Cancer Research UK (CRUK) is the world's leading charity dedicated to beating cancer through research. The charity has been at the heart of the progress that has already seen survival rates in the UK double in the last forty years.

CRUK's Statistical Information Team (SIT) and Press Office (PO) work closely together to communicate cancer statistics to the public through international, national, large regional and daily newspapers, as well as TV and radio outlets and other broadcast media. Analyses of records from both teams are presented for the first time, providing an invaluable insight into the media's appetite for cancer statistics stories.

Methods

Information is collated on an ongoing basis regarding (i) incoming press enquiries to the SIT, and (ii) outgoing press releases from the PO focussing on cancer data or statistical phenomena. The data are analysed by cancer site and type of statistical information (e.g. incidence, mortality, survival).

Results

Results are still being collated at the time of writing this abstract. The analyses will investigate the frequency of cancer types and information types in statistics enquiries and press releases, drawing comparisons with current UK incidence rankings. Early results indicate that demand is generally higher for the more common cancers, though some cancer types are represented considerably higher than their incidence ranks would suggest, and others considerably lower.

Conclusions

The analyses demonstrate a strong demand for cancer statistics by the media. The most reported cancer sites and types of statistical information are partly driven by the PO and media's perceptions of what is most newsworthy, though good media coverage is also strongly influenced by timing and what else is being reported at that time. Understanding media coverage of cancer statistics can highlight where communication is succeeding, and where more work is needed to bring important topics to the headlines.

POSTER 46 – JENNY YIALLOUROS

‘I would have thought it would have been a lot more than just a bit of blood being shown’: experience of symptoms by people diagnosed with kidney or bladder cancer, a qualitative study.

Author: Jennifer Yiallourous, Cancer Research UK

Background

There has been much research into the appraisal of symptoms by people diagnosed with cancer. Some of this research has indicated that people do not think their symptoms are serious, they are afraid of what the doctor may say to them or they do not want to waste the doctor's time. This study aimed to explore how people diagnosed with bladder or kidney cancer talked in retrospect about the symptoms which led them to seek medical advice.

Methods

Thirteen people diagnosed with bladder or kidney cancer were interviewed in their homes as part of my PhD study. The interviews were semi-structured, a topic guide was used to help gather information and stories from the respondents about their whole cancer journey but paying particular attention to their experience of the time leading up to diagnosis. The interviews were transcribed verbatim and analysed initially using a framework analysis approach and then narrative analysis.

Results

The analysis of the transcripts showed that the respondents were answering questions which they had not been asked, which I have called the silent questions. One of these, ‘How could I not know I had cancer?’, was evidenced by respondents going to great lengths to describe how they were really not aware of their cancer. They described how the symptoms which they experienced led them to the GP but not in their own mind immediately to a suspicion of cancer. This was supported in many cases by the GPs actions where initially cancer had not been suspected.

Conclusions

Respondents in my study used their stories to position themselves as ‘non-blameworthy’ and defended their interpretation of their symptoms and their behaviour leading up to diagnosis. Therefore consideration should be given to directing resources away from any health education materials which may cause those people with a cancer diagnosis to feel that they are being unjustly labelled as ‘unaware’ and in need of more education. The emphasis of awareness campaigns could perhaps be on how difficult it can be to be aware of cancer symptoms so that people do not assume that it would be really obvious if they have a symptom of cancer. Also the focus should be on making the GP more accessible and on making diagnostic tests more easily and cheaply available.

POSTER 47 – LAURA ZWAAN

Looking without seeing or not believing your eyes? An eye-tracking study on diagnosing X-rays

Authors: Laura Zwaan¹ (PhD), Indra Pieters² (MD, PhD), Daniel Schreij³ (PhD), Abel Thijs⁴ (MD, PhD), Jan Theeuwes³ (PhD), Cornelis van Kuijk² (MD, PhD), Danielle Timmermans¹ (PhD), Artem V. Belopolsky³ (PhD)

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Rationale

Diagnostic errors in radiology are not uncommon. In order to reduce diagnostic errors, it is important to determine the underlying causes. The goal of this eye-tracking study was to determine the influence of clinical information that matched or mismatched the disease on the X-ray on diagnostic performance in a realistic setting. Furthermore, the effect of the number of abnormalities on diagnostic performance was examined.

Methods

We tracked eye-movements of 25 radiologists while they examined 48 chest X-rays (12 without abnormalities, 24 with one abnormality and 12 with two abnormalities). The clinical information was manipulated such that it either matched or mismatched the abnormality on the X-ray.

All radiologists were presented with 12 match and 12 mismatch cases each having a single abnormality. In 12 cases in which there were two abnormalities, the radiologists were presented with clinical information that matched only one of them. Based on the fixation duration the errors were classified into search errors, recognition errors and decision errors.

Results

Matching clinical information more often led to a correctly reported abnormality than mismatching clinical information (66.5% versus 57.6% correct, $p < 0.005$). Overall, the recognition errors were the most common error type (74.5%), followed by decision errors (20.4%) and search errors (5.1%).

There was a significant interaction between the number of abnormalities and the error type ($p < .05$). Specifically, more decision errors were made in the two abnormality cases (14.8%) than in the one abnormality cases (5.6%). The cases were not different in the number of recognition or search errors. There was also a significant interaction between the clinical information and the error type ($p < .05$). Specifically, more decision (7.3% vs. 13.1% for match and mismatch, respectively) and recognition errors (31.9% vs 42.5% for match and mismatch, respectively) were made when the clinical information did not match the abnormality.

Conclusions

The results show that diagnostic errors are primarily due to a failure in recognizing the abnormality that is being fixated. This is consistent with inattentional blindness. Mismatching clinical information increases such recognition failures. The number of abnormalities had the strongest effect on how a diagnostic decision was reached based on the available information. Specifically, the presence of a second abnormality lead to discarding clinically relevant information: the radiologist "did not believe his own eyes".

Background:

Stage at diagnosis is a key predictor of overall cancer outcome. For the first time, stage completeness is high enough for robust analysis for the whole of England.

Methods:

We analysed data from the National Cancer Registration Service's (NCRS) Cancer Analysis System on persons diagnosed with breast, colorectal, lung, prostate or ovarian cancers in England in 2012. One-year relative survival (followed-up to the end of 2013) was calculated along with adjusted excess rate ratios, for mortality within 1 year.

Results:

One-year relative survival decreased with increasing stage at diagnosis. For breast, prostate and colorectal cancers survival showed a major reduction for stage 4 cancers, whereas for lung and ovarian cancers there were substantial decreases in relative survival for each level of increase in stage. Excess rate ratios for mortality within 1 year of diagnosis showed that stage and age were the most important cofactors, but they also identified the statistically significant effects of sex, income deprivation and geographic area of residence.

Conclusions:

Further reductions in mortality may be most effectively achieved by diagnosing all cancers before they progress to stage 4, but for lung and ovarian cancers there is also a need for a stage shift to earlier stages together with efforts to improve stage-specific survival at all stages.