9th Annual Meeting of the

Cancer and Primary Care Research International Network

Delegate Program

Welcome to the 9th Annual Meeting of the Cancer and Primary Care Research International (Ca-PRI) Network!

Primary Care and Cancer: Advances in Research and Clinical Practice

We welcome you to the 9th Annual Meeting of the Cancer and Primary Care Research International (Ca-PRI) network. Those of you who have been to Ca-PRI meetings in the past will know they are a great opportunity to share ideas, present new research and make new friends. The role of primary care in cancer prevention, screening, diagnosis and management of survivors has never been so important and the Boston meeting will highlight best evidence and state of the art models of care. The Planning Committee has put together an exciting program which features presentations from around the world. Boston and its grand academic institutions are a beacon of excellence in the world of clinical and health services research. It's a great privilege to hold our Ca-PRI meeting in this stimulating environment and we look forward to the fun, excitement and academic rigor of this meeting.

David Weller
Chair, Ca-PRI Executive Group
University of Edinburgh

Larissa Nekhlyudov
Chair, Ca-PRI 2016 Boston Conference
Harvard Medical School

Thank you to our Ca-PRI 2016 Sponsors!

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Ca-PRI 2016 Boston Planning Committee

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University of Pennsylvania, Pennsylvania

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Marshfield Clinic, Wisconsin

Cary Gross, MD
Yale University, Connecticut

Jennifer Haas, MD, MSPH
Harvard Medical School, Massachusetts

Li Li, MD, PhD, MPH
Case Western Reserve University, Ohio

Larissa Nekhlyudov, MD, MPH
Harvard Medical School, Massachusetts

Linda Overholser, MD
University of Colorado, Colorado

Stephen Taplin, MD, MPH
National Cancer Institute, Maryland

Invited Speakers

Vicki Jackson, MD, MPH
Chief, Palliative Care Division
Associate Professor, Department of Medicine
Massachusetts General Hospital & Harvard Medical School

Dr. Vicki Jackson is the Chief of the Palliative Care Division at Massachusetts General Hospital and Associate Professor, Department of Medicine at Harvard Medical School. She also serves as the Co-Director of the Harvard Medical School Center for Palliative Care. She was the former Fellowship Director for the Harvard Palliative Medicine Fellowship. She completed residency and chief residency in Internal Medicine at The Cambridge Hospital, Harvard Medical School. She pursued training in research methods through the Harvard General Medicine Fellowship and completed a Master's in Public Health at The Harvard School of Public Health. She completed training in palliative care at The Dana-Farber Cancer Institute and Brigham and Women's Hospital. She joined the faculty of Massachusetts General Hospital in 2002. She pursued further research training in the Program for Cancer Outcomes Training. She was selected in 2003 for the Harvard Academy Education Fellowship where her work focused on the development of end of life medical and communication curriculum which was the basis for the curriculum for the Harvard Palliative Medicine Fellowship. In 2009, she was selected as the Rabkin Fellow in Medical Education at The Beth Israel Hospital.

Currently, she is the Palliative Care lead investigator for a grant funded by the National Institutes of Health investigating the effect of early ambulatory palliative care for patients with advanced cancer. Her work focuses on developing curricula to train others in the communication skills required to deliver this care. She spends much of her time developing, teaching, and evaluating palliative medicine curricula for medical students, residents, fellows, and faculty. Nationally she served as Co-Chair for an innovative 3 year academic leadership training program for junior palliative medicine faculty and currently serves as member of the Board for the American Academy of Hospice and Palliative Medicine. She also served as the Co-Editor for a series devoted to the clinician-educator in The Journal of Palliative Medicine. Her work has been featured in the New York Times, Boston Globe, and on ABC World News Tonight.

Howard K. Koh, MD, MPH
Harvey V. Fineberg Professor of the Practice of Public Health Leadership
Harvard School of Public Health and the Harvard Kennedy School

Dr. Howard K. Koh is the Harvey V. Fineberg Professor of the Practice of Public Health Leadership at the Harvard School of Public Health and the Harvard Kennedy School. He has previously served as the 14th Assistant Secretary for Health for the U.S. Department of Health and Human Services (2009-2014) after

being nominated by President Barack Obama, and as Commissioner of Public Health for the Commonwealth of Massachusetts (1997-2003) after being appointed by Governor William Weld. A graduate of Yale College and the Yale University School of Medicine, he has trained at Boston City Hospital and Massachusetts General Hospital, held major academic positions at Boston University and Harvard University, published more than 250 articles in the medical and public health literature and has received over 70 awards for accomplishments in public health, as well as five honorary degrees.

Ann Partridge, MD, MPH
Director, Adult Survivorship Program
Associate Professor of Medicine, Harvard Medical School
Dana-Farber Cancer Institute & Brigham and Women's Hospital

Dr. Ann Partridge is a medical oncologist and clinical researcher focused on improving the care and outcomes of patients with cancer, with a particular focus on breast cancer. She is the former Clinical Director of the Breast Oncology Program, founded and directs the Program for Young Women with Breast Cancer, and serves as the Director of the Adult Survivorship Program at Dana-Farber/Brigham and Women's Cancer Center.

Dr. Partridge has published numerous manuscripts and lectures both nationally and internationally on issues of cancer survivorship and young women with breast cancer in particular. She has received several awards and grants including an American Society of Clinical Oncology (ASCO) Improving Cancer Care Grant, LIVESTRONG Foundation Survivorship Award, Tracy Starr Breast Cancer Research Fund Award, and serves as a Susan G. Komen Scholar. She serves on several committees including as Chair for the Federal Advisory Committee to the CDC on Breast Cancer in Young Women. Dr. Partridge graduated from Georgetown University, earned her MD at Cornell University, trained in internal medicine at the Hospital of the University of Pennsylvania, and completed hematology and medical oncology fellowships at DFCI. She received a master's degree in public health at the Harvard School of Public Health.

Russell Phillips, MD
Director, Harvard Medical School Center for Primary Care
Harvard Medical School

Dr. Russell S. Phillips is Director of the Center for Primary Care and the William Applebaum Professor of Medicine and Professor of Global Health and Social Medicine at Harvard Medical School. He is a devoted primary care general internist at Beth Israel Deaconess Medical Center (BIDMC) where he cares for more than 300 patients. Within the Center, he leads programs that are transforming education and care systems, and developing entirely new approaches to improving primary care and health.

In his prior work at BIDMC, which included serving as Chief of the Division of General Medicine and Primary Care, he led a task force to improve transitions in care, a working group to develop new sustainable practice models for primary care, and a task force to develop strategies for care

management for high-risk patients. At the state level, he served on the Massachusetts Coordinating Council on the PCMH. He has championed palliative care services in primary care, wellness programs and innovations to improve quality of life for patients with chronic illness.

A graduate of Massachusetts Institute of Technology and Stanford University School of Medicine, he has held leadership roles in the Society of General Internal Medicine, serving as Chairperson of the Research Committee in the past, and is past president of the Association of Chiefs and Leaders in General Internal Medicine. Currently, he is co-chairing an effort among the primary care societies to bring together the primary care disciplines to consider ways that primary care can contribute to improved population health.

With more than 200 publications, his research has spanned disparities in care, screening for infection in office practice, patient safety, end of life care, and interventions to improve care for patients with chronic disease. He has been recognized for his excellence in mentorship by the HMS Barger Award. He led the Harvard General Medicine Fellowship Program for nearly 15 years, and the Harvard Research Fellowship Program in Integrative Medical Therapies for 12 years. He held a Mid-Career Mentorship Award (K24) from the NIH to support his mentoring activities. He has mentored more than 50 trainees, most of whom have gone on to successful careers as investigators and leaders in general medicine.

Hardeep Singh, MD, MPH
Chief of the Health Policy, Quality & Informatics Program
Houston Veterans Affairs Health Services Research Center for Innovations

Dr. Hardeep Singh is Chief of the Health Policy, Quality & Informatics program at the VA Health Services Research Center for Innovations based at the Michael E. DeBakey VA Medical Center and Baylor College of Medicine, Houston. He leads a portfolio of federally-funded patient safety research in two related areas: improving the use of health IT and reducing diagnostic errors in health care, including missed and delayed cancer diagnosis. In 2012, he received the AcademyHealth Alice S. Hersh New Investigator Award for high impact multidisciplinary research and in 2014, received the prestigious Presidential Early Career Award for Scientists and Engineers (PECASE) from President Obama for his pioneering work in the field.

Dr. Singh's work has informed several national patient safety initiatives and policy reports, including those by the American Medical Association, Agency of Healthcare Research and Quality and the National Academy of Medicine (formerly the IOM). He also co-developed the "ONC SAFER Guides" for safe and effective electronic health record use and was elected as a Fellow of the American College of Medical Informatics for significant and sustained contributions to biomedical informatics. In 2013, he was nominated by the HHS Secretary to the federal Clinical Laboratory Improvement Advisory Committee, which advises the CDC, FDA and CMS. He is currently co-chairing the National Quality Forum's Health IT Patient Safety Committee and serving as an Associate Editor of the journal Diagnosis.

Stephen Taplin, MD, MPH
Deputy Associate Director, Healthcare Delivery Research Program
National Cancer Institute, Division of Cancer Control and Population Sciences

Dr. Stephen Taplin is the Deputy Associate Director of the Healthcare Delivery Research Program within the National Cancer Institute's Division of Cancer Control and Population Sciences. He is an expert in the field of cancer screening and built his research career around the problems that arose from his clinical experience as a primary care physician.

Before joining NCI he was responsible for delivery and evaluation of a breast cancer-screening program serving 100,000 women in an integrated health plan. He joined the National Cancer Institute as a Senior Scientist in 2003 after being a Professor in the Department of Family Medicine at the University of Washington and an Investigator in the Center for Health Studies at Group Health in Seattle. He has led the development of research into how individuals, groups and organizations act and interact to affect cancer care delivery. He publishes regularly in peer-reviewed journals including work on mammography and the conceptualization of problems and interventions in cancer care delivery. His current work emphasizes understanding how teams affect healthcare delivery.

Kevin Stein, PhD
Vice President, Behavioral Research
Director, Behavioral Research Center
American Cancer Society, Inc.

Dr. Kevin Stein is the Vice President of Behavioral Research for the American Cancer Society (ACS) and the Director of the ACS Behavioral Research Center (BRC), located in Atlanta, GA. The BRC conducts research to reduce cancer disparities, modify cancer risk behaviors, and improve cancer outcomes and quality of life among cancer patients, survivors, caregivers, and the general population. The goals of Dr. Stein's research are to gain a better understanding of factors related to the physical and psychosocial functioning of persons affected by cancer and develop evidence-based interventions to address these issues. Dr. Stein received a bachelor's degree in Psychology from the University of Florida and Master's and Doctoral degrees in Clinical Psychology from the University of South Florida. He completed an APA-approved internship at the James A. Haley Veterans' Hospital and a 3-year Postdoctoral Research Fellowship in Psychosocial Oncology at the Moffitt Cancer Center in Tampa, Florida. In addition to his work with the American Cancer Society, Dr. Stein holds an adjunct faculty appointment as an Associate Professor in the Behavioral Sciences and Health Education Department of Emory University's Rollins School of Public Health. Dr. Stein is an active member of the International Psychosocial Oncology Society, American Psychosocial Oncology Society, The International Society of Quality of Life Research, and the Society of Behavioral Medicine. He is a Fellow of the American Psychosocial Oncology Society and a licensed psychologist in the state of Georgia.

Richard C. Wender, MD
Chief Cancer Control Officer
American Cancer Society, Inc.

Dr. Richard C. Wender is the chief cancer control officer of the American Cancer Society. In this role, he is charged with providing oversight and guidance to the organization's domestic and global cancer control programs, with a focus on access, navigation, and health equity in an effort to ensure everyone has an equal opportunity to live a healthy life and receive high quality treatment and support. Dr. Wender leads one of the largest cancer control organizations in the country, with more than 1,000 regionally-deployed staff working in the areas of prevention and early detection, patient and caregiver support, programs and services, global cancer control, and health systems.

Dr. Wender became the Society's first chief cancer control officer in 2013, but prior to joining the staff, he was a committed volunteer starting in 1985. He provided extensive volunteer leadership at the Society's state and local levels, and in 2006, was elected volunteer president of the Society, becoming the first primary care physician to serve in this capacity.

Prior to joining the Society, Dr. Wender worked for 34 years as a family physician in the department of family and community medicine at Thomas Jefferson University in Philadelphia, most recently as alumni professor and chair. His earlier roles included serving as director of the family medicine residency program from 1985 to 1995 and as vice chair from 1995 to 2002. During Dr. Wender's tenure, the department developed a global health program and focused on a mission of improving outcomes for all, with a particular focus on reducing health disparities.

Dr. Wender has led numerous initiatives designed to improve preventive care and chronic disease management, with a focus on cancer prevention and control. He is a pioneer of the Patient Centered Medical Home, and currently serves as chair of the National Colorectal Cancer Roundtable. Dr. Wender's roots remain grounded in primary care, and he continues to provide primary care to patients. Through advocacy and through constructing lasting partnerships, Dr. Wender remains committed to building bridges between public health, community medicine, and primary care.

Ca-PRI 2016 Panels

Day 1: UK Early Diagnosis Panel

David Weller, PhD **(Moderator)**
University of Edinburgh, Scotland

William (Willie) Hamilton, MD
University of Exeter, England

Peter Vedsted, MD, PhD
Aarhus University, Denmark

Fiona Walter, MD
University of Cambridge, England

Richard Neal, MD, PhD
Bangor University, North Wales

Greg Rubin, FRCGP, FRCP(E)
Durham University, England

Sara Hiom, MSc
Cancer Research UK, England

Day 2: International Survivorship Panel

Jeff Sisler, MD **(Moderator)**
University of Manitoba, Canada

Shawna Hudson, PhD
Rutgers Robert Wood Johnson Medical School, USA

Baukje (Bo) Miedema, PhD
Dalhousie University, Canada

Annette Berendsen, MD, PhD
University of Groningen, Netherlands

Eila Watson, PhD
Oxford Brookes University, England

9th Annual Ca-PRI Conference Program

Tuesday 4/26

5:00-7:00 pm	**Reception and Tour of the Dana Farber Cancer Institute**	*Dana Farber Cancer Institute*
7:30-10:00 pm	**Executive & Planning Committee Dinner**	*Lineage*
7:30-10:00 pm	**Student & Trainee Dinner**	*The Yard House*

Wednesday 4/27

7:30-8:30 am	**Breakfast** Registration & Networking *Informal Viewing of Day 1 Posters*	*Fenway Room*
8:30-8:45 am	**Welcome** David Weller, MD, Ca-PRI chair and Larissa Nekhlyudov, MD, Boston Host	*Longwood Hall*
8:45-9:15 am	**Plenary – Session 1** *The Role of Primary Care Systems in Cancer Detection and Management* Russ Phillips, MD, Harvard Medical School	*Longwood Hall*
9:15-9:45 am	*Maximizing Value of Cancer Screening Around the World* Richard Wender, MD, American Cancer Society	
9:45-10:00 am	**Oral Abstracts** O-01: *Patient navigation for comprehensive cancer screening in vulnerable patients within a primary care network: A randomized control trial* Sanja Percac-Lima, Boston, Massachusetts	*Longwood Hall*
10:00-10:15 am	O-02: *Factors related with colorectal cancer emergencies presentation differs according tumor localization* Magdalena Esteva, Spain	
10:15-10:30 am	O-03: *Diagnosis of cancer through an emergency presentation with and without prior general practice consultations: Insights from linkage of patient survey and routine data* Gary Abel, UK	
10:30-10:45 am	O-04: *From first symptom to treatment for breast cancer- an international comparative study (ICBPM4)* Peter Vedsted, Denmark	
10:45-11:15 am	**Poster Presentations- Session 1** *Guided tours of selected poster presentations* Break & Refreshments	*Fenway Room*
11:15-12:45 pm	**Breakout Sessions** **Session A: CanIMPACT: Phase I results from the Canadian Team to Improve Coordination of Care for Cancer Patients** *Moderator: Eva Grunfeld, Canada* O-05: *Canadian Team to Improve Community-Based Cancer Care along the Continuum (CanIMPACT)* Eva Grunfeld, Canada	*Longwood Hall Rooms A-C*

O-06: *The Role of Family Physicians in Cancer Care: Perspectives of Primary and Specialty Care Providers*
Julie Easley, Canada

O-07: *CanIMPACT: Understanding complexities, variation, and disparities in the breast cancer care continuum in 5 Canadian provinces using administrative data*
Patti Groome, Canada

O-08: *Using Canadian administrative data to understand primary care physician use across the breast cancer care continuum*
Li Jiang, Canada; *Presented by: CanIMPACT team*

O-09: *CanIMPACT: A multi-purpose study of primary and specialist health care utilization in Canadians with breast cancer*
Cynthia Kendell, Canada

O-10: *Personalized cancer genomic medicine: Is primary care ready? Findings from the CanIMPACT study*
June Carroll, Canada

Session B: Survivorship
Moderator: Greg Rubin, UK

O-11: *Trend in survival among cancer patients with symptomatic presentation in primary care: Introducing standardized cancer patient pathways in Denmark*
Henry Jensen, Denmark

O-12: *Factors affecting adherence to adjuvant endocrine therapy following treatment for breast cancer*
Eila Watson, UK

O-13: *The Cancer Survivor Profile (CSPro): A brief evaluation tool to enhance triage, self-management and quality health care seeking among breast cancer survivors*
Michael Feuerstein, Maryland, USA

O-14: *Diagnostic Journeys in Myeloma (DJiM): How long does it take and what influences length of journey? What evidence is there? A configurative systematic review*
Tania Seale, UK

O-15: *Long-term outcome of cardiac dysfunction in a population-based cohort of breast cancer survivors*
Liselotte Boerman, Netherlands

O-16: *A systematic review on early integration of palliative care in advanced cancer patients*
Ineke Nugteren, Netherlands

Session C: Cancer Screening
Moderator: Christine Campbell, UK

O-17: *Using brief electronic forms for lung cancer screening eligibility in primary care: a qualitative inquiry*
Mary Ann O'Brien, Canada

	O-18: *Implementation of thermo-coagulation as an effective treatment modality in a 'screen and treat' programme of cervical screening in rural Malawi* Christine Campbell, UK O-19: *Ethnic variations in participation in bowel cancer screening in Scotland* Christine Campbell, UK O-20: *Diffusion of Digital Breast Tomosynthesis among Women in primary care practice* Cheryl Clark, Boston, Massachusetts O-21: *Engaging the community and rural primary care to increase colorectal cancer screening* Resa Jones, Virginia, USA O-22: *Consideration of individualized competing mortality risks in postmenopausal breast cancer risk prediction* Mara Schonberg, Boston, Massachusetts
1:00-2:00 pm	**Lunch with Key Note Address** *Fenway Room* *Cancer Control in the Era of Health Reform* Howard Koh, MD, MPH, Harvard School of Public Health
2:00-2:45 pm	**Panel** *Longwood Hall* *Early Cancer Diagnosis - the UK Experience* Moderator: David Weller, MD, UK
2:45-3:30 pm	**Plenary - Session 2** *Longwood Hall* *Future Research Opportunities in Early Diagnosis and Referral for Treatment* Stephen Taplin, MD, National Cancer Institute *Reducing Missed Opportunities in Early Diagnosis in the Electronic Health Record Era* Hardeep Singh, MD, MPH, Houston Veterans Affairs Health Services Research Center for Innovations
3:30-4:00 pm	**Poster Presentations- Session 2** *Fenway Room* *Guided tours of selected poster presentations* Break & Refreshments
4:00-5:00 pm	**Breakout Sessions** *Longwood Hall Rooms A-C* **Session A: Survivorship** *Moderator: Henk Van Weert, Netherlands* O-23: *Primary Care and Outcomes in Adult Patients with Cancer: A systematic review* Ya Luan Hsiao, Maryland, USA O-24: *The care for tailored cancer follow-up? Results of a discrete choice experiment in people surviving from four common cancers* Peter Murchie, UK O-25: *Detection of recurrent disease during follow-up of rectal carcinoma* Thijs Wieldraaijer, Netherlands

	O-26: *What CEA level should trigger further investigation during colorectal cancer follow-up?* Brain D Nicholson, UK **Session B: Early Diagnosis** *Moderator: Bob Greenlee, Wisconsin, USA* O-27: *Comparing cervical cancer stage of diagnosis at presentation in immigrant women and long-term residents* Teja Voruganti, Canada O-28: *A secondary qualitative analysis of the factors that contribute to patients' appraisal of symptoms and decision to seek help: Applying the 'Model of Pathways to Treatment'* Sonja Kummer, UK O-29: *Differences in the breast cancer diagnostic process across stage groups in Ontario, Canada* Patti Groome, Canada O-30: *Audit of patients diagnosed with cancer following an emergency admission in the Thames Valley area, UK* Jennifer Yiallouros, UK **Session C: Early Detection- Colorectal Cancer** *Moderator: Knut Holtedahl, Norway* O-31: *The diagnostic pathway of colorectal cancer patients in the Netherlands; duration and characteristics associated with relatively long duration* Nicole Van Erp, Netherlands O-32: *Iterative target audience input to develop videos addressing test-specific colorectal cancer screening barriers* Resa Jones, Virginia, USA O-33: *Patterns of symptomatic presentation in primary care prior to emergency and non-emergency colorectal cancer diagnosis: challenges and opportunities* Cristina Renzi, UK O-34: *Identification of early stage colorectal cancer patients in primary care* Marcela Ewing, Sweden
6:15-10:00 pm	**Annual Conference Dinner** *House of Blues*

Thursday 4/28

6:00 am	**Run to the Finish** *Group run led by Charles Helsper starting from the Inn at Longwood and ending at the Boston Marathon Finish Line (1.8 miles).*
7:30-8:30 am	**Breakfast & Networking** *Fenway Room* *Informal viewing of posters*
8:30-8:45 am	**Opening Remarks** *Longwood Hall*

	Plenary – Session 3	*Longwood Hall*
8:45-9:15 am	*Cancer Survivorship: Bridging Gaps between Oncology and Primary Care* Ann Partridge, MD, MPH, Dana Farber Cancer Institute	
9:15-9:45 am	*Effective Integration of Palliative Care and Oncology: Co-Management Model* Vicki Jackson, MD, MPH, Massachusetts General Hospital	
	Oral Abstract Presentations	*Longwood Hall*
9:45-10:00 am	O-35: *Learning the landscape: Implementation challenges of primary care innovators around cancer survivorship care* Denalee O'Malley, New Jersey, USA	
10:00-10:15 am	O-36: *Structured supportive care for lung cancer patients receiving systematic therapy: a randomized controlled trial* Olaf Geerse, Netherlands	
10:15-10:30 am	O-37: *Can patient reported measurements of pain be used to improve cancer pain management? A systematic review and meta-analysis* Rosalind Adam, UK	
10:30-11:00 am	**Poster Presentations- Session 3** *Guided tours of selected poster presentations* Break & Refreshments	*Fenway Room*
11:00-12:30 pm	**Panel** *Survivorship Care – International Perspective* Moderator: Jeff Sisler, Canada	*Longwood Hall*
12:30-1:00 pm	**Plenary – Session 4** *The Future of Cancer Survivorship and Palliative Care Research: Opportunities in Primary Care* Kevin Stein, PhD, American Cancer Society	*Longwood Hall*
1:00-2:00 pm	**Lunch** Networking	*Fenway Room*
2:00-3:15 pm	**Breakout Sessions** **Session A: Workshop** *Moderator: Christine Campbell, UK* O-38: *Addressing disparities in cancer screening participation- what can we learn from different health systems?* Christine Campbell, UK **Session B: Survivorship** *Moderator: Jeff Sisler, Canada* O-39: *Transitions of care for breast cancer survivors: The oncology/primary care interface* Jeff Sisler, Canada O-40: *Examining routine follow-up care for survivors of breast, prostate, colon, rectal, or gynecological cancer* Robin Urquhart, Canada	*Longwood Hall Rooms A-C*

	O-41: *Evidence based guidelines for breast cancer survivors being helpful for general practitioners?* Inge Spronk, Netherlands O-42: *Healthcare utilization patterns among individuals with metastatic cancer and comorbid mental health disparities* David Nowels, Colorado, USA O-43: *Do patients with advanced cancer also see primary care?* David Nowels, Colorado, USA **Session C: Early Diagnosis** *Moderator: Fiona Walter, UK* O-44: *The impact of body vigilance on help-seeking for cancer alarm symptoms in a UK sample* Katriina Whitaker, UK O-45: *The diagnostic pathway of breast cancer patients in the Netherlands; duration and characteristics associated with relatively long duration* Nicole Van Erp, Netherlands O-46: *The effect of system factors on European GPs decision-making for patients who may have cancer: an 18-country Örenäs research group survey* Michael Harris, UK O-47: *Patient factors associated with time to diagnosis for pancreatic cancer: findings from an English prospective cohort study* Fiona Walter, UK O-48: *Associations between general practice measures of patient experience and practice indicators of diagnostic evaluation for suspected cancer* Georgios Lyratzopoulos, UK
3:15-4:00 pm	**Poster Presentations- Session 4** *Fenway Room* *Guided tours of selected poster presentations* Break & Refreshments
	Oral Presentations (E-posters) *Longwood Hall*
4:00-4:05 pm	E-01: *Do fatalistic attitudes towards ill-health and dying influence help-seeking behavior? A qualitative study* Julia Walabyeki, UK
4:05-4:10 pm	E-02: *The impact of proxy responses on cancer care experience reports and ratings* Jessica Roydhouse, Rhode Island, USA
4:10-4:15 pm	E-03: *Abdominal symptoms in general practice I: Frequency, cancer suspicions raised and actions taken in general practice, with differences in six European Countries.* Knut Holtedahl, Norway
4:15-4:20 pm	E-04: *Learning about colorectal cancer survivorship care: An assessment of the effectiveness of an interactive web-based tutorial in a primary care residency* Shahla Ahmad, Pennsylvania, USA

4:20-4:25 pm	E-05: *Daughters of BRCA ½ mutation carriers talk to PCPs and GYNs: Opportunities to help manage their hereditary cancer risks* Andrea Patenaude, Massachusetts, USA
4:25-4:30 pm	E-06: *Five-year follow-up of participants in a randomized controlled trial examining the management of suspicious pigmented lesions in primary care* Elka Humprhys, UK
4:30-4:35 pm	E-07: *Bowel disease in younger adults: Identification and quantification of the clinical features of inflammatory bowel disease and colorectal cancer in patients under 50* Sal Stapley, UK
4:35-4:40 pm	E-08: *Determinants of general practitioner's cancer related gut feelings- a prospective cohort study* Ge Donker, Netherlands; *Presented by Marianne Heins*
4:40-4:45 pm	E-09: *The media representation of age as a risk factor for cancer* Sara Macdonald, UK
4:45-5:00 pm	**Closing remarks/Wrap up** *Longwood Hall* *Introducing Ca-PRI 2017*
7:10-10:00 pm	**Red Sox Game** *Fenway Park*

Posters Day 1 (Wednesday)

Poster Tour Guides: Break (10:45-11:15 am)

- Group A- Li Li, *Planning Committee*
- Group B- Richard Neal, *Executive Committee*

Poster Tour Guides: Break (3:30-4:00 pm)

- Group C- Jennifer Haas, *Planning Committee*
- Group D- Annette (AJ) Berendsen, *Executive Committee*

Posters will be displayed all day. Authors should plan to present their poster twice; once during the morning break and once during the afternoon break.

P-01: *Predictive values of gynecological and gastrointestinal cancer alarm symptoms in the Danish population.* **Dorte Jarbol, Denmark**
P-02: *Trialing a colorectal cancer risk prediction tool (CRISP) in primary care: Is a 'nurse-led' method feasible?* **Jennifer Walker, Australia**
P-03: *Socioeconomic differences in responses to breast cancer symptoms: A qualitative comparative study*. **Katriina Whitaker, UK**
P-04: *Understanding how 'lung cancer symptoms' and 'service' attributes drive the decision to seek help from a General Practice in the Scottish public: a discrete choice experiment*. **Domencia Coxon, UK**
P-05: *The effectiveness of digital rectal examination for the diagnosis of prostate cancer in symptomatic patients in primary care: a systematic review*. **Daniel Jones, UK**
P-06: *Educational differences in likelihood of attributing breast symptoms to cancer: a vignette-based study*. **Katriina Whitaker, UK**
P-07: *An investigation of routes to cancer diagnosis in ten international jurisdictions- survey development and implementation of ICBPM4.* **David Weller, UK**
P-08: *Identifying people at higher risk of melanoma across the UK: a primary care-based electronic survey*. **Fiona Walter, UK**
P-09: *Variation in English General Practitioners' direct access to tests to investigate cancer.* Brian Nicholson, UK

P-10: *The effects of primary care reform on inequalities in cancer screening: A population-based longitudinal study in Ontario, Canada.* **Aisha Lofters, Canada**
P-11: *Factors influencing participation of primary physicians in endoscopic screening programs for gastric cancer.* **Chisato Hamashima, Japan**
P-12: *Diagnostic journeys in myeloma (DjiM): How long does it take to diagnose? Findings from the qualitative enquiry in newly diagnosed myeloma patients in Wales.* **Tania Seale, UK**
P-13: *Cancer risk assessment in primary care.* **Reka Vernes, Hungary**
P-14: *Recommendations and performance of cancer screening examinations: Results from a nation-wide survey in Germany*. **Jennifer Engler, Germany**
P-15: *Routes to a prostate cancer diagnosis*. **Charis Brown, New Zealand**
P-16: *The association between degree of rurality and the length of the colorectal cancer diagnostic interval in Ontario, Canada.* **Patti Groome, Canada**

Posters Day 2 (Thursday)

Poster Tour Guides: Break (10:30-11:00 am)

- Group A- David Weller, *Executive Committee*
- Group B- William (Willie) Hamilton, *Panelist*

Poster Tour Guides: Break (3:15-4:00 pm)

- Group C- Robert (Bob) Greenlee, *Planning Committee*
- Group D- Jeff Sisler, *Executive Committee*

Posters will be displayed all day. Authors should plan to present their poster twice; once during the morning break and once during the afternoon break.

P-17: *In symptomatic lung and colorectal cancer patients, could thrombocytosis allow the diagnosis to be expedited?* **Sarah Bailey, UK**
P-18: *The validity of cancer recording in the Clinical Practice Research Datalink compared with UK cancer registries: a cohort study.* **Sarah Bailey, UK**
P-19: *Examining the impact of multimorbidity across the cancer care continuum using Scottish primary care and national prescribing data: a feasibility study.* **Christine Campbell, UK**
P-20: *Reinforcing partnership between cancer patient, general practitioner and oncologist during chemotherapy-study protocol for a randomized controlled trail.* **Theis Trabjerg, Denmark**
P-21: *Early death following cancer diagnosis: Prior input from primary care*.
Elizabeth (Liz) Mitchell, UK; *Presented by Daniel Jones*
P-22: *Shared decision making in lung cancer: a systematic review*. **Mariken Stegmann, Netherlands**
P-23: *Eliciting preferences of elderly with advanced cancer. Design of a randomized controlled trial of the effect on self-efficacy (OPTion-study).* **Mariken Stegmann, Netherlands**
P-24: *CAPPA: Care for prostate cancer patients*. **Marianne Heins, Netherlands**
P-25: *Impact of switching to high deductible insurance on initiation and discontinuation of hormonal therapy among patients with early breast cancer.* **Christine Lu, Boston, Massachusetts**
P-26: *Comparing lung cancer diagnostic and treatment pathways between CALD and Anglo-Australian patients: A mixed methods, observational cohort study protocol.* **Danielle Mazza, Australia**
P-27: *Insurance coverage policies for guideline-recommended genetic testing for cancer targeted therapies: preliminary results*. **Christine Lu, Boston, Massachusetts**
P-28: *Abdominal symptoms in general practice II: Validity and predictive values in relation to new abdominal cancer. A study from six European countries, with prospective registration of cancer.* **Knut Holtedahl, Norway**
P-29: *The effect of post treatment physical activity on fatigue among colorectal cancer survivors: a systematic review*. **Daan Brandenberg, Netherlands**
P-30: *Gynecological cancer survivors' views on follow-up after cancer treatment*. **Heidi Fidjeland, Norway**
P-31: *Could digital technologies have a role in optimizing cancer pain management in the community?*
Rosalind Adam, Scotland
P-32: *Feasibility testing of a brief intervention in primary care for non-responders to bowel cancer screening in the Lothian region, Scotland.* **Christine Campbell, UK**

Social Program

Welcome Reception at Dana Farber Cancer Institute (5:00-7:00 pm)

The welcome reception will be held at the world-renowned cancer treatment and research center, the Dana Farber Cancer Institute, located in the Longwood Medical area in Boston. We will be offering small group tours of the facility from seasoned DFCI volunteers intermittently throughout the 2 hour time period. If you are an international attendee, you will be asked to fill out a travel form. Once you arrive to 450 Brookline Avenue (Yawkey Center for Cancer Care), take the elevator to the 3rd floor and follow the signs for the Dining Pavilion.

Dana Farber Cancer Institute
450 Brookline Avenue
Boston, MA02215

Student/Trainee Dinner (7:30-10:00 pm)

The student and trainee dinner will be held at The Yard House, located in the heart of Fenway. This restaurant is a popular spot for locals to grab a bite or a drink before or after a Red Sox game. The Yard House is located .6 miles (13 minute walk) from the Conference Venue Hotel, the Inn at Longwood Medical.

The Yard House
126 Brookline Avenue
Boston, MA 02215

Executive/Planning Committee Dinner (7:30-10:00 pm)

The executive and planning committee dinner will take place at the Lineage restaurant, located in Brookline. Owned by the award-winning Boston chef, Jeremy Sewall, this restaurant promises local and fresh seafood and ingredients with menus printed daily. Lineage is located .8 miles (18 minute walk) from the Conference Venue Hotel, the Inn at Longwood Medical.

Lineage
242 Harvard Street
Brookline, MA 02446

Annual Conference Dinner at the House of Blues (6:15-10:00 pm)

The Annual Conference Dinner will take place at the House of Blues, located across the street from Fenway Park! The Ca-PRI dinner will be in a private room called the Foundation Room. There will be delicious food, cash bar, good company, and live entertainment for the evening! Tickets are $75, please contact the Conference Coordinator if you have not already bought your ticket and are interested in attending.

House of Blues (Foundation Room)
15 Lansdowne Street
Boston, MA 02215

Red Sox Game (7:10-10:00 pm)

Last but certainly not least is the Red Sox game! Ca-PRI has reserved group tickets for the game on April 28th at 7:10pm. The Red Sox will be playing the Atlanta Braves. Our tickets are in Grandstand section 29. Please contact the Conference Coordinator if you are interested in attending, tickets are only $40!

HELPFUL HINTS FOR GAME DAY!

- We will plan to meet at the Inn at Longwood at 6:00pm to head to Fenway Park together. If you are planning to meet us at the stadium, please note we will be entering in Gate E.
- Bring warm layers to wear at the game! Temperatures will drop once the sun sets at 7:30pm.
- Avoid bringing large backpacks or bags, this will speed up the process when we go through security.
- A small personal purse or bag is fine to bring, it will be searched upon entering the park.
- Bring cash and a passport (international attendees), or an ID (local attendees) if you plan to buy alcohol; Fenway Park cards all ages!

Ca-PRI Hotel Addresses

The Inn at Longwood (Conference Venue Hotel)
342 Longwood Avenue, Boston, MA 02115

The Courtyard Marriott, Brookline
40 Webster Street, Brookline, MA 02446

Hotel Commonwealth
500 Commonwealth Avenue, Boston, MA 02215

Ca-PRI Executive Committee

David Weller, PhD (current chair)
Scotland

Larissa Nekhlyudov, MD, MPH
Boston, MA

Christine Campbell, PhD
Scotland

Stephen Taplin, MD, MPH
Maryland, MD

Jeff Sisler, MD, MClSc, CCFP, FCFP
Canada

Richard Neal, MD, ChB, PhD, FRCGP
North Wales

Peter Vedsted, MD, PhD
Denmark

Jon Emery, MA, MBBCh, FRACGP, MRCGP, DPhil
Australia

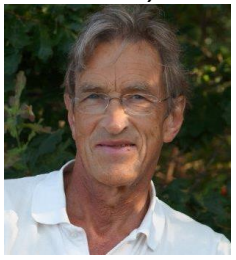
Henk van Weert, MD, PhD
Netherlands

Greg Rubin, FRCGP, FRCP(E)
England

Fiona Walter, MA, MD, FRCGP
England

Anette J. Berendsen, PhD, MD
Netherlands

Knut Holtedahl, MD, PhD
Norway



List of Ca-PRI 2016 Delegates

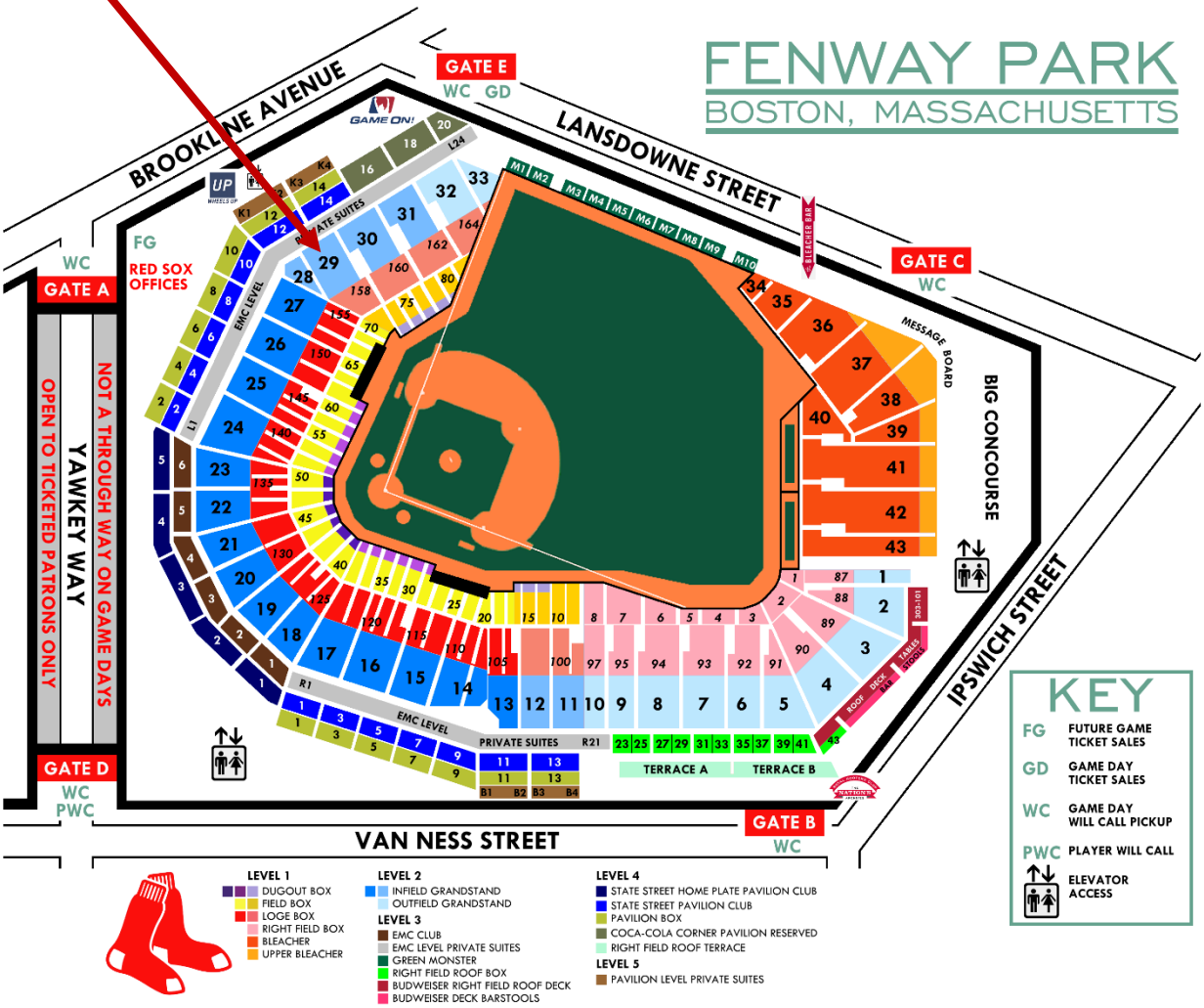
First Name	Last Name	Country
Gary	Abel	United Kingdom
Ayesha	Abid	USA
Rosalind	Adam	United Kingdom
Shahla	Ahmad	USA
Sarah	Bailey	United Kingdom
Annette	Berendsen	Netherlands
Julie	Berrett-Abebe	USA
Liselotte	Boerman	Netherlands
Daan	Brandenbarg	Netherlands
Erica	Breslau	USA
Charis	Brown	New Zealand
Frederike	Buchner	Netherlands
Christine	Campbell	United Kingdom
June	Carroll	Canada
Cheryl	Clark	USA
domenica	coxon	United Kingdom
Niek	De Wit	Netherlands
Chyke	Doubeni	USA
Janan	Drobiner	Germany
Julie	Easley	Canada
Jennifer	Engler	Germany
Jesper	Eriksen	Denmark
Magdalena	Esteva	Spain
Marcela	Ewing	Sweden
Tunji	Fatoye	Canada
Michael	Feuerstein	USA
Heidi Lidal	Fidjeland	Norway
Olaf	Geerse	Netherlands
Amanda	Gehrke	USA
Robert	Greenlee	USA
Patti	Groome	Canada
Brad	Groves	United Kingdom
Eva	Grunfeld	Canada
Jessica	Guaragna	USA
Jennifer	Haas	USA
Chisato	Hamashima	Japan
William	Hamilton	United Kingdom
Diane	Harper	USA
Michael	Harris	United Kingdom
Marianne	Heins	Netherlands
Charles	Helsper	Netherlands
Sara	Hiom	United Kingdom
Richard	Hiskens	United Kingdom
Knut	Holtedahl	Norway
Ya Luan	Hsiao	USA

Shawna	Hudson	USA
Elka	Humphrys	United Kingdom
Dorte	Jarbol	Denmark
Henry	Jensen	Denmark
Daniel	Jones	United Kingdom
Resa	Jones	USA
Elizabeth	Kass	USA
Diane	Kelsall	Canada
Cynthia	Kendell	Canada
Radhika	Khwaja	USA
Jac	Korsten	Netherlands
Virginia	Krawiec	USA
Sonja	Kummer	United Kingdom
Elizabeth	Kvale	USA
Ross	Lawrenson	New Zealand
Christine	Leopold	USA
Peter	Lewis	USA
Li	Li	USA
Aisha	Lofters	Canada
Christine	Lu	USA
Georgios	Lyratzopoulos	United Kingdom
Sara	Macdonald	United Kingdom
Jörgen	Månsson	Sweden
Danielle	Mazza	Australia
Mary	McBride	Canada
Baukje (Bo)	Miedema	Canada
Peter	Murchie	United Kingdom
Richard	Neal	Wales
Larissa	Nekhlyudov	USA
Brian	Nicholson	United Kingdom
David	Nowels	USA
Ineke	Nugteren	Netherlands
Mary Ann	O'Brien	Canada
Denalee	O'Malley	USA
Andrea	Patenaude	USA
Letje	Perfors	Netherlands
Cristina	Renzi	United Kingdom
Abish	Romero	Mexico
Richard	Roope	United Kingdom
Lisa	Rotenstein	USA
Jessica	Roydhouse	USA
Greg	Rubin	United Kingdom
Mara	Schonberg	USA
Tania	Seale	United Kingdom
Hardeep	Singh	USA
Jeffrey	Sisler	USA
Inge	Spronk	Netherlands
Sal	Stapley	United Kingdom

Mariken	Stegmann	Netherlands
Kevin	Stein	USA
Stephen	Taplin	USA
Matthew	Thompson	USA
Theis	Trabjerg	Denmark
Robin	Urquhart	Canada
Nicole	van Erp	Netherlands
Henk	Van weert	Netherlands
Peter	Vedsted	Denmark
Reka	Vernes	Hungary
Teja	Voruganti	Canada
Julie	Walabyeki	United Kingdom
Jennifer	Walker	Australia
Fiona	Walter	United Kingdom
Eila	Watson	United Kingdom
Jonathan	Weiner	USA
David	Weller	United Kingdom
Katriina	Whitaker	United Kingdom
Thijs	Wieldraaijer	Netherlands
David	Yavin	USA
Jennifer	Yiallouros	United Kingdom

Map of Fenway Park Stadium

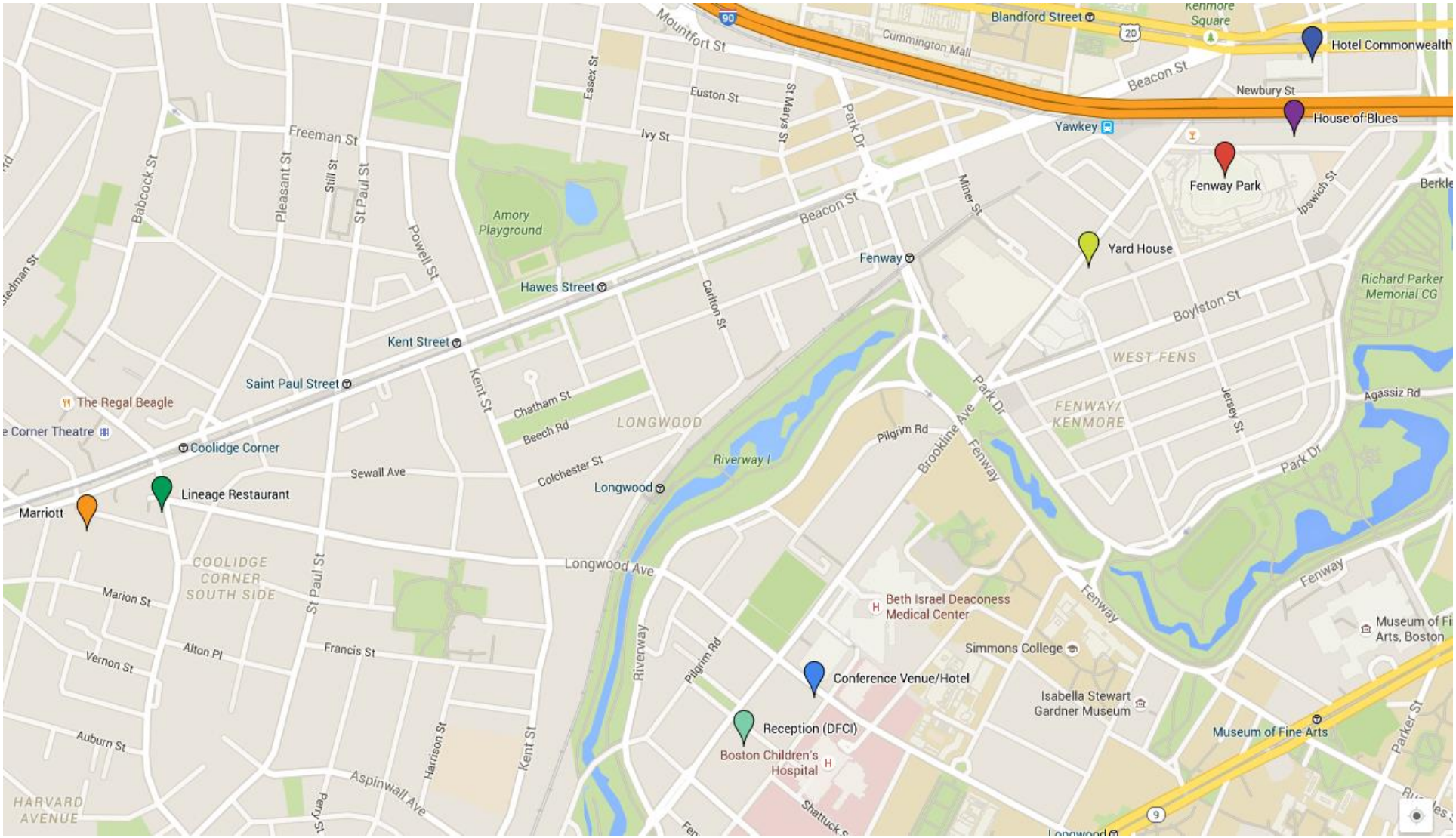
We are Grandstand 29



CA-PRI BOSTON MAP

Labeled map of all venues to be visited during the Ca-PRI 2016 Conference

All destinations are within 1.5 miles of each other



Oral Abstracts – Day 1

Patient Navigation for Comprehensive Cancer Screening in Vulnerable Patients Within a Primary Care Network: A Randomized Control Trial

Submitting Author: Sanja Percac-Lima, MGH

Sanja Percac-Lima MD, PhD, Jeffrey M. Ashburner MPH, Adrian Zai MD, MPH, PhD, Yuchiao Chang PhD, Sarah Oo MSW, Erica Guimaraes BA, Steven J. Atlas MD, MPH

Background: Patient navigation (PN) can improve cancer screening in vulnerable populations. PN programs are often located in community health centers and focus on a single cancer. We evaluated a PN program for comprehensive cancer screening within a primary care (PC) network using a population-based information technology (IT) system.

Methods: We identified patients overdue for cancer screening in 18 PC practices at high risk for non-adherence with testing using an electronic algorithm (language spoken, # of overdue tests, no-show history) and randomized them to intervention (n=792) or control (n=820) groups. In the intervention arm, navigators used the visit-independent IT system to track and navigate patients to obtain breast, cervical, and/or colorectal cancer screening. Control patients received usual care. The primary outcome was average cancer screening test completion rate over 8 months (April-December 2014) for each eligible patient, with all overdue cancers combined using unadjusted linear regression models.

Results: Baseline patient characteristics were similar among randomized groups. Of 792 intervention patients, PNs were unable to reach 151 (19%), deferred 246 (38%) (e.g., patient declined, competing comorbidity), and navigated 202 (32%). The average proportion of time patients were up to date with screening among all overdue screening exams was higher in the intervention vs. the control group for all cancers combined (10.2% vs. 6.8%, $p<0.001$), for breast (14.7% vs. 11.0%, $p=0.03$), cervical (11.1% vs. 5.7%, $p=0.002$), and colon (7.6% vs. 4.6%, $p=0.01$) cancer. The intervention group had more patients completing screening than controls for breast (23.4% vs. 16.6%, $p=0.009$), cervical (14.4% vs. 8.6%, $p=0.007$), and colorectal (13.7% vs. 7.0%, $p<0.001$) cancer.

Conclusions: An IT-enhanced PN system significantly improved screening rates for breast, cervical and colorectal cancer in patients at high risk for non-adherence with testing. Patient navigators integrated into population health management activities for vulnerable patients might help improve equity of cancer care.

Factors related with colorectal cancer emergencies presentation differs according tumour localization

Submitting Author: Magdalena Esteva, Primary Health Care Majorca Dept.

Background: Patient pathway to diagnosis of colorectal cancer is strongly predictive poor cancer outcomes with those who present as an emergency faring poorly in the first year after diagnosis. Most studies have considered colon and rectal cancer together but a few showed that emergency presentation (EP) is greater for patients with colon compared with rectal cancer.

Methods: We performed a multi-centre descriptive study, with 5 participant Spanish regions, 950 incident cases of CRC (2006-2008). Measurements: Sociodemographic, initial symptom/s, symptom perception and confidence with their General Practitioner (GP). Primary care: teaching center, number of visits for CCR symptoms, of first symptom/s, diagnosis orientation, and type and specialist referral. Hospital: stage, grade, abdominal occlusion, resection, type of treatment.

Results: EP was 50,1% for colon and 37,5% for rectal cancer. We found that colon and rectal cancer shared some common risk factors for EP: Patients were at higher risk when presented constipation or vomits as initials symptoms, less visits with their GP, GPs referral to an emergency department, or had GP inappropriate diagnosis orientation. Additionally, specific colon cancer risk of EP was identified when patients presented abdominal pain, rectal bleeding and loss of weight; have low number of symptoms and low confidence in their GP. In rectal cancer, women and those with history of cancer in family and/or quittances were at higher risk of EP as well as, those with changes of bowel habits. In both tumors, EP was related to abdominal occlusion, urgent surgery, intention and type of treatment. EP was related with resection margins and stage in colon cancer but not in rectum.

Conclusions: Colon and rectum cancer share some risk factors for emergency presentation as symptoms, consultation and GP performance. Colon and rectal cancer present specific risk factors for EP as gender, some type of symptoms and GPs related variables.

Diagnosis of cancer through an emergency presentation with and without prior general practice consultations: Insights from linkage of patient survey and routine data

Abel GA, PhD,[1] Mendonca SC, MSc,[1] McPhail S, PhD,[2] Zhou Y, MBBS,[1] Elliss-Brookes L, BSc,[2] Lyratzopoulos G, MD.[1,3]

1 Cambridge Centre for Health Services Research, Institute of Public Health, University of Cambridge, Cambridge, CB2 0SR, UK.

2. Public Health England National Cancer Intelligence Network, 80 London Road, London, SE1 6LH. UK.

3. Cancer Research UK Health Behaviour Research Centre, Department of Epidemiology and Public Health, University College London, 1-19 Torrington Place, London, WC1E 7HB, UK

Background: Diagnoses of cancer through emergency presentation are common, but their aetiology is debatable. Some 'emergency presenters' have consulted previously with relevant symptoms, while others only present as emergencies.

Methods: Secondary analysis of previously linked patient-reported (Cancer Patient Experience Survey 2010) and routinely recorded ('Routes to Diagnosis' 2006-2010) data for emergency presenters with 18 different cancers. We estimated percentages (weighted to the population-based incidence of emergency presentations) and adjusted odds ratios for two outcomes: prior general practitioner consultation status; and 'three or more (3+) consultations' (among prior consultees).

Results: Among 4,647 emergency presenters, 1,349 (weighted percentage 34%) reported no prior consultations. Men (36% *vs* 31% in women), older (42% *vs* 33% for '85+' *vs* 65-74 year olds), and most deprived (37% *vs* 28% in most *vs* least deprived groups) emergency presenters were more likely to report no prior consultations. There was large (7-fold) variation by cancer in adjusted odds of no prior consultations ($p<0.0001$), being most and least likely in emergency presenters with brain cancer and mesothelioma [adjusted odds ratio of 1.52 and 0.22, respectively, compared to rectal cancer (reference)].

Among 3,298 emergency presenters with at least one prior consultation, 1,356 (weighted percentage 35%) had 3+ consultations, which were more likely in women and younger patients. There was large (4-fold) variation by cancer in adjusted odds of 3+ consultations ($p<0.0001$), being most and least likely in prior consultees with multiple myeloma and leukaemia (odds ratio of 1.84 and 0.42, respectively).

Conclusions: Contrary to suggestions that emergency diagnoses of cancer represent failures of primary care, many (particularly older and poorer) emergency presenters have no prior primary care consultations and only a minority report multiple (3+) consultations (particularly patients with 'harder-to-suspect' cancers). As aetiologies are complex, both community and primary care interventions are required to target different symptomatic presentations and socio-demographic groups.

From first symptom to treatment for breast cancer – an international comparative study (ICBPM4)

Submitting Author: Peter Vedsted, Aarhus University, Denmark

Peter Vedsted, David Weller, Alina Zalounina Falborg, Henry Jensen, Usha Menon, for the ICBP Module 4 group.

Background: International differences in breast cancer survival and stage at diagnosis, reported previously by the International Cancer Benchmarking Partnership (ICBP), may be linked to differences in time intervals and routes to diagnosis. ICBP Module 4 reports the first international comparison of routes to diagnosis for breast cancer patients and the time intervals from symptom onset until the start of treatment. Data from ten jurisdictions across six countries (Canada, the UK, Norway, Sweden, Denmark and Australia) is included.

Methods: Breast cancer patients were identified via cancer registries. Data on symptomatic and screened patients was collected – with a target of 200 symptomatic patients. Questionnaire data from patients' primary care providers (PCPs) and specialists, as well as audit information from treatment records or databases, supplemented data from the patient questionnaire.

Routes to diagnosis and the key time intervals were estimated and compared using quantile regression.

Results: A total of 3,470 breast cancer patients diagnosed between May 2013 and November 2015 are included in the analyses. Preliminary analyses show that the main route to diagnosis was symptomatic presentation, most often to primary care. Half of these women experienced a lump.

The median patient interval ranged from 4 to 31 days. The primary care interval was short with a median of 0 days with a few important exceptions. For symptomatic women the median diagnostic interval ranged from 8 to 36 days and the median total interval from first symptom to treatment from 42 to 93 days between jurisdictions. The total interval was similar between jurisdictions when screen detected cases were included.

Conclusion: Module 4 was able to demonstrate important differences in routes to diagnosis and time intervals between ten jurisdictions. Preliminary results will be presented at the conference.

Canadian Team to Improve Community-Based Cancer Care along the Continuum (CanIMPACT)

Submitting Author: Eva Grunfeld for CanIMPACT

Background: Ca-PRI was founded in 2008 to promote research in primary care and cancer. At the Ca-PRI meeting in 2011 a group of Canadian researchers met to develop the ambitious vision of a large program of research. The result was a successful proposal for a 5-year team grant: CanIMPACT. CanIMPACT is a multidisciplinary pan-Canadian team of primary care and cancer specialist researchers, clinicians, policy makers and patients, with strong international representation. The overall goal is to elucidate gaps in care, and develop and test strategies to enhance the capacity of primary care to provide care to cancer patients, and improve integration and coordination from diagnosis to survivorship. The foundational Phase I research has now been completed and the team is moving to intervention research in Phase II.

Methods: A mixed method approach involving: 1) population-based studies utilizing administrative health databases to describe variations and gaps in care; 2) qualitative studies to understand context; 3) environmental scan and systematic review to catalogue existing evidence, programs and tools; 4) focused research on the evolving role of primary care in personalized medicine; 5) patient engagement through a Patient Advisory Committee; 6) development of a Gigamap as a data visualization tool; and 5) a multi-stakeholder consultative workshop to determine direction for Phase II.

Results: We are proposing a combined oral session to present the multi-study results from Phase I. The outcomes of the pan-Canadian consultative workshop and proposed Phase II studies will also be presented. The benefits and challenges of large multi-component team research will be discussed.

Conclusions: CanIMPACT is the most comprehensive program of research to study primary care and cancer in Canada, and perhaps internationally. It has afforded a unique opportunity to conduct a coordinated program of research and serves as a model to further the goals of Ca-PRI.

The Role of Family Physicians in Cancer Care: Perspectives of Primary and Specialty Care Providers

Submitting Author: Julie Easley, Dalhousie University

Baukje (Bo) Miedema, Dalhousie University
June Carroll, Mount Sinai, University of Toronto
Mary Ann O'Brien, University of Toronto
Donna Manca, University of Alberta
Fiona Webster, University of Toronto
Eva Grunfeld, University of Toronto

For The Canadian Team to Improve Community-based Cancer Care along the Continuum (CanIMPACT)

Background: Efficient coordination of cancer patient care between primary and specialist care providers is vital to improve quality and outcomes of care. Currently, the specific role of family physicians in the care of people with cancer is not well defined. Our goal was to explore physician perspectives and contextual factors related to the coordination of cancer care and the role of family physicians.

Methods: Using a Constructive Grounded Theory approach, we conducted telephone interviews with 58 primary and specialist health care providers (HCPs) from across Canada.

Results: Twenty-one family physicians, 15 surgeons; 12 medical oncologists; 6 radiation oncologists and 4 general practitioners in oncology were asked about the role(s) family physicians do and should play in the care of cancer patients across the cancer continuum. Most HCPs said that family physicians should focus on three roles: coordinating cancer care, managing co-morbidity and providing psychosocial care to patients and their families. However, most HCPs stated that family physicians were currently unable to fully perform these roles. Many problems were structural in nature, for example: 1) family physicians described communication problems due to not being kept 'in the loop' because they weren't copied on their patients' reports; 2) the lack of clearly defined roles for all of the various HCPs involved in providing care to cancer patients; and 3) specialists expressed concerns regarding patient lack of access to family physician care, leaving specialists to fill the care gaps. Both family physicians and specialists recommended additional training for family physicians regarding survivorship care and genetic testing.

Conclusions: Most HCPs expressed that family physicians should play an important role in the overall coordination and provision of care for patients with cancer; however, better communication, more collaboration and further education are needed to enhance the role of family physicians in the care of cancer patients.

CanIMPACT: Understanding complexities, variation, and disparities in the breast cancer care continuum in 5 Canadian provinces using administrative data

Submitting Author: Patti Groome, Queen's University, Canada

Patti Groome,[1] Marcy Winget,[2] Li Jiang,[1] Kathleen Decker,[3,4] Cynthia Kendell,[5] Monika Krzyzanowska,[6,7] Dongdong Li,[8] Aisha Lofters,[7] Mary L McBride,[8,9] Nicole Mittmann,[6] Rahim Moineddin,[7] Geoff Porter,[5] Donna Turner,[3,4] Robin Urquhart,[5] and Eva Grunfeld[7] for the CanIMPACT Team

Affiliations:
1: Queen's University, Kingston, ON; 2: Stanford School of Medicine, CA, USA; 3: University of Manitoba, Winnipeg, MB; 4: CancerCare Manitoba, Winnipeg, MB; 5: Dalhousie University, Halifax, NS; 6: Cancer Care Ontario, Toronto, ON; 7: University Health Network, Toronto, ON; 8: BC Cancer Agency, Vancouver, BC; 9: University British Columbia, Vancouver, BC;

Background: CanIMPACT is a multi-province Canadian research team funded to understand the interplay between primary and oncology care for breast cancer patients. A first step was to describe current practice and identify inter/intra-provincial care variation across the breast cancer care continuum using provincial administrative health data. Here we describe the inter-provincial process and analysis plans.

Methods: Our multi-disciplinary team includes five Canadian provinces: British Columbia, Alberta, Manitoba, Ontario and Nova Scotia. Cohorts consist of all breast cancers diagnosed from 2007 to at least 2011 in each of the five provinces. Common databases include cancer registries, census area-level income and rurality, outpatient physician claims, ambulatory care and inpatient hospitalizations. Other databases with laboratory, pharmacy, emergency services, and immigration data were available in some provinces. Common data elements across provincial datasets were identified, and a standardized methodology was developed.

Results: Common data processing and analysis plans were finalized over 24 months; provinces refined details as per local context while maximizing methodological comparability. Basic descriptive analyses plus 18 phase-specific and 3 longitudinal analyses have been planned. Six plans for the diagnostic phase focus on identifying modifiable disparities in access and outcomes; 8 plans for the treatment phase focus on variation in chemotherapy treatment patterns, quality/safety, and utilization of primary care services; 4 plans for the survivorship phase focus on adherence to guidelines for follow-up breast cancer care, other chronic diseases and preventive care; 3 longitudinal analyses assess factors related to changes in utilization of chronic disease services over the cancer care continuum.

Conclusions: We have shown it is feasible to develop and standardize data processing and analyses across multiple provinces to address important questions related to breast cancer care across the continuum that will inform comparisons and improvements in healthcare across Canada. This effort has also helped increase research capacity in health services research.

CanIMPACT: Using Canadian administrative data to understand primary care physician use across the breast cancer care continuum

Submitting Author: Li Jiang, Queen's University; Presented by: CanIMPACT Team

Authors:

Li Jiang,[1] Aisha Lofters,[2] Rahim Moineddin,[2] Kathleen Decker,[3,4] Patti Groome,[1] Cynthia Kendell,[5] Monika Krzyzanowska,[6,9] Dongdong Li,[7] Mary L McBride,[7,8] Nicole Mittmann,[9] Geoff Porter,[5] Donna Turner,[3,4] Robin Urquhart,[5] Marcy Winget,[10] and Eva Grunfeld[2]

Affiliations:

1: Queen's University, Kingston, ON, Canada; 2: University of Toronto, Toronto, ON, Canada; 3: University of Manitoba, Winnipeg, MB, Canada; 4: CancerCare Manitoba, Winnipeg, MB, Canada; 5: Dalhousie University, Halifax, NS, Canada; 6: University Health Network, Toronto, ON, Canada; 7: BC Cancer Agency, Vancouver, BC, Canada; 8: University of British Columbia, Vancouver, BC, Canada; 9: Cancer Care Ontario, Toronto, ON, Canada; 10: Stanford School of Medicine, CA, USA

Background: CanIMPACT is a multi-province Canadian team funded to identify and address care gaps as cancer patients transition across health sectors. In Canada, each province/territory is responsible for its health care system planning and care delivery. Primary care physicians serve as the first point of contact in the system and their engagement is essential to achieve comprehensive care and better outcomes for patients with cancer. We aimed to 1) describe primary care physician use during pre-diagnosis, diagnosis, treatment and survivorship phases for breast cancer patients; 2) compare continuity of care between the pre-diagnosis phase and the survivorship phase; 3) describe the extent to which patients change their level of primary care physician use across the continuum.

Methods: Our cohort consists of all women diagnosed with incident invasive breast cancer from 2007 to at least 2010 from each of four Canadian provinces: British Columbia, Manitoba, Ontario and Nova Scotia. Data sources were similarly structured provincial cancer registries linked to census data, physician billing claims, ambulatory care data, and hospital inpatient data. The number of visits to primary care physicians will be described using absolute terms and categories. Continuity of care will be calculated as the proportion of primary care visits that are with the physician who provides the most care. Change in primary care use across phases will be reported using proportions. Analyses will be conducted separately at designated research centers in each province.

Results: We have obtained ethics and data access approvals from all participating provinces. We have finalized a common data processing and analysis plan. We are in the process of creating the study cohort and standardized variables.

Conclusions: Results will elucidate the existing involvement of primary care physicians across the cancer care continuum, which can serve as a basis to inform the development of interventions.

CanIMPACT: A multi-province study of primary and specialist health care utilization in Canadians with breast cancer

Submitting Author: Cynthia Kendell, Dalhousie University

Authors:
Cynthia Kendell,[1] Kathleen Decker,[2,3] Patti Groome,[4] Li Jiang,[4] Monika Krzyzanowska,[5,6] Dongdong Li,[7] Aisha Lofters,[8] Mary L McBride,[7,9] Nicole Mittmann,[6] Rahim Moineddin,[8] Geoff Porter,[1] Donna Turner,[2,3] Robin Urquhart,[1] Marcy Winget,[10] and Eva Grunfeld[8]

Affiliations:
1: Dalhousie University ,Halifax, NS; 2: University of Manitoba, Winnipeg, MB; 3: CancerCare Manitoba, Winnipeg, MB; 4: Queen's University, Kingston, ON; 5:University Health Network, Toronto, ON; 6:Cancer Care Ontario, Toronto, ON; 7: BC Cancer Agency, Vancouver, BC; 8: University of Toronto, Toronto, ON; 9: University of British Columbia, Vancouver, BC; 10: Stanford School of Medicine, CA, USA

Background: CanIMPACT is a multi-province Canadian team funded to identify and address cancer care gaps as patients transition across health sectors. Addressing gaps is critical; as more new cases of cancer are diagnosed and fewer people die of the disease, more individuals require access to health care services across the cancer care continuum. Receipt of these services may occur in community-based primary healthcare (CBPHC) settings or as specialist care from within the formal cancer care system. The aim of this multi-province study is to examine the use of oncology services across the continuum of breast cancer care, with a specific emphasis on how CBPHC and specialist care intersect across the diagnosis, treatment, and survivorship phases.

Methods: All women diagnosed with incident invasive breast cancer in 2007-2010 (or latest available) and followed up to 2013 (or latest available) were identified in four Canadian provinces: British Columbia, Manitoba, Ontario and Nova Scotia. Data sources included provincial cancer registries linked to census data, physician billing claims, ambulatory care data, and hospital inpatient data. In this descriptive study, the total number of physician visits and percentage by provider type (CBPHC provider, medical oncologist, radiation oncologist, surgical oncologist) will be examined for each phase of cancer care. Analyses will be conducted separately at designated research centers in each province.

Results: Ethics and data access approvals have been obtained from all participating provinces, and a common analytic plan has been developed. Analysis is underway and final results will be available prior to the conference date.

Conclusions: The results of this study will provide insight as to how primary and specialist care are being used together in the delivery of breast cancer care in Canada. This information will be used to develop interventions to optimize care delivery and to improve the patient experience across the continuum.

Personalized Cancer Genomic Medicine: Is primary care ready? Findings from the CanIMPACT study

Submitting Author: June Carroll, Mount Sinai Hospital, University of Toronto

Carroll JC, Makuwaza T, Manca D, Sopcak N, Permaul J, O'Brien MA, Heisey R, Eisenhauer E, Easley J, Krzyzanowska M, Miedema B, Miller F, Pruthi S, Sawka C, Schneider N, Sussman J, Urquhart R, Versaevel C, Grunfeld E, on behalf of CanIMPACT

Background: Advances in genomic and personalized medicine are changing our approach to cancer risk assessment, screening and treatment. In primary care (PC), this will include stratification of cancer risk with individualized recommendations for screening and risk reduction, determination of eligibility for genetic testing, and awareness of prognostic tests used to guide cancer treatment. Known barriers to the integration of genetic services into PC include lack of knowledge about genetics and genetic risk assessment, limited access to genetics specialists and lack of time. The purpose of this study was to explore primary care providers' (PCP) experiences, desired role and educational and resource needs related to personalized cancer genomic medicine.

Methods: This was a qualitative study involving focus groups with PCPs. Audio recordings were transcribed verbatim, anonymized and analysed using qualitative research methods including thematic analysis and constant comparative methods. An implementation framework guided design and analysis.

Results: 5 focus groups were held in two Canadian provinces (Ontario and Alberta) with 51 PCPs (76% female, mean age 44). PCPs described limited experience with personalized cancer medicine but saw an important and inevitable role for themselves, particularly in the areas of family history, risk assessment, screening and management tailored to risk, and referral to genetics. Other emerging themes were the current lack of knowledge and the need for reliable, unbiased and continually updated resources for personalized medicine information. Suggested resources included easily accessible point-of-care tools including guidelines for risk-based screening and genetics referral, electronic medical record algorithms and decision support tools for risk assessment and management and patient education handouts.

Conclusions: For the benefits of personalized cancer genomic medicine to be fully realized by patients, PCPs need access to appropriate resources, knowledge and practice enabling strategies. Informed by these findings, a personalized cancer genomic medicine toolkit has been developed.

Trend in survival among cancer patients with symptomatic presentation in primary care – introducing standardised cancer patient pathways in Denmark

Submitting Author: Henry Jensen, Aarhus University, Denmark

H. Jensen[1], M. L. Tørring[1,2], P. Vedsted[1]

[1]Research Centre for Cancer Diagnosis in Primary Care, Research Unit for General Practice, Department of Public Health, Aarhus University, Bartholins Allé 2, DK-8000 Aarhus C, Denmark
[2] Department of Anthropology, School of Culture and Society, Aarhus University, Moesgaard Allé 20, DK-8270 Hoejbjerg, Denmark

Background: Cancer Patient Pathways (CPPs) have been implemented by some countries around Europe to assure timelier and earlier cancer diagnosis; in Denmark in 2008. However, evidence of the effect of CPPs on both survival and mortality among symptomatic patients is still warranted.

Aim: To study the association between the CPP implementation in Denmark and both survival and mortality among symptomatic patients diagnosed through a primary care route.

Material and methods: We used the Danish Cancer in Primary Care (CaP) Cohort to compare 3 years relative survival (RS) before, during and after CPP implementation for the five most common cancer types analysed separately and combined using the life-table approach. Estimates were standardised using the International Cancer Survival Standard (ICSS) weights. To determine the association between cohort time and mortality, Excess Hazard Ratios at three years (EHR_{3years}) were computed using a generalised linear model with a Poisson linkage with adjustment for patients' age, comorbidity, education, income, and tumour stage.

Preliminary Results: For all cancers combined, we found a statistically significant increase in RS_{3years} among symptomatic patients from 56.1% (53.7;58.5) before to 66.4% (64.7;67.9) after the CPP implementation. CPP referred patients had a statistically significantly higher RS than non-CPP referred patients. CPP implementation was associated with lower mortality (EHR_{3years} = 0.79 (0.72;0.88)). No difference in EHR_{3years} was observed between CPP and non-CPP referred patients. Stratified analyses are in the pipeline.

Conclusion: Preliminary findings suggest that CPP implementation in Denmark is associated with both improved survival and lower mortality among symptomatic cancer patients diagnosed through a primary care route. Yet, no difference in excess hazard ratios between CPP referred and non-CPP refereed patients were observed. Analyses stratified by cancer site and by tumour stage will be presented at the conference if accepted.

Factors affecting adherence to adjuvant endocrine therapy following treatment for breast cancer

Submitting author: Eila Watson, Faculty Health and Life Sciences, Oxford Brookes University

Co-authors:
Jo Brett, Faculty Health and Life Sciences, Oxford Brookes University
Mary Boulton, Faculty Health and Life Sciences, Oxford Brookes University
Debbie Fenlon, Department Health Sciences, University of Southampton
Fiona Walter, Department of Public Health and Primary Care, University of Cambridge
Nick Hulbert-Williams, Department of Psychology, University of Chester
Peter Donnelly, South Devon NHS Foundation Trust, Torbay
Dernadette Lavery, Oxford University Hospitals Foundation NHS Trust
Adrienne Morgan, Independent Patient Cancer Voice
Carolyn Morris, Independent Patient Cancer Voice

Background: Adjuvant endocrine therapy (AET) following treatment for breast cancer is effective in reducing the risk of recurrence and of breast cancer-related mortality. However, sub-optimal adherence to treatment has been widely reported. As the recommended course of treatment is now extending to 10 years, and women are being discharged earlier from hospital-based follow-up, supporting women on treatment is an increasingly important issue for primary care practitioners. The aim of this mixed-methods study was to explore factors affecting adherence to AET to inform interventions to support women with long-term adherence.

Methods: A questionnaire survey was sent to 292 women prescribed AET who were 2-4 years post-treatment. Differences between adherers and non-adherers and factors associated with intentional and un-intentional non-adherence were explored. 32 semi-structured interviews were also conducted and analysed using the Framework Approach, underpinned by the Necessity-Concerns Framework (Horne 2013).

Results: Questionnaire analysis found factors significantly associated with intentional non-adherences were the presence of side effects; concerns about AET, and lower perceived necessity to take AET. Factors associated with unintentional non-adherence were younger age, post-secondary education and being in paid employment. Interview added depth to these findings. Lack of support and follow-up to promote continued use also emerged as important. Adherence was influenced by limited impact of side effect profile on daily life, trust in health professionals initiating treatment, feeling supported in ongoing AET therapy, good knowledge of reasons for ongoing AET therapy, and influence of family and friends in importance of ongoing AET therapy.

Conclusions: Reasons for adherence or non-adherence to AET are variable and complex. Interventions are required to ensure women are well-informed and supported to continue with AET where appropriate, thereby reducing breast cancer related morbidity and mortality. Primary care has an important role to play.

The Cancer Survivor Profile (CSPro): A brief evaluation tool to enhance triage, self-management and quality health care seeking among breast cancer survivors

Submitting Author: Michael Feuerstein, PhD, MPH

Briana Todd, PhD; Amanda Gehrke, BSc

Background. Many breast cancer survivors (BCS) report long-term and late effects from the disease and/or its treatment, including physical and psychological symptoms, decreased function, weight gain, and financial strain. When left unaddressed, these problems can impact health and quality of life. Primary care physicians and nurses have increasingly been called upon to address these challenges. To date, no single, comprehensive method exists to screen for and prioritize these symptoms in BCS.

Methods. Systematic searches of epidemiological and qualitative literature were conducted to identify and prioritize problem areas BCS experience following primary cancer treatment. A measurement tool addressing these areas was developed. Previously validated scales were the primary source of questions and final selection of items for each scale was based on the criteria of psychometric quality and brevity. The full measure was given to 400 breast cancer survivors (non-metastatic).

Results. The overall measure, the CSPro, provides patient-reported outcomes in conceptually and statistically independent areas within the broad categories of symptoms, function, health behavior, health care seeking skills, and financial strain.

Discussion. The CSPro is available in the public domain and its estimated time of completion is 15 minutes. A recently developed CSPro web-based application uses a patient's CSPro responses to provide real-time scores for each scale (standardized based on a comparison group of BCS and adjusted for social desirability). The application plots scores using a visual profile of 19 different problem areas. The application also provides patients with problem-specific resources. These resources include provider vetted online videos, podcasts, written documents, and foundation websites. The output can be used to improve quality follow up of breast cancer patients post primary cancer treatment. The CSPro is an evidence-based tool for identifying individual problem areas across the domains of symptom burden, functional limitations, lifestyle, quality health seeking skills, and financial strain in BCS.

Diagnostic Journeys in Myeloma (DJiM): how long does it take and what influences length of journey? What evidence is there? A configurative systematic review.

Submitting Author: Tania Seale, Bangor University, UK

Seale T[1], Kennedy L[2], Fegan C[3], Litt E[4], Neal RD[1]

1North Wales Centre for Primary Care Research, Bangor University, 2 University of Chester, 3 Cardiff and Vale Health Board, University of Wales , 4 Shrewsbury and Telford NHS Trust

Background: Myeloma has some of the longest diagnostic journeys reported. The complete picture of journeys to diagnosis are unclear and the relative value of contributing factors not fully understood. A systematic review was undertaken to identify, select, appraise and synthesise all relevant literature to inform knowledge on influences and length of journeys to diagnosis.

Methods: Configurative systematic review of the literature and narrative synthesis of findings.

Results: 22 studies were included in a mapping exercise.13 most relevant studies were narratively synthesised. Studies were mixed designs and showed variations in quality and reporting. All studies reported from retrospective data. Older studies demonstrated inferior reporting but greater relevance. Time to diagnosis was demonstrated as longer for myeloma compared to other cancers. No symptom signature could be identified. Influences in journey duration were seen across the entire diagnostic pathway; there is limited investigation of appraisal and secondary care influences. No reporting was present of the social or contextual experience of the journey, studies did not detail appraisal or help seeking activity. No study could display the complete diagnostic journey or relative values of intervals. Theoretical underpinning was limited in large number of studies. Evidence of referral pathways was limited. There was no evidence of health economic assessment, gender or deprivation analysis. No evidence for symptom type and impact on journey length exists.

Conclusions: This is the first comprehensive review of diagnostic journeys in myeloma. Current evidence fails to inform policy. Evidence displays the complexity of journeys. Compared to other cancers myeloma diagnostic journeys are under-investigated.

A need to present the complete diagnostic journey of patients with myeloma that quantifies the objective measurement of all intervals and factors within the journey, but additionally investigates the personal social and contextual experience of patients exists. Collection of real time data is likely to be more informative.

Long-term outcome of cardiac dysfunction in a population-based cohort of breast cancer survivors

Submitting Author: L.M. Boerman[1],

S.W.M.C. Maass, P. van der Meer[2], J.A. Gietema[3], J.H. Maduro[4], Y.M. Hummel[2], M.Y. Berger[1], G.H. de Bock[5], A.J. Berendsen[1]

Affiliations
[1]Department of General Practice**, [2]**Department of Cardiology, [3]Department of Oncology, [4]Department of Radiation Oncology and [5]Department of Epidemiology, University of Groningen, University Medical Center Groningen

Background: Chemotherapy and radiotherapy for breast cancer increase survival, but may lead to cardiac dysfunction. Prevalence of long-term cardiac dysfunction in breast cancer survivors in an unselected population is unknown.

Methods: We performed a population-based cross-sectional study in which 350 women treated for breast cancer with chemotherapy and/or radiotherapy at least 5 years previously were included. These patients were compared to 350 age-matched women without oncological diagnosis. The primary outcome was systolic or diastolic dysfunction on echocardiography, defined as a left ventricle ejection fraction < 54% or age-dependent signs of delayed relaxation. Data on cardiovascular risk factors were collected from electronic files of general practitioners and reported by participants at inclusion. Breast cancer patients were divided into two groups: 1) patients treated with chemotherapy with or without radiotherapy (N=175) and 2) patients treated with radiotherapy only (N=175).

Results: Prevalence of CV risk factors at diagnosis was similar for chemotherapy-treated survivors compared to controls, and radiotherapy-treated patients compared to controls. Mean age at time of diagnosis was 49(26-66) in the chemotherapy-group and 54(32-79) in the radiotherapy-group. Median follow-up was 10 years (range 5-33). Systolic dysfunction was present in 25(14.8%) patients in the chemotherapy-group and in 11(6.4%) of their controls, diastolic dysfunction in 79(46.7%) respectively 65(38.7%). In the radiotherapy-group 28(16.4%) had systolic dysfunction compared to 13(7.7%) of their controls, with diastolic dysfunction in 68(40%) resp. 68(40.2%). Chemotherapy-treated patients and radiotherapy-treated patients had a two times increased risk of developing systolic dysfunction compared to controls, OR 2.5(95% CI 1.2-5.4) respectively OR 2.4(95% CI 1.2-4.7), and had no increased risk of diastolic dysfunction, OR 1.4 (95% CI 0.9-2.1) resp. OR 1.0(95%CI 0.6-1.5).

Conclusion: Breast cancer survivors treated with chemotherapy with or without radiotherapy or treated with radiotherapy only have an increased risk of systolic dysfunction on the long-term after breast cancer treatment.

A systematic review on early integration of palliative care in advanced cancer patients

Submitting Author: IC Nugteren, University of Amsterdam, Netherlands

I.C. Nugteren[1], P.W. Dijkema[1], H.C.P.M. van Weert[1], J. Wind[1]
1. Department of General Practice, Academic Medical Center Amsterdam, University of Amsterdam, the Netherlands.

Background: The number of patients requiring palliative care is high and substantially increasing. According to the World Health Organization, palliative care should be implemented early in the diseases course. The aim of this study is to systematically review the effectiveness of this early integration of palliative care in patients with advanced cancer compared to standard oncologic care.

Methods: A literature search was performed in MEDLINE, EMBASE and CENTRAL. All randomized controlled trials comparing early palliative care with standard oncologic care were included.

Results: Seven articles reporting on five trials, evaluating 1575 patients, were included. Early palliative care showed in all trials a trend towards better quality of life. Less depression was reported in 2 out of 3 trials. Lower symptom intensity scores was reported in 2 out of 3 trials, higher satisfaction with care in 1 out of 1 trial. Longer survival was shown in 3 out of 3 trials and more home and hospice death in 3 out of 3 trials. No (clinical) significant differences were found in anxiety, chemotherapy use in the last month before death, ICU days and ED visits between study groups. Studies evaluating the number of hospital days reported inconsistent results. Lead-time bias was avoided in all trials by randomizing patients after their advanced cancer diagnosis.

Conclusion: Overall, a trend is visible in favor of an early start of palliative care with respect to improved quality of life, less depression, lower symptom intensity, higher patient satisfaction, longer survival and more home/hospice death. However, evidence is not robust and more research is needed to define the advantages of implementation early palliative care, especially in primary care.

Using brief electronic forms for lung cancer screening eligibility in primary care: a qualitative inquiry

Submitting Author: Mary Ann O'Brien, University of Toronto

O'Brien MA[1], Sullivan F[1], Carson A[1], Siddiqui R[1], Syed S[1], Paszat L[2, 3]

Department of Family and Community Medicine, University of Toronto, Toronto, ON[1]; Sunnybrook Research Institute, Toronto, ON[2]; Institute for Clinical Evaluative Sciences, Toronto, ON[3]

Background: The National Lung Screening Trial demonstrated that screening with low dose CT scans (LDCT) significantly reduces mortality from lung cancer. However, optimal methods to identify potentially eligible patients in primary care are not known. As part of a mixed method study on LDCT screening in primary care, we sought to understand the views of patients, administrative staff and family physicians (PCPs) on the use of brief pre-consultation electronic forms for LDCT screening eligibility.

Methods: Eligible patients were between 55-74 y and able to read and understand English. Administrative staff and PCPs were members of 6 primary care practices in an urban center. Patients completed brief pre-consultation screening forms at home (web version) or in the waiting room (tablet, paper). We conducted telephone interviews with participants about their experiences. Two researchers analyzed interview transcripts.

Results: 24 interviews were held with 15 (63%) patients, 5 (20%) administrative staff and 4 (17%) PCPs. Patients reported little difficulty completing forms prior to their PCP visit. Several patients were motivated to participate because of their perceived health risk. All patients were willing to discuss lung cancer screening eligibility with their PCP. Staff members expressed little administrative burden other than determining which eligible patients had appointments. PCPs agreed that forms acted as reminders to discuss smoking cessation and served as a reaffirmation to patients that smoking is harmful. PCPs were more aware of screening information when patients completed forms electronically rather than on paper. PCPs wanted to know if their patient would be eligible for LDCT screening.

Conclusions: Brief pre-consultation electronic forms for LDCT screening eligibility completed at home via the web or on tablets in the waiting room were feasible and encouraged PCPs to discuss LDCT screening with patients. Efficient strategies to identify eligible patients are needed.

Implementation of thermo-coagulation as an effective treatment modality in a 'screen and treat' programme of cervical screening in rural Malawi

Submitting Author: Christine Campbell, University of Edinburgh

Christine Campbell, Beatrice Kabota, David Morton, Reynier Ter Haar, Liz Grant, Heather A Cubie

Background: Cervical cancer is a major cause of female cancer death in sub-Saharan Africa, including in Malawi which has the highest global incidence of this disease. A 'screen and treat' approach using visual inspection with acetic acid (VIA) has government support but actual screening provision is limited due to lack of infrastructure, trained personnel, and the cost and availability of gas for cryotherapy. Recently, thermo-coagulation (also known as cold coagulation) has been acknowledged as a safe and acceptable procedure suitable for low–resource settings.

Aim: To introduce thermo-coagulation for treatment of low grade lesions as an alternative to cryotherapy within a cervical screening programme based on VIA in one hospital and associated health centres in Malawi, coupled with appropriate, sustainable pathways of care for women with high grade lesions and cancers.

Methods: Following approvals from the Ministry of Health and from regional and village chiefs, clinics were set up, staff trained and educational resources in the local language developed. Thermo-coagulators were introduced into the hospital and health centre settings, with theoretical and practical training in safe use and maintenance of equipment provided. A training manual was developed.

Results: 11,613 previously unscreened women attended VIA clinics between October 2013 and March 2015. Screening clinics were held daily in the hospital and weekly in the health centres. Overall VIA positivity was 6.1%, but this varied by age, HIV status and location. The majority of VIA-positive women received same-day treatment. A one-year cure rate of over 90% is observed, comparable to reported rates with cryotherapy.

Conclusions: Thermo-coagulation proved feasible and acceptable in this setting. Implementation lessons include engagement with government, health services and third sector stakeholders. Widespread introduction of thermo-coagulation could significantly increase the number of women receiving timely treatment for precancerous lesions in low and middle income countries.

Ethnic variations in participation in bowel cancer screening in Scotland

Submitting Author: Christine Campbell[1],

Authors: Anne Douglas[1], Linda Williams[1], Geneviève Cezard[1], David Brewster[2], Katie Robb[3], Greig Stanners[4], David Weller[1], Robert Steele[5], Markus Steiner[6], Raj Bhopal[1]

[1] Usher Institute for Population Heath Sciences and Informatics, University of Edinburgh, Edinburgh, EH8 9DX, Scotland, UK
[2] Scottish Cancer Registry, Information Services Division, Public Health & Intelligence, NHS National Services Scotland, Gyle Square, Edinburgh, EH12 9EB, Scotland, UK
[3] Institute of Health & Wellbeing, General Practice and Primary Care, University of Glasgow, Glasgow G12 9LX, Scotland, UK
[4] Population Health Team, Information Services Division, NHS National Services Scotland, Meridian Court, Glasgow G2 6QE, Scotland, UK
[5] Centre for Research into Cancer Prevention and Screening (CRiPS), Medical Research Institute, Ninewells Hospital and Medical School, Dundee, DD1 9SY, Scotland, UK
[6]School of Medicine, University of Aberdeen, Aberdeen, AB25 2ZG, Scotland, UK

Background & Aim: Variations in uptake of bowel cancer screening by minority ethnic groups are reported internationally, but are often based on locality-based measures rather than individual-level data. Linkage of the Scottish 2001 Census to the encrypted Community Health Index (CHI) provides a unique opportunity to explore variations in screening participation based on individual-level self-reported ethnicity in Scotland, where variation in colorectal cancer incidence by ethnic group has previously been reported.

Methods: Data on 1.7 million individuals invited to participate in the Scottish Bowel Cancer Screening Programme in two rounds of screening (2007- 2013) were linked to the 2001 Census/ CHI register. Participation in bowel screening was based on a completed screening episode using the Faecal Occult Blood kit. The standard comparison group was the White Scottish population in the 2001 census, compared to specific ethnic groups in pre-specified analyses. Age-adjusted Poisson risk ratios (RRs) by sex and ethnic group were calculated with 95% confidence interval (CI).

Results: In the incidence screening round, compared to White Scottish men, Other White British (OWB) and Chinese men were more likely to participate (OWB RR 109.6, CI 108.8, 110.3; Chinese RR 107.2, CI 102.8, 111.8). In contrast, all South Asian males had lower participation (Indian RR 80.5, CI 76.1, 85.1; Pakistani RR 65.9, CI 62.7, 69.3; Bangladeshi RR 76.6, CI 63.9, 91.9; Other South Asian RR 88.6, CI 81.8, 96.1). A similar pattern of participation in all ethnic groups was found among females. Participation rates were higher among women in every group compared to men, apart from Pakistani and Bangladeshi women: in some cases (Caribbean, African and Chinese) participation was more than 10% higher compared to males.

Conclusions: There are large variations in uptake of bowel cancer screening by ethnic group and sex in Scotland. Understanding the underlying influences should inform targeted interventions.

Diffusion of Digital Breast Tomosynthesis among Women in Primary Care Practice

Submitting Author: Cheryl Clark, Brigham & Women's Hospital

Authors: Cheryl Clark, Tor Tosteson, Anna Tosteson, Tracy Onega, Julie Weiss, Kimberly Harris, Jennifer Haas

Digital breast tomosynthesis (DBT) shows potential to improve breast cancer screening compared to digital mammography. The FDA approved screening DBT in 2011, and coverage was approved by CMS in 2015. Variation in insurance coverage could influence DBT use. This study examined DBT screening uptake associated with insurance type.

This study was conducted in 20 primary care practices in the Dartmouth-Brigham and Women's Hospital Population-based Research Optimizing Screening through Personalized Regimens (PROSPR) study. We used a longitudinal repeated measures design to estimate the probability of having DBT as a proportion of screening mammograms performed among women age 40 to 89. We examined associations with insurance at early (June 2011-June 2013), middle (July 2013-June 2014) and late (July 2014-September 2014) phases of DBT uptake, adjusted for: age, breast density, race/ethnicity, region, and median neighborhood income.

During this study, 93,182 mammograms were performed on 48,234 women. Of these, 16,506 screening mammograms were performed as DBT (17.7%). DBT use increased for all groups across the study period. During the early period, DBT was used more among Medicaid (5.4%) and Medicare beneficiaries (3.5%) compared to privately insured (2.8%) or uninsured (1.1%) women [$p < 0.001$]. By the latest period, screening DBT was used more frequently under private insurance (43.4%) than Medicaid (36.2%) or Medicare (38.3%) [$P < 0.001$.] DBT was also used more for women with dense breasts (19.2%) compared to fatty breasts (9.5%), for women in lower income (19.1%) compared to higher income neighborhoods (16.0%), and among non-Hispanic whites (19.6%) or non-Hispanic Asian/Pacific Islanders (20.6%), compared to non-Hispanic blacks (11.4%) and Hispanic women (12.7%).

DBT is increasingly used for breast cancer screening, and may relate to insurance status. Surveillance is required to ensure disparities in breast cancer screening are minimized as DBT becomes more widely available.

Engaging the community and rural primary care to increase colorectal cancer screening.

Submitting Author: Resa Jones, Virginia Commonwealth University

Authors: Jones RM, Mink PJ, Orr J, Britt HR, West T.

Background: Colorectal cancer screening (CRCS) is suboptimal with ~35% of age-eligible (i.e., 50-75 years) adults non-adherent to national guidelines (i.e., stool test in last year, flexible sigmoidoscopy within 5 years, colonoscopy within 10 years). While multiple CRCS options exist, colonoscopy is often promoted within primary care as the only available test. This creates missed opportunities, given patients' CRCS test preferences vary.

Methods: The CRCS-WISDM Project targeted average-risk adults, 50–75 years, via a community-wide shared decision making (SDM) intervention using community engagement staff to promote CRCS options (stool test and colonoscopy) and reduce test-specific barriers. Primary care practices also participated with nurses providing CRCS-related SDM. A probabilistic sample (N=2,150) from 6 Minnesota communities (2 intervention; 4 comparison) was randomly selected. Baseline and follow-up questionnaires were mailed using modified Dillman methods. Questionnaires assessed CRCS history, test-specific barriers, and demographics. Descriptive statistics were calculated. Intention-to-treat regression analyses, adjusting for confounders and baseline measures, determined the intervention effects on test-specific barrier scale scores as well as test-specific and overall CRCS adherence.

Results: The baseline response was ~70%. Respondents were 54% female, 75% <65 years, and 78% had >high school education. The intervention condition baseline mean stool test barrier scale score was significantly higher than the comparison group ($p<0.01$). Conversely, at Year-1 the intervention had a significantly lower stool test barrier score and a larger net reduction was observed for the intervention at Year-2 (intervention= –3.15; comparison= –0.590). At Year-1, the intervention condition was 2.0 times more likely to have an up-to-date stool test compared to the comparison group (95% CI: 1.07-3.80). The absolute increase in CRCS adherence from baseline to Year-2 was higher in the intervention compared to the comparison.

Conclusions: Engaging entire communities in multilevel interventions with primary care partners has the potential to decrease CRCS barriers and ultimately increases CRCS.

Consideration of individualized competing mortality risks in postmenopausal breast cancer risk prediction.

Submitting Author: Mara Schonberg, BIDMC

Mara A. Schonberg, MD, MPH[1]; Vicky W. Li, MPH[1]; Long H. Ngo, PhD[1]

1. Division of General Medicine and Primary Care, Department of Medicine, Harvard Medical School, Beth Israel Deaconess Medical Center, Boston, MA.

ABSTRACT

Background: Accurate risk assessment is necessary for high quality decision-making around breast cancer prevention interventions (e.g., screening, chemoprevention). We aimed to develop a breast cancer prediction model for postmenopausal women that would consider their individualized risk of non-breast cancer death.

Methods: We included 73,074 women that completed the 2004 Nurses' Health Study (NHS) questionnaire (all participants were ≥57 years). We followed participants until May 2014. We considered 18 breast cancer risk factors (health behaviors, demographics, genetic and reproductive factors). We used competing risk regression (CRR) to identify which factors were independently associated with breast cancer. CRR estimates the probability of breast cancer conditional on competing risk-free survival. We also included comorbidities and functional limitations in our model to better predict death. We examined calibration (expected to observed ratio of breast cancer incidence, E/O) and discrimination (c-statistic) of our final model among 70,565 Women's Health Initiative Extension Study (WHI-ES) participants (all were ≥55 years and followed from 2005-2010).

Results: After 5 years follow-up, 1.8% of NHS participants were diagnosed with breast cancer (2.0% in WHI-ES, p=0.02) and 6.8% experienced non-breast cancer death (5.4% in WHI-ES, p<0.001). Our final model included 9 breast cancer risk factors (e.g., family history, obesity), 5 comorbidities, functional limitations, and recent mammography use. The model's c-statistic was 0.614 in NHS and 0.595 in WHI-ES. On average, our model underpredicted breast cancer in WHI-ES (E/O 0.93 [95% CI 0.88-0.98]).

Conclusions: We developed a novel, easy-to-use, prediction model for postmenopausal breast cancer that considers competing risks of non-breast cancer death. While model performance was modest, performance was similar to other models commonly used for breast cancer prediction. Our model may be useful for assessing breast cancer risk among postmenopausal women with comorbidities (e.g., diabetes) and in helping postmenopausal women understand how their health behaviors affect their breast cancer risk.

Primary Care and Outcomes in Adult Patients with Cancer: A Systematic Review

Submitting Author: Ya Luan Hsiao, John Hopkins SPH, Baltimore

Authors: Zackary Berger[2, 4], Ya Luan Hsiao[5], Victoria Riese[6], Rachel K. Walker[7], Patricia Davidson[8], Craig E. Pollack[3], Claire F. Snyder[1]

Institutions:
1. Division of General Internal Medicine, Johns Hopkins School of Medicine, Baltimore, MD, United States.
2. General Internal Medicine, Johns Hopkins School of Medicine, Baltimore, MD, United States.
3. Medicine, Johns Hopkins University School of Medicine, Baltimore, MD, United States.
4. Johns Hopkins Berman Institute of Bioethics, Baltimore, MD, United States.
5. Department of Health Policy and Management, Johns Hopkins School of Public Health, Baltimore, MD, United States.
6. National Institutes of Health Library, Bethesda, MD, United States.
7. University of Massachusetts-Amherst College of Nursing, Amherst, MA, United States.
8. Johns Hopkins School of Nursing, Baltimore, MD, United States.

Background: Little is known about the effect of primary care compared to usual care among adult cancer patients.

Methods: Articles published till January 1, 2015 reporting types of primary care in adult cancer patients and impact on clinical outcomes, patient reported outcomes and health maintenance in Medline and CINAHL were systematically searched. Two independent reviewers assessed the eligibility of each article based on predefined criteria. Data were extracted; outcomes were qualitatively synthesized and reported using PRISMA criteria.

Results: From 4333 titles, 424 abstracts were reviewed and 47 studies met inclusion criteria. The studies were mostly randomized control trials (*n*=24), and the rest were cohort studies, case-control studies, non-controlled trials and nonexperimental designs. The types of PCP involvements included nurses, physicians and the remainder multidisciplinary arrangements.

Endpoints were categorized a priori into clinical outcomes, patient reported outcomes and health maintenance. Twenty studies reported clinical outcomes (including physician visits, hospitalizations and costs). Two studies found no difference in cost of care; one study reported a 37% reduction in cost of care in the outpatient setting. Three studies reported decreased hospitalizations with primary care compared to usual care; three studies reported increased visits to PCPs and fewer visits to specialists with primary care compared to usual care. Four studies with nurse-led primary care showed improvement in quality of care while nine studies reported no improvements. Patients who saw PCPs (or both PCPs and oncologists) were more likely to receive mammograms, cancer screening and vaccinations compared to those with only oncologist follow-up.

Conclusions: Cancer care involving PCPs in comparison to non-PCPs was associated with mixed effects. There is no clear conclusion on clinical and patient-reported outcomes. Primary care was associated with greater uptake of health maintenance services compared to no primary care. Improvement in quality of life was reported in the studies that involved nurses as PCPs.

The case for tailored cancer follow-up? Results of a discrete choice experiment in people surviving from four common cancers

Submitting Author: Peter Murchie, University of Aberdeen, UK

Marta Pietrucin-Materek[a], Patricia Norwood[b], Terry Porteous[a], Mandy Ryanb, Philip C Hannaford[a], Peter Murchie[a]

Background: Improved cancer survival increases the costs of standard follow-up and alternative models are being explored. Until now the preferences of survivors of different cancers about how they wish to receive their follow-up care has not been researched.

Methods: A self-completed discrete choice experiment questionnaire was mailed to 1,201 adults surviving melanoma, breast, prostate and colorectal cancer and living in Northeast Scotland between January and February 2013. Preferences for cancer follow-up, and potential trade-offs, were explored overall and by cancer site. Subgroup analyses explored the effect of age, gender, time since diagnosis, travelling time and previous recurrence on preferences and trade-offs.

Results: 668 (56.6%) recipients (213 breast; 158 prostate; 132 melanoma; 165 colorectal cancer survivors) returned usable questionnaires. Overall, irrespective of cancer site, respondents preferred continuity of care, face-to-face appointments with a consultant at a hospital outpatient clinic, and longer appointments over a prolonged period of time. However, they appeared willing to trade-off between different components, demonstrating that patients would consider alternative arrangements (e.g. follow-up from a specialist nurse), provided they were compensated elsewhere (e.g. greater continuity, longer appointments and access to additional services). There were important differences in preferences and trade-offs according to cancer site and other factors examined.

Conclusion:
Current standard hospital-based cancer follow-up is probably not suited to all survivors at each stage of the cancer journey. People may be willing to accept alternative models of follow-up more closely tailored to their individual preferences and which could be more efficient for healthcare services.

Detection of recurrent disease during follow-up of rectal carcinoma

Submitting Author: Thijs Wieldraaijer, Amsterdam, The Netherlands

T. Wieldraaijer*[1], P. Bruin[1], L.A.M. Duineveld[1], A.B. Smits[2], P.J. Tanis[3], H.C.P.M. van Weert[1], J. Wind[1]
1. Department of Primary Care, Academic Medical Centre, Amsterdam, The Netherlands
2. Department of Surgery, St. Antonius Hospital Nieuwegein/Utrecht, The Netherlands
3. Department of Surgery, Academic Medical Centre, Amsterdam, The Netherlands

* Corresponding author. Department of Primary Care AMC-UvA. Postbox 22660, 1100 DD Amsterdam, The Netherlands. Tel. +31 205667292. E-mail address: t.wieldraaijer@amc.uva.nl

Background: Several initiatives started in the Netherlands to transfer colorectal cancer survivorship care from secondary to primary care. To prepare general practitioners (GPs) for this task, it is necessary to assess how and when recurrences of rectal carcinoma are detected during follow-up (FU) after treatment with curative intent. With this information, GPs might be better prepared for a future role as coordinator of colorectal cancer FU.
Methods: A retrospective cohort study was performed on patients in a FU programme for rectal carcinoma stage I-III, treated with curative intent between 2007 and 2014. All patient records were assessed, and patients who developed recurrent disease (RD) were further analysed.
Results: In total 378 patients were included of whom 64 (17%) developed RD. Most recurrences (N=55) were detected during scheduled FU consultations with an asymptomatic presentation (N=53). RD was detected most frequently by positive imaging (N=27), elevated CEA levels (N=18), or both (N=9). RD detected outside scheduled FU (N=9) was symptomatic in 4 patients, the other 5 cases were chance findings. Treatment with curative intent was performed more frequently in recurrences detected during scheduled FU (60%) than in those detected outside of FU (22%).
Conclusion: The majority of patients with recurrent disease are diagnosed during scheduled FU, and are asymptomatic at time of detection. RD is mostly detected by imaging techniques and/or laboratory testing. Family doctors could order the same additional tests during FU, but whether recurrence detection is equally adequate will need to be assessed in a randomized controlled trial.

What CEA level should trigger further investigation during colorectal cancer follow-up?

Submitting Author: Brian D Nicholson, MRCGP MSc, Oxford University, UK

Nicholson BD, Shinkins B, Perera R, Primrose J, Mant D

Nuffield Department of Primary Care Health Sciences, University of Oxford, UK
Brian D Nicholson, MRCGP, Clinical Research Fellow
David Mant, F Med Sci , Emeritus Professor of General Practice
Rafael Perera, DPhil, Head of Statistics,
Bethany Shinkins, DPhil, Statistician
Medical Sciences Division, University of Southampton, UK
John Primrose, FRCS, Professor of Surgery

Background: After primary treatment for colorectal cancer, follow-up for recurrence using regular blood CEA could be done in primary care. However, the optimal testing interval and method for interpreting CEA results lacks a firm evidence base. Our aim was to determine how CEA should be interpreted in this setting.

Method: Two studies were conducted: 1) a Cochrane review of the diagnostic accuracy of blood CEA for detecting colorectal recurrence; 2) a secondary analysis of data from 582 patients recruited to the two arms of the FACS (Follow-up after Colorectal Cancer Surgery) trial including CEA testing.

Results: 52 studies including 9717 participants (median study sample size = 139, IQR: 72 - 247) were included in the meta-analysis. Pooled sensitivity at 5 µg/L was 71% (95% CI: 64-76%) and specificity 88% (95% CI: 84-92%). The diagnostic accuracy of a single CEA test in FACS was less than suggested by the review (AUC= 0.74, 95% CI: 0.68-0.80). At 5µg/L, sensitivity was estimated as 50.0% (95% CI: 40.1-59.9%) and lead time was about 3 months. About 4 in 10 patients without a recurrence have at least one false alarm and 6 out of 10 tests will be false alarms (some patients will have multiple false-alarms, particularly smokers). The accuracy of CEA trend was better (AUC for positive trend = 0.85, 95% CI 0.78 - 0.91) but to maintain approximately 70% sensitivity with 90% specificity it is necessary to increase testing frequency in year 1 and reduce the threshold as measurements accrue.

Conclusion: Results suggest that: 1) CEA should not be used alone as a triage test; 2) in year 1, testing frequency should be increased (to monthly for three months and then 2 monthly); 3) the threshold for investigating a single test result should be raised to 10µg/L; 4) after the second CEA test, decisions to investigate further should be made on the basis of trend in CEA levels; 5) the optimal threshold for investigating CEA trend falls over time; 6) continuing smokers should not be monitored with CEA.

Comparing Cervical Cancer Stage of Diagnosis at Presentation in Immigrant Women and Long-term Residents

Submitting Author: Teja Voruganti, University of Toronto

R. T. Voruganti[1], R. Moineddin[1,2,3,4], N. Jembere[3], L. Elit[5,6], E. Grunfeld[1,2,3,4,7] and A. K. Lofters[1,2,3,8]

[1]Institute of Health Policy, Management and Evaluation, University of Toronto
[2]Department of Family and Community Medicine, University of Toronto
[3]Institute of Clinical Evaluative Sciences
[4]Dalla Lana School of Public Health, University of Toronto
[5]Department of Oncology, McMaster University
[6]Department of Obstetrics and Gynecology, McMaster University
[7]Ontario Institute for Cancer Research
[8]St. Michaels Hospital, Toronto, ON

Introduction: Globally, cervical cancer is the fourth most common cancer in women and seventh most common cancer overall. Cervical cancer is highly preventable with HPV vaccination and screening. Previous work has shown that immigrants are less likely to be screened than non-immigrants. Building on this work, the objective of our study was to examine whether immigrant women are more likely to present with later stage cervical cancer than long-term residents.

Methods: We conducted a retrospective cohort study of women with cervical cancer diagnosed from 2010 to 2014 using administrative health data from the Canadian province of Ontario, comparing the odds of late stage diagnosis between immigrants and long-term residents. The outcome of interest was stage of cervical cancer diagnosis, defined as early (stage I) or late (stage II-IV). We compared immigrants and long-term residents on late vs. early stage adjusting for socioeconomic measures, comorbidities and healthcare utilization. We also confirmed results with a cohort from 2007-2012.

Results: Complete staging data was available for 218 immigrants and 874 non-immigrants. We found no association between immigrant status and stage at diagnosis (adjusted OR: 0.935, p value=0.739). Factors that did show significant association with later stage diagnosis were physician characteristics, whether a woman had been previously screened, or having visited a gynecologist in the past 3 years. These results were echoed in the 2007-2012 cohort (immigrants vs. long-term residents OR: 0.942, adjusted p value=0.6773).

Conclusions: Our results show that being an immigrant is not associated with late stage diagnosis of cervical cancer, although getting screened or having visited a gynecologist did reduce the odds of later stage cancer. Our findings support previous studies showing that physician characteristics influence immigrant healthcare utilization. Moreso, it may be that programs broadly aimed immigrants require a targeted approach to address higher-risk subgroups.

A secondary qualitative analysis of the factors that contribute to patients' appraisal of symptoms and decision to seek help: Applying the 'Model of Pathways to Treatment'

Submitting Author: Sonja Kummer, King's College London, UK

Sonja Kummer (King's College London, UK), Dr Fiona M Walter (University of Cambridge, UK), Dr Joseph Chilcot (King's College London, UK) & Dr Suzanne Scott (King's College London, UK)

Background: To date, numerous studies have indicated that psychosocial factors may influence time to presentation (the time between when an individual first notices a bodily change and the first consultation with a healthcare professional) for potential cancer symptoms, and that a person's appraisal or (mis)interpretation of symptoms is key. The aim of the study was to explore the contributing factors of patients' symptom appraisal and decision to seek help that are documented in existing qualitative data. This involved a secondary analysis of existing interviews from studies that had explored symptom appraisal and help-seeking behaviour in patients who have sought help for [potential] cancer symptoms.

Methods: 49 in-depth [semi-structured] interviews of patients referred with symptoms suspicious of the following cancer types were analysed: pancreas, colorectal, oral, respiratory, melanoma, breast, and prostate. A directed content analysis approach and categorisation matrix underpinned by the concepts and definitions within the 'appraisal' interval of the 'Model of Pathways to Treatment' was used to explore the data.

Results: The 'appraisal' interval was predominantly influenced by psychological heuristics or so called rules of thumb that people can use to interpret symptoms and decide whether these symptoms require medical care. The most prominent heuristics that influenced symptom perception were 'rate of change' rule (defined as "symptoms that are worsening (...) can indicate illness and provide motivation to seek help promptly (…)"), 'symmetry' rule and 'duration' rule, whereas there was a lack of evidence for 'prevalence' rule and 'stress-illness' rule.

Conclusions: Consequently, the findings provide insight into the psychological biases in symptom perception that may in turn help or hinder help-seeking behaviour. There is a dearth of research into the influence on psychological heuristics on symptom interpretation, yet findings from current research indicate that these biases may underlie symptom misinterpretation, thus making them key targets for interventions.

Differences in the breast cancer diagnostic process across stage groups in Ontario, Canada

Submitting Author: Patti Groome, Queen's University, Canada

Patti Groome[1], Marlo Whitehead[1], Li Jiang[1], Julie Gilbert[2,3], Eva Grunfeld[2], Hugh Langley[3], Aisha Lofters [2], Rahim Moineddin[2], Geoff Porter[4].

[1]Queen's University, Kingston, ON; [2]University of Toronto, Toronto, ON; [3]Cancer Care Ontario, Toronto, ON; [4]Dalhousie University, Halifax NS.

Early diagnosis leads to better cancer survival and short diagnostic intervals reduce patient anxiety. We are studying factors that prolong the breast cancer diagnostic process in Ontario, Canada.

This is a retrospective study of all patients diagnosed 2007-2011 (n=33,752). We linked data from Cancer Care Ontario and the Institute for Clinical Evaluative Sciences including: Ontario Cancer Registry, physician claims, ambulatory, ER visits, and hospital discharges. Detection method (screening versus symptomatic) was determined using Screening Program and claims data. The diagnostic interval is the time from first relevant health care encounter to the definitive diagnosis. Elements of the diagnostic interval include: use of imaging, biopsy, and the number of encounters and providers.

Overall, 30.6% were screen-diagnosed and the median diagnostic interval was 40 days (IQR 21-80). The median interval was shorter in the screened group at 32 days versus symptomatic at 45 days. The diagnostic interval was longer for stage I patients at 47 days compared to stage II (37 days), stage III (33 days) or stage IV (22 days). Stage IV patients were less likely to be diagnosed via biopsy (44% vs 61%) and the symptomatic stage IV subgroup less likely to have breast imaging (61% vs 96%). 26% of stage IV patients saw 0 or 1 providers while 8% of stage I patients saw 6 or more. 19% of stage I patients had 10 or more encounters overall versus 15% and 28% had >1 mammogram versus 14%. Effects are largely similar in screened and symptomatic groups.

Shorter diagnostic intervals in stage IV are associated with a more direct diagnostic path. We will present results quantifying the number of days attributable to the diagnostic elements. Understanding the impact of elements of the diagnostic process provide targets for improvement of its length.

Audit of Patients Diagnosed with Cancer following an Emergency Admission in the Thames Valley area, UK

Submitting Author: Jennifer Yiallouros[1]

Lavery, B[2]., England, B[1]., Forster, L[1]., Arnold, A[1]., Morriss, M[1].

1 Cancer Research UK, London, UK.
2 Cancer Strategic Clinical Network, Thames Valley, NHS England, UK

Background
Between one in four and one in five people in England with cancer are diagnosed as a result of an emergency presentation (EP). Survival has been shown to be lower for those diagnosed through an EP than any other route. Thames Valley Strategic Clinical Network (TVSCN) commissioned Cancer Research UK (CRUK) to carry out an audit of patients who were diagnosed with cancer following an EP using Significant Event Audits (SEA) for cancer.

Methods

All 297 GP practices in the TVSCN were invited to participate. Acute trusts identified all patients who had been diagnosed with cancer following an EP between April 2012 and March 2014. Details of these patients were provided to participating GP practices and SEAs were completed on cases where they felt the most learning could be made. Within each practice, using the SEA template, GPs reflected on the case and considered what the reasons were for the EP route to diagnosis. SEAs were then analysed qualitatively using framework analysis.

Findings

Over 160 SEA reports were analysed from more than 70 different GP practices. The underlying factors which led to why cancer was not diagnosed earlier could be grouped into three broad areas; tumour, person and / or system (including primary and secondary care). Learning points put forward by the GP practices could be amalgamated into several themes including events during the primary care consultation, processes in primary care, the interface with secondary care, and issues with investigations.

Conclusion

Although not all EPs can be prevented, GPs identified cases where it would have been possible to have diagnosed earlier. Reducing EPs has potential to improve survival as well as reduce the trauma experienced by the patient and their family and enable appropriate end-of-life planning.

The diagnostic pathway of breast cancer patients in the Netherlands; duration and characteristics associated with relatively long duration

Submitting Author: Nicole Van Erp, University Medical Center Utrecht, Utrecht, The Netherlands

N.F. van Erp, C.W. Helsper, B. van de Weg, M. Tukker, N.P. Zuithoff, N.J. de Wit, P.H.M. Peeters

Affiliations:

Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands

BACKGROUND: Early detection and efficient organization of care are common goals in cancer care. In the Netherlands, duration of different intervals in the cancer care continuum is unknown. The aim of this study is to assess the duration of the different intervals and to identify characteristics associated with duration in breast cancer patients.

METHODS: A retrospective observational study was performed, using anonymized routine primary care data of the Julius Practitioners' Network database, linked to data of the Netherlands Cancer Registry. All female patients with a validated breast cancer diagnosis between 2007 and 2011 were included, both symptomatic and screen-detected patients. Four intervals in the cancer care pathway were analyzed: Primary Care Interval; IPC – first general practitioner (GP) consultation (symptomatic) or GP receiving abnormal screening result (screening) to referral to secondary care, Secondary Care Diagnostic Interval; ISD – referral to diagnosis, Therapeutic Interval; IT – diagnosis to start of first treatment and total Diagnostic Interval; ID – IPC and ISC combined. Free-text and coded data were manually searched for relevant milestones and characteristics possibly associated with duration. Duration was calculated using means (SD) and medians (IQR), stratified for pre-specified characteristics. Uni- and multivariate analyses by means of gamma regression with log link are currently being performed to identify characteristics associated with duration.

PRELIMINARY RESULTS: In symptomatic patients (n=301), median duration (IQR) was: IPC: 1.0 (1.0-1.0), ISC: 6.0 (3.0-10.0), IT: 21.0 (15.0-28.0), ID: 7.0 (3.0-13.0) days. In screen-detected patients (n=165), median duration (IQR) was; IPC: 1.0 (1.0-4.0), ISD: 8.0 (5.0-12.0), IT: 22.0 (16.0-30.0), ID: 10.0 (6.0-15.0) days. *Characteristic associated durations are currently being analyzed.*

CONCLUSIONS: The majority of breast cancer patients passes all intervals of the cancer care continuum very quickly, especially the GP driven phase (IPC). In all intervals, only a minority of patients has a substantially long duration. This is often due to explainable, patient-related stories.

Iterative target audience input to develop videos addressing test-specific colorectal cancer screening barriers.

Submitting Author: Resa Jones, Virginia Commonwealth University

Authors: Jones RM, Bishop DL, Elston Lafata J, Krist AK, Woolf SH.

Background: Nearly 35% of age-eligible adults are in need of recommended colorectal cancer screening (CRCS). To date, engaging, easily accessible resources to increase adherence are lacking and materials have not systematically addressed known test-specific barriers (e.g., don't want to handle stool, don't want to do "prep").

Methods: Iterative formative research was conducted to develop and refine theory- and evidenced-based videos and materials aligned with test-specific barriers to stool test and colonoscopy. Non-adherent, average-risk adults, ages 50-75 years, were recruited from 8 primary care practices and the community. Six, 2-hour, gender-stratified focus groups (n= 34) were conducted to understand the type of tailoring, dialogue and messaging desired by the target audience. One-on-one interviews (N=8) provided additional information on tailoring variables. Prototype testing interviews (N=18) provided feedback on developed content, saliency and production quality prior to final production. Sessions were audio-recorded and saturation was reached. Verbatim transcripts were used in qualitative analyses to identify themes.

Results: Participants thought videos should be: between an undecided adult experiencing a test-specific barrier and someone who had overcome the barrier or their physician; with someone they trust and have a close relationship; frank conversation with humor and a lighter tone; and filmed in comfortable, real-world settings (e.g., home, coffee shop).Validating the person's perceived barrier was critical. Fact-based information was perceived to be more serious and deemed appropriate for a patient/physician discussion. Participants did not think gender or race tailoring was important as long as they could personally identify with the test-specific barrier and scenario depicted and that videos collectively included race/gender diversity.

Conclusions: Input from the target audience provided critical guidance for video content, setting, and dialogue. The resulting 43 patient-centered videos have been well received among diverse audiences during initial testing. A randomized, controlled trial is underway to evaluate efficacy to increase CRCS adherence.

Patterns of symptomatic presentation in primary care prior to emergency and non-emergency colorectal cancer diagnosis: challenges and opportunities

Submitting Author: Cristina Renzi, University College of London

Renzi C^, Lyratzopoulos G*, Chu T**, Rachet B^*

*Health Behaviour Research Centre, Department of Epidemiology and Public Health, University College London

^Cancer Survival Group, Department of Non-communicable Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, UK

**Queen's Medical Centre, University of Nottingham, UK

Background: Approximately one in four colorectal cancers are diagnosed following emergency presentation in the UK, which is associated with worse survival.

Objective: To examine patterns of symptomatic presentation in primary care prior to colorectal cancer diagnosis comparing patients diagnosed following emergency presentation (EP) and non-EP to identify opportunities for reducing EP.

Methods: Cohort study using cancer registry data individually linked to primary care records for colorectal cancers diagnosed in England in 2005-2006 (latest linked cohort with up to 10-year clinical records before cancer diagnosis).

Results: Among the 1029 colon and 577 rectal cancers, EP occurred in 35% and 15%, respectively. EP and non-EP had similar patterns of primary care consultations up to 2 years before cancer.

The year before diagnosis, over 95% of EP and non-EP patients had consulted their doctor for any reason, but significantly less frequently for a relevant symptom among EP (48% versus 71% among EP and non-EP colon cancers ($p<0.001$); 49% versus 61% among EP and non-EP rectal cancers ($p=0.043$)). Emergency presenters also had less frequently 'red flag' symptoms (e.g. rectal bleeding was recorded in 9% versus 24% among EP and non-EP rectal cancers ($p=0.002$)). 18% of EP colon cancer and 23% of rectal cancer patients had 'red flag' symptoms recorded the year before diagnosis.

Multivariable analysis showed a lower likelihood of EP for patients with 'red flag' symptoms (change in bowel habits, rectal bleeding, anaemia) during the year before cancer diagnosis. Women, older and more deprived patients were more likely to present as emergencies.

Conclusions: Patients with EP and non-EP have a similar 'background' primary care consultation history until a few months before diagnosis. Emergency presenters with colon and rectal cancer have different symptom signatures and patient characteristics. A non-ignorable proportion of emergency presenters have previously consulted with 'red flag' symptoms. Patient and healthcare factors may be implicated with missed opportunities for earlier diagnosis in this subgroup.

Funding Source: Cancer Research UK - EDAG [C48748/A18667].

Identification of early stage colorectal cancer patients in primary care

Submitting Author: Marcela Ewing[1]

Peter Naredi[2], Chenyang Zhang[3] and Jörgen Månsson[1]

[1] Department of Public Health and Community Medicine/ Primary Health Care, Institute of Medicine at Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
[2] Department of Surgery, Institute of Clinical Sciences at Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
[3]Regional Cancer Center West, Sahlgrenska University Hospital, Gothenburg, Sweden

Background: Colorectal cancer (CRC) diagnosed at a non-metastatic stage has an excellent survival rate, while the mortality rate for metastatic CRC is high. Identifying symptoms of early CRC is therefore crucial.

Research question: Is it possible for the GP to identify early stage CRC patients in primary care by symptoms or signs?

Method: Using the Swedish Cancer Registry and regional healthcare database in Västra Götaland Region, Sweden (1.6 million inhabitants), we conducted a total population based case-control study. We included 542 patients diagnosed with non-metastatic CRC 2011, and 2139 controls matched on age, sex and primary care unit selected from the regional healthcare database. We retrieved all ICD-10 diagnostic codes from primary care consultations one year before diagnosis from the regional healthcare database. We calculated odds ratios for variables independently associated with non-metastatic CRC using conditional logistic regression, and then calculated the positive predictive values (PPV) for these variables, both individually and in combinations. Risk Assessment Tool (RAT)for early stage CRC was constructed.

Results: Eighty-seven percent of all cancer patients consulted in primary care. Five symptoms and signs had a statistically significant association with CRC before diagnosis. The PPV of these were bleeding 3.9 (95% CI 2.3-6.3) including rectal bleeding, melena and gastrointestinal bleeding; anaemia 1.4 (1.1-1.8); change in bowel habit including diarrhoea and obstipation 1.1(0.9-1.5); weight loss 1 (0.3-3); and abdominal pain 0.9 (0.7-1.1). The combination of bleeding and change in bowel habit had a PPV of > 10 %.

Conclusion: This total population based, high coverage study has resulted in a RAT for early stage CRC. Bleeding, diagnosed by the GP as rectal bleeding, melena or gastrointestinal bleeding combined with change in bowel habit is the most powerful risk marker of non-metastatic CRC and should result in prompt referral for colorectal investigation.

Oral Abstracts – Day 2

Learning the Landscape: Implementation Challenges of Primary Care Innovators Around Cancer Survivorship Care

Submitting Author: Denalee O'Malley, Rutgers, NJ

Authors: Denalee O'Malley, MSW [1, 2] Shawna V. Hudson, PhD[1, 3] Larissa Nekhlyudov, MD, MPH[4] Jenna Howard, PhD [1] Ellen Rubinstein, PhD [1] Heather S. Lee PhD, LCSW [1] Linda S. Overholser, MD[5] Amy Shaw, MD[6] Sarah Givens, RN, BN, CON[7] Jay S. Burton, DO[8] Eva Grunfeld, MD, DPhil, CCFP, FCFP[9,10] Carly Parry, PhD, MSW, MA[11]
Benjamin F. Crabtree, PhD [1, 3]

[1] Rutgers, The State University of New Jersey, New Brunswick, NJ [1] Rutgers Biomedical and Health Sciences, New Brunswick, NJ [1] Rutgers Robert Wood Johnson Medical School, Department of Family Medicine and Community Health, New Brunswick, NJ [2] Rutgers, School of Social Work, New Brunswick, NJ [3] Rutgers Cancer Institute of New Jersey, New Brunswick, NJ [4] Harvard Medical School, Department of Population Medicine, Boston, MA
[5]University of Colorado, Department of General Internal Medicine, Denver, CO [6] Annadel Medical Group, Santa Rosa, CA [7] North Perth Family Health, Listowel, Ontario, CAN
[8] Springfield Medical Associates, Enfield, CT [9] University of Toronto, Department of Family and Community Medicine [10] Ontario Institute for Cancer Research, Ontario, CAN [11]Patient Centered Outcomes Research Institute (PCORI), Washington D.C.

Purpose: Models of cancer survivorship care focused on primary care are not well characterized in the existing literature. Cancer survivorship primary care innovators and content experts convened for a two and a half-day working conference sponsored by the Agency for Healthcare Research and Quality. This study describes the experiences of early implementers of primary care-focused cancer survivorship delivery models.

Methods: A snowball sampling methodology was used to identify innovators. Twelve participants (five cancer survivorship primary care innovators and seven content experts) attended a working conference focused on cancer survivorship population strategies and primary care transformation. Qualitative data collected included meeting discussion transcripts/field notes, transcribed in-depth innovator interviews and innovators' summaries of care models. We used a multi-step immersion/crystallization analytic approach, guided by a primary care organizational change model.

Results: Innovative practice models included: (1) a consultative model in a primary care setting; (2) a primary care physician-led, blended consultative/panel based model in an oncology setting; (3) an oncology nurse navigator in a primary care practice site; and, (4) two sub-specialty models where primary care physicians within a general medical practice dedicated part of their panel to the care of cancer survivors. Implementation challenges included: (1) lack of key stakeholders buy-in; (2) practice resources allocated to non-survivorship change efforts; and (3) competition with higher priority initiatives incentivized by payers.

Conclusions: Primary care cancer survivorship models are potentially feasible; however, significant barriers to widespread implementation exist. Innovative strategies are needed to better integrate survivorship care into existing primary care priorities for enhancing population based care. Cancer survivorship care implementation efforts would benefit from increasing the awareness and value-adding potential of primary care focused strategies to address cancer survivors' needs.

Structural supportive care for lung cancer patients receiving systemic therapy: a randomized controlled trial

Submitting Author: O.P. Geerse[1]

J.E.H.M. Hoekstra-Weebers[2], M.H. Stokroos[1], J.G.M. Burgerhof[3], H.J.M. Groen[1], H.A.M. Kerstjens[1], T.J.N. Hiltermann[1]

(1) University of Groningen, University Medical Center Groningen, department of Pulmonary Diseases, The Netherlands

(2) University of Groningen, University Medical Center Groningen, Wenckebach Institute and Netherlands Comprehensive Cancer Organization (IKNL), The Netherlands

(3) University of Groningen, University Medical Center Groningen, Department of Epidemiology, Unit Medical Statistics, The Netherlands.

Background: Structural supportive care is becoming increasingly embedded in cancer care. We sought to investigate the effects of "Screening of Distress and Referral Need" (SRDN) on Quality of Life (QoL), mood, patient satisfaction, and end-of-life care in lung cancer patients starting systemic therapy.

Patients and methods: The process of SRDN consists of completion of the Distress Thermometer and Problem List, discussion of the patients' responses, and potential referral. Patients with newly diagnosed or recurrent lung cancer starting systemic therapy were randomly assigned to receive usual care with or without SRDN (standard group and SRDN-group). All patients completed the European Organization of Research and Treatment for Cancer Quality of Life Questionnaire (EORTC-QLQ-C30), the European Quality of Life-5 Dimensions questionnaire, the Hospital Anxiety and Depression Scale, and the Patient Satisfaction Questionnaire III at one, seven, 13, and 25 weeks after randomization. Primary outcome was the mean change in EORTC-QLQ-C30 global QoL subscale score between one and 25 weeks. End-of-life care data were derived from the patient information system.

Results: In total, 223 patients were randomized of which 111 (50%) completed all four assessments (44% in the standard group vs. 55% in the SRDN-group). Of the remaining 112 patients, 33 had died and 79 discontinued participation. No significant between group difference was found in the mean change global QoL score (-2.4, 95% CI -12.1–7.2; P=0.61), nor in the other QoL subscales, mood, or patient satisfaction. Patients in the SRDN-group seemed to receive less aggressive end-of-life care with comparable median survival (10.3 vs. 10.1 months, P=0.62).

Conclusions: The process of SRDN did not improve QoL or other patient-reported outcomes in lung cancer patients starting systemic therapy. However, patients in the SRDN-group did seem to receive less aggressive end-of-life care. Future studies to determine valuable elements of such early supportive care interventions are needed.

Can patient reported measurements of pain be used to improve cancer pain management? A systematic review and meta-analysis.

Submitting Author: Rosalind Adam, MD, University of Aberdeen

Background: Patient reported outcome measures (PROMs) are measurements of any aspect of a patient's health status that come directly from the patient. It has been suggested that PROMs could help detect patient problems, aid monitoring of treatment response, and enhance patient centered care. Cancer pain management is suboptimal. Under-reporting of pain by patients, poor communication between patients and professionals, and inadequate pain assessment contribute to poorly controlled pain. The aim of this review is to determine whether the systematic collection of patient reported pain data can improve cancer pain outcomes.

Methods: Medline, EMBASE, and CINAHL databases were searched from inception for randomized controlled trials and controlled trials in which patient reported pain data was systematically collected from adult patients with the intention of improving pain management behaviours by patients or health care professionals. Meta-analysis was performed on studies in which pain intensity was assessed on a zero to ten point scale. All other pain-related outcomes were summarized narratively.

Results: 28 reports of 22 trials of 20 interventions were included. Of nine studies included in a meta-analysis of average pain, the intervention group had a significant reduction in average pain intensity, standardised mean difference (SMD) -0.72 (95% CI -0.90, -0.54) compared to controls. Three studies were included in a meta-analysis of present pain. There was no significant difference in present pain in the intervention group, SMD -0.21 (95% CI -0.64, 0.22). Narrative assessment revealed that PROM monitoring increased discussions about pain and/ or other symptoms during consultations.

Conclusions: Interventions which have used patient reported pain measurements can achieve significant reductions in average cancer pain intensity of approximately one point on a zero to ten point scale. Suggestions are given to enhance future PROM interventions.

Workshop

Addressing disparities in cancer screening participation – what can we learn from different health systems?

Submitting Author: Christine Campbell, University of Edinburgh, United Kingdom

Theme and purpose

Screening for breast, cervical and colorectal cancers is available in many high-resource health systems, but participation in screening varies considerably by a number of factors including socio-economic status, ethnicity, age, cultural beliefs, immigrant status, and access to health care and in the case of colorectal screening by gender. The involvement of primary care in screening provision also varies by health care system. However, the potential for primary care to support access to and informed participation in screening is recognised, even in countries with organised screening programmes. Reporting on recently completed work arising out of international collaborations (including Ca-PRI) this Workshop will examine the role of primary care in reducing disparities in screening provision and participation.

Content

1) A series of brief presentations will cover:

- A comparison of current cancer screening rates in Europe and north America
- Summary of findings from a comparison of primary care involvement in screening provision in international health systems with different models of primary care
- Overview of recent literature describing health system and primary care-based interventions to address disparities in screening participation, with a focus on marginalised/ hard to reach communities and individuals

2) Interactive session where participants will be invited to:

- Compare different models of primary care based involvement in cancer screening processes
- Discuss their own relevant research findings and experience in clinical care
- Share examples of good practice within their own health care setting/ country
- Discuss the potential for comparative research across different health systems

Outcomes

Workshop participants will:

- Be updated on current evidence on the multiple factors influencing participation in cancer screening
- Have a better understanding of the multiple factors influencing participation in cancer screening in differing health systems
- Consider opportunities for future collaborative research

Transitions of care for breast cancer survivors: The oncology–primary care interface

Submitted by: Prof Jeff Sisler, University of Manitoba

Introduction: Canadians with breast cancer (BC) are increasingly being discharged to a primary care provider (PCP) for follow-up care. This study examines how BC survivors evaluate the continuity and quality of their cancer follow-up care, particularly in those who identify a PCP as a main provider.

Methods: A survey was mailed in 2015 to all adult women in Manitoba, Canada who were 12-18 months from a diagnosis of Stage I-III BC using the Manitoba Cancer Registry. Respondents were asked to identify the profession/specialty of the main provider(s) of their follow-up care. Those indicating a PCP completed the *Patient Continuity of Care Questionnaire* (PCCQ), and all respondents completed the *Functional Assessment of Cancer Therapy – Breast* (FACT-B) and the *Confidence in Survivorship Information* (SCI) scales. Descriptive statistics were utilized.

Results: The response rate was 245/360 (68.0%). Participants were mainly Caucasian with a mean age of 62.1 and 17.0 months from diagnosis. Non-responders were more likely to be older. A single "main provider" of follow-up care was named by 66.9%, most frequently a family physician (FP) (44%) or oncologist (12%), however 28 unique combinations of providers were described. Mean scores on the CSI were 2.59 and 2.09 on the 3 point Past and Future subscales. Quality of life scores on the FACT-B were high, with the lowest scores for items assessing sleep quality, satisfaction with coping and body image. The 163 respondents (66.5%) naming a PCP as a main provider completed the PCCQ and reported high scores on its five subscales (4.21 – 4.47 on a 5 point scale).

Discussion: About two thirds of Manitoba BC survivors are exclusively followed by a single provider, most commonly a FP. Patients followed by PCPs evaluate their transitions of care after treatment favorably. Confidence in future-oriented survivorship information is intermediate and may serve as a key indicator in the evaluation of a newly introduced survivorship care plan program.

Examining routine follow-up care for survivors of breast, prostate, colon, rectal, or gynecological cancer

Submitting Author: Robin Urquhart, Dalhousie University

Authors: Robin Urquhart, Lynn Lethbridge, Margaret Jorgensen

Affiliation: Department of Surgery, Dalhousie University

Background: Two-thirds of individuals diagnosed today will be long-term cancer survivors. These survivors require routine follow-up care, which has been traditionally delivered by oncologists. However, primary care providers can safely and effectively provide follow-up care. In Nova Scotia, Canada, there have been several attempts to transition survivors from specialist to primary care, but with limited success. We undertook consultation with key stakeholder groups to understand what is needed to better transition survivors to primary care post-treatment. Stakeholders emphasized the need to understand current patterns of routine follow-up care to design effective interventions. Thus, this study seeks to examine patterns of routine follow-up visits and identify subpopulations more likely to receive follow-up care by oncologists.

Methods: This study will use data from two linked administrative databases: Nova Scotia Cancer Registry and Oncology Patient Information System. The cohort will consist of all persons diagnosed from 2006-2013 with breast, prostate, colon, rectal, or gynecological cancer *and* who received a consultation at one of the province's two cancer centres. A decision rule will be created, using a combination of data fields, to identify the survivorship starting period and routine versus non-routine visits (e.g., non-routine visits would include those related to suspicion of recurrence or management of complex late effects). Patterns of follow-up visits will be described by specific subpopulations: cancer site, tumor characteristics, age, sex, and location of residence. Chi squared analysis will be used to test for statistical differences.

Results: We have obtained ethical and data access approvals, and are in the process of creating the study cohort and decision rule. Data analyses will occur from February-April 2016.

Conclusions: These data will improve our understanding of whether certain survivor subpopulations are more likely to remain under oncologist care and inform the development of a tailored intervention to facilitate transition to primary care post-treatment.

Evidence based guidelines for breast cancer survivors being helpful for general practitioners?

Submitting Author: Inge Spronk, NIVEL

I. Spronk[1], J.C. Korevaar[1], J.S. Burgers[2], F.G. Schellevis[1,3]

1. NIVEL, Netherlands Institute for Health Services Research, Utrecht, The Netherlands
2. Dutch College of General Practitioners, Utrecht, The Netherlands
3. Department of General Practice & Elderly Care Medicine/EMGO Institute for health and care research, VU University Medical Center, Amsterdam, The Netherlands

Background: Involvement of general practitioners (GPs) in care for breast cancer survivors is increasing. However, GPs are not familiar with care for cancer survivors and need appropriate guidance to provide optimal care. Therefore, the aim of present study was to review evidence based (EB) guidance for GPs available in current breast cancer guidelines.

Methods: Guidelines in any language published between 2012 and 2015 were collected via searches on internet, and in literature databases. In addition, experts from different countries were approached to identify guidelines. EB guidance on care for breast cancer survivors that was (potentially) relevant for GPs was extracted and grouped into categories (recurrence detection, long-term effects and recurrence prevention). The content of the guidance was analyzed and summarized in the number and type of clinical topics addressed.

Results: Eight guidelines from seven countries were included. Half of these mentioned the GP as part of the target audience. Twelve topics were identified. Most attention was paid to recurrence detection by highlighting the importance of physical examination and mammography. Four guidelines included recommendations on the frequency of mammography, varying between one to two times a year. The reporting of potential complications largely varied in number and type. Most complications were mentioned by only one guideline. Four complications were reported by several guidelines; osteoporosis, lymphedema, pain and fatigue. In addition, recurrence prevention was mentioned in two guidelines, both recommending an active lifestyle and healthy bodyweight. Evidence cited by the guidelines showed little overlap.

Conclusion: There is few EB guidance for GPs provided in current breast cancer guidelines available. More uniformity in guidance and high-quality research to inform guidelines on optimal care is needed to help GPs in providing optimal care for breast cancer survivors.

Healthcare Utilization Patterns among Individuals with Metastatic Cancer and Comorbid Mental Health Diagnoses

Submitting Author: David Nowels, University of Colorado

Authors: David Nowels MD, MPH, Stacy Fischer MD, Timothy Sannes, PhD, Molly A. Nowels, MA, MS (Candidate), Lynn M. VanderWielen, PhD, MPH

Background: Patients with advanced cancer are at risk for overtreatment - burdensome care without improved quantity or quality of life. However, patient factors associated with health care utilization in advanced cancer are poorly understood. We hypothesize that mental health diagnoses after identification of metastases are associated with increased healthcare utilization by cancer patients.

Methods: We selected all individuals from the 2009 - 2013 Health Care Cost Institute (HCCI) database with cancer and new distant metastases, identified by ICD-9, in multiple outpatient or one inpatient visits in a given year (n=59,137). The HCCI database contains > 100 million persons in the United States with employee sponsored health insurance. We compared healthcare utilization of patients with new mental health comorbidities (depression, anxiety, bipolar disorder, and adjustment disorder - diagnosed after the first code of distant metastases and forced into the regression after controlling for the covariates below) to those who did not have mental health codes using linear regression. We tested two models: total Emergency Department (ED) visits and total hospitalizations as dependent variables, each over a six-month period after metastatic codes. Models adjusted for patient age, sex, mental health coverage, Charlson comorbidity index, and ZIP code.

Results: Patients with metastatic cancer and newly diagnosed depression, anxiety, or bipolar disorder utilized the ED significantly more than advanced cancer patients without mental health diagnoses (adjusted $p<0.001$). Advanced cancer patients with new mental health diagnoses also had significantly more hospital admissions when compared to those without these conditions (adjusted $p<0.001$).

Conclusions: Patients with metastatic cancer and new mental health co-morbidities had higher ED and hospital utilization when compared to similar cancer patients without mental health comorbidities. While causation cannot be determined from the current retrospective study design, further study is warranted to understand how advanced cancer and mental health interact in relation to health care utilization.

Do Patients With Advanced Cancer Also See Primary Care?

Submitting Author: David Nowels, University of Colorado

David Nowels MD, MPH, Molly A. Nowels MA, MS (Candidate), Timothy Sannes PhD, Stacy Fischer MD, Lynn M. VanderWielen PhD, MPH

Background: People with advanced cancer have unmet needs and limited access to outpatient palliative care services; there are few palliative specialists. The IOM and WHO call on primary care providers (PCP) to fill this gap through delivering basic palliative services. Our objective was to examine patient characteristics associated with the likelihood of a PCP visit following identification of metastatic disease.

Methods: We used data from the 2009 - 2013 Health Care Cost Institute containing > 100 million persons in the United States with employer-sponsored health insurance. We selected cancer patients from their first ICD-9 code of distant metastases if they had at least 2 more outpatient (or 1 impatient) visit in a given year (n=61,799). Using logistic regression we analyzed patient characteristics as predictors of a PCP visit within 6 months after the first code for metastases. Separately entered patient predictors were: age, sex, % minorities living in patient zip code, Charlson score, mental health (MH) diagnosis, and number of visits to an oncologist.

Results: 48,994 patients (79%) made an average of 4.02 (*SD*=6) PCP visits after identification of metastases. Patients with a MH diagnosis (anxiety, depression, bipolar or adjustment disorder) had 61.3% higher odds of seeing a PCP ($p<0.000$). Older people (65+) had 94% higher odds of visiting a PCP than those aged 18-24 ($p<0.000$). For every 10% increase of blacks and Hispanics living in the patient's zip code their odds of a PCP visit decreased by 6.3% and 6.6% respectively ($p=0.011$, $p<0.001$). For every oncology visit the odds of visiting a PCP lowered by 0.85% ($p< 0.001$).

Conclusions: The vast majority of people with advanced cancer visit their PCP within 6 months; more so in older patients or those with a MH diagnoses. PCP's are well positioned to deliver basic palliative services to these patients in need.

The impact of body vigilance on help-seeking for cancer alarm symptoms in a UK sample

Submitting Author: Katriina Whitaker, University of Surrey, UK

Kelly Winstanley[1], Katriina L Whitaker[2], Cristina Renzi[1], Claire Friedemann Smith[1], Jane Wardle[1]
[1]Health Behaviour Research Centre, Department of Epidemiology and Public Health, University College London , London, United Kingdom
[2] School of Health Sciences, Faculty of Health and Medical Sciences, University of Surrey, Guildford, United Kingdom

Background: The act of detecting bodily changes is a pre-requisite for subsequent responses to symptoms, such as seeking help from health care professionals. More work is needed in the cancer context to determine the importance and significance of body vigilant behaviours. We investigated associations between self-reported body vigilance and help-seeking among a community sample in the United Kingdom.

Methods: A 'health survey' was mailed through primary care practices to 4,913 UK adults (age ≥50 years, no cancer diagnosis), asking questions about general health attitudes and symptom experiences over the previous three months. Two items assessed self-reported body vigilance ('I am very sensitive to changes in my body' and 'I pay close attention to changes in my body'). Participants were asked to give their level of agreement (from 'strongly disagree' to 'strongly agree'). We explored whether body vigilant people were more likely to seek help for symptoms than those who were not body vigilant.

Results: The response rate was 42% (*N*=2042). Almost half the respondents (936/2042, 46%) experienced at least one cancer alarm symptom. Of these, most (*N*=878) revealed whether they had sought help for their symptom/s, with 63% (554/878) having visited a GP. Results from logistic regression analysis revealed that paying more attention to bodily changes was significantly associated with help-seeking for cancer symptoms (OR=1.77; 95% CI:1.25-2.52), after controlling for demographic and cognitive variables. Those not working (OR=0.54; 0.38-0.77), with co-morbidities (OR=1.95; 1.34-2.83) or with higher cancer knowledge (OR=1.54; 1.13-2.10) were also more likely to seek help in multivariate analyses. Being more sensitive to bodily changes was not significantly associated with help-seeking.

Conclusion: Respondents who paid attention to their bodily changes were more likely to seek help for their symptoms. Encouraging people to be body vigilant, without inducing excessive anxiety, may contribute towards earlier cancer diagnosis.

The diagnostic pathway of breast cancer patients in the Netherlands; duration and characteristics associated with relatively long duration

Submitting Author: Nicole Van Erp, University Medical Center Utrecht, Utrecht, The Netherlands

N.F. van Erp, C.W. Helsper, B. van de Weg, M. Tukker, N.P. Zuithoff, N.J. de Wit, P.H.M. Peeters

Affiliations:

Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands

BACKGROUND: Early detection and efficient organization of care are common goals in cancer care. In the Netherlands, duration of different intervals in the cancer care continuum is unknown. The aim of this study is to assess the duration of the different intervals and to identify characteristics associated with duration in breast cancer patients.

METHODS: A retrospective observational study was performed, using anonymized routine primary care data of the Julius Practitioners' Network database, linked to data of the Netherlands Cancer Registry. All female patients with a validated breast cancer diagnosis between 2007 and 2011 were included, both symptomatic and screen-detected patients. Four intervals in the cancer care pathway were analyzed: Primary Care Interval; IPC – first general practitioner (GP) consultation (symptomatic) or GP receiving abnormal screening result (screening) to referral to secondary care, Secondary Care Diagnostic Interval; ISD – referral to diagnosis, Therapeutic Interval; IT – diagnosis to start of first treatment and total Diagnostic Interval; ID – IPC and ISC combined. Free-text and coded data were manually searched for relevant milestones and characteristics possibly associated with duration. Duration was calculated using means (SD) and medians (IQR), stratified for pre-specified characteristics. Uni- and multivariate analyses by means of gamma regression with log link are currently being performed to identify characteristics associated with duration.

PRELIMINARY RESULTS: In symptomatic patients (n=301), median duration (IQR) was: IPC: 1.0 (1.0-1.0), ISC: 6.0 (3.0-10.0), IT: 21.0 (15.0-28.0), ID: 7.0 (3.0-13.0) days. In screen-detected patients (n=165), median duration (IQR) was; IPC: 1.0 (1.0-4.0), ISD: 8.0 (5.0-12.0), IT: 22.0 (16.0-30.0), ID: 10.0 (6.0-15.0) days. *Characteristic associated durations are currently being analyzed.*

CONCLUSIONS: The majority of breast cancer patients passes all intervals of the cancer care continuum very quickly, especially the GP driven phase (IPC). In all intervals, only a minority of patients has a substantially long duration. This is often due to explainable, patient-related stories.

The effect of system factors on European GPs' decision-making for patients who may have cancer: an 18-country Örenäs Research Group survey.

Submitting Author: Dr Michael Harris, Visiting Lecturer, University of Bath

Background: There is wide variation in 1-year cancer survival rates across Europe. However, there has been little research to explain how different national system factors influence a GP's referral decisions, or how system differences correlate with cancer survival rates.

Research questions: In patients with symptoms that could suggest cancer, what system factors affect GPs' decisions to refer for further investigation?
How do these compare across different European countries, and how do they relate to cancer survival rates?

Methods: The study design uses a survey with closed-ended questions.
Örenäs Research Group members identified 45 system factors that may affect GP decision-making in patients who may have cancer. Extensive piloting indicated that 20 of those factors vary significantly across European countries.

The questionnaire has:

- four clinical vignettes (patients with possible breast, lung, ovarian and colorectal cancer), each with a question asking for the GPs' most likely immediate investigation/referral actions (if any);
- a list of the 20 system factors, with Likert scales for respondents to indicate how much each factor affected those referral decisions.

Each participating country is translating the survey into its local language, with validation by back-translation.

Results: Twenty centres in 18 European countries have agreed to translate and validate the survey, and each will recruit at least 50 GPs to complete it. Results will be evaluated quantitatively. Survey hosting and data analysis are done centrally.

Conclusions: Preliminary results will be available for presentation at the conference. The results will help identify which system factors act as barriers to the early diagnosis of cancer, and will allow the production of recommendations on how countries can improve their cancer survival rates.

Patient factors associated with time to diagnosis for pancreatic cancer: findings from an English prospective cohort study.

Submitting Author: Fiona Walter [1]University of Cambridge, UK

FM Walter[1, 6], K Mills[1], S Mendonca[1], G Abel[1], B Basu[2], N Carroll[2], S Ballard[3], J Lancaster[3], W Hamilton[4] , G Rubin[5], JD Emery[1, 6].

[1]University of Cambridge, UK; [2]Cambridge University Hospitals, UK; [3]Patient representative; [4]University of Exeter, UK; [5] Durham University, UK; [6]University of Melbourne, Australia.

Background: The UK has lower survival rates for pancreatic cancer than other comparable countries.

Research question: What symptoms and patient factors influence time to pancreatic cancer diagnosis?

Methods: Prospective cohort study of participants referred for suspicion of pancreatic cancer in two English regions. Data on symptoms and healthcare presentation were collected using a patient questionnaire; primary care and hospital records were examined for diagnostic routes, intervals and clinical outcomes. Descriptive and regression analyses examined associations between symptoms and patient factors with Total Diagnostic Interval (TDI), Patient Interval (PI), and Health System Interval (HSI).

Results: Among 391 participants, 30% were diagnosed with pancreatic cancer (metastatic disease 35%), 12% with other malignancies, and 58% with non-malignant conditions. There were no differences in gender, age or deprivation levels between participants diagnosed with pancreatic cancer and non-cancer. Less than half the cohort (40%) had a solitary first symptom; multiple first symptoms were common.

In this referred population there was no evidence of differences in first symptoms; jaundice, weight loss, fatigue and loss of appetite were more frequent subsequent symptoms among cancer than non-cancer cases (all $p<0.001$). There was no evidence of differences in TDI, PI or HSI for those with cancer versus non-cancer diagnoses (total cohort: median TDI 138 days (IQR 66-268), median PI 14 (0-55), median HSI 77 (29-160). First symptoms associated with shorter TDIs were jaundice (HR=1.38, 95%CI 1.07-1.78, p=0.013) and loss of appetite (HR=1.42, 1.11-1.82, p=0.006), and with longer TDIs were indigestion (HR=0.71, 0.56-0.89, p=0.003) and back pain (HR=0.77, 0.59-0.99, p=0.04). Anxiety, depression and diabetes co-morbidities were associated with longer HSIs.

Conclusion: Doctors, as well as patients, respond less promptly to some symptoms of pancreatic cancer than others. Healthcare professionals should be vigilant to the possibility of pancreatic cancer in patients with symptoms and mental health or diabetes comorbidities.

Associations between general practice measures of patient experience and practice indicators of diagnostic evaluation for suspected cancer

Submitting Author: Georgios Lyratzopoulos, University College of London

Authors: Georgios Lyratzopoulos, Silvia Mendonca, Carolynn Gildea, Sean McPhail, Willie Hamilton, Hardeep Singh, Fiona Walter, Greg Rubin, Martin Roland, Gary Abel.

Background: Understanding variations in investigation and referral activity for suspected cancer between English general practices could help to improve clinical outcomes and cost-effectiveness. While patient experience is a distinct dimension of care quality, its association with general practice indicators of diagnostic evaluation is unknown.

Methods: Using mixed effect regression models we examined associations between patient experience general practice scores [using General Practice Patient Survey (GPPS) measures of access, 'continuity' (ability to see a preferred doctor) and doctor communication] and 'General Practice Profiles for Cancer' indicators of investigations and 'Two Week Wait' (TWW) referral activity. Models included age and gender make-up of practice populations.

Results:

- Higher practice scores for our marker of continuity were independently associated with lower levels of referral and investigation activity. For example, practices at the 90th centile of continuity scores would have 30% fewer TWW referrals compared with those at the 10th centile with similar patient populations.
- Conversely, higher practice scores for doctor communication were associated with more referrals and investigations, with practices at the 90th centile having 25% higher TWW referral rates compared with those at the 10th centile.
- In practices with higher 'continuity' scores, TWW referrals were more likely to result in cancer diagnosis (i.e. to have higher 'conversion' rates) and such practices were more likely to have fewer of their cancer patients diagnosed after TWW referrals (i.e. lower 'detection' rates). The inverse associations were observed for practices with higher doctor communication scores.

Conclusions:
At practice level, higher level of care continuity is associated with lower use of fast-track referrals and investigations for suspected cancer, whereas better doctor communication predisposes to such activity. Future research using individual level data, complemented by qualitative studies, could help to elucidate how decision-making for evaluation of suspected cancer may be influenced by care continuity and patient-doctor communication.

E-Posters – Day 2

Do fatalistic attitudes towards ill-health and dying influence help-seeking behaviour? - A qualitative study

Submitting Author: Julia Walabyeki, Hull York Medical School

Julie Walabyeki[1], Julie Seymour[1], Helena Sinclair[1], Katriina Whitaker[3], Joy Adamson[2] Karl Atkin[2], Una Macleod[1]
1: Hull York Medical School, University of Hull, Cottingham Road, Hull HU6 7DZ; 2: Department of Health Sciences, University of York; 3: School of Health Sciences, University of Surrey.

Background: Not only are older people are at a higher risk of getting cancer, evidence suggests that they present with more advanced stage cancer than younger people. Furthermore, beliefs and attitudes may be barriers to help-seeking in older age. Our aim was to explore the effect of fatalistic attitudes towards ill-health and dying on help-seeking behaviour among older people, particularly smokers.

Methods: We purposively sampled people over sixty years from a large general practice-based questionnaire study of smokers and non-smokers who had agreed to be interviewed. We conducted in-depth interviews either at the GP practice or the interviewee's home and explored issues pertaining to fatalism and how the expression of fatalistic beliefs (or absence of them) may connect with help-seeking behaviour and responses to awareness-raising initiatives. Interviews were recorded and transcribed. Data were analysed using a coding framework and NVivo. Regular discussions were held by the research team.

Results: Forty two interviews were conducted (17 smokers, 16 ex- and 9 never-smokers). Preliminary findings suggest, for example, that issues around: fatalistic attitudes, accessing health information, help-seeking and previous symptoms experience, negatively or positively influence help-seeking in older age. A model explaining fatalistic attitudes and links to help-seeking in older age was developed.

Conclusion: There is need to work towards eliminating or reducing fatalistic attitudes as barriers to presentation to primary care. Targeted interventions to improve help-seeking in older age should be considered.

The Impact of Proxy Responses on Cancer Care Experience Reports and Ratings

Submitting Author: Jessica Roydhouse, Brown University

Authors: Jessica K. Roydhouse, MPH (Hons)[1], Roee Gutman, PhD[1], Nancy L. Keating, MD, MPH[2], Vincent Mor, PhD[1], Ira B. Wilson, MD, MSc[1]

Institutions: (1) Brown University School of Public Health, Providence, RI; (2) Harvard Medical School, Boston, MA

Background: Proxies are increasingly queried on the health care experience when patients are unable to respond. These reports are used for incentive-based payment and quality reporting. Little is known how patient and proxy responses differ and this has implications for measurement. Previous national surveys using proxies have had a low prevalence of proxy responses, with minimal effect on outcomes. However, proxy responses may have a greater impact in a context where proxies are more commonplace, such as cancer care. We sought to determine if proxy responses could affect assessments of cancer care experience and quality.

Methods: We analyzed cross-sectional national survey data of cancer patients or their proxies. Linear regression models examined experience with medical care, nursing care, care coordination, and care quality by patient vs. proxy report. We adjusted for education, general and mental health status, age, race, study site, cancer type, cancer stage and survey language. Experience variables were on a 0-100 and quality was on a 0-4 scale (higher=better). Missing data were imputed using multiple imputation.

Results: Among 6,435 respondents, 1003 (16%) were proxies. The proportion of proxy respondents varied across the seven study sites (median 15%, range 6%-28%). In adjusted analyses, proxy-reported scores were significantly higher for medical care experiences (+1.28 (SE 0.63) points), but significantly lower for nursing care (-2.81 (SE 0.67) points) and care coordination (-2.98 (SE 0.60) points). Adjusted models for care quality rating did not reveal statistically significantly differences between patient and proxy responses.

Conclusions: Proxy responses have small but significant difference from patients' responses on reports of care experience assessments. If ratings are used for quality reporting or incentives, such differences could be important across sites due to varying rates of proxy use.

Abdominal symptoms in general practice I: Frequency, cancer suspicions raised and actions taken in general practice, with differences in six European countries

Submitting Author: Knut Holtedahl

Ranjan Parajuli

Department of Community Medicine, UiT The Arctic University of Norway

Background: Early diagnosis of cancer is an important challenge in general practice. Persistent digestive problem is one of several common symptoms known to be alarm symptoms for cancer, and abdominal cancers are among the most frequent forms of cancer.

Research question: What is the frequency of abdominal symptoms in general practice in different countries? What degree of cancer suspicion is raised, and what actions do the GPs take to clarify a diagnosis?

Method: Retrospective cohort study with prospective registration of cancer. 493 general practitioners (GPs) from six European countries (Norway, Sweden, Denmark, Belgium, Netherland and Scotland), organised through The Cancer and Primary Care Research International Network (Ca-PRI), registered 70,358 consecutive patient consultations during ten working days, using one-sheet closed ended questionnaires. Actions taken if symptoms had four categories: Laboratory tests, X-ray/imaging, referral/hospitalization, follow-up appointment with GP. Cancer suspicion was answered for three dimensions: symptoms, clinical findings, intuition. There was also a question about previous cancer or not. Participating GPs had consented to receive a new questionnaire at follow-up eight months later. GPs then anonymously reported from zero to seven patients with cancer, prospectively diagnosed in the interval.

Results: After exclusions and correction for multiple consultations, 61802 patients participated and 6264 (10%) of them presented one or more abdominal symptoms. 511 patients developed cancer, new or recurrent, before follow-up. Data about suspicions raised and actions taken by the GP are being analysed and will be presented at the Ca-PRI meeting. Differences between countries will be shown, and if time allows, differences between patients subsequently diagnosed with cancer or not.

Learning about Colorectal Cancer Survivorship Care: An Assessment of the Effectiveness of an Interactive Web-based Tutorial in a Primary Care Residency

Submitting Author: Shahla Admad, Penn State Milton S. Hershey Medical Center

Ayesha Abid MD[1], Neha Kaushik MD[1], Shahla Ahmad MD[1], Peter R Lewis MD[1], Jane R. Schubart PhD[2]

The Department of Family and Community Medicine at Penn State Milton S. Hershey Medical Center[1] and the Departments of Surgery, Public Health Sciences, and Medicine at Penn State College of Medicine[2]

Background: Cancer survivorship care for patients is commonly encountered in family medicine and a need exists to improve survivorship education among residents. The purpose of this study is to determine the effectiveness of a web-based interactive learning module on improving primary care residents' knowledge of colorectal cancer (CRC) survivorship care and their confidence in caring for these patients in a clinical setting.

Methods: Primary care residents were voluntarily recruited to complete the web based interactive module and take part in a pre and post- test survey questionnaire pertaining to CRC survivorship care. The survey included knowledge based questions and assessments of importance and confidence. Pre and post-test data were analysed using paired t-tests.

Results: Fourteen participants (13 family medicine, 1 internal medicine) completed both pre-test and post-test surveys. Mean correct responses increased from 7.86 to 11.00 out of the total 13 questions (p-value <0.01). Residents' confidence in providing care to CRC survivors improved (p-value=0.017); however self-rating in importance of providing CRC survivorship care did not improve (p=0.139). There were no significant differences by year of residency.

Conclusion: This study suggests that a self-directed web based interactive module is effective in increasing the knowledge and confidence of primary care residents to provide CRC survivorship care. Additional study is warranted to determine whether or not these results are reproducible and sustainable; and, more importantly, translate into improved colorectal cancer survivorship care.

Daughters of *BRCA1/2* Mutation Carriers Talk to PCPs and GYNs: Opportunities to help manage their hereditary cancer risks

Submitting Author: Andrea Farkas Patenaude Ph.D., Dana-Farber Cancer Institute, Boston MA 02215

Background: Concern about their children's hereditary cancer risks is a prime motivation for many women to undergo *BRCA1/2* mutation testing. Daughters of mothers who test positive are advised to undergo genetic testing and, if positive, to begin breast screening at age 25, decades before women in the general population are advised to screen. Little is known about how **daughters of mutation carriers (DMCs**) understand their cancer risks, who they talk to about being at risk and how they cope with their high-risk status.

Methods: Qualitative interviews were conducted via telephone with 40 DMC, ages 18-24 years, whose mothers tested positive for *BRCA1/2* at the Dana-Farber Cancer Institute. Semi-structured interviews were recorded, transcribed, entered into Atlas-ti software, coded and analyzed for women's knowledge of *BRCA1/2*, their family and professional communication about hereditary cancer risk, informational needs and related distress.

Results: PCPs and gynecologists were the physicians DMCs were most likely to talk to about their hereditary cancer risks (62.5%). Only 12.5% had spoken to a genetic counselor or geneticist and only 7.5% had spoken to an oncologist. 15% had spoken to no health professionals about their risk status. Significant gaps were noted in DMC's understanding of the implications of being a mutation carrier and the rationale for early screening. A third did not know that breast cancer occurs earlier than usual in *BRCA1/2* mutation carriers whose breast cancer risk is 5 times or more that of women in the general population. Among DMCs, nearly ¾ did not know the general population breast cancer incidence, making it hard for them to appreciate their own much-increased risk.

Conclusions: Primary care providers and gynecologists who are knowledgeable about *BRCA1/2*-related risks and concerns of young women at high risk are important potential informants and supports for DMC as they approach screening age.

Five-year follow-up of participants in a randomized controlled trial examining the management of suspicious pigmented lesions in primary care

Submitting Author: Elka Humphrys, University of Cambridge, UK

Elka Humphrys[1], Agnieszka Rzadzinska-Prosser[1], Nigel Burrows[3], Per Hall[3], Jon Emery[2,1], Fiona M Walter[1,2]

[1] Primary Care Unit, University of Cambridge, Cambridge, UK
[2] University of Melbourne, Victoria, Australia
[3] Addenbrooke's Hospital, Cambridge University Hospitals NHS Foundation Trust, Cambridge, UK

Background: From 2008-2010 a randomised controlled trial was conducted to assess the effect of adding a diagnostic tool, the MoleMate system (SIAscopy with primary care scoring algorithm), to best practice for the management of suspicious pigmented lesions in primary care. 1297 participants (1580 lesions) were randomised to the trial, with 36 melanomas diagnosed. We have now conducted a 5-year follow-up to identify all new cases of skin cancers among trial participants.

Methods: Cancer Registry data was obtained to assess the histology and site of new skin cancer diagnoses among trial participants until March 2015. This was compared to outcome data from the trial.

Results: Twenty trial participants were diagnosed with 24 new skin cancers in the five years following their trial participation; 6 melanomas and 18 non-melanotic skin cancers (13 basal cell carcinomas, BCC; 5 squamous cell carcinomas, SCC). Of the six newly diagnosed melanomas, five were diagnosed in different anatomical locations to the trial lesion (control group 3, intervention group 2), while one was diagnosed at the same site as the trial lesion (control group). This participant had taken an alternative follow-up route (non-protocol) for their lesion, where the melanoma was subsequently identified: this case could represent a single 'missed diagnosis' within the trial. The 18 non-melanotic skin cancers identified during the follow-up period were all in different locations to the trial lesions; 13 BCCs (control group 9, intervention group 4), 5 SCCs (control group 3, intervention group 2).

Conclusions: Our follow-up data indicate that lesions were appropriately managed within the trial where the protocol was followed. The results highlight the importance of encouraging all patients to regularly appraise their skin and consult promptly with changes, particularly those at higher risk following skin cancer treatment.

Bowel Disease In Younger Adults: Identification and quantification of the clinical features of inflammatory bowel disease and colorectal cancer in patients under 50.

Submitting Author: Sal Stapley, University of Exeter, UK

Background: Colorectal cancer in younger patients is often diagnosed after significant delay. It is not known if the symptoms are the same as in older patients. One possible way of accelerating diagnosis of bowel cancer in the young, is to consider it alongside inflammatory bowel disease (IBD - Crohn's disease and ulcerative colitis) as both conditions share many of the same symptoms. We identified and quantified features of these diseases in primary care, separately and combined.

Methods: Case–control study using electronic primary-care records of UK patients aged<50 years was performed. Cases with primary colorectal cancer or IBD were matched to controls on age, sex and practice. Putative features were identified in the year before diagnosis. Odds ratios (ORs) were calculated for these features using conditional logistic regression, and positive predictive values (PPVs) were calculated.

Results: A total of 11239 cases and 26926 controls were studied. Fifteen features were independently associated with colorectal cancer and/or IBD (all P<0.001 except eye irritation p=0.006, nausea and/or vomiting p=0.002 and raised LFT p=0.001): abdominal pain, OR 3.1 (95% confidence interval 2.8–3.3); anal fissure, 5.5 (3.8–7.9); bowel habit, 16.2 (11.8–22.1); constipation, 3.8 (2.9–5.0); diarrhoea, 6.8 (6–7.6); eye irritation, 1.5 (1.1–2.0); nausea and/or vomiting, 1.5 (1.1–1.9); rectal bleeding, 23.9 (20–28.7); weight loss, 1.2 (1.1–1.3); low haemoglobin, 2.4 (2–3); low MCV, 2.6 (2–3.4); high inflammatory markers, 5.1 (4.3–6.0); raised hepatic enzymes, 1.3 (1.1–1.5); high white cell count, 1.5 (1.3–1.9); and thrombocytosis, 4.6 (3.5–6). The only PPV >5% in patients <50 years was for low haemoglobin with a change in bowel habit.

Conclusion:
Symptoms of colorectal cancer and inflammatory bowel disease are similar in younger patients presenting in primary care. Rectal bleeding and a change in bowel habit are strongly predictive of both colorectal cancer and inflammatory bowel disease, and can be used to identify patients meriting colonoscopy.

Determinants of general practitioner's cancer related gut feelings – a prospective cohort study.

Submitting Author: Gé A. Donker[1], Presented by: Marianne Heins

Eva Wiersma[2]
Marianne Heins[1]
[1] NIVEL Primary Care Database, Sentinel Practices, Utrecht, the Netherlands.
[2] VU Medical Center, Amsterdam, the Netherlands

Background: General practitioners (GPs) use gut feelings to diagnose cancer in an early stage, but little is known about its impact.

Aim: To explore triggers and GP's action based on gut feelings, determine the predictive value of gut feelings and how this is influenced by patient and GP characteristics.

Method: Prospective cohort study of patients in 44 general practices throughout the Netherlands, from January 2010 till December 2013. GPs completed a questionnaire regarding gut feelings, patient and GP characteristics, if they noticed a cancer-related gut feeling during patient consultation. Follow-up questionnaires were sent 3 months later requesting information about the patient's diagnosis. Chi-square, uni- and multivariate logistic regression and multilevel analyses were performed.

Results: A gut feeling (N=366) is most often triggered by weight loss (24%, N=85) and rare GP visits (22%, N=76), but only gut feelings triggered by a palpable tumour (14%, N=53) was predictive of cancer (48%). Most GPs (95%) acted immediately on the gut feeling, either referring to a specialist or by performing additional medical tests. The average positive predictive value of cancer related gut feeling was 35%. This increases with 2% for every year a patient becomes older, and with 3% for every year a GP becomes older.

Conclusion: GP's gut feeling for cancer proves to be a useful tool in diagnosing cancer and its relative high predicting value increases if the GP is older or more experienced and when the patient is older or has a palpable tumour.

The Media Representation of Age as a Risk Factor for Cancer

Submitting Author: Sara Macdonald, University of Glasglow (UK)

Background: In the UK, three quarters of all cancers are diagnosed in those over 60 and a third of diagnoses are in those over 75. Age is therefore emerging as an important risk factor for cancer. Yet, older adults commonly underestimate their risk of cancer, are less likely to be aware of symptoms and more likely to be diagnosed at later stages.

Cancer is understood within the wider socio-cultural context. How people understand and act on information is often mediated through the mass media, which fulfils an important function in informing the public about health issues. The media is a key health information source and may motivate health actions and behaviours.

Our aim in this study was to analyse news media representations of four common cancers: lung, breast, colorectal and prostate in the context of 'age'.

Method: We selected eight UK daily national newspapers and included the three genres of newspapers: 'serious', 'mid-market' 'tabloids'. We selected two search periods to compare and contrast media reporting over time (2003 to 2004 and 2013 to 2014).

Results: Age was cited less frequently than other cancer risk factors including obesity, heredity, smoking and lifestyle generally. Age was cited as a risk factor for some cancers more than others. More than a quarter of articles about colorectal cancer mention age as a risk factor, equal numbers (17%) of articles about breast cancer and prostate cancer mention age and just three stories about lung cancer mention age.

Age more frequently appeared in individual or personal narratives. For both 'ordinary' people and celebrities the majority of stories featured those between the ages of 30 and 50 and only around one in ten narratives featured those over 60.

Conclusion: General representations of people in media are younger even in stories about cancer where older adults are most at risk.

Posters – Day 1

Predictive values of gynecological and gastrointestinal cancer alarm symptoms in the Danish population

Submitting Author: Dorte Jarbol, University of Southern Denmark

Jarbøl DE[1], Balasubramaniam K[1], Haastrup P[1],Rasmussen S[1]

[1]Research Unit of General Practice, Department of Public Health, University of Southern Denmark, Odense, Denmark

Background: The prognosis of cancer is highly dependent on stage of disease at diagnosis. To promote early diagnosis, clinical guidelines based on cancer alarm symptoms have been implemented. Current knowledge is mainly based on patients already diagnosed with cancer. The aim of this study was therefore to determine the positive predictive values (PPVs) of alarm symptoms indicative of cancer in the general population.

Methods: A population-based prospective cohort study based on a nationwide web-based cohort survey including 100 000 individuals aged 20+ years, randomly selected from the Danish Civil Registration System. Questionnaire data concerning experience of different specific and unspecific alarm symptoms were combined with register data of gastrointestinal and gynaecological cancers or premalignant conditions in a one-year follow-up period.

Results: A total of 49 706 subjects completed the questionnaire. In total, 60 individuals were diagnosed with colorectal cancer, and 52 women were diagnosed with a gynaecological cancer or a premalignant condition one year after completion of the questionnaire. The PPV estimates of symptoms ranged between 0.2% (95%-CI: 0.2-0.3) for at least one gynaecological cancer alarm symptom and 0.5% (95%-CI: 0.2-1.0) for rectal bleeding. Higher values were found among individuals in the oldest age groups and among individuals who reported contact to the general practitioner with alarm symptoms.

Conclusion: The PPV estimates of alarm symptoms indicative of cancer in the general population are very low, and only few of the patients diagnosed with gynaecological or gastrointestinal cancer reported specific alarm symptoms prior to diagnosis. Thus targeted diagnosis of cancer cannot be based on cancer alarm symptoms only.

Trialling a colorectal cancer risk prediction tool (*crisp*) in primary care: is a 'nurse-led' method feasible?

Submitting Author: Jennifer Walker, University of Melbourne

Jennifer Walker[1], Marie Pirotta[1], Adrian Bickerstaffe[2], Mark Jenkins[2], Jon Emery.[1,3,4]

1. Department of General Practice, University of Melbourne, 200 Berkeley St Carlton Vic 3053, Australia
2. Melbourne School of Population and Global Health, University of Melbourne, 207 Bouverie Street, Carlton, 3053 Vic 3053, Australia.
3. General Practice, School of Primary Aboriginal and Rural Health Care, University of Western Australia Crawley, WA 6009, Australia
4. The Primary Care Unit, Institute of Public Health, University of Cambridge School of Clinical Medicine, Box 113, Cambridge Biomedical Campus, Cambridge CB2 0SR, United Kingdom.

BACKGROUND: Colorectal cancer (CRC) is a major health problem in Australia. Despite this, many higher risk patients are not having colonoscopies when they should and many average risk patients are being over-screened with colonoscopies. This study aimed to explore the methods for trialling a risk prediction tool ('CRISP') in primary care to establish an effective method for larger trial to determine CRISP's effect on 'appropriate' screening.

METHODS: Patients aged between 50 and 75 years old were recruited from the waiting rooms of 2 primary care clinics in Australia. A patient was eligible if they were waiting to consult with their doctor, did not have CRC or symptoms associated with CRC, and were competent with written English. If eligible and interested, patients were consented and randomised at the time. Participants randomised into the intervention group were led through the CRISP tool, given a print-out of their risk and screening recommendation which they took into their consultation with their doctor. All participants completed a questionnaire about screening behaviour, intentions, risk perception and cancer worry at baseline, 1 month, 6 months and 12 months and all participants consented to allow the release of screening behaviour (number of tests for CRC and resuts of the tests) for the year. The logistics of the recruiting process and preliminary data were examined.

RESULTS: Between October and December 2015, 85 participants were recruited (response rate >66%) from 12 doctors in the 2 clinics. With minimal disruption to the clinic, the delivery of the intervention prior to seeing the GP was achieved in over 90% of participants. Currently baseline and 1 month follow-up outcome data are being analysed and will be completed by March 2016.

DISCUSSION/CONCLUSION: This trial confirms the methods for recruitment and delivery of the intervention are feasible for a fully powered efficacy trial.

Socioeconomic differences in responses to breast cancer symptoms: A qualitative comparative study

Submitting Author: Katriina Whitaker, University of Surrey, UK

Afrodita Marcu[a], Georgia Black[b], Peter Vedsted[c], Georgios Lyratzopoulos[d], Katriina L Whitaker[a*]

[a]School of Health Sciences, University of Surrey, Guildford, United Kingdom
[b]Department of Applied Health Research, University College London, London, United Kingdom
[c]Research Unit for General Practice, Research Centre for Cancer Diagnosis in Primary Care (CaP), Faculty of Health, Aarhus University, Denmark
[d]Health Behaviour Research Center, Department of Epidemiology and Public Health, University College London, London, United Kingdom

Purpose Advanced stage at diagnosis for breast cancer is associated with lower socio-economic status (SES). We explored what factors in the patient interval may contribute to this inequality.

Methods We conducted semi-structured interviews with a sample of women (≥ 47 years) from higher (*n* = 15) and lower (*n* = 15) SES backgrounds, who had experienced at least one potential breast cancer symptom. Half the participants (*n* = 15) had sought medical help, half had not (n=15). Without making breast cancer explicit, we elicited women's sense-making around their symptoms and their reasons for help-seeking (or not).

Results Women from lower SES backgrounds tended to attribute their breast symptoms to trivial factors (e.g. bra irritation), and were reticent in using the word 'cancer'. Despite 'knowing' that symptoms could be related to cancer, women with lower SES often invoked lack of medical knowledge – "*I am not a doctor"* – to express uncertainty about interpreting their symptoms and accessing help. Higher SES women were confident about interpreting their symptoms, seeking information online, and seeking medical help. There were also differences in emotional responses to breast symptoms- women with lower SES were reluctant to seek help due to fear of examination or fear of a cancer diagnosis.

Conclusions Our findings suggest that knowledge alone may not explain socioeconomic differences in how women interpret and seek help for breast cancer symptoms. Further research is needed on how to overcome psycho-social factors implicated in lower SES women's hesitancy to interpret their breast symptoms as warranting medical attention.

Understanding how 'lung cancer symptoms' and 'service' attributes drive the decision to seek help from a General Practice in the Scottish public: a discrete choice experiment

Submitting Author: Domencia Coxon, Presented by David Weller

Domenica Coxon[1], Christine Campbell[1], Fiona M Walter [2], Jonathan Banks [3] Greg Rubin [4], William Hamilton [5], David Weller [1]

[1] Centre for Population Health Sciences, The University of Edinburgh, Edinburgh, UK; [2] General Practice and Primary Care Research Unit, The Primary Care Unit, University of Cambridge, Cambridge, UK; [3] The University of Bristol; UK [4] School of Medicine, Pharmacy and Health, Durham University, Stockton-on-Tees, UK; [5] Primary Care Diagnostics, Peninsula College of Medicine and Dentistry, Exeter, UK.

Background: In the UK poor survival of lung cancer is attributed to prolonged patient help-seeking intervals. Little current research addresses the complexity of the service and clinical need-based attributes involved in this decision. This study uses a discrete choice experiment (DCE) to explore how these issues might facilitate consultation.

Methods: Patients in general practice waiting rooms were invited to complete an I-pad DCE survey. Three symptom scenarios of varying severity were presented (cough, breathlessness, haemoptysis) and respondents asked to identify their preferred course of action, and how various service attributes (time to appointment, assessments and investigations offered, health professional seen and health professional's attitude) would influence their decision to consult.

Results: 305 participants completed the survey (less than 5% missing responses). For cough many respondents opted to 'do nothing': the offer of an x-ray did not increase their likelihood of consulting (OR=0.76, 95% CI 0.59, 0.99). For breathlessness a shorter waiting time (OR= 0.76, 95% CI 0.66, 0.88) and being offered blood tests (OR= 2.83, 95% CI 2.21, 3.64) increased the likelihood of consulting. However, being offered any GP (OR=0.76, 95% CI .664, .890) would not add any more value to encourage patients to consult than if they could expect to see a specialist nurse. For haemoptysis, seeing 'any GP' was not likely to encourage consultation compared to seeing a specialist nurse (OR= 0.72, 95% CI 0.60, 0.86), but a shorter waiting time for appointment (OR= 0.65, 95% CI 0.55, 0.76),a chest x-ray (OR 2.53, 95% CI 1.85, 3.47) and a more 'legitimising' health professional response to symptoms (OR 2.02, 95% CI 1.58, 2.60) would do so.

Conclusions: With increasing symptom severity, waiting time, assessments and investigations and health professionals' attitude are likely to influence patient consulting behaviour. Manipulating these service factors may allow policymakers to facilitate earlier consultation.

The effectiveness of digital rectal examination for the diagnosis of prostate cancer in symptomatic patients in primary care: a systematic review

Submitted by: Daniel Jones, MD, Hull York Medicine School

Background: Prostate cancer is the most common cancer in men in the UK. As screening is not recommended in the UK, the diagnosis depends on patients presenting with symptoms of prostate cancer and being referred to specialists. NICE guidelines on recognition and referral of suspected cancer, recommend performing digital rectal examination (DRE) on patients presenting with lower urinary tract symptoms and urgently referring patients with a prostate deemed malignant on examination. However, this recommendation is based on the results of one case control study. As a result it is not known if DRE performed in primary care is an accurate method of detecting prostate cancer. The aim of this review is to ascertain the sensitivity, specificity, positive and negative predictive value of DRE for the detection of prostate cancer in symptomatic patients in primary care.

Method: CENTRAL, MEDLINE, Embase and CINAHL databases and grey literature from commencement to August 2015, were searched for studies in which a DRE was performed in primary care on symptomatic patients for the recognition of prostate cancer and compared against a gold standard diagnostic procedure.

Results: Four studies met the inclusion criteria with a total of 3225 patients included in the analysis. The pooled sensitivity and specificity for DRE as a predictor of prostate cancer in symptomatic patients was 28.6% and 90.7%, respectively. The pooled positive and negative predictive values were 42.3% and 84.2%, respectively.

Conclusion: This review found that DRE performed in general practice is accurate, and supports the NICE guidelines that patients with a prostate deemed malignant on examination are referred urgently for suspected cancer. DRE is a widely used, safe and cost effective diagnostic procedure. An abnormal DRE carried a 42.3% chance of malignancy, far above the 3% risk threshold which NICE guidance suggests warrants an urgent referral for suspected cancer.

Educational differences in likelihood of attributing breast symptoms to cancer: A vignette-based study

Submitting Author: Katriina Whitaker, University of Surrey, UK

Afrodita Marcu[a], Georgios Lyratzopoulos[b], Georgia Black[c], Peter Vedsted[d], Katriina L Whitaker[a*]
[a]School of Health Sciences, University of Surrey, Guildford, United Kingdom
[b] Health Behaviour Research Centre, Department of Epidemiology and Public Health, University College London, London, United Kingdom
[c] Department of Applied Health Research, University College London, London, United Kingdom
[d] Research Unit for General Practice, Research Centre for Cancer Diagnosis in Primary Care (CaP), Faculty of Health, Aarhus University, Denmark

Background: Stage at diagnosis of breast cancer varies by socio-economic status (SES), with lower SES associated with poorer survival. We investigated associations between level of education and the likelihood of attributing breast symptoms to breast cancer.

Methods: We conducted an online survey with 961 women (47-92 years) with variable educational levels. Two vignettes depicted familiar and unfamiliar breast changes (axillary lump and nipple rash). Without making breast cancer explicit, women were asked ('What do you think this […..] could be?'). After the attribution question, we examined whether cancer avoidance ('I would not want to know if I have breast cancer') was a potential explanatory factor of differential symptom attribution.

Results: Women were more likely to mention cancer as a possible cause of an axillary lump (67%) compared with nipple rash (34%). In multivariate analysis, low and mid education were independently associated with being less likely to attribute a nipple rash to cancer (OR 0.52, 0.37-0.76 and OR 0.56, 0.40-0.78, respectively). For axillary lump, low education was associated with lower likelihood of mentioning cancer as a possible cause (OR 0.60, 0.42-0.85). Although cancer avoidance was also associated with lower education, the association between education and lower likelihood of making a cancer attribution was independent.

Conclusions: Lower education was associated with lower likelihood of making cancer attributions for both symptoms, even after adjustment for cancer avoidance. Lower likelihood of considering cancer may delay symptomatic presentation and contribute to educational differences in stage at diagnosis.

An investigation of routes to cancer diagnosis in ten international jurisdictions – survey development and implementation of ICBPM4.

Submitting Author: David Weller, University of Edinburgh, UK

David Weller, Usha Menon, Peter Vedsted, Alina Zalounina Falborg, Henry Jensen, and the ICBP Module 4 working group.

Background: International differences in cancer survival, reported previously by the International Cancer Benchmarking Partnership (ICBP), may be linked to differences in time intervals from first symptom(s) until diagnosis and start of treatment, and routes to diagnosis of cancer patients. Module 4 of the ICBP will provide the first robust international comparison of these parameters. We present the study design and recruitment processes, and report reliability testing and response rates of the developed questionnaires.

Methods: A prospective study involving questionnaires from newly diagnosed patients and their primary care physicians (PCPs) and cancer treatment specialists (CTSs) was undertaken. Patients were identified through cancer registries data in each jurisdiction. The recruitment target was 200 breast, lung, colorectal and ovarian patients, diagnosed through a symptomatic route in each of ten participating jurisdictions in 6 countries. Data on screen-detected patients was also collected. Screened patients were also recruited as it was not possible to identify these patients through cancer registry data in all jurisdictions. Data and audit information from treatment records or databases supplemented the questionnaire data. Hierarchal 'data rules' were applied to combine and reconcile conflicting information.

Results: This was a complex exercise with broad methodological challenges. Analysis of colorectal and breast cancer data showed that intervals for screened and symptomatic patients can be compared between jurisdictions. Reliability testing broadly showed good agreement for items within the patient questionnaire, and response rates to the questionnaires were comparable with similarly published questionnaires in some jurisdictions.

Conclusion: An international questionnaire-based survey of patients, PCPs and CTSs was undertaken in ten jurisdictions. This is the first attempt to describe and compare between countries the patient journey from symptom onset to a cancer diagnosis and treatment. ICBPM4 could provide unique insights into cancer survival differences, and identify areas where improvements may be made in health systems.

Identifying people at higher risk of melanoma across the UK: a primary care-based electronic survey.

Submitting Author: Fiona Walter [1]University of Cambridge, UK

FM Walter[1,5], JA Usher-Smith[1], AP Kassianos[2], G Abel[1], Z Teoh[3], S Hall[4], RD Neal[3], P Murchie[4], JD Emery[1,5].

[1]University of Cambridge, UK; [2]University College London, UK; [3]Bangor University, UK; [4]University of Aberdeen, UK; [5]University of Melbourne, Australia.

Background: Melanoma incidence is rising rapidly worldwide among Caucasian populations. Defining higher-risk populations using risk prediction models may help targeted screening and early detection approaches.

Research question: Can people at higher risk of melanoma be identified via primary care in the UK?

Methods: We recruited participants from the waiting rooms of 22 general practices covering a total population of >240,000 in three UK regions: Eastern England, Northeast Scotland, North Wales. Participants completed an electronic questionnaire incorporating the Williams melanoma risk model using tablet computers.

Results: 7,742/9,004 approached people completed the electronic questionnaire (86%). The mean melanoma risk score for the 7,566 eligible participants was 17.15 (SD 8.51), with small regional differences (lower in England compared with Scotland ($p = 0.001$) and Wales ($p < 0.0005$)), mainly due to greater freckling and childhood sunburn among Scottish and Welsh participants. After weighting to the age and gender distribution, different potential cut-offs would allow between 4% and 20% of the population to be identified as higher risk, and those groups would contain 30% and 60% respectively of those likely to develop melanoma.

Conclusion: Collecting data on the melanoma risk profile of the general population in UK primary care is both feasible and acceptable, and provides opportunities for new methods of real-time risk assessment and risk stratified cancer interventions.

Variation in English General Practitioners' direct access to tests to investigate cancer.

Submitting Author: Brian D Nicholson, MRCGP MSc, Oxford University, UK

Jason Oke, DPhil, Senior Statistician
Peter W Rose, FRCGP MD, Senior Clincial Researcher
David Mant, FRCGP FMedSci, Emeritus Professor of General Practice

Background: The 2015 NICE guidelines recommend that GPs have direct access to diagnostic tests to investigate symptoms of cancer that do not meet the criteria for urgent referral. The number of GPs in England who already have direct access to these tests is not known.

Methods: We recruited 533 English GPs through a national clinical research network to complete an online survey about direct access to laboratory, radiology, and endoscopy tests in the three months leading up to the release of the 2015 NICE guidance. If they had direct access to a diagnostic test, GPs were asked about the time necessary to arrange a test and receive a report. Results are reported by sub-region and, adjusting for sampling, for England as a whole.

Results: Almost all GPs reported direct access to x-ray and laboratory investigations except faecal occult blood testing (54%, 95% CI 49-59%) and urine protein electrophoresis (89%, 95% CI 84-92%). Fewer GPs had direct access to CT scans (54%, 95%CI 49-59%) or endoscopy (colonoscopy 32%, 95% CI 28-37%; gastroscopy 72%, 95%CI 67-77%). There was significant variation in direct access between NHS regions for the majority of imaging tests – for example, from 20 to 85% to MRI. Apart from x-ray, very few GPs (1-22%) could access radiology and endoscopy within the timescales recommended by NICE. The modal request to test time was 2-4 weeks for routine radiology and 4-6 weeks for routine endoscopy with results taking another 1-2 weeks.

Interpretation: To achieve the NICE targets, investment is required to not only provide direct access but also reduce the interval between request and test and speed up reporting. If alternative approaches to test access are to be proposed they must be piloted comprehensively and underpinned by robust effectiveness data.

The Effects of Primary Care Reform on Inequalities in Cancer Screening: A Population-Based Longitudinal Study in Ontario, Canada

Submitting Author: Aisha Lofters, St Michael's Hospital, Toronto

A Lofters, A Mark, M Taljaard, R Glazier, M Green, S Dahrouge

Background: Disparities in cancer screening across many social strata are well documented in Ontario, Canada. Ontario introduced primary care reform in 2002 to enhance disease prevention and quality of care. We investigated the effects of primary care reform on disparities in cancer screening.

Method: In this population-based longitudinal analysis, we analyze data extracted from health administrative data held at the Institute for Clinical Evaluative Sciences between 2002 and 2013 to evaluate how cancer screening disparities have changed with primary care reform. A cohort of 2,811 physicians is followed over time as they transition from traditional fee-for-service to reformed fee-for-service payment models, and a cross-sectional cohort of patients is created for each physician on an annual basis. The proportion of patients up-to-date on breast, cervical and colorectal cancer screening (as determined by provincial guidelines) is determined for each year. A multivariable, mixed-effects logistic regression analysis, accounting for clustering of patients within practices, is created to estimate time-varying odds ratios representing the effect of transition at each calendar year, adjusting for physician profile and patient sociodemographic characteristics and case mix.

Results: In the year prior to the transition, immigrants (vs non-immigrants) were 8%, 23% and 15% less likely to have received the recommended screening for cervical, breast and colorectal cancer screening, respectively. Those in the lowest income quintile (vs highest) were 17%, 19% and 20% less likely, respectively. After seven years, the relative likelihood was lower by 8%, 10% and 10% for immigrants, and 16%, 16% and 18%, for the lowest income. Multivariate analyses are in progress and will be presented.

Conclusion: This study will provide valuable insights on how primary care reform has affected screening disparities for immigrant and low-income patients.

Factors influencing participation of primary physicians in endoscopic screening programs for gastric cancer

Submitting Author: Chisato Hamashima (National Cancer Center), Japan

Kohei Arai (Gunma University); Rei Goto (Kyoto University)

Background: Gastric cancer screening using upper gastrointestinal radiography has been conducted in Japan. Upper gastrointestinal endoscopy has disseminated into private clinics and has become a necessary technique for primary physicians. Several local governments have introduced endoscopic screening programs for gastric cancer in collaboration with primary physicians. On such example is Yonago City, where participation in the program has been made available to all primary physicians. As specific techniques are required for endoscopy, not all primary physicians are able to participate. We investigated the factors influencing participation of primary physicians in the program.

Methods: We performed a questionnaire survey for 90 private internal medicine and general surgery clinics in Yonago City. Questions included those related to factors that can influence participation in endoscopic screening including human resources (physicians, nurses, and medical staff); equipment; number of outpatients; education and training; and original background. We analyzed factors influencing participation in the endoscopic screening program by logistic regression analysis.

Results: Fifty-six private clinics responded to the questionnaire survey (response rate, 62.2%), with 39 clinics participating in the program and 17 clinics not. The mean number of physicians was 1.60, and the mean number of nurses was 4.23. Among physicians, 85.7% had trained as a gastroenterologist at a university hospital. Although the mean age was 61.8 years, physicians at participating clinics were significantly younger than non-participating clinics. Participating clinics included more physicians who had experience performing endoscopic examinations than non-participating clinics. The following factors were significantly influential in logistic regression analysis: age of primary physicians; training as a gastroenterologist at a university hospital; and having a successor for their private clinic.

Conclusions: Participation of primary physicians in the endoscopic screening program for gastric cancer is based on their personal experience and backgrounds. Equipment and nurses did not affect for participation in the program.

Diagnostic Journeys in Myeloma (DJiM): how long does it take and what influences length of journey? What evidence is there? A configurative systematic review.

Submitting Author: Tania Seale, Bangor University, UK

Seale T[1], Kennedy L[2], Fegan C[3], Litt E[4], Neal RD[1]

1North Wales Centre for Primary Care Research, Bangor University, 2 University of Chester, 3 Cardiff and Vale Health Board, University of Wales , 4 Shrewsbury and Telford NHS Trust

Background: Myeloma has some of the longest diagnostic journeys reported. The complete picture of journeys to diagnosis are unclear and the relative value of contributing factors not fully understood. A systematic review was undertaken to identify, select, appraise and synthesise all relevant literature to inform knowledge on influences and length of journeys to diagnosis.

Methods: Configurative systematic review of the literature and narrative synthesis of findings.

Results: 22 studies were included in a mapping exercise.13 most relevant studies were narratively synthesised. Studies were mixed designs and showed variations in quality and reporting. All studies reported from retrospective data. Older studies demonstrated inferior reporting but greater relevance. Time to diagnosis was demonstrated as longer for myeloma compared to other cancers. No symptom signature could be identified. Influences in journey duration were seen across the entire diagnostic pathway; there is limited investigation of appraisal and secondary care influences. No reporting was present of the social or contextual experience of the journey, studies did not detail appraisal or help seeking activity. No study could display the complete diagnostic journey or relative values of intervals. Theoretical underpinning was limited in large number of studies. Evidence of referral pathways was limited. There was no evidence of health economic assessment, gender or deprivation analysis. No evidence for symptom type and impact on journey length exists.

Conclusions: This is the first comprehensive review of diagnostic journeys in myeloma. Current evidence fails to inform policy. Evidence displays the complexity of journeys. Compared to other cancers myeloma diagnostic journeys are under-investigated.

A need to present the complete diagnostic journey of patients with myeloma, that quantifies the objective measurement of all intervals and factors within the journey, but additionally investigates the personal social and contextual experience of patients exists. Collection of real time data is likely to be more informative.

Cancer risk assessment in primary care

Submitting Author: Reka Vernes MD, Department of Family Medicine, Semmelweis University, Budapest, Hungary

Background: Hungary is amongst countries with the highest cancer morbidity and mortality. Therefore it is important to study lifestyle and family history risk factors for cancer. We studied the feasibility of risk prediction in primary care for the most common cancers in the general population in order to tailor screening and lifestyle recommendations.

Methods: A pilot study was conducted in a mid-sized town in Hungary with 15 patient's self-reported questionnaire to the most common risk factors and family history for breast and colon cancer. We used the Referral Screening Tool, the FSH-7, the Ontario Family History Tool, the Manchester Scoring System (based on the USPSTF guideline recommendation) and the Tyrer-Cuzick model for breast cancer risk calculation and the NCI Colorectal Cancer Risk Assessment Tool for colon cancer risk.

Results: The most common cancer lifestyle risk factor was obesity (BMI › 25 kg/m2), the most commonly used screening test was Chest X-ray and PSA. Family history (first or second degree relative) was positive in 80%.

Self-reported family history for cancer was controversial, incomplete and imprecise.

Conclusion: To access family history and lifestyle risk factors for cancer risk assessment and calculations, a trained health care professional is required.

Chest X-Ray and PSA tests are the most common screening examinations in spite of USPSTF and national recommendations.

Further study needs with larger sample size of patients.

Recommendation and performance of cancer screening examinations: Results from a nation-wide survey in Germany

Submitting Author: Jennifer Engler, Goethe Univ.

J. Engler[1], A. Dahlhaus[1], Insa Koné[1], C. Güthlin[1]

[1]Institut für Allgemeinmedizin, Goethe-Universität Frankfurt am Main

Background: In Germany, screening for colorectal-, skin-, prostate-, breast- and cervix cancer is recommended by the German Federal Joint Committee. Nevertheless, the balance of benefits and harms of cancer screening are debated also in general medicine.

Research question: How often are cancer screening examinations recommended and performed in general practice in Germany?

Methods: 500 GPs were randomly selected using directory enquires. A letter of invitation and a questionnaire were sent to general practices in March 2015. The questionnaire asked GPs to rate the usefulness of a selection of cancer screening examinations on a four point Likert scale. GPs were also asked whether recommending and conducting such examinations was part of their practice routine (on a regular basis, irregularly, not at all and/or only in special cases), and whether they viewed GPs or specialists as responsible for recommending and conducting each examination. Data was analysed descriptively.

Results: 139 GPs were included in analysis, of which 35% were female. 49% worked in a group practice. Mean age was 55 ± 9.

All cancer screening examinations were rated as "useful" or "rather useful" by more than 60% of GPs. Less than 13% performed female-specific cancer screenings and colonoscopy on a regular basis, while FOBT, skin and prostate cancer screening examinations were performed by more than 50%. GPs most often recommended examinations that they performed regularly such as FOBT (62%), skin cancer screening (67%), PSA testing (58%) and digital rectal examination (56%). Colonoscopy was also regularly recommended by nearly 74%.

Conclusion: GPs most often recommended those examinations that they also perform regularly. Only recommendation of colonoscopy, for which a counselling fee is granted in Germany, strikes out. Based on our data we cannot conclude if recommendation (and performance) goes in hand with comprehensive patient information to support an informed consent to cancer screening.

Routes to a prostate cancer diagnosis

Submitting Author: Charis Brown, University of Auckland, New Zealand

Authors: Yoon J[1], MacDiarmid S[2], Brown C[1], Gilling P[2], Holmes M[3], Schwass T[3], Lawrenson R[1].

1. *Waikato Clinical Campus, University of Auckland, Hamilton, New Zealand*
2. *Bay of Plenty Academic Site, University of Auckland, Tauranga, New Zealand*
3. *Urology Department, Waikato DHB, Hamilton, New Zealand*

Background: In New Zealand, prostate specific antigen (PSA) testing is regularly undertaken by general practitioners (GPs) as a screening test for prostate cancer. Each year, in excess of 350,000 PSA tests are undertaken an increase from 275,000 tests during 2010. While there is no screening programme for prostate cancer, there are a number of guidelines on patient management.

Objective: To compare the different routes to diagnosis for New Zealand men registered with prostate cancer during 2015 and domiciled in the Midland region.

Methods: As part of the development of a Midland regional prostate cancer register we recruited men diagnosed with prostate cancer during the calendar year 2015 from both the private and public sectors. A brief questionnaire was mailed out to 258 men alongside a patient information sheet and consent form through Waikato and Tauranga based Specialists and Urogenital Clinical Nurse Specialists.

Results: To date there have been 111 responses (43%) from men, 104 of which are eligible. In most cases men identified that the initial PSA test was GP initiated (75%). Just over 16% of men requested the test, the main reason for requesting a PSA test by a patient being for the initiation of regular annual testing (30%). Around one third of men felt that they had lower urinary tract symptoms (LUTS) to some degree at the time of the test. The use of a digital rectal examination (DRE) at the time of the PSA test was common (83.7%) and all but 3 of these men were referred on subsequently to see a specialist. The median interval between GP referral and first specialist appointment was 2-4weeks.

Conclusion: PSA testing alongside performing a DRE for screening purposes is continuing with GPs increasingly initiating the first PSA test in men.

The association between degree of rurality and the length of the colorectal cancer diagnostic interval in Ontario, Canada

Submitting Author: Patti Groome, Queen's University, Canada

Leah Hamilton[1], Colleen Webber[1], Geoff Porter[2], Jenn Flemming[1], Hugh Langley[1]

[1] Queen's University, Kingston, ON Canada; [2] Dalhousie University, Halifax, NS

Background: Diagnostic wait times are a public health concern. Rural populations may experience more challenges in accessing cancer care, leading to a longer diagnostic interval and representing a health care inequity. Our objective was to determine whether colorectal cancer (CRC) patients living in more rural areas had longer system-related diagnostic intervals after stratifying by stage and controlling for potential confounders.

Methods: This was a retrospective population-based cohort study. We used administrative databases available through the Institute for Clinical Evaluative Sciences (ICES) to identify incident CRC cases diagnosed from Jan 1, 2007-May 31, 2012 in Ontario, Canada. We assigned each patient a rurality score, based on their census subdivision. Our diagnostic interval was the time (in days) between a patient's first diagnostic-related encounter with the health care system to the CRC diagnosis date. Data linkage through ICES allowed us to stratify by stage and consider potential confounders.

Results: The median diagnostic interval of the CRC cohort was 64 (IQR: 22-159) days and the 90th percentile was 288 days. The median diagnostic interval varied across rural categories in the stage I stratum only, ranging from 58.5 to 108 days (p=0.0005), with the most rural group having the shortest diagnostic interval. Adjusted results suggested that patients in mid-ranged rural categories had similar or longer diagnostic intervals compared to patients in the least rural category while patients in the most rural category maintained the shortest diagnostic interval. Important covariates included: age, comorbidities and CRC sub-site.

Conclusions: Our results did not support a rurality effect on the diagnostic interval in the hypothesized direction. Estimates of a shorter interval in the most rural category, especially for stage I disease, call for a deeper analysis to better understand care delivery in those areas and patient characteristics that might affect the interval.

Posters – Day 2

In symptomatic lung and colorectal cancer patients, could thrombocytosis allow the diagnosis to be expedited?

Submitting Author: Sarah Bailey

Obi Ukoumunne, Elizabeth Shephard, Willie Hamilton

University of Exeter, UK

Background: The UK National Institute for Clinical Excellent (NICE) guidance for cancer diagnosis in primary care, updated in 2015, now includes thrombocytosis (raised platelet count) as a trigger for urgent chest x-ray in adults over 40 years old. For colorectal cancer, no recommendations relating to thrombocytosis were made. This study aimed to investigate the proportion of lung and colorectal cancer patients whose diagnosis could have been expedited using thrombocytosis as a marker of cancer.

Methods: A cohort study comprising 1,200 patients with thrombocytosis and either lung (N=573) or colorectal (N=627) cancer. Patients' symptoms in the time interval between their blood test showing thrombocytosis and their cancer diagnosis date were compared to symptom profiles presented in the NICE guidance for urgent investigation.

Results: Of the 573 patients with thrombocytosis and a lung cancer diagnosis, 209 (36%) had no symptoms that matched NICE guidance for urgent investigation. In these patients, the median number of days between their first blood test showing thrombocytosis and their lung cancer diagnosis was 50 (IQR 18-126). For patients with colorectal cancer and thrombocytosis, 206 (33%) had no symptoms that matched NICE guidance for referral. In these patients, the median number of days between thrombocytosis and their cancer diagnosis was 67 (IQR 27-174).

Conclusions: These results suggest that the addition of thrombocytosis as a trigger for urgent investigation in the 2015 NICE guidance can expedite diagnosis for a third of lung cancer patients. For colorectal cancer, the introduction of similar guidance could result in earlier diagnosis for a third of colorectal cancer patients - earlier by about two months. With around 42,000 new cases of colorectal cancer annually in the UK, and 14% of colorectal cancer patients having a blood test showing thrombocytosis within the year prior to their diagnosis, this equates to approximately 1,933 patients per year.

The validity of cancer recording in the Clinical Practice Research Datalink compared with UK cancer registries: a cohort study.

Submitting Author: Sarah Bailey

Obi Ukoumunne, Elizabeth Shephard, Willie Hamilton.

University of Exeter, UK

Background: Many cancer studies use Clinical Practice Research Datalink (CPRD) data but the quality of cancer diagnosis recording in the CPRD remains uncertain. This study aimed to assess the validity of cancer diagnoses recorded in the CPRD by comparing the data to UK cancer registry data, in light of improved data recording in the cancer registry.

Methods: Patients diagnosed with cancer from a cohort of 50,000 CPRD patients for whom cancer registry linked data were available were studied. Data linkage was used to obtain cancer registry data for any of these 50,000 patients. Those patients diagnosed with cancer, and the date of diagnosis, were compared between the two data sources.

Results: 2,440 patients had a cancer diagnosis recorded in the CPRD, and 3,078 had a diagnosis in the cancer registry. In total, there were 3,325 diagnoses from either source; the two agreed on 2,136 of these. The CPRD had 304 patients diagnosed with cancer who had no record in the cancer registry, and the cancer registry had 942 patients with no cancer record in their CPRD file. 87.5% of CPRD cancers were confirmed by the cancer registry, and 69.4% of cancer registry diagnoses were recorded within the CPRD. Where both sources had a cancer record for a patient, the CPRD diagnosis date was a median of 8 days later than the cancer registry (IQR 0-21 days).

Conclusions: These results show that cancer recording is of a high standard in the CPRD, but studies requiring accurate incidence figures will require registry linked data to ensure all cases are captured. These findings will be of great use to researchers wishing to carry out research using the CPRD.

Examining the impact of multimorbidity across the cancer care continuum using Scottish primary care and national prescribing data: a feasibility study.

Submitting Author: Karen Barnett, University of Edinburgh

Karen Barnett[1], David Weller[1], Stewart Mercer[2], Bruce Guthrie[3], Hester Ward[4], David Brewster[4], Gill Hubbard[5], Catherine Thompson[4], Christine Campbell[1].

[1]University of Edinburgh, [2]University of Glasgow, [3]University of Dundee, [4] NHS National Services Scotland, [5]University of Stirling.

Background: Scotland's cancer survival rates are amongst the worst in Europe. Reasons for this are thought to include the influence of multimorbidity (two or more long-term conditions), which has the potential to impact healthcare; from screening participation, recognition of possible signs and symptoms of cancer, suitability and response to treatment, and survival. In Scotland most people aged 65 and older are multimorbid and evidence shows there are high levels of multimorbidity in European cancer populations.

Aim: To examine the impact of multimorbidity on cancer diagnostic pathways, treatments and survival in Scotland, and to help establish the utility of a new Primary Care dataset: the Scottish Primary Care Information Resource (SPIRE) within this framework.

Methods: An observational cohort study using electronic record linkage. Patient cohorts diagnosed with colorectal or lung cancer during a five year period will be identified through the Scottish Cancer Registry and linked to routine health datasets using a unique Community Health Index (CHI) number. Two established proxy measures of multimorbidity will be explored using 1) SPIRE and 2) Prescribing Information Scotland (PIS) datasets.

Results: Analyses will explore associations between the presence and degree of multimorbidity (in accordance with pre-defined categories) and stage at diagnosis, screening participation (bowel cancer), curative treatment and survival at 1, 3 and 6 months and one year. All analyses will be adjusted for age, gender, deprivation and general practice and, where appropriate, stage at diagnosis and treatment type.

Conclusions: These preliminary analyses (restricted to colorectal and lung cancer in the current study) will offer a prelude to future large-scale data-linkage studies examining the impact of multimorbidity across the cancer care continuum. This study will provide important information and understanding of linking a new primary care data resource (SPIRE) to routinely collected medical records in Scotland for future primary care research.

Reinforcing partnership between cancer patient, general practitioner and oncologist during chemotherapy – study protocol for a randomised controlled trial

Submitting Author: Theis Trabjerg, University of Southern Denmark

Theis Bitz Trabjerg[1] , Lars Henrik Jensen[2], Jens Søndergaard[1], Jeffrey Sisler[3], Dorte Gilså Hansen[1]
[1]National Research Center of Cancer Rehabilitation, Research Unit of General Practice, University of Southern Denmark
[2] Department of Oncology, Vejle Hospital, Denmark
[3]Division of Continuing Professional Development, Faculties of Medicine and Dentistry, University of Manitoba, Canada

Keywords: Cancer, randomised controlled trial, tele-health, shared care, continuity.

Background: International guidelines underline the importance of strengthening the coordination and continuity of cancer care. The different roles of general practitioners and oncologists with regard to treatment, follow-up and rehabilitation during and after cancer treatment are often obscure to cancer patients. Parallel courses of healthcare are often taking place instead of coordinated care characterised by continuity and partnership between care providers. Patients may feel uncertain about the health professionals' skills and area of responsibility. Healthcare seeking and support during and after cancer treatment may, therefore, be inappropriate, leaving patients feeling insecure and lost between care providers.

Objectives: The study aims to design and evaluate a new way of communication and shared decision-making that brings the patient, the oncologist and general practitioner together in a shared video-consultation in the early phase of chemotherapeutic treatment.

Methods: The effect of the intervention in addition to usual care will be tested in a randomised controlled trial at Vejle Hospital in the Region of Southern Denmark. Based on sample size calculation, we intent to include 300 patients at the Department of Oncology and their general practitioners.

Results: Data collection for pilot study is ongoing. Results and process outcomes will be evaluated qualitatively and quantitatively, using footage of the consultations, questionnaires to patients, general practitioners and oncologists, and data from registers. The quantitative outcomes at patient level will include shared-care (primary outcome), health-related quality of life, continuity, illness intrusiveness and depression and anxiety.

Status and perspectives: Results and evaluation of the pilot study will be presented at the conference.

Early Death Following Cancer Diagnosis: Prior Input from Primary Care

Submitting Author: Liz Mitchell, University of Leeds, UK, Presented by: Daniel Jones

Elizabeth Mitchell[1] and Una Macleod[2]
[1]Leeds Institute of Health Sciences, University of Leeds
[2]Hull York Medical School

Background: Most cancers in the UK present symptomatically to primary care, but the pathway to diagnosis is complex and remains poorly understood. Significant Event Audit (SEA) provides a structured narrative of the circumstances surrounding an event of interest based around a) what happened, b) why it happened, c) what has been learned, and d) what has been changed. The aim of this study was to gain insights into the diagnostic process for patients who died within 1-year of first cancer diagnosis, drawn from secondary analysis of SEA documents.

Methods: 175 general practices in Northern England were invited to participate. Documented accounts were synthesised and analysed using a qualitative approach, including development of an Interpretative Matrix to facilitate identification and interpretation of common and diverse aspects of presenting features and pathways of care.

Results: SEAs for 52 patients were analysed. Most had initially presented to primary care (88%), the remainder to the Emergency Department. The most common cancers were lung (35%) and upper gastrointestinal (21%). Few patients had localised disease at diagnosis. Many patients presented with non site-specific symptoms, with or without weight loss, or with a history of anaemia. Many presentations were extraordinarily complex. Several patterns emerged which need consistent primary care response, including a) patients with chest symptoms and recent courses of treatment for infective symptoms who re-present soon after; b) older patients in particular with non-specific but potentially serious symptoms such as weight loss and tiredness; and c) patients who develop insidious anaemia.

Conclusion: There was extensive input into diagnosis for these patients, and little evidence to suggest systematic failure in primary care, even when patients presented with advanced disease. We must therefore consider how primary care can impact further to achieve better outcomes for similar patients.

Shared decision making in lung cancer: a systematic review

Submitting Author: Mariken Stegmann, University of Groningen, Netherlands

M.E. Stegmann[1*], O.P. Geerse[2*], M.Y. Berger[1], H.A.M. Kerstjens[2], T.J.N. Hiltermann[2], A.J. Berendsen[1]

*These authors contributed equally to this work

(1) Department of General Practice, University of Groningen, University Medical Center Groningen, The Netherlands

(2) Department of Pulmonary Diseases, University of Groningen, University Medical Center Groningen, The Netherlands

Background: Numerous benefits of shared decision making (SDM) for patients, clinicians, and the health care system have been described. Lung cancer is associated with significant distress, poor quality of life, and a prognosis of less than one year. The use of SDM-tools may improve the patient-physician communication of patients with lung cancer about their preferences of treatment. We therefore investigated the use of SDM-tools in patients with lung cancer by 1) identifying tools relevant to SDM in lung cancer patients; 2) evaluating the quality of evidence for these tools and 3) summarizing their effect on psychological distress as well as on healthcare utilization.

Methods: Two independent researchers performed a systematic literature search conducted in the CINAHL, Cochrane, EMBASE, MEDLINE, and PsychINFO databases from founding date through 2016. Studies were eligible when conducted in lung cancer patients, detailed on the use of an SDM-tool, were designed with a control group, and measured distress and/or health care utilization. Data on these parameters were extracted and studies were compared by outcome measures, risk of bias, and study design. Risk of bias was assessed using the Cochrane risk of bias tool.

Results and Conclusion: Expected in April 2016.

Eliciting preferences of elderly with advanced cancer. Design of a randomized controlled trial of the effect on self-efficacy. (OPTion-study)

Submitting Author: Mariken Stegmann, University of Groningen, Netherlands

M.E. Stegmann, J. Schuling, H. Burger, M.Y. Berger, A.J. Berendsen
Department of General Practice, University of Groningen, University Medical Center Groningen, The Netherlands

Introduction: Traditionally the General Practitioner (GP) is not involved in treatment decisions in cancer, although the GP has a long history with patients and can help to explore patient values, especially in older patients. The aim of this randomized controlled trial (RCT) is to study the effect on self-efficacy of a conversation about treatment goals between GP and patient just after the diagnosis of non-curative cancer.

Methods: Patients aged ≥70 with a recent diagnosis of non-curative cancer are asked by their oncologist to participate and randomized. The intervention group has a consultation with the GP using the OPT (Outcome Prioritization Tool). This simple tool is a card with four scales each representing a treatment goal. The patient has to value and rank these goals. Primary outcome is score on the decision self-efficacy scale about the treatment decision of patients and their oncologists. Secondary outcomes are depression, anxiety (HADS) and fatigue (MFI-20). In the intervention group prioritization of treatment goals (OPT-scores) and its determinants will be assessed from diagnosis till six months thereafter.

Results: Inclusion has started in October 2015. First results are expected end 2016.

Conclusion: The OPTion-study will give information the effect on self-efficacy of a conversation about preferred treatment goals of elderly with advanced cancer. This study will contribute to more involvement of the GP in oncology care and to a more active patient role in treatment decisions.

CAPPA: Care for prostate cancer patients

Submitting Author: MJ Heins PhD[1]

JC Korevaar PhD[1],PM Rijken PhD[1], GA Donker MD PhD[1], AM van Dulmen PhD[1,2,3], FG Schellevis MD PhD [1,2]

[1]Netherlands Institute for Health Services Research (NIVEL), The Netherlands
[2]Department of Primary and Community Care, Radboud University Medical Center, Nijmegen
[3]Faculty of Health Sciences, University College of Southeast Norway, Drammen, Norway
[4]Department of General Practice/EMGO Institute for Health and Care Research, VU University Medical Centre, Amsterdam

Background: Many patients with prostate cancer are aged over 65 and suffer from comorbid chronic diseases. Often many health care providers are involved in their care. A patient-centred approach that goes beyond the disease could lead to more patient-tailored care. The objective of CAPPA (Care for prostate cancer patients) is to implement and evaluate a new clinical pathway in which aftercare for older patients with prostate cancer and complex health care problems is transferred to the GP.

Materials and Methods: In this pilot study, we included 20 prostate cancer patients aged over 65, not under active treatment for prostate cancer and having at least one chronic disease. Aftercare for prostate cancer was transferred to the GP for 12 months. To support GPs in the care for these patients, the six GPs and two urologists participating in the study jointly developed a care protocol. We also provided GPs with the option of video consultation with a urologist. A successful clinical pathway was defined as: 1) GPs did not refer patients to the urologist unless for (suspected) recurrence/metastasis. 2) Patients are satisfied. 3) GPs and urologists are satisfied.

Results: Three patients dropped out of the study and were referred back to the urologist because of increasing PSA levels. Before April 1st, patient satisfaction for the remaining 17 patients will be assessed with questionnaires. The first interviews with five patients indicated that they are positive about the GP-led aftercare. Interviews with GPs and urologists show that they are also positive.

Discussion/Conclusion: Patients, urologists and GPs seem to be positive about the new clinical pathway. The clinical pathway was successful. After this pilot study, the GPs will continue to provide aftercare for the participating patients. The experiences of this study can be used to implement the clinical pathway in other hospitals and general practices.

Impact of Switching to High Deductible Insurance on Initiation and Discontinuation of Hormonal Therapy Among Patients with Early Breast Cancer

Submitting Author: Christine Y. Lu PhD, MSc.

Anita K. Wagner
Fang Zhang, PhD
Larissa Nekhlyudov
Dennis Ross-Degnan, ScD

J. Frank Wharam, MB, BCh, BAO, MPH

From the Department of Population Medicine, Harvard Medical School and Harvard Pilgrim Health Care Institute.

Background/objectives: High-deductible health plans (HDHPs) requiring substantial out-of-pocket costs for most services might reduce appropriate health care; this type of insurance may affect patients seen in primary and specialty care settings. This study examined the impact of modern HDHPs on use of adjuvant hormonal therapy, a fundamental treatment for secondary prevention in patients with breast cancer; many of these patients' comorbidities are managed in primary care settings.

Methods: We studied 1,159 women with newly diagnosed early breast cancer who were insured by employers that mandated a transition from low-deductible (<=$500) to high deductible (>=$1000) coverage and 13,052 contemporaneous patients whose employers offered only low-deductible plans. We propensity-score matched patients transitioning to HDHPs with contemporaneous patients whose employers offered only low-deductible coverage. Measures were time to initiation of adjuvant hormonal therapy and time to discontinuation of therapy (60-day gap in treatment). We used survival analysis to estimate changes in outcomes.

Results: Prior to the HDHP-switch, time to initiation was similar between HDHP members and controls as expected with and without chemotherapy. Following the HDHP-switch, HDHP members had similar likelihood of initiation compared to controls with and without chemotherapy. Among the pre-HDHP switch individuals who initiated hormonal therapy, time to discontinuation was similar between HDHP members and controls as expected. Among post-HDHP-switch individuals, HDHP members again had a similar risk of discontinuation (HR=0.86 [0.63, 1.17]).

Conclusions: In this rigorous, natural experimental study of a large population of incident breast cancer women, we did not detect reductions in initiation of hormonal therapy or a higher risk of discontinuation of these treatments among HPHD members. Further studies should examine HDHP effects among vulnerable subgroups such as those with low income, racial/ethnic minorities, and individuals covered by the subtype of HDHPs that requires full drug cost-sharing.

Comparing lung cancer diagnostic and treatment pathways between CALD and Anglo-Australian patients: A mixed methods, observational cohort study protocol

Submitting Author: Danielle Mazza, Monash University, Melbourne

Mazza D[1], Emery J[2], Walter F[3], Young J[4], Barnes D[5], Mitchell P[6], Brijnath B[1], Martin A[7]

[1] Department of General Practice, Monash University, [2] Department of General Practice, University of Melbourne, [3] Department of Public Health and Primary Care, University of Cambridge, [4] Sydney School of Public Health, Sydney Medical School, University of Sydney, [5] Department of Respiratory and Sleep Medicine, Royal Prince Alfred Hospital, [6] Austin Health, Olivia Newton-John Cancer and Wellness Centre, [7] NHMRC Clinical Trials Centre, University of Sydney

Background: Lung cancer is the leading cause of cancer mortality worldwide. In Australia, lung cancer kills more people than breast, prostate, and ovarian cancer combined. Culturally and linguistically diverse (CALD) patients are especially vulnerable with higher mortality rates than Anglo-Australian patients. Reasons for this are unclear as there are no Australian-specific data examining the barriers existing along the lung cancer pathway from symptom appraisal to treatment in CALD populations**.**

Methods: Informed by the Aarhus Statement, we will undertake a mixed-methods, observational cohort study comprising prospective identification of lung cancer patients, patient symptom questionnaires, case-note analysis of hospital and general practice records, and interviews with lung cancer patients to obtain detailed data on their diagnostic and treatment pathways. We will also interview general practitioners and hospital specialists to obtain their perspectives on health system factors that may be contributing to diagnostic delay. Participants will be prospectively recruited from cancer services in Victoria, New South Wales, and Queensland.

Results: The primary outcome will be the length of four key time intervals (appraisal, help-seeking, diagnosis, and pre-treatment intervals) for CALD and Anglo-Australian patients with lung cancer. Data will also be collected on lung cancer staging; patient variables (eg, demographics, attitudes and beliefs, symptoms experienced); practitioner variables (eg, GP demographics, types of specialists seen); and health system variables (eg, involvement of a multidisciplinary team, types of investigations undertaken).

Conclusion: Our study will be the first to examine the underlying factors that influence the pathways to presentation, diagnosis, and treatment in CALD patients and specifically measure the time intervals between diagnosis and first definitive treatment in CALD patients. Such information will be vital in understanding the difference in health outcomes between lung cancer patients from CALD backgrounds and Anglo-Australian patients and can be used to design interventions aimed at improving health outcomes in these patients.

Insurance coverage policies for guideline-recommended genetic testing for cancer targeted therapies: preliminary results

Submitting Author: Christine Y. Lu PhD, MSc.

Lu CY, Ceccarelli R, Mazor K, Wu AC

Background/Aims: Modern medicine is transitioning from empirical treatment to treatment on the basis of the underlying biology of the disease through the use of genomics-based technologies. Genomic tests are the fastest growing sector of medicine and medical science and have the potential to improve clinical practice. This study examined differences in patient access to guideline-recommended genetic tests that guide cancer treatment.

Methods: We reviewed publicly available coverage policies for 20 gene-cancer drug pairs (e.g., HER2, EFGR, BRAF tests), including 10 large private insurers and 12 Medicare contractors. We searched gene and drug names and key terms including gene, genomic, and biomarker. We reviewed and extracted the following features: type of policy (gene specific, drug specific, generic policy for genetic testing); medical condition for which the test is covered; requirements for prior authorization; test methods & test result definition; and evidence basis for coverage.

Results: Across 10 private insurers, we identified 18 gene-specific policies, 63 drug-specific policies, 41 prior authorization requirements (for genetic test, drug, or both), and 16 general policies for groups of genetic tests. Overall, some insurers have established gene-specific coverage policies that guide use of such tests, while most relied on policies guiding coverage of genetic testing more generally that may or may not include guideline-recommended genetic tests of interest. A few insurers only have drug coverage policies and some of these did not recommend use of evidence-based genetic testing. Further analysis of policies is underway.

Conclusions: These preliminary findings of substantial variations in how insurers are addressing guideline-recommended genetic tests underscore the need for additional research into the impact of these variations on cancer care and utilization.

Abdominal symptoms in general practice II: Validity and predictive values in relation to new abdominal cancer, with differences in six European countries

Submitting Author: Knut Holtedahl

Tonje Braaten, Ranjan Parajuli

Department of Community Medicine, UiT The Arctic University of Norway

Background: Early diagnosis of cancer is an important challenge in general practice. Persistent digestive problem is one of several common symptoms known to be alarm symptoms for cancer, and abdominal cancers are among the most frequent forms of cancer. A previous study has shown that a symptom may be a better discriminator of cancer than a risk factor.

Research question: To what extent are abdominal symptoms associated with new abdominal cancer? What is the probability of such cancer when a symptom is presented?

Methods: Retrospective cohort study with prospective registration of cancer. 493 general practitioners (GPs) from six European countries (Norway, Sweden, Denmark, Belgium, Netherland and Scotland), organised through The Cancer and Primary Care Research International Network (Ca-PRI), registered 70,358 consecutive patient consultations during ten working days, using one-sheet closed ended questionnaires. Participating GPs had consented to receive a new questionnaire at follow-up eight months later. GPs then anonymously reported from zero to seven patients with cancer, prospectively diagnosed in the interval.

Results: After exclusions and correction for multiple consultations, 61802 patients participated and 6264 (10%) of them presented one or more abdominal symptoms. 175 patients developed new abdominal cancer within six months of the consultation. Data are being analysed and will be presented in Boston. The concept of validity will be discussed and figures presented as Hazard ratios, adjusted for sex and age at diagnosis. The probability of new abdominal cancer, given symptoms, will be presented as Positive predictive values. In principle, validity is fixed regardless of setting, while predictive values depend on cancer prevalence and may be expected to vary between countries. We will see if this is true in our material.

The effect of post treatment physical activity on fatigue among colorectal cancer survivors: a systematic review

Submitting Author: Daan Brandenbarg, MSc[1] University of Groningen

Jac H.W.M Korsten, MD[1]
Marjolein Y. Berger, MD, PhD[1]
Annette J. Berendsen, MD, PhD[1]

(1) University of Groningen, University Medical Center Groningen, Department of General Practice, P.O. Box 196, 9700 AD Groningen, The Netherlands

Background: The number of people living beyond colorectal cancer (CRC) is rising due to earlier detection and improved treatment. As a result long-term health problems are becoming more prominent. Fatigue is frequently mentioned as one of the most prevalent and invalidating of these issues. Some studies suggest physical activity has a positive effect on reducing levels of fatigue. However, results are inconclusive. The aim of this study is to review the evidence on the effect of physical activity on fatigue among survivors of CRC. Considering the propagated future role of primary care in cancer follow-up knowledge about practical implementations to reduce long-term effects of cancer treatment is highly relevant for general practitioners.

Methods: In December 2015 Pubmed, Embase and PsychInfo were systematically searched on combinations of the following MeSH and free-text words: colorectal neoplasms, colorectal cancer, exercise, physical activity, sport, lifestyle, fatigue, quality of life and HRQoL. Two reviewers (DB and JK) screened titles, abstracts and articles for eligibility. Inclusion criteria were: RCT or cohort study design, physical activity as intervention or measured repeatedly by validated questionnaires, measurement of fatigue by validated questionnaires (or a subscale of a validated (HR)QoL questionnaire), and data on CRC patients had to be analyzed separately. Risk of bias will be assessed using the Cochrane Risk of Bias tool. Data will be pooled and performance of a meta-analysis is intended.

Results: The search identified 1195 articles. After duplicates were removed the reviewers assessed 1119 titles and abstracts.

Study ongoing, final manuscript in preparation

Conclusions: *We expect to have preliminary results of this systematic review completed before the Ca-PRI meeting and would like to send an update in the meantime.*

Gynecological cancer survivors' views on follow-up after cancer treatment

Submitting Author: Heidi Lidal Fidjeland [1,2]

Mette Brekke[1], Ingvild Vistad[2]
[1] *Department of General Practice, Institute of Health and Society, University of Oslo, Norway*
[2] *Department of Obstetrics and Gynecology, Sørlandet Hospital Kristiansand, Norway*

Background and Aim: An increasing number of cancer survivors place a significant workload on hospital outpatient clinics, and this has led to a debate on alternative follow-up regimens. It has been suggested that follow-up of selected cancer survivors could be provided by general practitioners (GPs). We aimed to explore gynecological cancer survivors` attitudes toward follow-up after cancer treatment. We focused in particular on their views on being followed up by a GP.

Methods: We performed a questionnaire study among gynecological cancer survivors in three Norwegian hospital outpatient clinics. Both survivors recently treated for cancer (N=94) and survivors treated at least one year ago (N=133) were included. The study was completed at the end of 2015, and analyzes will be conducted.

Results: We aim to present results from the study regarding the gynecological cancer survivors' views on what they considered to be the most important factors in a follow-up visit, their views on reasons for follow-up and their views on being followed up by a GP.

Conclusion: We intend to present results from the study that hopefully will increase our understanding of the cancer survivors' attitudes to follow-up care. Cancer survivors' views are important in the development of follow-up guidelines.

Could Digital Technologies Have a Role in Optimizing Cancer Pain Management in the Community?

Submitting Author: Rosalind Adam, MD, University of Aberdeen

Background: Pain is prevalent in individuals with cancer. Complete relief of pain is achieved more frequently in hospices and hospitals than community settings. Interventions targeting patient behaviours can achieve small to moderate reductions in pain intensity. Digital technologies are increasingly being used to promote health behavioural change and might play a role in optimising cancer pain management (CPM). The aim of this study was to explore patient, caregiver, and health care professional (HCP) experiences of CPM and to investigate potential roles of digital technologies in optimising CPM in the community.

Methods: Semi-structured interviews were conducted with adults with cancer pain, their caregivers, and HCPs. Two professional focus groups were conducted. Interviews and focus groups were recorded, transcribed verbatim, and analysed using Framework and thematic analysis.

Results: Interviews were conducted with 14 patients, 6 caregivers, and 19 HCPs. Two focus groups were conducted with 12 HCPs from multidisciplinary backgrounds. Patients were aged between 56 and 76, mean 66 years. All patients had distant metastases or locally advanced disease. Five main themes emerged: 1. Managing competing goals. Patients made complex trade-offs to balance side effects, physical activity, and pain. 2. Technology as a tool to support specific goals. 3. Engagement with technologies. Barriers and facilitators are described. 4. Knowledge and information. 5. Communication and relationships. Technologies can enhance informational continuity and communication between patients and professionals but there are important caveats.

Conclusions: This study reveals the "work" of managing cancer pain. Patients with advanced cancer are already engaged with digital technology and there are key areas in which technology use could be extended to achieve CPM goals. Pain does not exist in isolation, and digital interventions must consider the complexities of individual goals without adding to the burden of CPM.

Feasibility testing of a brief intervention in primary care for non-responders to bowel cancer screening in the Lothian region, Scotland

Submitting Author: Christine Campbell, University of Edinburgh

Natalia Calanzani[1], Debbie Cavers[1], Gaby Vojt[1], Robert J. C. Steele[2], Sheina Orbell[3], Julietta Patnick[4], Steve Smith[5], David Weller[1], Christine Campbell[1]

[1]University of Edinburgh, [2]University of Dundee, [3]University of Essex, [4]NHS Cancer Screening Programmes, [5]University Hospitals Coventry & Warwickshire NHS Trust\

Background: Screening can facilitate the early diagnosis of bowel cancer and reduce bowel cancer mortality, but uptake can be improved. Primary care has been shown to play an important role in improving uptake. The Scottish Government is working with general practices to increase informed participation. We aimed to test whether a brief intervention in primary care was a feasible way to engage with non-responders to bowel screening in Lothian, Scotland.

Methods: A mixed-methods feasibility study testing a brief intervention tool developed by the research team for use by health professionals during routine consultations. The intervention comprised topics to guide discussion of bowel screening, information materials for health professionals, and a leaflet for patients detailing how to request a new screening kit. Data were collected from: proformas completed after each intervention, semi-structured interviews, brief questionnaires and the Scottish Bowel Screening Centre's database recording kit requests. We used descriptive statistics, and content and framework analysis to examine the data.

Results: 258 interventions were carried out in five primary care practices. Most patients approached accepted the intervention (n=220 or 87.0%), and 60 requested a new kit. Over a third (n=22) returned a completed kit. Twelve interviews with professionals, confirmed by questionnaire data, showed that the intervention was seen as feasible, acceptable, simple to implement and in line with existing ethos and practice. However, there were issues regarding competition with work-related pressures and time constraints as well as professional interests and practice priorities.

Conclusion: The intervention was found to be feasible, appropriate and acceptable for use in primary care, but time constraints, patients' other health needs and resource limitations may affect sustained implementation. A streamlined, electronic version of the intervention accompanied by financial incentives has potential as a useful tool to increase bowel screening participation as part of an evolving model of primary care.