41st Annual Meeting
Program & Abstracts

March 11-14, 2017

Grand Hyatt Hotel, Seattle, WA

American Society of Preventive Oncology

41st Annual Meeting

President:
Polly A. Newcomb, PhD
Fred Hutchinson Cancer Research Center

Program Co-Chairs:

Meira Epplein, PhD
Vanderbilt University

Beti Thompson, PhD
Fred Hutchinson Cancer Research Center

The **American Society of Preventive Oncology** is an active and growing organization that is striving to: 1) promote the exchange and dissemination of information and ideas relating to cancer prevention and control; 2) identify and stimulate research areas in cancer prevention and control; and 3) foster the implementation of programs in cancer prevention and control.

Meetings of the **American Society of Preventive Oncology** are organized for professionals in clinical, educational or research disciplines who appreciate the challenges of a multidisciplinary scientific forum and who are committed to a comprehensive approach to cancer prevention and control.

Special Acknowledgements

The ASPO Executive Committee offers special thanks to Program Co-Chairs, **Drs. Meira Epplein and Beti Thompson** for their extraordinary commitment in facilitating the development of the program for this meeting, and to the entire 2017 ASPO Program Committee for sharing their expertise and their valuable contributions to the program.

2017 Program Committee

ASPO Executive Committee Members

(parentheses indicates term expiration)

Position	**Name**
President	Polly Newcomb (2017)
President-Elect	Peter Kanetsky (2019)
Past President	Wendy Demark-Wahnefried (2017)
Secretary/Treasurer	Cheryl Thompson(2020)
At-large member	Elena Martinez (2017)
At-large member	Karen Basen-Engquist (2018)
At-large member	Shine Chang (2020)
Honorary	Al Neugut
Honorary	Melissa Bondy
Honorary	Amy Trentham-Dietz
ACS representative	Susan Gapstur
ASCO representative	Ernest Hawk
Staff	Heidi Sahel

Special Interest Groups:

Behavioral Science & Health Communication	Chair: Jada Hamilton (2017) Vice-Chair: David Cavallo
Molecular Epi & The Environment	Chair: Mack Ruffin (2018) Vice-Chair: Li Li
Lifestyle Behaviors,Energy Balance & Chemoprevention	Chair: Carolyn Fang (2017) Vice-Chair: Elisa Bandera
Survivorship & Health Outcomes/Comparative Effectiveness Research	Chair: Katie Sterba (2018) Vice-Chair: Erin Kent
Cancer Health Disparities	Chair: Beti Thompson (2017) Vice-Chair: Aimee James
Early Detection & Risk Prediction of Cancer	Chair: Mira Katz (2018) Vice-Chair: Jasmin Tiro
Early Career Development	Chair: Hazel Nichols (2018) Vice-Chair: Allison Burton-Chase
International Issues in Cancer	Chair: Meira Epplein (2017) Vice-Chair: Tomi Akinyemiju

Task Force Chairs

Membership	Ann Hsing
Website	Amy Leader
Development	Polly Newcomb
Career Development	Cheryl Thompson
Publications	Melissa Bondy & Amelie Ramirez
Evaluation	Susan Gapstur/Peter Kanetsky

ASPO Awards Through the Years

Year	Distinguished Achievement Awardee	Distinguished Service Awardee	Joseph Cullen Award in Tobacco Research
1983	Michael Shimkin		
1984	Ernst Wynder		
1985	Sam Shapiro		
1986	William Haenszel		
1987	Lester Breslow		
1988	Nicholas Petrakis		
1989	Alfred Knudson		
1990	Saxon Graham	John Weisburger	
1991	Barbara Hulka		
1992	David Schottenfeld		Ellen Gritz
1993	Joseph Fraumeni		Thomas Glynn
1994	Anthony Miller	Richard Love	Tracy Orleans
1995	Pelayo Correa		Donald Shopland
1996	Walter Willett	Al Neugut	Michael Fiore
1997	Barbara Rimer		Edward Lichtenstein
1998	Peter Greenwald		Jack Henningfield
1999	J. Potter/W.Ki Hong		John Pierce
2000	Margaret Spitz		Susan Curry
2001	I.B. Weinstein/Ellen Gritz		David Burns
2002	Robert Hoover		Jonathan Samet
2003	Leslie Bernstein		K. Michael Cummings
2004	Dave Alberts		Caryn Lerman
2005	Graham Colditz		Stanton Glantz
2006	Frank Meyskens	Carolyn Aldige	Gary Giovino
2007	Bernard Levin		Michael Thun
2008	Malcolm C. Pike		David Abrams
2009	Mitchell Gail		Ronald Davis (posthumously)
2010	Paul Engstrom		Jasjit Ahluwalia
2011	Patricia Ganz		Alex Prokhorov
2012	Electra Paskett		Stephen Hecht
2013	Polly Newcomb		Dave Wetter
2014	Bob Croyle		Vish Vishwanath
2015	Richard R. Love	Amy Trentham-Dietz	Cheryl L. Perry
2016	Alfred I. Neugut		Peter Shields
2017	Timothy Rebbeck		Kurt Ribisl

2017 AWARDS

2017 ASPO Joseph F. Fraumeni, Jr., Distinguished Achievement Awardee:

Timothy Rebbeck, PhD, Harvard University School of Public Health

2017 Joseph Cullen Award in Tobacco Research:

Kurt Ribisl, PhD, University of North Carolina

Sixth Annual Calle/Rodriguez Minority Travel Awards for a Top-Ranked Abstract awardees:

1. **Albert Farias, PhD,** UT - Houston
   Racial/ethnic Differences in the Use and Discontinuation of Adjuvant Endocrine Therapy by Hormone-receptor Status in Association with Mortality among Breast Cancer Patients enrolled in Medicare Part D

2. **Melanie Kornides, ScD,** Harvard University
   Parents Who Decline HPV Vaccination: Who Later Accepts and Why?

Sixth Annual Electra Paskett Scholarship Travel Award for the Top-Ranked Pre- or Post-doctoral fellow:

Megan Mullins, MPH, University of Michigan
Explaining disparities in Ovarian Cancer Incidence Rates between Women of African and European ancestry: The Role of Genetic Factors

2017 ASPO Travel Awards for top-ranked abstracts among junior investigators:

1. **Brittany Bernardo, MPH,** The Ohio State University
   Perceptions of Cervical Cancer Risk among Ohio Appalachian Women

2. **Jessica Citronberg, MPH.** Fred Hutchinson Cancer Research Center
   Laxative Type in Relation to Colorectal Cancer Risk

3. **Xinwei Hua, MPH**, Fred Hutchinson Cancer Research Center
   Surveillance Endoscopy in Relation to Long-term Survival in the Colon Cancer Family Registry

4. **Oyewale Siyanbola, MBBS, MPH,** University of Wisconsin - Madison
   Emerging Trends in Family History of Breast Cancer and Associated Risk

5. **Diana Withrow, PhD,** The National Cancer Institute
   Risk of Second Malignancies Following Ductal Carcinoma In Situ: A SEER (Surveillance, Epidemiology, and End Results) Program Population-based Study

Support Acknowledgements

The program organizing committee wishes to express appreciation to the following organizations for their commitment to continuing medical education by providing educational grants in support of this conference:

The Fred Hutchinson Cancer Research Center

The Ohio State University Comprehensive Cancer Center

American Cancer Society

In 2012, the American Cancer Society and American Society of Preventive Oncology announced the first annual "Calle/Rodriguez Minority Travel Award for a Top-Ranked Abstract" funded by the American Cancer Society. Drs. Jeanne Calle and Carmen Rodriguez were highly-respected epidemiologists, beloved colleagues and friends to many in the cancer research community. As Vice President of Epidemiology at the American Cancer Society, Dr. Calle was Principal Investigator of the Cancer Prevention Study (CPS)-II, a prospective study of more than one million men and women designed to identify risk factors for cancer. In particular, Dr. Calle was the lead author on widely-cited landmark studies establishing the link between obesity and cancer risk. She also guided the development and initiation of CPS-III, a study that will further our understanding of the causes of cancer and ways to prevent it for the next generation. A physician from Spain, Dr. Rodriguez was the Strategic Director of the CPS-II biospecimen repository. She published more than 100 scientific articles, with a special interest in studying ovarian and prostate cancers. Her work on the associations between hormone replacement therapy and cancer risk earned widespread media attention. Dr. Rodriguez also served as a Spanish-speaking spokesperson for the American Cancer Society. Professionally, Jeanne and Carmen were more than scientists; they were valued colleagues and committed mentors to many. Carmen and Jeanne passed away within months of each other in 2008-2009. While their deaths have been a tremendous loss, their spirits will live on in part due to the generosity of others whose donations allow the American Cancer Society to create this memorial award.

EXHIBITORS

Please visit our exhibitors near Registration. The conference organizing committee wishes to express appreciation to:

Nutramax Laboratories

Whether your needs are to support your joints, your heart, or your immune system, Nutramax Laboratories Consumer Care, Inc. offers a range of products, manufactured to the highest standards , to improve your quality of life. Nutramax Laboratories Consumer Care, Inc. is proud to partner with the American Society of Preventive Oncology.

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Moffitt Cancer Center strives to be the leader in understanding the complexity of cancer through team science and applying those insights for human benefit. Be part of the cure by joining our team of over 800 research faculty, career research scientists, postdocs, graduate students, and support staff dedicated to cancer research.

GENERAL INFORMATION

Assistance to Participants
The American Society of Preventive Oncology meeting staff is available to provide assistance or information at any time during the meeting. Questions should be addressed to the staff members and volunteers at the Registration Desk.

Poster Sessions
This year's poster session will be Monday, March 13th in Princessa and the foyer area of the Grand Hyatt Hotel . The posterboards will be in place by Monday at 11am. Please have your poster displayed by 3pm for judging purposes. Every Poster submitted to ASPO will be judged. The poster session and reception will be from 6:00pm – 8:00pm. Posters must be taken down by Tuesday at noon.

Prior to the poster session, judges will review each poster and select their top candidates. The top 15 will then be revisited by judges during the poster session. Judges will then reconvene during the poster session to determine award recipients. The awards are:
Best Poster overall: Plaque (to be engraved)
2nd Place Poster honorable mention
3rd Place Poster honorable mention

Trainee (Pre- and Post-doc) Poster Prizes
2 prizes to be given: 1st and 2nd place each get a $100 check (see Heidi for payment)

A distinguished panel of faculty will select outstanding posters at the poster session. Awards will be announced and presented at the end of the poster session, along with a brief discussion of the winners' merits. *Presenters should be positioned near their posters during the poster session for discussion and judging. All posters not taken down after the poster session, will be removed and put in the registration area.*

Internet Access: Wi-Fi in the Grand Hyatt is complimentary in the hotel lobby, hotel Starbucks and guestrooms.

PLEASE HELP US PLAN FOR THE FUTURE
Please respond to the on-line survey that will be sent soon after the meeting. This will help future Program Committees and conference staff to better meet your professional and logistical needs.

NEXT YEAR . . .

The 42nd Annual Meeting of the American Society of Preventive Oncology will be:

March 10-13, 2018
The Roosevelt Hotel, New York, NY

ASPO 2017 PROGRAM

SATURDAY, MARCH 11, 2017

3:00 pm – 7:00 pm
Eliza Anderson Amphitheater

Cancer Prevention & Control Associate Directors/Program Leaders Meeting - Part 1 (Invitation Only)
Organizer: Electra Paskett, PhD, Ohio State University

7:00 pm – 8:00 pm

Reception for AD/PL Workshop Participants

SUNDAY, MARCH 12, 2017

8:00 am – 5:00 pm
Leonessa Ballroom Foyer

Registration

8:00 am – Noon
E.A. Amphitheater

Cancer Prevention & Control Associate Directors/Program Leaders Meeting - Part 2 (Invitation Only)

10am – 12:30 pm
Discovery – 1st floor

New Investigators Workshop (Invited Applicants only)
Faculty: Judith Jacobson, DrPH, Columbia University (organizer)
Deborah Glueck, PhD, University of Colorado- Denver
Michael Scheurer, PhD, MPH, Baylor College of Medicine
Shelley Tworoger, PhD, Harvard School of Medicine

Chosen Participants:

Saori Harada, MD, MPH, University of Tokyo Hospital
Project: A Prospective Analysis of Body Mass Index (BMI), Weight Change and Survival of Multiple Myeloma in the Nurses' Health Study (NHS) and Health Professionals Follow-up Study (HPFS)

Lauren Houghton, PhD, Columbia University
Project: The Role of Androgens in Breast Cancer Susceptibility across the Lifecourse

Daniel Jacobs, PhD, Baylor College of Medicine
Project: Elucidating the Molecular Pathogenesis of Familial Glioma

Saira Khan, PhD, Washington University in St. Louis
Project: The Association of Metformin and Statin Duration on Prostate Cancer Recurrence among African American and Caucasian Men in the VHA Cohort

Yanina Natanzon, PhD, Mayo Clinic College of Medicine
Project: Associations of Hormone Related Risk Factors on Tumor-Infiltrating Lymphocytes in High-Grade Serous Ovarian Cancer

Baiyu Yang, PhD, Stanford Cancer Institute
Project: Circulating Tumor DNA (ctDNA) and Liver Cancer Surveillance: Implications for Prevention

SUNDAY, MARCH 12, 2017

12:30 pm – 2:30 pm
Portland – 1st floor

Working Lunch Meeting of the ASPO Executive Committee

Noon – 2:45pm
Leonessa III

ASPO Early Career Sessions (Organized by Early Career SIG & open to all)

Noon – 1:20 pm

1) "A Roadmap to Academic and Research Environments: Identifying and Choosing the Best Fit for your Career Goals",
Co-chairs: Scherezade Mama, DrPH, Penn State University and Maria Swartz, PhD, MPH, RD, University of Texas Medical Branch
Panelists:
Allison M. Burton-Chase, PhD, Albany College of Pharmacy and Health Sciences
Deborah Glueck, PhD, Colorado School of Public Health, University of Colorado Anschutz Medical Center
Eugene J. Lengerich, VMD, MS, Penn State Cancer Institute
Michael Swartz, PhD, The University of Texas School of Public Health
Karen J. Wernli, PhD, Group Health Research Institute

1:20 pm – 1:40 pm

2) "NCI Funding Opportunities for Junior Investigators", Ming Lei, PhD, Deputy Director, Center for Cancer Training, and Branch Chief, Cancer Training Branch, NCI

1:40 pm – 3:00 pm

3) "Resilience for the Junior Investigator"
Co-chairs: Alicia Best, PhD, MPH, University of South Florida and Alexandra White, PhD, National Institute of Environmental Health Sciences
Speakers:
Diana SM Buist, PhD, MPH, Group Health Research Institute

Mary Beth Terry, PhD, Columbia University Mailman School of Public Health

1:00 pm – 2:45 pm
Eliza Anderson Amphitheater

Meeting of NCI R25T/T32 Training Program Principal Investigators
Organizer: Shine Chang, PhD, UT M.D. Anderson Cancer Center

SUNDAY, March 12, 2017

OPENING SESSION OF THE ASPO GENERAL MEETING

3:00 pm – 3:30pm
Leonessa I & II

ASPO Welcome & President's Address
Polly Newcomb, PhD, Fred Hutchinson Cancer Research Center

3:30pm – 5:00 pm
Leonessa I & II

Symposium 1: Transdisciplinary Research on Energetics and Cancer (TREC)
Linda Nebeling, PhD, MPH, RD, National Cancer Institute, *The TREC Initiative – Building Transdisciplinary Science with Animals, Biology and Public Health*

Jorge Chavarro, MD, ScM, ScD, Harvard University School of Public Health, *Maternal Fat Intake, Maternal Obesity and Methylation of Imprinted Genes in Mice and Humans*

Kathleen Sturgeon, PhD, Penn State Cancer Institute*, Physical Activity from Menarche to First Pregnancy and Risk of Breast Cancer in Humans and Rats*

Aaron Hipp, PhD, North Carolina State University, *Contributions to Worksites to the Energy Balance Equation and Contribution of TREC to an Early Career Scientist.*

Discussant: Sarah Gehlert, PhD, MSW, MA, Washington University School of Medicine, *The Whole is Greater than the Sum of the Parts: Lessons Learned from Transdisciplinary Research in Energetics and Cancer*

5pm – 5:15pm

Break

5:15 – 6:45pm
Leonessa I & II

Concurrent Paper Session 1: Colorectal Cancer Prevention and Survival
Chair: Andrea Burnett-Hartman, PhD, Kaiser Permanente

Galen Joseph, PhD, UC – San Francisco
Effective Cancer Risk Communication to Prevent Disparities in the Era of Precision Medicine

Ronald Myers, PhD, Thomas Jefferson University
Decision Support and Navigation to Increase Colorectal Cancer Screening among Hispanic Primary Care Patients

Beverly Green, MD, MPH, Group Health Research Institute
Long-term Adherence to Colorectal Cancer Screening; 5-Year Results from the Systems of Support to Increase Colorectal Cancer Screening Trial

Jonathan Kocarnik, PhD, Fred Hutchinson Cancer Research Center
Patterns of Multivitamin Use After Colorectal Cancer Diagnosis in Association with Long-term Survival

Xinwei Hua, MPH, Fred Hutchinson Cancer Research Center
Surveillance endoscopy in relation to long-term survival in the Colon Cancer Family Registry

5:15 – 6:45 pm
Eliza Anderson Amphitheater

Concurrent Paper Session 2: Breast and Ovarian Cancers
Chair: Cynthia Thomson, PhD, University of Arizona Cancer Center

Megan Mullins, MPH, University of Michigan
Explaining Disparities in Ovarian Cancer Incidence Rates between Women of African and European Ancestry: The Role of Genetic Factors

Cynthia Thomson, PhD, University of Arizona Cancer Center
Effect of di-indolylmethane on Estrogen-related Hormones, Metabolites and Tamoxifen Metabolism: Results of a Randomized, Placebo-controlled Trial

Albert Farias, PhD, UT Health Sciences Center
Racial/ethnic Differences in the Use and Discontinuation of Adjuvant Endocrine Therapy by Hormone-receptor Status in Association with Mortality among Breast Cancer Patients Enrolled in Medicare Part D

Ingrid Oakley-Girvan, PhD, MPH, Cancer Prevention Institute of California
Premenopausal Breast Cancer: Exercise and Leukocyte Telomere Length

Oyewale Shiyanbola, MBBS, MPH, University of Wisconsin - Madison
Emerging Trends in Family History of Breast Cancer and Associated Risk

Diana Withrow, PhD, National Cancer Institute
Risk of Second Malignancies following Ductal Carcinoma In Situ: A SEER (Surveillance, Epidemiology, and End Results) Program Population-based Study

6:45 pm – 8:30 pm
Leonessa II & foyer

Junior/Senior Member Networking Mixer with appetizers and cash bar
Come and meet fellow ASPO attendees!
Games & Prizes!
(Open to all attendees)

8:30pm

Dinner on your own

MONDAY, MARCH 13, 2017

8:00 am – 9:30 am **Concurrent Breakfast Sessions** (continental breakfast served)

Leonessa III

1) Special Interest Group Breakfast:
Early Detection & Risk Prediction of Cancer SIG

Title: Highlights from the AACR-MEG Special Conference *Improving Cancer Risk Prediction for Prevention and Early Detection*

Speakers: Susan Gapstur, MPH, PhD, American Cancer Society

Mary Beth Terry, PhD, Columbia University

Li Hsu, PhD, Fred Hutchinson Cancer Research Center

Erika Waters, PhD, MPH, Washington University in St. Louis

8:00am – 9:30am
Eliza Anderson Amphitheater

2) Special Interest Group Breakfast:
Survivorship & Health Outcomes/Comparative Effectiveness Research SIG

Title: Cancer Caregiving: Moving Beyond Patient- to Family-Centered Outcomes Research

Organizers:
Katherine Sterba, PhD, Medical University of South Carolina and
Erin Kent, PhD, National Cancer Institute

Speakers:

Elaine Wittenberg, PhD, City of Hope

Scott D. Ramsey, MD, PhD, University of Washington, Fred Hutchinson Cancer Research Center

Ulrike Boehmer, PhD, Boston University School of Public Health

9:30 am – 10:00 am **Break**

MONDAY, MARCH 13, 2017

10:00 am – 11:30 am
Leonessa I & II

Concurrent Paper Session 3: Smoking and Related Cancers
(chosen from top-ranked abstracts*)*
Chair: Peter Shields, MD, The Ohio State University

Katherine Sterba, PhD, Medical University of South Carolina
Pilot-Testing A Survivorship Needs Assessment Planning Tool for Head and Neck Cancer Survivors and Caregivers

Tracy Onega, PhD, Dartmouth College
Identifying Patient Smoking History for Cessation and Lung Cancer Screening through Mining Electronic Health Records

Samir Soneji, PhD, Dartmouth College
Quantifying Population-Level Health Benefits and Harms of E-Cigarette Use in the U.S.

Erica Warner, ScD, MPH, Massachusetts General Hospital and Harvard Medical School
Stigma Among Cancer Patients Who Report Current Smoking at the Time of Cancer Diagnosis

Steven Zeliadt, PhD, University of Washington
A proactive telephone-delivered motivational risk communication intervention for smokers participating in lung cancer screening

10:00 am – 11:30 am
Eliza Anderson Amphitheater

Concurrent Paper Session 4: HPV and Cervical Cancers
(chosen from top-ranked abstracts)
Chair: Deanna Kepka, PhD, University of Utah

Nora Henrickson, PhD, MPH, Group Health Research Institute
Health System-based HPV Vaccine Reminders: Randomized Trial Results

Fangjian Guo, MD, PhD, University of Texas Medical Branch
Decreasing Trends in Cervical Cancer Incidence among Young Women (15-34 years) in the United States during the Human Papillomavirus (HPV) Vaccine Era

Hazel Nichols, PhD, University of North Carolina
Birth Rates after Adolescent and Young Adult Cancer in North Carolina, 2000-2014

Natalia Heredia, MPH, University of Texas Health Science Center at Houston
A Randomized Controlled Study of a Community-based Intervention to Increase Breast and Cervical Cancer Screening in Low-income Hispanics

Roshan Bastani, PhD, University of California, Los Angeles
Outcomes of a Randomized Trial to Increase HPV Vaccination among Low Income, Ethnic Minority Adolescents in Los Angeles

Melanie Kornides, ScD, Harvard Medical School
Parents Who Decline HPV Vaccination: Who Later Accepts and Why?

11:30 am – 11:45am	**Break**
11:45am – 1:15 pm **Leonessa I & II**	**Luncheon Session: Moonshot Update** (Box lunch provided, open to all) Speakers: Bob Croyle, PhD, National Cancer Institute Electra Paskett, PhD, Ohio State University Cancer Center Elena Martinez, PhD, University of California – San Diego
1:15 pm – 1:45 pm	**Break**

MONDAY, MARCH 13, 2017

1:45pm – 2:15
Leonessa I & II

Fraumeni Distinguished Achievement Awardee Address:

Timothy Rebbeck, PhD, Dana Farber Cancer Institute and Harvard T.H. Chan School of Public Health
Precision Prevention of Cancer: Challenges and Opportunities

2:15 pm – 3:45pm
Leonessa I & II

Concurrent Symposium 2: Financial Consequences of a Cancer Diagnosis
Organizers: Al Neugut, MD, PhD, Columbia University, Karen Wernli, PhD, Group Health Research Institute, and Kate Weaver, PhD, Wake Forest School of Medicine
Speakers:
Alfred I. Neugut, MD, PhD, Columbia University
The Physician and Cancer Finances

Stephanie Wheeler, PhD, University of North Carolina
Financial Vulnerability in Breast Cancer Patients

Scott Ramsey, MD, PhD, Fred Hutchinson Cancer Research Center
Financial Toxicity: Causes and Consequences

2:15 pm – 3:45 pm
Eliza Anderson Amphitheater

Concurrent Symposium 3: Bacteria, Viruses, and Cancer: Opportunities for Prevention
Organizers: Meira Epplein, PhD, Vanderbilt University and Shelley Tworoger, PhD, Harvard University

Speakers:
Meira Epplein, PhD, Vanderbilt University
The Potential of Helicobacter pylori Eradication as a Cancer Prevention Strategy in the United States

Lesley Miller, MD, Emory University
From Screening to Cure: Hepatitis C Elimination as a Means of Cancer Prevention

Joel Palefsky, MD, University of California – San Francisco
HPV-associated Neoplasia: New Approaches to Primary and Secondary Prevention

Meredith Hullar, PhD, Fred Hutchinson Cancer Research Center
Microbial Mechanisms in Tumorigenesis and Cancer Prevention

Shelley Tworoger, PhD, Harvard University
Expanding Our View of "Bug"-Related Cancers: Novel Areas of Research

Symposium 3 is generously supported by Nutramax Laboratories

Monday, March 13, 2017

3:45 pm – 4:00 pm — **Break**

4:00 pm - 4:30 pm
Leonessa I & II

Joseph Cullen Awardee Address:

Kurt Ribisl, PhD, University of North Carolina
Finding Solutions for Tobacco-related Disparities

4:30 pm – 5:00 pm
Leonessa I & II

Best of Cancer Epidemiology, Biomarkers and Prevention (CEBP)
Organizer: Tim Rebbeck, PhD, Harvard University

Shelley Tworoger, PhD, Harvard University
Impact of Pre-analytic Blood Sample Collection Factors on Metabolomics

Jo L. Freudenheim, PhD, University of Buffalo
Periodontal Disease and Breast Cancer: Prospective Cohort Study of Postmenopausal Women

5:00 – 6:00 pm
Leonessa I & II

ASPO Business Meeting (open to all)

6:00 pm - 8:00 pm
Princessa & Foyer

Poster Session and Reception (light refreshments, cash bar)

Presentation of Best Poster Awards
Presentation of American Cancer Society Travel Awards
Presentation of Electra Paskett Scholarship Award
Presentation of ASPO Travel Awards

The Poster Reception is generously supported by the Fred Hutchinson Cancer Research Center

8:00 pm — **Dinner on your own**

TUESDAY, MARCH 14, 2017

8:00 am – 9:30 am
Leonessa III

Concurrent Breakfast Sessions (continental breakfast served)
Special Interest Group Breakfast Session I: International Issues in Cancer Prevention
Organizer: Tomi Akinyemiju, PhD, University of Alabama at Birmingham
Title: Cancer Genomics Research in International Settings

Speakers:
Sadeep Shrestha, PhD, MHS, MS University of Alabama at Birmingham
Cervical Cancer Screening in Nepal: Challenges of Incorporating HPV and Genomics-Driven Screening

Chris Amos, PhD, Dartmouth College
Genomic analysis of susceptibility to cancer, International Genetic Associations and Mechanisms in Oncology Consortium

Sophia Wang, PhD, City of Hope
Pursuing Genetic-Environment Interactions in Lymphomas – the International Lymphoma Epidemiology (InterLymph) Consortium

8:00 am – 9:30 am
Eliza Anderson Amphitheater

Special Interest Group Breakfast II: Behavioral Science & Health Communication
Organizers: Jada Hamilton, PhD, MPH, Memorial Sloan-Kettering Cancer Center and
David Cavallo, PhD, MPH, RDN, Case Western Reserve University

Title: New Directions and Opportunities for the NCI Health Information National Trends Survey (HINTS)

Speakers: Kelly Blake, ScD, National Cancer Institute and
Electra Paskett, PhD, The Ohio State University

9:30 am – 10:00 am

Break

10:00 am – 10:15am
Leonessa I & II

ASPO/ CPRF Cancer Prevention Research Fellowship Awardee Address
Lauren Houghton, PhD, Columbia University
The Role of Androgen Concentrations in Improving Risk Assessment Across the Lifecourse

10:15 am – 11:30 am
Leonessa I & II

Symposium 4: Moving Evidence into Policy
Organizers: Jesse Nodora, DrPH, UC – San Diego and
Mack Ruffin, MD, Hershey Medical Center, Penn State University

Speakers:
David Chambers, DPhil, National Cancer Institute
Adaptomes, Learning Systems, and Convergence: Next Steps in Dissemination and Implementation Research

Bryan Weiner, PhD, University of Washington,
Advancing Cancer Prevention, Control, and Treatment through Implementation Science

Mack Ruffin, MD, Hershey Medical Center, Penn State University, *When Evidence, Policy and Implementation Meet in the Patient-Clinician Encounter*

11:45 am – 12:45 pm

Concurrent Lunch Programs (box lunches provided)

Leonessa III

1) ASPO Junior Member Lunch:
NCI Session on Career Development for Doctoral Students, Postdoctoral Fellows, and Junior Faculty (organized by Junior Member SIG)
Speakers:
Ming Lei, PhD, and Susan Perkins, PhD, National Cancer Institute

11:45 am – 12:45 pm
Eliza Anderson Amphitheater

2) ASPO Senior Member Lunch :
Mid-Career Job Changes: From Academia to Government to Foundations (and Back Again?)

Speakers:
Karen Makar, PhD, Program Office & GH-VAP Manager, Bill & Melinda Gates Foundation

Larry Kessler, ScD, The University of Washington

1:00 pm

Conference Concludes

PAPER SESSION ABSTRACTS -- Sunday, March 12, 2017
Session 1: Colorectal Cancer Prevention and Survival

Galen Joseph, PhD	Ronald Myers, PhD
Effective Cancer Risk Communication to Prevent Disparities in the Era of Precision Medicine Joseph G, Pasick RJ, Schillinger D, Luce J, Cheng JKY, Guerra C As genetics and genomics become part of mainstream Medicine, these advances have the potential to reduce or exacerbate health disparities. Gaps in effective communication (where all parties share the same meaning) are widely recognized as a major contributor to health disparities. The purpose of this study was to examine cancer genetic counselor (GC)-patient communication, to assess its effectiveness from the patient perspective, and to pilot intervention strategies to improve it. We used multiple inductive methods, including standard ethnographic techniques to systematically observe and audio-record GC sessions, and qualitative interviews with observed patients using the audio recordings to stimulate recall and probe specific aspects of the communication. Data analyses were conducted using grounded theory. We observed 64 English-, 35 Spanish- and 25 Cantonese- speaking public hospital patients (n=124) and 10 GCs in 170 appointments, and interviewed 49 patients who had been offered testing. We identified a fundamental mismatch between the information provided by genetic counselors and the information desired and meaningful to patients. Several components of the communication that contributed to this mismatch and often resulted in ineffective communication included: (1) too much information; (2) complex terminology and conceptually difficult presentation of information; (3) information perceived as not relevant by the patient; (4) unintentional inhibition of patient engagement and question-asking; (5) vague discussions of screening and prevention recommendations. To address these communication barriers, we adapted and pilot tested evidence-based strategies for effective communication with limited literacy patients from other fields of Medicine to the genetic counseling context. Our findings indicate a need to transform the standard model of hereditary cancer risk communication using evidence-based principles and strategies. The increasing access of diverse populations to genetic services, high rates of limited health literacy in the US, and growing complexity of genetic information have created a perfect storm. If not directly addressed, this convergence is likely to exacerbate health disparities in the genomic age.	Decision Support and Navigation to Increase Colorectal Cancer Screening among Hispanic Primary Care Patients Myers RE, Stello B, Daskalakis C, Sifri R, DiCarlo M, Johnson M, Gonzalez E, Hegarty S, Rivera A, Gordis-Molina L, Shaak K, Quinn A, Careyva B, Anderson-Ortiz R. The study compared the impact of a novel decision support and navigation intervention (DSNI) to a mailed standard intervention (SI) on colorectal cancer (CRC) screening among Hispanic patients from 5 primary care practices in the Lehigh Valley Health Network (LVHN). Methods. We randomized surveyed and consented patients who were 50 to 75 years of age and were eligible for CRC screening either to an SI Group (n=200) or a DSNI Group (n=200). Following randomization, SI Group participants were mailed a set of standard materials (i.e., a letter from the participant's primary care practice encouraging selection and performance of either colonoscopy screening or a stool blood test (SBT), a SBT kit, and instructions for arranging a colonoscopy appointment. Print materials were provided in English and Spanish. DSNI Group participants were also mailed the standard materials. In addition, participants received a telephone call from a bilingual patient navigator who reviewed the screening materials and verified the participant's preferred CRC screening test. During the call, the patient navigator also used an online Decision Counseling Program© (DCP) to determine the participant's likelihood of test performance and develop a personal test performance likelihood-based screening plan. The plan was mailed to the participant and his primary care practice; and a screening status report was sent to each patient's practice at 6 months.. Finally, a 6-month survey was targeted to participants in both study groups. Results. Based on 6-month survey and medical records data, we found that CRC screening adherence was significantly higher (OR=3.48, CI: 2.29, 5.29, $p<0.001$) in the DSNI Group (73%) versus the SI Group (44%). Conclusions. A decision support and navigation intervention significantly increased CRC screening adherence among Hispanic patients.

Beverly Green, MD, MPH	Jonathan Kocarnik, PhD
Long-term Adherence to Colorectal Cancer Screening; 5-Year Results from the Systems of Support to Increase Colorectal Cancer Screening Trial Green BB, Anderson ML, Chubak J, Fuller S, Meenan RT, Vernon SW Colorectal cancer (CRC) is the second-leading cause of cancer deaths. Mortality could be rapidly reduced through higher uptake and adherence to CRC screening. Information on long-term screening adherence comes from organized programs that lack a comparison group. Objective: Systems of Support to Increase Colorectal Cancer Screening is an ongoing trial testing a centralized mailed and phone-based program to increase long-term CRC screening adherence. We hypothesized that compared to usual care (UC) intervention-arm patients would have more time in compliance with CRC screening guidelines over 5 years. Methods: The setting was an integrated healthcare organization in Washington State. UC included patient-centered medical home with clinic-based strategies to increase screening. Participants included 4675 individuals initially aged 50-74, not current for CRC screening. Intervention arms combined were compared to UC. The primary outcome was the percent of time covered for CRC screening over 5 years of follow-up. Screening tests contributed covered time based on national guidelines for screening intervals. All participants contributed data, but were censored at disenrollment, death, age 76, or CRC diagnosis. Interventions: Patients were randomly assigned to receive UC, or one of three stepped care interventions: 1. Mailings including mailed fecal tests, a call-in number if colonoscopy or sigmoidoscopy was preferred; 2. Mailings plus brief telephone assistance; 3. Mailings and telephone assistance plus nurse navigation. In year 3, intervention group participants still CRC screening-eligible were randomized to stopped or continued mailed interventions only. Results: Compared to UC, intervention participants had 31% more time not in need of CRC testing (adjusted rate ratio, weighted for exposure time 1.31 [1.25-1.37], 47.2% vs. 62.0% covered time) over 5 years. Fecal testing was responsible for almost all additional covered time. Compared to intervention participants, UC individuals were more likely never to have completed any CRC testing over 5 years (17.4% vs. 10.3%, net difference 7.2%, p<0.001) Conclusions: An organized mail and phone program led to increased CRC screening adherence over 5 years, mainly because of regular fecal testing uptake.	Patterns of multivitamin use after colorectal cancer diagnosis in association with long-term survival Kocarnik JM, Hua X, Lindor N, Gallinger S, Casey G, Jenkins M, Hardikar S, Robinson J, Newcomb PA, for the Colon Cancer Family Registry Multivitamin use has been related to a modest reduced risk of colorectal cancer (CRC), but evidence on its use after diagnosis in relation to survival has been limited. Incident, invasive CRC cases were identified through cancer registries from 1997-2008 and enrolled in four population-based sites of the Colon Cancer Family Registry (Fred Hutchinson Cancer Research Center, Cancer Care Ontario, Mayo Clinic, and the Universities of Queensland and Melbourne). At enrollment, a standardized interview ascertained multivitamin use in the year prior to diagnosis. A follow-up questionnaire was administered approximately 5 years after baseline, with 2,586 participants providing information on their multivitamin use at both time points. Survival outcomes were identified through linkage to the national death registries. Delayed-entry Cox regression was used to estimate the association between patterns of multivitamin use and all-cause or CRC-specific survival (Hazard Ratio (HR) and 95% Confidence Interval (CI)), with survival time beginning at the 5-year follow-up survey. Models were adjusted for age at diagnosis, sex, body mass index, smoking history, stage, study center, and number of days from diagnosis to baseline survey. Over a median 4.8 years after the follow-up survey, 397 participants died (103 from CRC). Multivitamin use was common: at the 5-year follow-up, 37% reported continued use since before diagnosis 12% had initiated use, 17% had discontinued use, and only 34% participants reported never using multivitamins. Compared to never use of multivitamins, continued use was significantly associated with increased subsequent overall survival (HR=0.71, 95% CI: 0.55-0.91). However, this association did not reach statistical significance for CRC-specific survival (HR=0.76, 95% CI: 0.47-1.24). No significant association was observed for discontinuing (HR=0.92, 95% CI: 0.68-1.25) or initiating (HR=0.80, 95% CI: 0.55-1.13) multivitamin use from baseline to follow-up, compared to never users, though initiating use trended towards increased survival. These findings suggest that continuing multivitamin use after a CRC diagnosis may increase survival; replication and details on the specific micronutrients included are needed.

Xinwei Hua, MPH

Surveillance endoscopy in relation to long-term survival in the Colon Cancer Family Registry

Hua X, Phipps AI, Lindor NM, Newcomb PA, for the Colon Cancer Family Registry

Colorectal cancer (CRC) patients are at high risk for recurrent and metachronous cancers that are more curable with early detection. Surveillance endoscopy (SE) is important for post-operative follow-up care for CRC patients. We aimed to examine the association of SE with overall survival (OS) and CRC-specific survival (CSS). Methods: Incident invasive CRC cases diagnosed between 1997-2008 were identified through cancer registries and enrolled in the Colon Cancer Family Registry (CCFR). Cases completed detailed epidemiologic questionnaires at enrollment and at 5-year follow-up. Information on type, number and indication of endoscopic procedures between these two time points was collected at the 5-year interview. Follow-up for mortality and cause of death was completed through linkage with death registries. Delayed-entry Cox regression was used to estimate hazard ratios (HR) and 95% confidence intervals (CI) for associations of SE with OS and CSS, with survival time beginning at the 5-year follow-up. Models were adjusted for potential confounders that were selected a priori, including age and stage at diagnosis, sex, education, and tumor location. Cases with metastatic disease or a history of total colectomy at baseline were excluded. Results: Among 1992 patients who self-reported history of SE between baseline and 5-year follow-up, 289 (14.5%) patients died (70 due to CRC) over a median of 11 years of follow-up since diagnosis. Compared to patients who did not have SE, those who underwent any SE had statistically significant improvement in OS (HR=0.34, 95% CI: 0.25-0.48) and CSS (HR=0.20, 95% CI: 0.11-0.38). In particular, having at least one surveillance colonoscopy (SC) was associated with better OS (HR= 0.38, 95% CI: 0.28-0.51) and CSS (HR=0.28, 95% CI: 0.15-0.51). The association between SC and OS suggested a U-shape pattern according to the number of tests (HRs (95% CI) = 0.44 (0.32-0.60), 0.19 (0.11-0.33), 0.30 (0.17-0.54) and 0.32 (0.19-0.53) for 1, 2, 3, and 4+ tests respectively); results for CSS followed a similar pattern and were more strongly inverse. Conclusion: Our findings suggest that SE was associated with more favorable OS and CSS; however additional studies are necessary to clarify the optimal frequency of such surveillance.

PAPER SESSION ABSTRACTS - Sunday, March 12, 2017
Paper Session 2 - Breast and Ovarian Cancers

Megan Mullins, MPH	Cynthia Thomson, PhD
Explaining disparities in ovarian cancer incidence rates between women of African and European ancestry: The role of genetic factors Mullins M, Mukherjee B, Wu AH, Pike M, Pharoah PDP, Berchuck A, Pearce CL , On behalf of the OCAC Non-Hispanic White (NHW) women are at higher risk of ovarian cancer than African-American (AA) women. Approximately 30% of the difference in age-adjusted invasive epithelial ovarian cancer incidence rates (AAIR) between the two groups can be explained by differing oophorectomy rates and the prevalence of non-genetic risk and protective factors. Our purpose was to determine how much of the remaining difference in AAIRs could be explained by varying allele frequencies between NHWs and AAs for 18 genome-wide significant common susceptibility variants for ovarian cancer. Using data on 13,385 cases and 24,875 controls from the Ovarian Cancer Association Consortium, a genetic risk score (GRS) was created from 18 single nucleotide polymorphisms (SNPs) associated with ovarian cancer risk following the Collaborative Oncological Gene-environment Study (COGS) effort. Relative risks for each GRS quintile were estimated using conditional logistic regression, adjusting for genetic ancestry and conditioning on study site, age, and race. The population attributable risk percent (PAR) for GRS above the lowest quintile was calculated using the Bruzzi method. Previously reported oophorectomy and non-genetic risk factor (talc, oral contraceptive use, family history of ovarian cancer, endometriosis, parity and tubal ligation) adjusted incidence rates for ovarian cancer in NHWs and AA's were 7.2 and 5.8 per 100,000 respectively. These incidence rates were further adjusted for the contribution of the GRS from this analysis. The subsequent genetic PAR adjusted rate was 5.1 per 100,000 for the European ancestry group and 4.9 for the African ancestry group, after taking into account the different oophorectomy rates and prevalence of non-genetic risk factors. These incidence rates show the unexplained difference in incidence rates between NHWs and AAs is only 3.9%. Future efforts should focus on incorporating novel non-genetic and genetic factors into this analysis to determine whether essentially all of the difference in incidence between these groups can be explained.	Effect of di-indolylmethane on estrogen-related hormones, metabolites and tamoxifen metabolism: Results of a randomized, placebo-controlled trial Thomson CA, Chow SHH, Roe D, Wertheim B, Chalasani P, Altbach M, Thompson P, Stopek A, Maskaranic G Dietary supplement use is high among breast cancer survivors. One compound natural to cruciferous vegetables, diindolylmethane (DIM), is among the supplements commonly used. This bioactive compound has significant experimental evidence for bioactivity in breast chemoprevention. Sparse evidence in the form of well-designed human clinical trials exist to test its efficacy or safety. Methods In this double-blind placebo-controlled study women taking tamoxifen for breast cancer primary or tertiary prevention were randomly assigned to receive 150 mg DIM (BioResponse(BR)-DIM) twice daily or a placebo for a minimum period of 12 months. Primary outcome was change in urinary estrogen metabolites 2-hydroxyestrone and 16α-hydroxyestrone (baseline to 6 weeks, 6 and 12 months). Secondary endpoints included breast density by mammogram and fat:water ratio MRI (baseline to 12 months) and serum estrogens (baseline to 6,12 months). Safety data were also evaluated, including tamoxifen metabolites. Results Adherence to study pills was > 91% by pill count and urinary DIM metabolite assessment. In participants assigned DIM there was a significant and sustained shift in urinary estrogen metabolism favoring a higher 2-OH:16α-OH ratio; sex hormone binding globulin (SHBG) was also increased. No change in breast density was demonstrated. Safety analysis showed no appreciable differences in adverse events by treatment arm; however, tamoxifen metabolism for the parent compound as well as endoxifen and 4-OH endoxifen were appreciably reduced in women assigned to the DIM arm. Conclusions In this first large study of DIM in the setting of breast cancer chemoprevention, a favorable shift in estrogen metabolism and SHBG was demonstrated. However, the reduction in tamoxifen metabolites raises concern regarding the potential interaction between DIM and tamoxifen, an area in need of continued research. Impact Given the widespread and generally unsupported use of dietary supplementation by breast cancer survivors, these data will help to inform the use of DIM as a dietary supplement for breast cancer patients receiving tamoxifen.

Albert Farias, PhD	Ingrid Oakley-Girvan, PhD, MPH
Racial/ethnic differences in the use and discontinuation of adjuvant endocrine therapy by hormone-receptor status in association with mortality among breast cancer patients enrolled in Medicare Part D Farias AJ, Du XL To determine whether racial/ethnic differences in the use and discontinuation of adjuvant endocrine therapy (AET) differed by hormone-receptor status and was associated with an increased risk of mortality. Methods: We used the SEER/Medicare dataset to conduct a retrospective cohort study of women diagnosed with stage 0-IV breast cancer from 2007-2009 enrolled in Medicare Part D. Women were stratified based on tumor stage and hormone-receptor status (positive, negative, unknown). We performed multivariable logistic regression to assess racial differences in the odds of AET initiation and two Cox proportional hazards models to determine the risk of AET discontinuation and overall mortality. Discontinuation was defined as ≥120 consecutive days without AET medication. All analyses were adjusted for sociodemographic, comorbidities, treatment (surgery, chemotherapy, radiotherapy), and prognostic factors (tumor stage, size, grade, lymph node involvement). Results: Of the 19,960 women diagnosed with breast cancer, 59.3% initiated AET within 12 months of diagnosis. Among women with hormone receptor-positive breast cancer 70.6% initiated AET compared to 20.7% of women with hormone receptor-negative or unknown. Among women with hormone-positive stage I-III breast cancer, blacks were less likely to discontinue AET compared to non-Hispanic whites (HR: 0.89, 95% CI 0.80-0.98). Among women diagnosed with stage IV, hormone receptor-positive breast cancer, Hispanic women were more likely to discontinue AET compared to non-Hispanic whites (HR: 1.68, 95% CI: 1.01-2.78). Women who initiated with the aromatase inhibitors had a 12% increased risk of discontinuation compared to women who initiated with tamoxifen (HR: 1.12, 95% CI 1.05-1.20). In all racial/ethnic groups, regardless of stage and hormone-receptor status, discontinuation of AET was associated with a significantly higher risk of all-cause mortality (HR: 1.72, 95% CI: 1.54-1.93). Conclusions: Over two-third of patients with hormone receptor-positive breast cancer initiated AET and a substantial proportion of hormone receptor-negative women did as well. Discontinuation of AET was associated with a significantly higher risk of all-cause mortality regardless of hormone status and stage.	Premenopausal breast cancer: exercise and leukocyte telomere length Oakley-Girvan I, Pitteri S, Canchola A, Sellmeyer D, Stewart S, Hsieh C-L, Bloom J Leukocyte telomere length (LTL) may function as a marker of health, the immune system and cancer survival. We evaluated whether premenopausal breast cancer survivors (PBCS) that successfully increased exercise levels also increased LTL. This study is the first to describe LTLs in a population-based sample of PBCS before and after an exercise intervention. We analyzed LTL before and after the Exercise for Bone Health Intervention, a randomized, controlled trial of 273 premenopausal women 55 years of age or younger at diagnosis that started the intervention within 2 years of receipt of initial chemotherapy. This pilot analysis included 60 women with the greatest increase in exercise from pre to post intervention. Those with longer LTLs at pre-intervention (PRE) had LTLs that grew shorter during the study, however, they still had longer LTLs at post-intervention (POST) than those who started with shorter LTLs. The group whose LTLs shortened the most during the study were those with longer LTLs and more exercise at PRE, ANOVA across four levels p=0.030. In multivariable regression models of LTL change adjusted for age and LTL at PRE, factors that were independently associated with LTLs that became shorter were older age (p=0.017), longer telomeres at PRE (p=0.0004), higher levels of exercise (p=0.013), higher income (p=0.011), feeling down-hearted and blue (p=0.003), higher levels of sociability (p=0.015), more chronic medical conditions (p=0.018), and higher levels of insulin-like grown factor-1 at POST (p=0.003). While this is a pilot sub-study and requires additional confirmation, we postulate that women accustomed to exercising and being highly sociable pre-diagnosis may have experienced a greater impact on their lifestyles post-diagnosis resulting in a more rapid rate of LTL shortening. We hypothesize that time to return to LTL homeostasis for YBCS may be dependent upon a combination of physical health and psychosocial networks pre and post diagnosis and the immune system may be an important modifier. Further studies combining new technology to improve the capture of exercise and psychosocial well-being, and monitor levels of inflammation are needed to determine whether lifestyle interventions can be used to impact biomarkers of health in YBCS.

Oyewale Shiyanbola, MBBS, MPH	Diana Withrow, PhD
Emerging Trends in Family History of Breast Cancer and Associated Risk Shiyanbola OO, Arao RF, Miglioretti DL, Sprague BL, Hamption JM, Stout NK, Kerlikowske K, Braithwaite D, Buist DSM, Egan KM, Newcomb PA, Trentham-Dietz A The impact of mammography diffusion and the concomitant rise in breast cancer incidence on the prevalence of breast cancer family history is unknown, and is hypothesized to attenuate risk associations between family history and breast cancer. Methods: We examined the proportion of women aged 40-74 reporting a first-degree family history of breast cancer in the Breast Cancer Surveillance Consortium (BCSC, N=1,170,900) and Collaborative Breast Cancer Study (CBCS; cases N=323,400; controls N=25,460) from 1987-2013. Breast cancer (ductal carcinoma in situ and invasive) relative risk estimates and 95% confidence intervals (CI) associated with family history were calculated using multivariable Cox proportional hazard (BCSC) and logistic regression (CBCS) models. Results: The proportion of women reporting a family history increased from about 11% in the 1980s, 11-13% in the 1990s, to 16% in 2010-13. Family history was associated with a 60% increased risk of breast cancer in the BCSC (hazard ratio=1.61, 95% CI=1.55-1.66) and CBCS (odds ratio=1.64, 95% CI=1.57-1.72), with relative risks decreasing with age. Trends in relative risk estimates associated with family history were not evident over time or stage of disease at diagnosis, except among older women (60-74) where estimates were attenuated (P- trend=0.08) in more recent years. Conclusion: The proportion of women with a first-degree family history of breast cancer increased over time and by age, nonetheless breast cancer risk associations with family history were constant over time. First-degree family history of breast cancer remains an important breast cancer risk factor, despite its increasing prevalence in the mammography screening era.	Risk of second malignancies following ductal carcinoma in situ: A SEER (Surveillance, Epidemiology, and End Results) Program population-based study Withrow DR, Schonfeld SJ, Curtis RE, Morton LM, De González AB The risks and benefits of radiotherapy (RT) for ductal carcinoma in situ (DCIS) are uncertain. Clinical trials suggest a mortality benefit but lack power to estimate absolute rates of subsequent invasive breast cancer or risks of other second cancers. We address these questions in a large registry-based study with long-term follow-up. Methods: Eligible women were diagnosed with DCIS during 1992-2008 in 12 US Surveillance, Epidemiology and End Results (SEER) cancer registries, and followed until 2013. Analyses of second invasive breast cancer and non-breast cancer were restricted to 1- and 5-year survivors (n=61,083 and n=51,106) respectively. Standardized incidence ratios (SIR) compared cancer risk among DCIS survivors to that in the general population. Multivariate Poisson regression models and parametric survival models were used to estimate relative risks (RR) for second cancers associated with RT. Results: During follow-up, 3,655 invasive breast cancers and 2,184 second non-breast malignancies were diagnosed among survivors of DCIS. The SIR for invasive breast cancer was 2.45 (95% confidence interval (CI):2.35-2.54). An inverse association between radiotherapy and ipsilateral invasive disease risk was observed in the first five years following diagnosis but not thereafter (RR:0.67, 95%CI:0.58-0.78, p-value for interaction with time since diagnosis<0.001). The risk of all second non-breast cancers combined was lower in DCIS survivors than in the general population (SIR:0.87, 95%CI:0.84-0.91). RT was associated with significantly increased risk of all non-breast cancers combined (RR:1.19, 95%CI:1.10-1.30), particularly cancers within the field of breast irradiation (RR:1.34, 95%CI:1.12-1.60), including lung cancer (RR:1.31, 95%CI:1.07-1.60). Conclusions: The lower risk of all non-breast cancers combined among DCIS survivors is likely attributable to a healthy screener effect. RT is associated with lower risk of ipsilateral invasive disease in the first 5 years post-diagnosis. After 5 years, RT increases the risk of in-field second cancers. Assessments of the risks and benefits of RT for DCIS should account for the risk of both invasive breast and non-breast cancers, and the variability in these risks by time since radiation exposure.

PAPER SESSION ABSTRACTS -- Monday, March 13, 2017
Paper Session 3 – Smoking and Related Cancers

Katherine Sterba, PhD

Pilot-Testing A Survivorship Needs Assessment Planning Tool for Head and Neck Cancer Survivors and Caregivers

Sterba KR, Zapka J, Armeson K, Garris TK, Scallion M, Day TD

The purpose of this study was to develop and pilot-test a tablet-based survivorship needs assessment planning (SNAP) tool to assess head and neck cancer (HNC) survivor and caregiver needs after treatment and generate tailored care plans. We recruited survivors completing treatment <24 months ago, and their caregivers. Participants completed baseline surveys, a clinic session with SNAP assessments (symptoms, unmet needs, behaviors) and care plan delivery, and 6-week follow-up surveys. We tracked intervention delivery/acceptability and used paired t-tests to explore changes in psychosocial factors over time. We enrolled 25 survivors (65% male, mean age=63, 65% stage IVA) and their caregivers (73% female, mean age=56, 77% partners). The average time to complete SNAP assessments was 11 and 6 minutes for survivors and caregivers, respectively. Algorithm-driven care plans included messages (mean=19), educational materials (mean=13) and referrals (mean=4.5). Top referrals included Behavioral Medicine, Nutrition and Physical Therapy (84, 77 and 65% flagged, respectively). In those declining referrals, main reasons included being overwhelmed, seeing local provider or lacking interest. Participants rated SNAP favorably with >80% reporting high comfort using tablets and navigating questions. Dyads strongly agreed that care plans were helpful emotionally (>75%) and provided practical information (>73%). After the session, both survivors and caregivers reported significantly fewer unmet needs (7.7 versus 2.9, p=.001 survivors; 7.0 versus 4.1, p=.02, caregivers) and higher survivorship preparedness (4.9 versus 5.2 in both, p=.02 and p=.03). While depression, symptom distress and symptom management abilities were stable in survivors, caregivers had significantly lower depression (p=.01) and symptom distress (p=.03), and higher ratings of perceived patient symptom management abilities (p=.004) at follow-up. Open-ended responses highlighted that SNAP visits helped pull together complex medical information and made families feel supported. Participants desired more information about cancer stage and caregivers preferred earlier intervention. Results support the feasibility of implementing SNAP in the HNC clinic and highlighted needed modifications for system improvement.

Tracy Onega, PhD

Identifying Patient Smoking History for Cessation and Lung Cancer Screening through Mining Electronic Health Records

Onega T, Nutter EL, Sargent J, Doherty JA, Hassanpour S

Electronic health records (EHRs) contain information about tobacco use, but smoking status and history are often inadequately captured, resulting in missed opportunities for smoking cessation intervention and lung cancer screening decision-making. Informatics methods can improve ascertainment of smoking behaviors through development of a tobacco use registry from EHRs. Methods Using structured data and free text from our local EHR, we developed two support vector machine (SVM) models to classify smoking status (never, former, current) and smoking history (never, pack-years, cigarettes per day, years smoked). We trained and tested these models on 758 clinical notes from the Epic-based EHR of the Dartmouth-Hitchcock health system; the training set had 479 notes and the test set 280. Notes were eligible if a patient was: ≥21 years old with a clinical encounter in the EHR from 1/1/15-9/1/16. We assessed the models' performance through precision (probability that retrieved element is relevant), recall (probability that relevant element is retrieved), and the F1-score (harmonic mean of precision and recall). We also tested the models on publicly available data from the National Centers for Biomedical Computing (i2b2) Results Of the 280 test records, 22% were current smokers, 19% former, and 59% never smokers. Accuracy assessment of our models showed: precision=68% and recall=85% for smoking status and for smoking history; precision=66% and recall=94%. The F1- scores for smoking status and history were 65% and 74%, respectively. The majority of correctly classified smokers also had one or more smoking history element ascertained with our model. Of those individuals correctly classified as never smokers (n=98) only two were misclassified as having a smoking history. When testing our models on i2b2 data, our F1-score was 92%. Review of misclassified records indicates text-matching rule supplementation to our current machine learning approach will improve performance measures. Conclusion Machine learning models applied to our Epic EHR consistently identifies smoking history. Creating a tobacco use registry from the EHR is feasible and with further refinements, will help target patients for cancer control efforts, such as smoking cessation and lung cancer screening.

Samir Soneji, PhD	Erica Warner, ScD, MPH
Quantifying Population-Level Health Benefits and Harms of E-Cigarette Use in the US Soneji SS; Sung HY; Primack BA; Pierce JP; Sargent JD Electronic cigarettes (e-cigarettes) may help cigarette smokers quit smoking, yet they may also facilitate cigarette smoking for never-smokers. We quantify the balance of health benefits and harms associated with e-cigarette use at the population level. Methods. Monte Carlo stochastic simulation model. Model parameters were drawn from census counts, national health and tobacco use surveys, and published literature. We calculate the expected years of life gained or lost from the impact of e-cigarette use on smoking cessation among current smokers and transition to long-term cigarette smoking among never smokers for the 2014 US population cohort. Results: The model estimated that 48,976 additional current cigarette smoking adults (95% CI: -53,974 to 144,626) would quit smoking in 2015 and remain continually abstinent from smoking for ≥11 years through the use of e-cigarettes in 2014. The model also estimated 132,369 additional never-cigarette smoking adolescents and young adults (95% CI: 96,828 to 168,981), would initiate cigarette smoking in 2015 and eventually become daily cigarette smokers at age 35-39 through the use of e-cigarettes in 2014. Overall, the model estimated that e-cigarette use in 2014 would lead to 830,141 years of life lost (95% CI: 27,940 to 1,673,746). Conclusions. E-cigarette use currently represents more harms than benefits. Regulations recently announced by the FDA will need to effectively discourage cigarette-smoking initiation via e-cigarettes among never-smokers if e-cigarettes are to confer a net population-level benefit in the future.	Stigma among cancer patients who report current smoking at the time of cancer diagnosis Warner ET, Luberto CM, Rabin J, Perez GK, Ostroff JS, Park ER Cancer patients, particularly those who smoke, may face significant illness-related stigma. Of concern, stigma may be associated with poorer quality of life and negative health behaviors. The purpose of this study is to identify sociodemographic, psychological, and smoking related factors associated with perceived stigma among cancer patients who currently smoke. Methods: We used baseline data on 191 participants from a multi-site randomized smoking cessation intervention trial among patients newly diagnosed with cancer. Stigma, depression and anxiety were assessed using the Internalized Shame and Stigma Scale, PHQ-9 and GAD-7, respectively. We used t-tests/ANOVAs to examine the relationships between stigma and cancer type, gender, race, educational attainment, smoking rate, number of quit attempts and quit intentions. We used spearman correlations to examine relationships between stigma, anxiety and depression symptoms. Results: Participants were primarily white (81%, n=155), non-Hispanic (95.6%, n=175) female (55%, n=106) and treated in thoracic (30.9%, n=59), breast (23.6%, n=45), genitourinary (20.4%, n=39), gastrointestinal (12.6%, n=24) head and neck 8.4, n=16) or other clinics. Patients with head and neck or thoracic cancers reported higher mean stigma levels (11.3, 95% confidence interval (CI): 10.3-12.2) compared to gastrointestinal (10.4, 95% CI: 8.9- 11.9; p=0.18), genitourinary (10.2, 95% CI: 9.0-11.4, p=0.07), or breast/other cancers: (8.7, 95% CI: 7.7-9.8; $p < 0.001$). Stigma was correlated with depression (r=0.26, p <0.001) and anxiety (r=0.18, p=0.02). Stigma was not significantly associated with gender, race, ethnicity, educational attainment, smoking rate, prior quit attempts, or quit intentions. Conclusions: Among smokers diagnosed with a variety of cancer types, those with smoking-related cancers experience the highest levels of stigma, and stigma is associated with greater symptoms of anxiety and depression. Providers should be aware of possible stigma and related negative outcomes among cancer patients who smoke.

Steven Zeliadt PhD

A proactive telephone-delivered motivational risk communication intervention for smokers participating in lung cancer screening

Zeliadt SB, Greene PA, Krebs P, Klein DE, Ko B, Swanson LD, Todd K, Feemster LC, Au DH, Reinke LF, Slatore CG, Heffner JL

The optimal approach for offering cessation services to long-term smokers receiving lung cancer screening is not known. We conducted a controlled pilot study to test the feasibility of a proactive telephone-delivered motivational risk communication intervention to accompany screening results to increase use of behavioral and pharmacological treatments. Methods. We identified current smokers participating in lung cancer screening at four facilities in the Veterans Health Administration. Smokers agreeing to participate in the intervention (n=27) received two telephone counseling sessions - prior to and after screening. A sample of smokers participating in lung cancer screening at the same sites served as a non-randomized control group (n=56). Outcomes were assessed through a follow-up telephone evaluation. Results. More intervention than control participants (44% vs. 11%, Relative Risk (RR): 4.1; 95% CI: 1.7 to 9.9) reported utilizing behavioral support programs for cessation after undergoing screening, and 7-day abstinence two weeks after receiving screening results were more than doubled in the intervention group (19% vs. 7%, RR = 2.6; 95% CI: 0.8 to 8.9). Most (89%) intervention participants reported being satisfied with the proactive calls and 81% reported the discussions about smoking cessation were helpful. Conclusion. These preliminary findings suggest proactive telephone counseling for current smokers participating in lung cancer screening is a promising method of delivering smoking cessation support, boosting both utilization of evidence-based tobacco treatment, confidence and self-efficacy related to quitting, and potentially increases the likelihood of successful quitting. Given the high reach and dissemination potential of this telephone-based intervention, these promising preliminary findings warrant further evaluation in a rigorous trial. These pilot findings suggest randomization to a pragmatic intervention where proactive telephone counseling is integrated into routine care is feasible and appropriate.

PAPER SESSION ABSTRACTS -- Monday, March 13, 2017
Paper Session 4 – HPV and Cervical Cancers

Nora Henrikson, PhD, MPH

Health system-based HPV vaccine reminders: randomized trial results

Henrikson N, Zhu W, Nguyen M, Baba L, Berthoud H, Hofstetter, A

Evaluate the impact of health system-based outreach and reminders on human papillomavirus (HPV) vaccine series initiation and completion. Methods: We conducted a 12-month randomized trial at an integrated care system in the Pacific Northwest in 2015-2016. Parents of 10-12 year olds who had not received any doses of HPV vaccine wererandomized to an intervention group (mailed letter and brochure followed by an interactive voice recognition (IVR) reminder call encouraging HPV vaccine initiation) or usual care control group. Parents could opt in to receive future messages via SMS text message on all calls. Parents of intervention group children who initiated vaccination were re-randomized to receive either no further reminders or reminders for doses 2/3. We interviewed a subset of 50 parents to assess acceptability of the program. Outcomes were HPV vaccine initiation (within 12 months or 120 days of the initial letter), on-time series completion (within 210 days of initiation), and time to vaccination, assessed with Kaplan-Meier survival analyses. Results: 1624 children were eligible for randomization (46% age 10, 32.9% age 11, 20.4% age 12). The sample was 48.3% female and 64.6% white. Rates of overall HPV vaccine initiation were similar between the intervention and control groups (49.0% and 45.8%, p=0.26), but initiation within 120 days of outreach was higher in the intervention group (23.6% and 18.8%, p=0.04). This effect continued through to completion within 12 months (10.3% vs 6.8%, p=0.04). Opt-in rates to SMS were low: 24 people completed the opt-in process. Rates of on-time series completion were similar in those who received dose 1 reminders only compared to those who received reminders for all vaccine doses (12.1% and 19.7%, p=0.10); time-to-completion results were similar. Parent interviews suggested reminders were acceptable and useful. Conclusion: Reminder calls after an outreach letter led to more timely vaccine initiation and overall completion. Reminders beyond the initial letter and reminder call did not appear to impact vaccine series completion. The program was acceptable to parents, though there was low uptake of SMS reminders.

Fangjian Guo, MD, PhD

Decreasing trends in cervical cancer incidence among young women (15-34 years) in the United States during the human papillomavirus (HPV) vaccine era

Guo F, Cofie LE, Berenson AB

Human papillomavirus (HPV) vaccine has been recommended for girls 11-12 years of age since 2006, with catch-up vaccination up to 26 years, to protect against most common types of HPV that cause cervical cancer. Cervical cancer incidence stabilized in women <50 years during 2008-2012. Comparing trends and incidence of cervical cancer before and during the vaccine era among vaccine- eligible young women (15-34 years) may provide valuable insight about potential vaccine impact. Methods: We examined trends in the incidence of invasive cervical cancer by race and histology among young women (15-24 years and 25-34 years) during the pre-vaccine era (2000-2006) and the vaccine era (2007-2013). Data were from the Surveillance, Epidemiology, and End Results (SEER) Program, including 18 SEER registry areas (Hurricane Katrina impacted Louisiana population excluded). Incidence rates (per 1,000,000) were age-adjusted to the 2010 US standard population by the direct method, using SEER*Stat software. Confidence intervals were calculated using the Tiwari method. Joinpoint regression modeling was used to compare the difference in the trends between the pre-vaccine era and the vaccine era. Results: Cervical cancer incidence among young women 15-24 years of age was stable during 2000-2006 from 9.5 in 2000 to 9.1 in 2006, but decreased from 6.9 in 2007 to 5.3 in 2013 (annual percentage decrease [APD] 5.7, 95% confidence interval [CI] 1.1-10.2, significantly different from the APD during 2000-2006). Cervical cancer incidence among young females 25-34 years of age also decreased from 99.7 in 2000 to 78.2 in 2006 (APD 4.0, 95% CI 2.3-5.6), and from 78.6 in 2007 to 68.2 in 2013 (APD 2.5, 95% CI 0.5-4.5). A significance decrease in the incidence was only observed in Whites, but not in Blacks, Hispanics, or Asians/Pacific Islanders. A significance decrease was observed in the incidence of non-squamous cell carcinoma (SCC) rather than SCC among young females 15-24 years from 3 in 2007 to 1.5 in 2013 (APD 9.1, 95% CI 3.1-14.7). Conclusion: A significance decrease in the incidence of cervical cancer during the vaccine era among young females 15-24 years may indicate early effects of HPV vaccination. Further research is needed to confirm this trend.

Hazel Nichols, PhD	Natalia Heredia, MPH
Birth rates after adolescent and young adult cancer in North Carolina, 2000-2014	A randomized controlled study of a community-based intervention to increase breast and cervical cancer screening in low-income Hispanics
Nichols HB, Anderson C, Black KZ, Engel S, Mersereau J	Savas LS, Heredia NI, Coan S, Bartholomew LK, Fernandez ME
Each year, >45,000 U.S. women are diagnosed with cancer during adolescence and young adulthood (AYA), defined by the National Cancer Institute as ages 15-39 years. ASCO first published guidelines on fertility counseling and preservation for cancer patients in 2006. Few studies have assessed birth rates after cancer among AYAs. We identified women with an incident cancer diagnosis at ages 15-39 during 2000-2013 in the North Carolina Cancer Registry. Cancer records were linked with statewide birth certificates through 2014 using a probabilistic algorithm. Hazard ratios (HR) and 95% confidence intervals (CI) for childbirth were calculated using Cox proportional hazards regression, with person-time accrued from cancer diagnosis until death, 46th birthday or December 31, 2014 and adjusted for age at diagnosis. Among 19,507 AYA cancer survivors, 2,343 had ≥1 post-diagnosis birth during 110,216 person-years. The 5- and 10-year cumulative incidence of post-diagnosis birth was 12% and 18%, respectively. The most common cancers were breast (25%), thyroid (14%), gynecologic (10%), melanoma (10%), and lymphoma (7%). The percent with a birth after diagnosis was lowest for breast and gynecologic cancer (6% for both) and highest for Hodgkin lymphoma (23%) and melanoma (24%). Survivors with a birth after diagnosis were more often younger, had not received radiation or chemotherapy, and had lower stage disease. African American women were less likely to have a post-diagnosis birth than white women overall (HR=0.82; 0.73, 0.92), due in part to a higher proportion of breast cancers (35% vs. 23%). About 30% of births were <2 years from cancer diagnosis and 20% were >5 years after (mean=3.5 years). Half (48%) were to women who were nulliparous at diagnosis. The 5-year cumulative incidence of post-diagnosis birth was 11.7% for women diagnosed during 2007-2012 (after ASCO's 2006 guidelines), compared to 11.6% during 2000-2005 (HR=0.98; 0.89, 1.08) and varied little by cancer type. Despite advances in fertility preservation options and recognition of fertility counseling as a part of high quality cancer care, birth rates have remained stable over the last 15 years. Low implementation of fertility counseling and limited access to fertility preservation may be contributing factors.	We adapted and assessed the effectiveness of the Cultivando La Salud (CLS) education intervention to increase breast and cervical cancer screening in low-income Hispanic women in urban settings. The original CLS intervention was developed for migrant farmworkers on the U.S.-Mexico border. Methods. We adapted CLS for low-income Hispanic women in a metropolitan area. One adaptation was addition of a community-based navigation component to help women access local clinics with affordable services. We used a randomized trial to assess the effectiveness of the adapted CLS program among those non-adherent to the ACS guidelines for mammography and Pap test screenings. Surveys were conducted at baseline and 13 months, with extended follow-up to 26 months to accommodate hard-to-reach women. We assessed various demographics, psychosocial factors and screening outcomes. Multivariable models assessed the impact of the intervention on screening outcomes. Results. We randomized 1,025 women (505 intervention, 520 control). The mean age among women in need of a mammography or a Pap test at baseline was 48 and 42, respectively. Most women were foreign born, had no health insurance and had a household income less than $15,000. Among the intervention group who completed follow-up at 13 months, 55% had a Pap and 38% had a mammogram compared to 29% and 20% in the control group, respectively. Compared with the control group, women in the intervention group had a significantly increased odds of completing a mammogram or Pap test by follow-up (2.4 and 3.2 times, respectively). Intent-to-treat analyses completed at 24 months follow-up for the mammography group and 24 months for the Pap group also revealed significantly increased screening among the intervention groups. Conclusion. This intervention effectively increased breast and cervical cancer screening among low-income Hispanic women facing personal and structural barriers to screening services. There is potential to further adapt this intervention for other minority or socioeconomically vulnerable women facing personal or structural barriers to cancer prevention services to further reduce cancer disparities.

Roshan Bastani, PhD	Melanie Kornides, ScD
Outcomes of a Randomized Trial to Increase HPV Vaccination among Low Income, Ethnic Minority Adolescents in Los Angeles Bastani R, Glenn BA, Singhal R, Crespi C, Tsui J, Herrmann A, Nonzee N, Chang C, Taylor VM. The introduction of the HPV vaccine 10 years ago was seen as a game changing "advance" in cancer control, with potential to nearly eliminate multiple HPV induced cancers. However, vaccine uptake remains low nationally. Our prior work found a dismal 29% vaccine initiation rate among high-risk, low income, ethnic minority adolescents in Los Angeles. We report findings from a randomized trial to improve HPV vaccination rates in this group. The intervention was delivered by staff operators at a county health department telephone hotline that provides information and health care referrals (in Spanish, Tagalog, Mandarin, Cantonese, Vietnamese, English) to primarily low income and ethnic minority County residents. The intervention included brief telephone education and personalized referral to a low-cost/free HPV vaccine provider. Hotline callers who were caregivers of never- vaccinated adolescents (10-17 yrs) were randomized by week to intervention or control conditions. Enrolled caregivers completed baseline (n=247) and 9-month (n=211) telephone follow-up surveys. We found significant ($p < .05$) improvements at follow-up in caregiver perceived risk for HPV, concerns/barriers, and perceptions regarding having sufficient information for decision-making. However, the intervention had no effect on the primary study outcome, adolescent HPV vaccine initiation (I=42%, C=38%, $p > .05$). The finding that about 40% of previously unvaccinated adolescents in both study groups obtained at least one dose of the vaccine in the 9-month follow-up period can be considered a successful outcome from a public health perspective. Secular trends alone are unlikely to have produced such a large effect. It is possible that participation in an HPV vaccine study and completion of a baseline survey regarding HPV-related knowledge and health beliefs impacted vaccine uptake among the low income primarily Latino and Asian caregivers in our study. Future studies should focus on addressing logistical barriers associated with accessing services in a large, complex, urban safety net system. In addition, researchers should be aware that the "priming" created by study participation and baseline data collection can have potent effects on study outcomes.	Parents who decline HPV vaccination: who later accepts and why? Kornides, ML; McRee AL; Gilkey MB In a national sample of parents of adolescents, we estimated the prevalence of, and assessed correlates and reasons for, accepting HPV vaccination after initially declining. Methods: We conducted an online survey of 795 U.S. parents of adolescents during September 2016. Parents were asked to recall if they accepted or declined HPV vaccination the first time they discussed it with their child's provider. Parents who declined the vaccine reported if they accepted, or intended to accept, HPV vaccine at a later visit. Delayed acceptors selected one or more items from a list of 12 reasons for getting the vaccine. We used multivariable logistic regression to assess correlates of later vaccination, including vaccine confidence, provider communication, provider recommendation, and follow-up recommendation. Results: Among the 795 parents, 474 (62%) declined HPV vaccine the first time they discussed it with their child's provider. After declining, 45% (n=220) of parents later accepted the vaccine. An additional 43% (n=115) of parents who declined a second time reported intention to accept HPV vaccine in the next year. The most common reason parents endorsed for later accepting the vaccine was that the child got older (45%). A high quality provider recommendation during the initial discussion of the vaccine was associated with 1.69 (95% CI 1.01, 2.84) times the adjusted odds of later vaccination compared to no recommendation. Receipt of follow-up counseling from the provider was associated with 2.55 (95% CI 1.71, 3.82) times of the adjusted odds of later vaccination. Child age, vaccine confidence, and satisfaction with provider counseling were also associated with increased likelihood of later vaccination. Conclusions: Our findings suggest that providers can improve later HPV vaccine acceptance among parents who decline by providing repeated, high-quality recommendations.

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48	Zhang	Specific Metabolic Rates of Major Organs and Tissues Correlate with Biomarkers of Breast Cancer Risk

1	2-T
The Impact of Breast Cancer on Sexual Functioning from the Study of Women's Health Across the Nation (SWAN) Avis NE, Crawford S, Gold EB, Greendale GA To compare sexual functioning 5 yrs. pre and post diagnosis in breast cancer survivors (BCS) and women with no history of cancer. Methods: Analyses included 130 women with incident breast cancer during a 20-year followup in the Study of Women's Health Across the Nation (SWAN), a multiethnic/racial longitudinal cohort of mid-aged women aged 42-55 at baseline. A similarly-aged comparison group of 1950 cancer-free women was randomly assigned a diagnosis date to match the BCS distribution. Sexual functioning questions assessed partnered sexual activity in the past 6 months. Level of desire was asked of all women and arousal, emotional satisfaction, vaginal dryness, pain with intercourse and lubricant use were asked of those who were sexually active. Nonparametric Loess regression and longitudinal logistic regression were used to compare the two groups regarding changes in sexual functioning relative to time before/after diagnosis. Results: At diagnosis, the percentages of women who were sexually active in the past 6 months were equivalent between groups (63% of the BCS and 65% of the controls). However, a lower percentage of BCS were sexually active 5 years post diagnosis (46% compared to 58% of controls). BCS were more likely to report a physical problem as a reason for not being sexually active (21% vs. 5%). BCS reported somewhat lower desire than controls at the time of diagnosis (p=.08) and among women who were sexually active, BCS were more likely to report pain with intercourse (p=.02). Controlling for pre- diagnosis sexual functioning, among those who were sexually active 5 yrs. post diagnosis, BCS were more likely to report pain and lubricant use, but also more arousal than controls. BCS were also more likely to report high emotional satisfaction (62% vs. 51%). Conclusions: Breast cancer survivors are more likely than women without cancer to be sexually inactive 5 years post diagnosis and more likely to report a physical problem as the reason. Those who are sexually active report emotional satisfaction but greater pain with sexual intercourse and more lubricant use. Health care providers might focus on better understanding the physical problems that BCS experience that limit their sexual activity following diagnosis.	Perceptions of cervical cancer risk among Ohio Appalachian women Bernardo BM, Reiter PL, Pennell ML, Padamsee TJ, Ruffin MT, Paskett ED OBJECTIVE: To describe how Ohio Appalachian women are over- or under-estimating risk for cervical cancer by comparing an objective measure of cervical cancer risk to subjective interpretations of risk. METHODS: A cervical cancer risk index was computed for 530 female participants recruited from clinics in Ohio Appalachia (2006-2008). Risk factors for cervical cancer, including human papillomavirus infection, number of sexual partners, parity, age at first intercourse, age at first pregnancy, oral contraceptive use and cigarette smoking were used to create a cervical cancer risk index. This index was used to categorize participants into low, average or high risk for cervical cancer. Subjective risk was assessed by asking women to indicate whether they believe their risk of cervical cancer to be below, about average, or higher than other women. Objective risk categories were compared to subjective risk to determine if women were accurately perceiving risk, or over- or under-estimating risk. A multinomial logistic regression model was used to determine correlates of risk perception accuracy. The outcome was a categorical variable consisting of over-estimating risk, underestimating risk and accurate risk perception, with accurate risk perception serving as the reference level in the model. RESULTS: Out of 530 women, 33.6% (n=178) over-estimated risk and 24.9% (n=132) under- estimated risk. Women with household incomes of <$25k were more likely to under-estimate cervical cancer risk, as opposed to being accurate in their risk perception, than women in households earning over $50k [OR= 2.06, 95% CI (1.04-4.07)] as were women with less than a high-school education [OR=2.52, 95% CI (1.06-5.96)] compared to women with a college education. Also, women who reported recent alcohol use were more likely to under-estimate risk [OR= 1.94, 95% CI (1.18-3.19)] compared to women with no self-reported recent alcohol use. No variables were found to be associated with risk over-estimation. CONCLUSIONS: Many women in Ohio Appalachia do not accurately perceive their cervical cancer risk. Low income and education are associated with under-estimating risk. Future studies should determine if risk misperceptions are associated with cervical cancer screening and other preventive behaviors.

3	4
Community Empowerment Partners: Examining the use of peer education to empower African American women to improve breast health Hempstead B, Green C, Briant KJ, Thompson B, Molina Y The purpose of this study was to test a peer-to-peer training program intended to increase awareness of resources available and knowledge around breast health among African American women. Methods: This intervention was conducted in the greater Seattle area. Fourteen African American women were recruited to serve as peer educators; the women participated in a one-day train-the-trainer workshop in which they were taught about breast cancer and breast cancer screening, reviewed a number of barriers to screening (e.g., cost, lack of knowledge, and reluctance to speak with providers about breast cancer). At the conclusion of the training, the women completed a post-test. Within the next six months, each trained woman conducted at least two peer breast cancer education workshops, and each reached a minimum of 10 community members. Workshop participants completed a pre-test and post-test during the workshop. Summary of results: A total of 108 African American women participated in this intervention, including 14 women who were trained to provide breast cancer workshops as Community Empowerment Partners (CEPs), and 94 workshop participants. Both CEPs and workshop participants experienced a significant increase in knowledge about breast cancer and breast cancer screening ($p = 0.005$ and $p = 0.001$, respectively). Increased change in knowledge was associated with significantly greater odds of intending to talk about breast cancer screening with family, friends, and acquaintances ($n = 92$, Intercept = 1.32, OR = 1.75, 95%CI [1.25, 2.46], $p = 0.001$). Conclusions: Peer education is a successful approach for dissemination of breast health information in the African American community. The trained CEPs had the opportunity to be role models and community advocates. Community members who participated in workshops led by the trained women had increases in knowledge about breast cancer and breast cancer screening. Having this knowledge, empowered community members to talk about breast cancer screening within their networks.	The Kaiser Permanente Research Bank: A Collaborative Resource for Population Health and Cancer Research Burnett-Hartman AN, Feigelson HS, Croen L, Harris JN, Honda S, Horberg M, Rowell S, Schaefer C, Somkin C, Tolsma DD, VanDenEeden S, Weinmann S, Young DR, Aziz N The Kaiser Permanente Research Bank (KPRB) is aimed at improving population-level health and healthcare through building a nationwide cohort of 500,000 members, including 440,000 healthy volunteers, 30,000 incident cancer cases, and 30,000 pregnant women. This cohort will serve as a collaborative resource for scientists to conduct precision medicine research on the relationship between patient genetics, demographics, behavioral characteristics, social factors, therapeutic regimens, and health outcomes. Methods: All adult Kaiser Permanente (KP) members across 7 KP regions are eligible to participate in the KPRB. Recruitment to enroll a diverse cohort is underway and includes: sending email and direct mail invitations, using posters and flyers to encourage volunteers, and in-clinic recruitment. KPRB participants consent via an electronic platform or through a paper-based consent. Participation includes: 1) Consenting for research access to medical record data and clinical specimens; 2) Giving permission to be re-contacted for future studies; 3) Providing a blood or buccal cell sample; and 4) Completing a self-administered questionnaire at the time of cohort enrollment. In addition to recruitment of healthy volunteers, 4 KPRB regions began actively recruiting newly diagnosed cancer patients in mid-2016 through the use of rapid case ascertainment algorithms. Results: The KPRB currently has over 270,000 participants, including about 23,000 women who enrolled during pregnancy and 900 cancer cases who enrolled within weeks of diagnosis. In addition to these newly-recruited incident cancer cases, a projected 8,000 incident cancer cases will occur within the KPRB healthy volunteer cohort through 2018. Saliva samples are available on 172,000 cohort members, 77,000 members have blood samples, and 190,000 have questionnaire data. The rapid cancer case ascertainment algorithms have > 80% sensitivity, > 95% specificity, and identify most pathologically confirmed cancer cases within 1 month of diagnosis. Among consenting incident cancer cases, 80% have contributed a blood sample and 76% have completed the questionnaire. Conclusions: The KPRB is a rich resource for studying population-level health outcomes, including cancer incidence, recurrence, and survival.

5-T	6-T
The Making of El Cáncer Claro y Sencillo Brown, SE; Sathasivam D; Linskens, RJ; Strickland RA; Adams AK Cancer is the leading cause of mortality in the Latino population. This Cancer Education Pilot project was conducted to address cancer-related health disparities in the Dane County (Wisconsin) Latino community. Its objective of was to provide health information to Latino residents and support their informed decision making in order to improve their health and the health of their families. The project was a joint effort with Centro Hispano of Dane County, a local Latino-serving organization and the Cancer Health Disparities Initiative (CHDI) of the University of Wisconsin Carbone Cancer Center. The pilot project was driven by community-centered health needs identified by Centro and involved translating and culturally adapting selected portions of "Cancer Clear & Simple" (CC&S), a health literacy informed educational intervention developed by CHDI and based on "Understanding Cancer." The resulting Latino adaptation, "El cáncer claro y sencillo" (CCyS) was reviewed by two bilingual, bicultural focus groups and evaluated with a modified Suitability Assessment of Materials Survey. Three educational pilot workshops were conducted with Latino community members. The pilot demonstrated that participants experienced a significant increase in knowledge (25%), greater intent to make healthy behavioral changes (2.77/3), and high rates of participant satisfaction (2.99/3). The pilot's success, the ongoing working relationship with Centro Hispano, and the additional requests for CC&S in Spanish led CHDI to subsequently translate and adapt all CC&S materials into Spanish. Centro staff trained in CCyS now plan to train volunteers to lead community education sessions.	The Cultural Adaptation of a Cancer Education and Prevention Health Intervention Brown SE; Sathasivam D; Linskens RJ; Strickland RA; Adams AK Evidence-based health interventions are often developed for use with one priority population. Health practitioners who use an intervention for a new population without modification often identify mismatches that limit the original intervention's relevance and appropriateness. Cultural adaptation is a core component in expanding the effectiveness, reach and fit of a health intervention to new populations. The Cancer Health Disparities Initiative (CHDI) of the University of Wisconsin's Carbone Cancer Center engaged in an extensive cultural adaptation process of "Cancer, Clear & Simple." "Cancer Clear & Simple" is CHDI's health literacy informed cancer education program, which was originally designed with and for a rural community. To assess needs and adapt the intervention, CHDI fostered strong Latino community partnerships and held focus groups with native Spanish-speaking community members from multiple countries of origin with varying educational experiences. The result was "El cáncer claro y sencillo" (CCyS), a culturally adapted Spanish-language version of "Cancer, Clear & Simple" for use in Latino communities. CHDI found that its adaptation process resulted in culturally appropriate educational materials and expanded the evidence base of the core content of its health intervention, while also promoting community engagement and increasing its organizational partnerships

7	8
Health Behaviors and Preventive Screening in Female Colorectal Cancer Survivors with and without Lynch Syndrome Donato KM, Parker WM, Peterson SK, Gritz ER, Amos C, Lu KH, Lynch PM, Rodriguez-Bigas MA, You N, Burton-Chase AM Lynch Syndrome (LS) is a cancer syndrome, that accounts for 3% of all colorectal cancers (CRC). Good health behaviors and surveillance are important prevention strategies for women with LS, who have an increased risk for gynecologic cancers, but little is known about whether they are following recommended guidelines. Methods: A case-control study of CRC survivors with and without LS t assessed, among other things, health and screening behaviors via a mailed questionnaire. Recruitment was completed via patient registries at The University of Texas MD Anderson Cancer Center (patients n=33; controls n=75) and through social media (patients n=42). Using established health behavior recommendations for sunscreen use, smoking, drinking, and daily intake of fruits/vegetables, a risk behavior index (RBI) was created. Results: Both LS and sporadic survivors reported only seasonal use of sunscreen (p=0.0002 [LS] and p=0.0012 [Controls]) compared to the recommendations. Both groups have either never smoked or had quit more than five years ago in line with recommendations. LS survivors were more likely to drink alcohol (p=0.0035), have one/two drinks per day (p=<0.0001), and drink more often (p=0.0130) compared to sporadic survivors. A majority of both groups scored highly on the RBI with 77% of LS and 84% of sporadic survivors having at least 2 risk factors. For OB/GYN screenings, female LS survivors and sporadic survivors behave similarly. There was no difference between the groups in likelihood of ever having routine gynecologic screening; however, for more intensive screenings, such as an endometrial biopsy or transvaginal ultrasound, LS women were significantly more likely to have the procedure done compared to controls (p=0.01), in line with recommendations. Conclusions: Female CRC survivors with and without LS report following recommended guidelines for gynecologic screening. However, despite recommendations from physicians, both groups participate in negative health behaviors that could impact survivorship. More research is needed to examine the relationship between personal engagement in health and preventive behaviors and patient-provider relationships to improve health behaviors and explore potential strategies for intervention.	Tanning behaviors of participants in a female national college scholarship program in the U.S. Daniel CL, Gassman NR, Fernandez AM, Tan MCB Background: An increase in melanoma rates has been observed over the past 40 years, particularly among adolescents and young adults. Young women are at particular risk, likely due to increased ultraviolet radiation exposure through tanning. Purpose: The current study targeted a group of young women likely to engage in tanning due to participation in public performances and assessed their tanning behaviors and perceptions. Methods: State representatives taking part in the National Finals of a young women's scholarship program completed a brief, paper survey. Questions focused on demographics, tanning behaviors (indoor, outdoor, and sunless), and tanning perceptions and attitudes. Results: Of 49 respondents, 38 (77.6%) reported tanning outdoors; 13 (26.5%) reported indoor tanning; 27 (55.1%) reported using sunless tanning products, either by spray tanning or using tanning lotion; 27 (55.1%) reported engaging in two or more of these behaviors. With respect to multiple tanning modalities, 15 (30.6%) reported one type, 9 (18.4%) reported two types, 12 (24.5%) reported three types, and 6 (12.2%) reported four types of tanning, with spray tanning and tanning lotion considered as separate modalities. The majority of indoor tanners, 8 (61.5%), reported being unaware of any legislative restrictions on indoor tanning. Discussion: In this population, 42 (85.7%) reported engaging in at least one tanning behavior, though there were fewer indoor tanners than expected, compared with current national rates. Interestingly, over half of the participants reported use of sunless tanning products which may be indicative of behavior change due to new state policies restricting indoor tanning among minors. Of particular note was the number of participants who reported using multiple tanning modalities, an issue not explored in current literature but examined here. Future research should consider multi-modality tanning when targeting this high-risk population.

9	10
Pilot test of a genetics curriculum tailored to Hispanics in Northern Manhattan Schmitt KM, Reyes A, Bazan M, Lizardo M, Abdul K, Cruz A, Hillyer GC Deficits in literacy and underutilization of medical services have been linked to health disparities, especially among Hispanic populations. To prepare Hispanics in Northern Manhattan to make informed decisions about using precision medicine to treat cancer, we constructed and pilot tested a cancer genetics curriculum tailored to the cultural, literacy, and language needs of this community. Eight hour- long educational workshops were administered to groups of adult community members recruited from our community partner site between June and September, 2016. A total of 81 individuals were educated, and 67 (83%) completed pre- and post-test knowledge assessments. Knowledge of basic terms in genetics was assessed using a validated English/Spanish genetic health literacy instrument by Rodriguez et al. Participants were asked to select the appropriate genetic term (heredity, genetics, variation, susceptibility, chromosome, mutation, abnormality, and sporadic) to complete 8 sentences. Demographic information and intention to participate in future cancer research or donate biospecimens to research was also collected. Of the 67 who completed pre- and post-test, 84% self-reported a Spanish learning preference and 74% were female. The mean age was 44 years and 90.1% had never been to a geneticist. At pre-test, the majority correctly used “heredity” and “genetics” (85.1% and 73.1%, respectively) in a sentence but fewer were able to correctly use “variation” (38.8%) and “susceptibility” (28.4%). On post-test, statistically significant changes in knowledge were observed for “chromosome” (58.2% vs 67.2%, p=0.002), “susceptibility” (29.4% vs. 32.8%, p=0.001) “mutation” (43.3% vs. 79.1%, p=0.014), “variation” (38.8% vs. 61.2%, p=0.009), “abnormality” (55.2% vs. 79.1%, p=0.001), and “sporadic” (23.9% vs. 46.3%, p=0.04). Three quarters reported the intention to participate in a future research study and 67% indicated that they would donate a biospecimen for research if asked. Nearly all participants stated the information provided could assist them in making better healthcare decisions. Our findings demonstrate a limited knowledge of genetics terms among Hispanics in our community and that a curriculum tailored to their educational needs can significantly increase knowledge.	Assessment of lung cancer screening needs in Northern Manhattan: A pilot study Hillyer GC, Shea S, Schmitt KM, Bazan M, Reyes A, Mongiovi J, Nicasio V, Cruz A, Bulman WA, Wisnivesky J, Neugut AI Northern Manhattan is an area that is home to a large economically disadvantaged minority population where many receive no preventive health care. We evaluated factors surrounding the potential use of lung cancer (LC) screening with low dose computed tomography (LDCT). Electronic medical records of patients aged 55-80 years attending a large Northern Manhattan primary care clinic in 2015 were identified and classified as current vs. former smoker using a locally developed and validated algorithm. 100 from each group were randomly selected and invited to complete a brief telephone survey. Interviews were conducted in English or Spanish by bilingual interviewers. Patients were contacted consecutively until 50 presumptively classified current and 50 former smokers completed a survey. Data including demographics, smoking history, LC symptom knowledge, LC beliefs, LC screening attitudes, and intention to complete a LDCT were collected. To educate participants about LDCT, a brief description was read at the beginning of the interview. Of the 100 individuals interviewed, 16 were “never” smokers and excluded from the analysis. Of the remaining 84, 55% reported being a current smoker and 45% a former smoker. Overall, 69% were female, 69% Hispanic, 70% ≤high school education, and 87% reported annual household income ≤$20K. Mean age of smoking initiation was 18.3 years [SD 5.8] but 7% started after age 26, 69% typically smoke(d) ≤10 cigarettes/day, 48.8% smoke(d) daily. The mean years of smoking was 43.8 [SD 7.4] for current and 27.3 [SD 13.3] for former smokers. 10% of current and 16% former smokers had a 30 pack year history. Knowledge of LC risk factors was low; 63.1% smoking (72.4% Hispanic vs. 42.3% non-Hispanic, p=0.008), 10.7% environmental/occupational exposures, and 4.8% secondhand smoke. Compared to 5.3% of former, 26.1% of current smokers worry “all the time” about developing LC (p=0.01) and 46.7% current smokers believed they have a good chance of getting LC vs. 29.0% former smokers (p=0.03). 75% would complete LDCT if the doctor recommended it and 90.1% if they had symptoms. Findings indicate that current and former smokers are receptive to LC screening with LDCT. Tailored interventions to increase knowledge of LC risk factors and risk status are indicated.

11-T	12-T
Factors affecting young adult survivor engagement in cancer advocacy work Eschler J, Pratt W Young adult cancer survivors are a growing proportion of cancer survivors in the United States, and they have powerful stories to share in advancing advocacy for improved cancer prevention, detection, and treatment. These survivors' voices could be an important factor in outreach to other young people, particularly for cancer-preventive measures, such as HPV immunization, smoking cessation, or sunscreen use. To help the advocacy community successfully engage these young survivors, we studied experiential factors that lead to success and failure in advocacy engagement with this population. Method: We engaged 20 young adult cancer survivors, using a semi-structured interview guide and a type of elicitation method using sketching, allowing participants to express their stories both narratively and visually. They depicted their cancer experiences from diagnosis and treatment (as active patients) to restaging and recovery (as survivors). We asked participants to reflect on their engagement with advocacy; we then analyzed interview transcripts and visual artifacts to identify themes in participants' experiences in relation to advocacy engagement. Results: Through this analysis, we identified experiential factors that lead to young adult survivors' engagement in advocacy, as well as barriers that prevent participation with advocacy work. Specifically, we found that intense feelings of stigma around specific cancer diagnoses impeded long-term advocacy and engagement with the survivor community. In contrast, young adult survivors with positive relationships with health care professionals and experiences of successful peer matching, followed by healthy interactions with fellow survivors, were interested in and engaged with advocacy. These findings point to three recommendations for engaging young adult cancer survivors as future advocates: (1) support patient-centered systems of emotional support for survivors who feel their cancers are stigmatized; (2) assist young adults in understanding their role and rights as cancer patients in managing relationships with health care professionals; and (3) supplement clinical support with guidance for identifying helpful, safe spaces to connect with fellow young adult survivors.	Association of physician perceived barriers to human papillomavirus vaccination with patient vaccination initiation Farias AJ, Savas LS, Fernandez ME, Coan SP, Shegog R, Healy CM, Lipizzi E, Vernon SW To determine the relationship between physicians' perceived barriers to HPV vaccination of adolescent boys and girls and vaccination initiation. Methods: We surveyed pediatricians in a large network of pediatric clinics in Houston, Texas to assess their perceived barriers to vaccinating adolescents. We combined survey data with electronic medical records of patients to determine HPV vaccination initiation over a 12-month study period (July 2014 – June 2015). Eligible patients were 11 –18 year olds who had not begun the vaccination series prior to July 2014, had a physician visit during the study period, and whose physician completed the survey. To calculate the association between physician-reported barriers and HPV vaccination initiation, we conducted a multilevel model clustered by treating physician controlling for patient and physician demographic characteristics. Results: Among 36,827 eligible patients seen by 134 pediatricians who completed the survey, 18.6% initiated HPV vaccination. In the unadjusted analysis, the odds of initiating HPV vaccination were lower for patients whose physician reported concerns about vaccine safety (OR: 0.69, 95% CI: 0.50-0.96), efficacy (OR: 0.68, 95% CI: 0.46-0.99), and the financial burden of the HPV vaccine on patients (OR: 0.66, 95% CI: 0.51-0.86). After controlling for patient and physician characteristics, physician concern about the financial burden on patients was significantly associated with a lower odds of initiating HPV vaccination (OR: 0.77, 95% CI: 0.61-0.96). Conclusion: In this large study we observed that physician-reported barriers are associated with patient HPV vaccination initiation. Despite U.S. recommendations, a suboptimal proportion of adolescents have initiated the HPV vaccination. Interventions should be implemented to educate physicians on vaccine safety and efficacy and that there is no patient cost for CDC-recommended vaccines.

13	14
Intentional tanning behaviors of male tanners at a Southeastern U.S. university Fernandez AM, Tan MC, Gassman NR, Bae S, Daniel CL, Ultraviolet (UV) radiation exposure is a significant risk factor for melanoma. However, UV tanning is still common among young adults, particularly undergraduates. While tanning behaviors of young women have been well studied, tanning behaviors among young men are not well investigated or understood. This population has also been overlooked in the majority of UV tanning interventions. Purpose: The objective of this study was to determine male engagement in tanning and variables associated with these behaviors. Methods: Undergraduates at a public university in the southeastern U.S. completed an online survey self-reporting their indoor tanning (IT), outdoor tanning (OT), and spray tanning (ST) behaviors, knowledge, and perceptions. Univariate and multivariate analyses were performed to identify factors associated with male tanning. Results: Of the 818 male respondents, 776 (94.9%) reported engaging in tanning behaviors, with OT (n=454, 58.5%) and IT (n=294, 37.9%) being the most common. Males 18 years of age were more likely to IT than 19 to 22 year olds, and males who IT had a greater likelihood of OT (adjusted odds ratio [AOR]=2.39, 95% CI [1.67-3.44]) and ever ST (AOR=4.20, 95% CI [1.33-13.28]). Males intending to IT in the next 12 months were also significantly associated with OT (AOR=7.53, 95% CI [2.48-22.88]). This combination tanning (engaging in two or more tanning methods) was reported by 221 (28.5%) of respondents. Male IT users also appeared indifferent to harmful UV tanning effects, replying neutrally to perceived risks (AOR= 1.95, 95% CI [1.17-3.26]), and with 52% agreeing that IT is fine if not done too frequently. Conclusion: In this study population, 94.9% of males engaged in tanning. Younger White males were most likely to engage in UV tanning. Significantly, the male tanners in this sample appear to be engaging in multiple tanning methods (i.e., OT and IT), which may pose even greater melanoma risk for these individuals. This study fills an important gap in the literature by specifically examining male tanning in a sizable population and illustrating the need for further investigation of male tanning, as well as for interventions targeting young men.	Using Twitter for recruitment, patient engagement, and data collection in a study about adolescent and young adults with late stage cancer Figueroa Gray M, Ludman E, Beatty T, Wernli KJ Approximately 69,000 adolescent and young adult (AYA) cancer patients are diagnosed each year, and five-year survival is about 80%. Hence, understanding patient needs outside of single-institution experiences can be limiting. Our objective was to understand medical decision making in AYA populations nationally, and we describe opportunities through social media to ascertain patient experiences in qualitative research. Methods: We conducted patient interviews using social media as the primary source for recruitment. We posted recruitment materials through Facebook, Reddit, and Twitter. We also directly contacted authors of personal and professional blogs regarding participation. Our recruitment goals was 10 interviews completed within 3 months in the spring of 2016. Results: The use of Twitter was the most successful mechanism to connect with patients. We established a Twitter accounts for both the research project and the lead scientists. We built a following on Twitter, by actively following others with interests in oncology, palliative and hospice medicine, and adolescent and young adult cancer community. By building our Twitter followers, we were able to reach our recruitment target in less than 24 hours of launching our call for participants in April 2016. However, the majority of respondents were primarily women with metastatic breast cancer. We declined interviews with some participants to diversify our patient population for interviews. By June 2016, we had interviewed 12 AYA patients with stage 4 cancer. Cancers represented included breast, colon, thyroid, pancreas, lymphoma, and sarcoma. Discussion: Twitter provides an opportunity to conduct qualitative research on patient perspectives to cancer care that remains untapped for oncology research. Public health scientists should incorporate social media strategies in their recruitment and consideration of patient perspectives.

15	16
Reasons for Never and Intermittent Completion of Colorectal Cancer Screening after Receiving Multiple Rounds of Mailed Fecal Tests Green BB, BlueSpruce J, Tuzzio L, Vernon SW, Shay A, Catz SL Long-term adherence to colorectal cancer (CRC) screening is particularly important for fecal testing. Some U.S. studies report that only 25% of individuals repeat fecal testing annually. The purpose of this qualitative study was to identify barriers and facilitators reported by patients with suboptimal screening adherence. We also explored whether individuals, particularly never screeners, would be willing to do a CRC screening blood test. Methods: Forty-one patients who previously enrolled in the Systems of Support to Increase CRC Screening (SOS) trial were interviewed 4-5 years later. Participants were selected to include men and women with diverse race/ethnicities who had either been inconsistent screeners or had never screened during despite receiving at least two rounds of mailed fecal tests. Two interviewers conducted 30-minute telephone interviews using a semi-structured interview guide. An iterative thematic analysis approach was used. Results: Screening barriers themes were more pervasive among never screeners including: (1) Avoidance (inattention, procrastination) (2) Concerns about handling stool; (3) Health concerns; (4) Fear of a cancer diagnosis. Screening facilitators themes were more often mentioned by participants who screened at least once including: (1) Use of a simpler 1-sample fecal test; (2) Convenience of mailings and doing the test at home; (3) Salience of prevention, especially as one got older; and (4) Influence of recommendations from providers and family. Participants had diverse preferences for the number (3 on average) and types (phone, mail, text) of screening reminders. Some participants did not prefer e-mail links to the patient shared electronic health record because of difficulties remembering their password. It was acceptable for a nurse or medical assistant not from their clinic to call them as long as that person was knowledgeable about their records and could communicate with their physician. Participants, especially never screeners, were generally very enthusiastic about the potential option of a CRC screening blood test. Conclusion: Future CRC screening programs should be designed to minimize these barriers and maximize facilitators to improve long-term screening adherence.	Outreach to Increase CRC Screening in Olympia Medical Center (OUTCOMEs) – A Collaboration between a Clinic and Research Team Green BB, Fuller S, Mahoney C, Mendy P, and Powell SL Clinic stakeholders' (physicians and managers) had a strong interest in improving CRC screening rates because of the premature death of one of their physicians from CRC and collaborated with researchers to conduct and evaluate a program to rapidly increase CRC uptake. Methods: The setting was a primary care medical center in Western Washington State. Program choice was based on costs of the program and results of a study that included mailing fecal tests (trial participants completing a mailed fecal test kit previously were significantly more likely to complete repeat mailed fecal tests). Of the clinic's 4,441 age-eligible patients overdue for CRC screening, 2,296 (51.7%) had completed a fecal test in the past, and were randomized to either mailed fecal immunochemical tests (FIT) initially (Early group) or 6 months later (Late group). The effectiveness of the program was evaluated based on comparing Early and Late group fecal testing rates 6 months after randomization and overall CRC screening rates (using HEDIS criteria) among the entire age-eligible cohort at 12 months. Implementation success was evaluated using the Consolidated Framework for Implementation Research (intervention characteristics, outer and inner setting, individuals, and process) and Triple Aims goals (improving care outcomes and patient experience of care, while decreasing health care costs). Results: Compared to the Late group, Early group was significantly more likely to complete FIT testing at 6 months (net difference 15.5%, $P<0.001$). CRC screening rates as measured by HEDIS at 12 months, after both groups had received mailed FITs, increased by 5%. Cost and resources to implement program were shared between the clinic and the researchers. Many but not all CFIR domains associated with program success were fulfilled Conclusion: Clinic stakeholders and researchers collaborated to implement a low-cost mailed FIT program that successfully increased CRC testing. The program however will not be completed unless organizational resources are put in place to maintain it.

17	18-T
Crowdsource the quality of online colorectal cancer treatment information Bian J, Modave F, Hogan WR, George TJ, Guo Y We aim to: 1) develop a scoring instrument from existing online information quality measures with good psychometric properties and tailor it to fit optimal crowdsourcing strategy; and 2) document any differences in quality scores among the general public and our cancer expert investigator. Methods: Two laypersons and a clinical expert evaluated the quality of 20 web sites that contain colorectal cancer treatment information based on 4 domains (19 questions total): accountability, interactivity, esthetics, and content quality. Accountability was measured with a modified 4-item version of the Silberg scale, which evaluates the presence of authorship, attribution, disclosure, and currency. Interactivity was measured with a modified version of the Abbott scale. Esthetics was measured by evaluating the presence of headings/subheadings, diagrams and hyperlinks, as well as the absence of advertising. The content quality was measured with the brief DISCERN instrument. All reviewers used the website (http://crowdsourced.ninja/) we developed for the evaluation. The 20 web sites were selected from a list of Google search results based on keywords: “colon cancer”, “colorectal cancer”, and “bowel cancer”. Results: Our preliminary analysis shows that the quality of online caner related information is low. The average overall quality score is 2.5 out of 5. The inter-rater (layperson vs. expert) reliability for each domain and the overall score is reasonably good (ranged from 0.40 – 0.74), and the scores are not statistically different among the 3 reviewers. These results suggest that laypersons can rate the quality of online cancer related information as well as experts. Further, on average, the expert spends 11 minutes on evaluating each site, while the laypersons spend 19 minutes. Nevertheless, the sample size of the pilot study is rather small, and the two laypersons are from a convenience sample we recruited locally from the university. Although they are not cancer experts, both have advance degrees and are considered healthcare professionals. Conclusion: Consumers of online health information can assess the quality of online cancer-related health information as well as cancer experts.	The Use of an Open-Label Placebo to Treat Cancer-Related Fatigue Hoenemeyer, TW, Fontaine, KR A placebo is an inert substance (e.g., sugar pill) or procedure (e.g., sham surgery) that should confer no beneficial effects. Nonetheless, typically, 30-50% of those randomized to placebos report significant benefits. New studies indicate that the use of disclosed or open-label placebos reduces self-reported symptoms among patients with irritable bowel syndrome, migraine attacks, and major depression. While new studies indicated that an open-labeled, or fully disclosed, administration of placebo pills has been shown to improve patient-reported outcomes, such as pain and fatigue, in patients with these conditions, it is unknown whether it confers benefits for patients with cancer-related fatigue. Methods: To begin to evaluate the effects of open-labeled administration of placebo pills on fatigue among cancer survivors, we conducted a 7-week pilot crossover study. Thirty-nine cancer survivors reporting at least moderate fatigue received a positive rationale about the possible effects of open-label placebos and were randomly assigned to either immediate or delayed administration of placebo pills. Participants in the “immediate” group were prescribed placebo pills during the first 21 days of the study while “delayed” participants served as controls. After a 7-day “washout” period, the groups were crossed over. Results: Preliminary results indicate that the use of open-label placebos is feasible and acceptable to participants. In addition, a preliminary, within-subjects analyses indicates that, participants taking the open-label placebo treatment experienced reduced fatigue-distressed quality of life and global fatigue symptom severity. Conclusion: Once completed, this pilot trial will provide preliminary information on the feasibility, acceptability and effects of using open-label placebos to treat cancer-related fatigue.

19-T	20
Cost-effectiveness of educational interventions to promote HPV vaccine initiation among Hispanic girls Huang D, Lairson DR, Karanth S, Savas LS, Fernandez ME To assesse the cost effectiveness of two lay health worker delivered interventions to increase HPV vaccine initiation among Hispanic females in Texas. Methods: A clinic-based randomized trial compared two interventions, a print story-telling fotonovella and a tailored interactive multimedia intervention (TIMI) delivered on a tablet computer. We recruited 32 clinics and randomized 11 to the control group (229 participants), 11 to fotonovella (263 participants) and 10 to TIMI (179 participants). Vaccination status was determined with 6- and 12-month follow-up phone surveys and medical chart reviews. We tracked use of intervention resources prospectively, and weighted them with local prices and wages. Uncertainty was examined with nonparametric bootstrapping and sensitivity analysis. Results: The fotonovella intervention increased HPV vaccine initiation rates compared to the control group (24.16% vs. 19.81%) at additional $116. Compared to fotonovella, TIMI cost more ($116 vs. $170) but yielded a lower vaccination rate (23.41% vs. 24.16%). The cost per additional person vaccinated for the fotonovella was $2,666 from the payer plus participant perspectives. Including only participants who completed the interventions per protocol, TIMI was effective at $4,928 per additional person vaccinated. The results were not sensitive to different cost assumptions and population size. Conclusion: Substantial resources were required for a relatively small increase in the initiation rate of HPV vaccination among Hispanic females. Multimedia method was 47% more costly per participant but less effective than the print-based method.	Assessment of Willingness to Administer the HPV Vaccine and Provide HPV Education Among Dental Health Professional Students in the United States Kepka D, Rutkoski H, Fowler B, Mooney R Lai D, Dixon B, Winkler J, Pinzon D Human papillomavirus (HPV) is the most common sexually transmitted infection in the world and causes the majority of oropharyngeal cancer diagnoses. This study is the first study in the United States to assess perceptions, knowledge, and procedures that dental and dental hygiene students have regarding HPV associated oropharyngeal cancer prevention and screening at numerous academic institutions. It also assessed knowledge and attitudes around the implementation of HPV vaccine delivery into the scope of work of dental health practices. Methods: A 153 item survey was created, pilot tested, and distributed to 15 dental and dental hygiene schools in 2016. The survey assessed students HPV knowledge, oropharyngeal cancer knowledge, their willingness to discuss HPV and the vaccine with patients, and perceived barriers that they may have discussing the topic. Descriptive statistics and Chi-square tests were calculated using SAS. Results: N=380 students (77% dental and 23% dental hygiene students) completed the survey. The majority of the sample was female (70%, N=249), white (63%, N=225), and between the ages of 18-29 years old (79%, N=281). Most dental and dental hygienist students (72%, N=272) thought that the HPV vaccine can protect men and women from HPV-related oropharyngeal cancers. When students were asked if administering the HPV vaccines inside the dental office fell within the scope and role of a dental professional, there were significant differences between dental and dental hygiene students (15% agreed vs. 3% agreed respectively; $p<0.05$). When students were asked if discussing the link between HPV and oropharyngeal cancer falls within the scope and role of a dental health professional, there were significant differences among students by religious preferences. Specifically, more students who report that they are not affiliated with any religious practice agreed that this falls within the scope of dental practice ($p=0.01$). Conclusions: The HPV vaccine is largely underutilized in the United States. Dental health providers are in a promising position for HPV-related oropharyngeal cancer education and HPV vaccine administration. Targeted interventions are needed to improve HPV vaccine education and willingness to administer the HPV vaccine among dental health professionals.

21	22
Novel computational methods to assess changes in physical activity in a randomized control trial Kerr J, Johnson E, Ellis K, Godbole S, Natarajan L, Patterson RE Many cancer survivors do not achieve guidelines for moderate-vigorous physical activity in clinical trials. The objective of this study was to assess the relationship between 6 month changes in insulin and physical activity using new methods to process accelerometer data from a clinical weight loss trial in breast cancer survivors. In a 4-arm randomized control trial 303 (91%) overweight post-menopausal breast cancer survivors wore an accelerometer for 7 days at baseline and 6 months. Bloods were collected and insulin levels assessed. The hip worn accelerometer data were processed using traditional intensity thresholds (minutes in moderate-vigorous intensity at counts >1951) and newly developed machine learned methods that classify minutes spent walking. The 41-feature algorithm was developed and tested on a separate sample of women (N=39 recruited from those ineligible for the main trial for criteria unrelated to physical activity) using annotated images from a person worn camera collected over multiple free-living days. The algorithm performed with 86% accuracy. Linear mixed effects models were run on insulin log values, adjusting for age, BMI, wear time and intervention status. A 30 minute unit change in moderate-vigorous physical activity was related to an 18% reduction in insulin (pg/ml). A 30 minute unit change in machine learned walking was related to a 4% reduction in insulin (pg/ml). However, only 3% of the population achieve a 30 minute per day change in moderate-vigorous physical activity. In contrast, 19% of the women achieved a 30 minute change in walking per day. From a public health perspective, it may be more beneficial to effects a modest change in risk (i.e. insulin concentrations) on a larger percentage of the population compared to a larger reduction in risk in a small percentage of the population. This study demonstrates that new methods can be employed to objectively assess behaviors, such as walking at any intensity that can be achieved by cancer survivors. At the population level, increasing walking may impact insulin and reduce breast cancer risk.	Smoking Duration and Intensity and Risk of Prostate Cancer Recurrence among Smokers with Prostate Cancer Khan S, Drake B Smoking has previously been associated with adverse prostate cancer (CaP) outcomes; here we further elucidate the impact of smoking duration and intensity on risk of CaP recurrence among a cohort of former and current smokers diagnosed with CaP. METHODS: Our cohort consisted of 792 former and current smokers diagnosed with CaP and treated with either radical prostatectomy or radiation between 2003-2010. Cox proportional hazard models, with adjustment for diagnosis age and race, were used to assess the association between packs smoked per day (≥1 pack per day vs. <1 pack per day), years smoked (≥10 years vs. <10 years), and pack- years (≥10 pack-years vs. <10 pack-years) with risk of recurrence. Among former smokers, the association between years since smoking cessation (≥10 years vs. <10 years) and recurrence was also assessed. In secondary analyses, we additionally adjusted for Gleason score and stage. RESULTS: There were 98 recurrence events with a mean recurrence-free survival time of 5.9 years. Smoking for ≥10 years was associated with recurrence (HR: 2.24, 95% CI: 1.04, 4.86), however, we observed no association between smoking ≥1 pack of cigarettes per day and recurrence (HR: 1.18, 95% CI: 0.73, 1.92). Our results were suggestive of a positive association between ≥10 pack-years of smoking and risk of recurrence (HR: 1.71, 95% CI: 0.97, 3.01). Among former smokers, there was no association between ≥10 years of smoking cessation and recurrence (HR: 0.96, 95% CI: 0.54, 1.69). Results were consistent with additional adjustment for Gleason score and stage for all smoking measures [≥10 years smoked (HR: 2.15, 95% CI: 0.99, 4.63), ≥1 pack per day (HR: 1.24, 95% CI: 0.76, 2.01), ≥10 pack-years (HR: 1.73, 95% CI: 0.98, 3.05), and ≥10 years since smoking cessation (HR: 0.92, 95% CI: 0.59, 1.81)]. CONCLUSION: Among smokers with prostate cancer, smoking duration may be a better indicator for risk of recurrence than number of cigarettes smoked.

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Colorectal Cancer Communication among Hispanic Patients and their Social Networks Ko LK, Petrescu-Prahova M, Moran P, Redland D, Rodriguez E, Yoon J, Coperland W. Patient decision aids are a health communication tool designed to provide patients with targeted health information. The impact of the decision aids beyond the direct recipient of the message to their social networks is not known. This study examined whether the information from a colorectal cancer (CRC) screening decision aid is transmitted to other members of a social network and whether it influences their social networks' intentions to be screened for CRC. Methods: Pre-post intervention study assessing patients CRC screening communication to their social networks. Participants' recruitment and data collection took place in a clinic site from October, 2014 to January, 2015. Participants included 57 Hispanic patients who were not up-to- date for CRC screening, and 19 individuals identified as patients' social network. Pre and post assessment were conducted with both patients and social networks. Dependent variables were patients' CRC communication to their social networks, and social networks intention to get screened for CRC. Summary of results: Hispanic patients' mean age was 61 years old (SD 5.1). More than half were men (54%), married (56%), had some high school education (68%), and insured (93%). Social networks' mean age was 56 years old (SD 7.5). Most were women (63%), married (79%), had middle school education or less (57%), and insured (84%). Post decision aid viewing, 44% reported talking to their doctor about a CRC screening test, with all them reporting receiving a colonoscopy. Most patients (90%) reported sharing information about the CRC screening messages in the video to their social networks. Preferred communication methods were face-to-face (56%) followed by phone (33%). Only 76% of the social networks reported receiving CRC screening information from the patients. Social networks intention to get screened changed pre and post intervention for FOBT (pre: 8%; post: 32%), sigmoidoscopy (pre: 5%; post: 44%), and colonoscopy (pre: 29%; post: 80%). Statement of conclusions: Patient decision aids have potential for use as a tool to engage patients and their social networks in information sharing and to change patients and their social networks' beliefs and behaviors about CRC screening.	Geographic distribution of lower endoscopy services and colorectal cancer screening in Missouri. Lian M, Yun S, Liu Y, Struthers J, Sefko J, Colditz GA To examine the association of geographic distribution of lower endoscopy services (LES: sigmoidoscopy or colonoscopy) with colorectal cancer (CRC) screening adherence in Missouri. Methods. CRC screening use is defined based on the U.S. Preventive Services and Task Force (USPSTF) guidelines. The locations of physicians, who performed LES, were identified using Medicare utilization and payment information from the CMS. We estimated geographic accessibility to LES by computing the physician-population ratio for a catchment area within 25 miles of each ZIP code. We also developed a ZIP code-level socioeconomic deprivation (SED) index using American Community Survey data, and defined each ZIP code as metro, urban or rural area using urban-rural codes of the USDA. Using the data from the 2011 Missouri County-Level Study, multilevel logistic regression was fit to examine if geographic accessibility to LES is associated with CRC screening among men and women aged 50-75. Multilevel models were controlled for individual characteristics, including demographics, family income, health conditions, healthcare insurance coverage, perceived neighborhood safety, and health behaviors. Results. There were 60.6% of Missourians aged 50-75 who adhered to CRC screening guideline. The rate was significantly lower in neighborhoods with lower geographic accessibility to LES (56.8% vs. 62.5%), with greater SED (55.2% vs. 66.1%), and in rural areas (51.5% vs. 62.9%). Multilevel modeling analyses indicate that lower geographic accessibility to LES was significantly associated with lower likelihood of the adherence to CRC screening guideline (Odds Ratio [OR]=0.87, 95% Confidence Interval=0.78-0.98), while geographic variation in CRC screening persisted (median OR=1.72, P<0.001), even after adjusted for neighborhood SED, rurality and individual characteristics. Conclusion. Geographic distribution of LES was associated with the adherence to CRC screening guideline in Missouri. This association was robust and couldn't be explained by neighborhood SED, rurality and individual characteristics. It suggests that future interventions should consider improving geographic accessibility to LES as part of public health strategies aimed to reduce geographic disparity in CRC screening.

25-T	26-T
Predictors of Quality of Life in Breast Cancer Survivors During Early Post-treatment Lucas AR; Levine B, Avis NE Quality of life (QOL) is an important outcome for breast cancer survivors (BCS) following the completion of primary treatment. The present study examines QOL in BCS 18-26 months post-diagnosis, and the predictive value of demographic, treatment- related, lifestyle and psychosocial variables measured 6-16 months post-diagnosis on selected QOL domains at 18-26 months post diagnosis. Methods: BCS within 8 months of diagnosis (N=517) completed an initial baseline survey (T0) and then up to 3 additional surveys (T1-T3) every 6 months (the last survey, T3, was administered 18-26 months post diagnosis). The primary outcome was QOL at T3 as measured by the Quality of Life in Adult Cancer Survivors (QLACS). The QLACS contains 12 domains that assess QOL issues relevant to cancer survivors. Domain scores range from 21 to 28 with high scores indicating lower QOL. Multivariable linear models were used to examine demographic, treatment-related, lifestyle and psychosocial variables measured at T0 and T1 as predictors of select QLACS domain scores at T3. Results: BCS were mostly white (91.4%), well-educated (63.5% ≥4 yrs. college) with a mean age of 55.7±12.4 years. QLACS domains rated the most problematic at T3 were sexual problems (mean 12.0), fatigue (mean 11.7), distress about recurrence (mean 11.4) and cognitive problems (mean 10.4). Higher levels of depressive symptoms and greater illness intrusiveness significantly predicted ($p<0.05$) worse scores on all 4 domains. Sexual problems were further predicted by comorbidity burden at T1. Greater fatigue was significantly predicted by non-White race, difficulty paying for basics, less physical activity and more pain. BCS who reported greater distress about recurrence, reported more coping strategies (both active and passive). Cognitive problems were predicted by alcohol use, lower levels of social support, and higher levels of pain. $P<.05$ for all reported results. Conclusion: Sexual problems, fatigue, distress about recurrence and cognitive problems continue to be problematic for BCS 18-26 months post diagnosis. BCS who report more depressive symptoms, greater illness intrusiveness, and pain approximately 1 year post diagnosis appear the most vulnerable to persistence of these problems.	Underscreened women's experiences with receiving and using unsolicited HPV self-screening kits Malone, CM; Tiro JA; Buist DSM; Beatty T; Lin J; Gao H; Miglioretti DL; Thayer C; Winer RL To identify HPV/cervical cancer knowledge, perceived risk, and Pap attitudes associated with HPV self-screening kit uptake, and to characterize kit-user experiences, barriers, and future screening intentions/preferences. Methods: We mailed surveys to a subset of Pap-overdue women who were mailed unsolicited HPV self-sampling kits as part of a large pragmatic trial in a U.S. integrated health system. We sampled women based on kit return status, and received surveys from 120 kit returners and 114 non-returners (mean(SD) age=51(93) years). Survey response rates by kit return status will be reported at the conference (main trial data are blinded until February 2017). Results: HPV/cervical cancer knowledge, perceived risk, and Pap attitudes did not differ appreciably by kit return status. Kit returners strongly agreed that kits were easy to use and convenient and were more likely than non-returners to agree that they are effective at finding HPV (59% vs. 31%) and identifying women at high cancer risk (52% vs. 33%). Among non-returners, the most commonly reported barrier was uncertainty about inserting the vaginal swab correctly (33%). 89% of kit returners expressed willingness to use the kit in the future (vs. 39% non-returners), and 66% of returners (vs. 25% non-returners) strongly preferred home-based kits to Pap tests. Conclusions: Most women surveyed after returning unsolicited HPV self-screening kits found them convenient and effective, and would use them again. While knowledge and perceived risk differences did not appear to drive kit uptake, strategies that highlight the kit's efficacy and aim to increase user confidence may increase uptake.

27-T	28-T
Randomized Controlled Behavioral Trial to Change and Maintain Dietary and Physical Activity among Latina Breast Cancer Survivors: Study Design of the Mi Vida Saludable trial Marin-Chollom A; Gaffney AO; Paul R; Shi Z; Brickman A; Tsai WY; Hershman D; Gray HL; Koch P; Contento I; Greenlee H There are specific diet and physical activity guidelines for breast cancer survivors to follow. However, there is limited information on how to best teach cancer survivors to achieve and maintain diet and physical activity recommendations, especially among underserved and under- resourced populations. The Mi Vida Saludable (My Healthy Life) trial is testing the effectiveness of a behavioral intervention on improving and maintaining diet and physical activity changes among Latina breast cancer survivors (R01CA186080, PI: H Greenlee). Eligibility criteria include: ≥21 years, self-identify as Latina/Hispanic, prior diagnosis of stage 0-III breast cancer with no detectable disease, >3 months post-treatment (current use of hormonal therapy allowed), access to a cell phone with texting abilities, and access to internet via computer, cellphone or tablet. The study uses a randomized, controlled 2x2 factorial design to test the effects of different components of the Mi Vida Saludable program (n=200). The program is based on the social cognitive theory of behavior change and tailored to the Latino/Hispanic culture. The trial examines the separate and combined effects of two components: 1) a 1-month in-person program (4 sessions over 4 weeks) using culturally appropriate hands-on group education, cooking classes, greenmarket and grocery store tours, and exercise classes, and 2) 11-months of e-communication using text messaging, newsletters, and a website. All participants receive a 30-minute health coaching session, written materials on diet and physical activity recommendations for breast cancer survivors, and a Fitbit Zip. Baseline data collection includes demographics, medical history, anthropometric measures, diet, physical activity, psychosocial behaviors, neurological functioning, and a fasting blood draw. Follow-up data collection occurs at 6 and 12-months. Primary outcomes are change in diet and physical activity. Secondary outcomes include psychosocial and neuropsychological mediators of diet and physical activity outcomes. Exploratory outcomes include changes in inflammatory and oxidative stress biomarkers. The Mi Vida Saludable trial is currently enrolling participants in New York City and has randomized n=34 participants as of November 28, 2016.	Care Coordination among Breast Cancer Patients is Associated with Health Literacy Mora-Pinzon MC, Chrischilles EA, Greenlee RT, Hoeth L, Hampton JM, Smith MA, McDowell BD, Wilke L, Trentham-Dietz A Care coordination is defined as the organization of patient care activities and the sharing of information among all individuals involved, and is recognized as critical to high-quality health care delivery. The purpose of this study is to describe how health literacy may affect perceived care coordination among breast cancer patients. Methods: We used data from the "Share Thoughts on Breast Cancer" Study, a PCORI-sponsored project conducted within 8 centers in the Greater Plains Collaborative Clinical Data Research Network. Demographic and clinical factors, perceived coordination and responsiveness of care (6 items, Ayanian J Clin Oncol 2010), and health literacy (5 items, Chew JGIM 2008) were obtained from a mailed survey completed by 60% of eligible participants (N=1,221). Multivariate analysis of variance was used to characterize the association between perceived care coordination and health literacy, and further stratified by presence or absence of a health professional that coordinated care. Results: Health literacy level was considered low in 24% of patients, medium in 34%, and high in 42%. Mean care coordination score was 90 ± 12.32. Health literacy was higher among women reporting non-Hispanic white, private insurance, higher education and income, and fewer comorbidities (All $p<0.001$). Adjusting for these factors, we found significant differences in the care coordination scores across health literacy categories ($p<0.01$). Among those with a care coordinator, women with low health literacy had a mean score=88.6, medium literacy had a mean score=92.4, while the highest health literacy group had a mean coordination score=93.8. Among those without a coordinator, the mean coordination score was 77.3 in those with low literacy compared to 86.4 in the medium group and 88.6 in the highest literacy group. Having family involvement in treatment decision-making did not alter the relation between health literacy and care coordination scores. Conclusion: Patients with low health literacy scores experienced lower perceived care coordination and the effect was present regardless of a formal care coordinator or family involvement. Strategies for care coordination in cancer patients should be adapted to health literacy level to improve patient-reported outcomes.

29-T	30
Health Literacy and Mortality Among Cancer Patients Mora-Pinzon MC, Hampton JM, Gangnon RE, Smith P, Martinez-Donate AP, Trentham-Dietz A Health literacy in cancer patients has been associated with satisfaction of care and overall quality of life, but the effect of health literacy on mortality has not been described. This study aims to explore the relations between cancer patient socio-demographics, health literacy and mortality. Methods: A cross-sectional survey was conducted in Wisconsin including 1,832 patients diagnosed with breast, colorectal, prostate and lung cancer in 2004. Data on socio-demographics, clinical characteristics, and health literacy were obtained from the state's cancer registry and a mailed questionnaire; 68% of eligible patients participated in the study. Health literacy was evaluated using 4 health literacy screening questions (Cronbach's alpha = 0.6) with answers on a 5-point Likert scale (Chew et al JGIM 2008), with responses summed then divided into 3 groups to represent low, medium, and high health literacy. Vital status was obtained from the National Death Index through 2013. Hazard ratios (HR) and 95% confidence intervals (CI) from Cox regression models and log- rank tests were used to evaluate the association between health literacy and overall mortality. Results: Low health literacy level was associated with older age at diagnosis, male sex, and cancer site (all $p<0.001$). Mean follow up time was 80.5 months (Range: 2 – 93). Unadjusted analysis showed that patients with low health literacy had increased mortality compared to those with high health literacy (HR 1.7, CI 1.3-2.1; log-rank test $p=0.0007$). When adjusted for age, sex, cancer site and stage, health literacy was no longer strongly associated with mortality (HR 1.1, CI 0.8-1.4). Health literacy did not appear strongly related to mortality within each cancer site as measured by log-rank tests: breast $p=0.15$; colorectal $p=0.6$; lung $p=0.6$; and prostate $p=0.35$. Conclusions: When adjusted for socio- demographics and tumor characteristics, low health literacy was not associated with mortality among cancer patients. Although health literacy might be related to the type and completeness of cancer treatment received, larger studies are required to assess variations in care among these groups, and the net effect of health literacy on mortality and other long-term outcomes.	Prior Cancer Diagnosis Associated with Lower Adherence and Physical Activity in an RCT Involving Cognitive Training Designed to Increase Exercise Adherence Cohen JD, Trinh L, Kramer AF, McAuley E, Mullen SP Little is known about the effect of cancer-related history on exercise adherence or responsiveness to cognitive training (CT), although physical activity and cognitive functioning is generally lower in cancer survivors relative to healthy populations. The aim of the NHLBI- funded Cognitive Regulation and Exercise (CORTEX) trial was to test the efficacy of a 20-hour multi-faceted CT program designed to increase self-regulatory capacity and subsequent exercise adherence for middle-aged adults (n=133; 45-64 years); an attention-control group viewed health education videos. All participants were enrolled in a 4-mo exercise program post-training. Adherence (% class attendance), physical activity (3-day average Fitbit steps) and a large battery of cognitive assessments, functional fitness assessments and questionnaires (including self-reported cancer history) was administered at baseline and program end. We theorized that prior cancer diagnosis (n=13; 9.8%; Mean years since diagnosis=14.6 years; unreported in 3 cases) could cause cognitive burden and lower self-regulatory capacity, and this could in turn, reduce exercise adherence and impair complex cognitive-motor skills. After determining balanced cases of cancer Dx across randomized conditions (and no other key baseline differences were found in gender, education, income, or health status), in a series of exploratory analyses, we found that cancer Dx was associated with lower class attendance (28.15% vs. 44.84%) and steps at program end. Cancer Dx remained a significant predictor of attendance and steps in a path model after adjusting for known covariates. Significant mean differences were also found at baseline in 8ftUpGo. Overall, slower reaction time was related to fewer steps at program end (r=-.26); stair descent time showed a negative trend (7.11s vs. 5.09, p=.07). Although the cancer group was older (3.7 years) and age showed a low negative correlation with steps (-.18, p=.04), age was unrelated to adherence or attrition. Limitations of our sample size (outliers, inequality in subgroup variances) precluded interpretation of cognitive outcomes. These preliminary findings point to potential barriers to physical activity among cancer survivors, and offer insight into possible targets for intervention.

31-T	32
Patients' self-reported reasons for not getting screened for colon cancer in a safety-net setting Muthukrishnan M, Arnold LD, James AS Colorectal cancer (CRC) is the second leading cause of cancer-related death in the US. Despite evidence that screening reduces CRC incidence and mortality, only about 60% of age-eligible adults are "up-to-date" on CRC screening. The aim of this analysis is to identify self-reported barriers to colorectal cancer (CRC) screening among under- and uninsured patients in a safety-net healthcare setting. Eleven community safety-net health centers were recruited for a cluster-randomized delayed start controlled trial. Participant-level data were collected through surveys administered either in-person or by mail. Surveys included questions about demographics, healthcare, and CRC screening. During the baseline survey, an open-ended question asked participants about "things that got in the way of screening." Using a basic text analysis, barriers were identified and organized into key themes. Overall (n=483), 65.2% reported ever having any CRC screening, but only 46.4% were up-to- date. Of those who described screening barriers (n=183), 10.9% said they did not have a provider referral and 12.0% were not due for screening. Nearly a third of responses (29.5%) mentioned fear or worry, most often related to the procedure, previous poor experiences, pain, anesthesia, or receiving negative news. A quarter of respondents mentioned financial difficulties, most commonly lack of insurance and cost. Other responses described logistic challenges (19.1%), including time and transportation. Fewer (15.8%) said screening was a low priority for them, unnecessary, that they are low risk, or did not have symptoms, or described discomfort or disgust with the procedure (11.5%), or the prep (6.6%). In this safety-net setting, rates of "up-to-date" screening were lower than national rates. In a free-text response, participants identified fear/worry, and financial and logistical challenges in getting screened. These qualitative results are similar to quantitative findings reported widely in the literature, but they add to our understanding of patient-reported concerns and challenges faced by under- and uninsured patients. These results may be applied to developing targeting communication or intervention strategies to improve CRC screening rates within safety-net health centers.	Demographic and cancer-specific characteristics of persons who deny a recent cancer diagnosis Newman HR, Malen RC, Hua X, Newcomb PA Denial of a recent cancer diagnosis is associated with poor involvement in care, less positive adjustment over time, and higher psychological morbidity. There is limited evidence about demographic or cancer-specific factors that may influence denial of a cancer diagnosis. We aim to describe the characteristics associated with an individual confirming or denying their cancer diagnosis to better understand involvement in cancer care. Methods: We assessed denial of a recent cancer diagnosis in 2,353 cases from the Seattle Colon Cancer Family Registry (SCCFR). SCCFR study participants included persons diagnosed with incident invasive colorectal cancer (CRC) between 1997-2008 who resided in Western Washington State. The Surveillance, Epidemiology, and End Results Program (SEER) identified all participants and provided diagnosis and cancer-specific information. Participants underwent a baseline interview, which asked about their cancer diagnosis, family history of cancer, lifestyle factors, and demographics. Pearson's chi-square tests and t-tests were used to evaluate the differences in characteristics between participants who confirmed or denied diagnosis. Results: 144 (6.1%) of the SEER cases from SCCFR denied having a cancer diagnosis. Participants who denied their cancer diagnosis during the baseline survey were more likely to be older (62.7 vs. 56.3 years, $P<0.001$), white ($P=0.025$), and have local stage disease ($P<0.001$). These deniers were also more likely to be male ($P=0.074$), have an annual household income ≤$15,000 ($P=0.116$), and have a high school education or less ($P=0.166$), but these differences did not reach statistical significance. There was little evidence of differences between confirmers and deniers in respect to family history of CRC among 1st degree relatives and marital status. Conclusion: Study participants who denied having a cancer diagnosis had characteristics that were distinct from those who confirmed. Our observation that early stage is a factor in denying a diagnosis may be due to a lack of understanding about the difference between preventive procedures (e.g. polyp removal) versus cancer surgery, or a lack of clear communication with healthcare providers. Future studies may help direct clinicians to better educate patients following a cancer diagnosis to hopefully improve treatment, follow-up, and outcomes.

33	34
HPV vaccination text-message reminders: parent participation rates Nguyen M, Zhu W, Baba L, Berthoud H, Hofstetter A, Henrikson N Objective/Purpose: To describe and identify barriers to parent participation in a HPV vaccination text - messaging reminder system. Methods: We examined data from an ongoing study that offered text messaging (SMS) as an alternative to phone calls for health system-based human papillomavirus (HPV) vaccine reminders. We examined the frequency of opt-in to text messaging, call length, and factors associated with opt-in completion. Call length data was only collected for the second half of the study. Setting: Seven primary care clinics in an integrated healthcare system in Washington State. Reminders were conducted via interactive voice recognition (IVR) phone calls, but parents could opt in to receive SMS reminders. Successful opt-in required a two-step process: 1) provide a phone number for future SMS reminders and 2) send a confirmation text in reply to an introductory SMS. Participants: Parents of children age 10-12 years who had not initiated the HPV vaccine. Outcome measure: Opt-in rates for SMS reminders for the HPV vaccine. Results: Of 1512 IVR reminder phone calls made, 579 successfully either reached a parent or left a voicemail. It took an average of 2.2 minutes to reach the SMS opt-in question. Two thirds of calls (66.3%, 384/579 calls, n=513 parents) were terminated before the SMS opt-in question. Of the 195 calls that reached the SMS question, 87 resulted in the parent (44.6%)initiating the SMS opt-in process. Of these, 62 (71.3%) were successfully sent an introductory SMS; 24 (27.6%) completed the two-step process. Thus, 61.3% (38/62) completed the first step of the opt-in, but not the second step. The proportion of white parents in the group who completed the two-step process (79.2%) significantly differed from the proportion in the original study population (64.7%, p = 0.001). No other differences in the completion of the two-step process by demographic characteristic were appreciated. Conclusion: SMS opt-in rates were lower than expected and may be of limited value to parents relative to a default reminder call. Call length may have been a barrier and caused limited awareness of the SMS feature. Future interventions using SMS reminders should consider time to offering SMS opt-in question.	Developing and Testing an Educational Video to Promote Cervical Cancer Screening Among Burmese and Bhutanese Refugee Women Ornelas IJ, Lor B, Do HH, Magarati M, Zhang Y, Jackson CJ, Taylor VM Refugee women in the United States (US) have high cervical cancer incidence rates coupled with low cervical cancer screening rates. Refugees from Burma and Bhutan were the two largest refugee groups arriving in the US in 2011, making up 56 percent of all resettled refugees. However, little is known about cervical cancer screening among these refugee groups and few health education interventions have targeted this population. Methods: Using the Behavioral Model for Vulnerable Populations as a conceptual framework, we conducted eight focus groups in King County, Washington to gather information about women's perceptions and knowledge of cervical cancer (need for care factors) as well as their cervical cancer screening barriers and facilitators (predisposing and enabling factors). A total of 58 women participated (Burmese n=31; Bhutanese n=27). We then developed and pilot tested content for a culturally-tailored educational video to promote cervical cancer screening. Results: Only 28% reported being screened for cervical cancer before coming to the US and 55% reported being screened after resettling in the US. The focus groups revealed limited knowledge about cervical cancer and the need for screening; barriers such as competing priorities and cost; and facilitators such as trusted providers, interpreters, and support from social networks. We used our findings to develop two 15 minute narrative educational videos (one in Nepali for Bhutanese women and one in Karen for Burmese women) that provide basic information about women's anatomy and reproductive health, guidelines for cervical cancer screening, a description of screening procedures, and how to request female providers and interpreters. As part of the development we pilot-tested images and script ideas to ensure they were well received. Conclusions: Bhutanese and Burmese refugee women are in need of culturally relevant health education about cervical cancer screening. If effective, educational videos may serve as a useful tool for reaching a population at high risk for cervical cancer.

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Understanding Low Chemoprevention Uptake by Women at High Risk of Breast Cancer Tasleem J. Padamsee, Anna Muraveva, Megan Hils Objective: To better understand low uptake of chemoprevention for reduction of breast cancer risk, by drawing on the perspectives of high-risk women themselves. Methods: 50 semi-structured interviews with White and African American women at elevated risk of breast cancer, focusing on perceptions of risk; risk information; consideration of prevention options; decision-making processes and networks, and psychosocial well-being. Transcribed data were analyzed using grounded theory methods and NVivo 11. Results: Consistent with prior research, most participants had not chosen chemoprevention (CP). Two central themes help explain this pattern. The first theme is the critical role of CP information. Fewer than half of women had heard of this preventive option. Of those who had, more than 40% were willing to consider it under at least some condition – usually a positive genetic test or doctor's recommendation. Women with higher levels of cancer worry knew more about CP, while less worried women were less aware of CP. The women most positively disposed toward CP had heard about it from their doctor; most of the women less positively disposed toward CP had not had such a conversation with a doctor. Four participants had chosen CP, and were all patients of the same High Risk Breast Cancer clinic. The second theme is the complexity of women's deliberations about CP. Those inclined to use CP saw it as an obvious choice to reduce cancer risk, and were also open to other biomedical prevention options. Women unwilling to consider CP expressed multiple reasons, including: lack of information, aversion to medications, concerns about side effects and quality of life, and feeling that CP is an extreme option. Conclusions: Lack of information is a substantial (but usually overlooked) contributor to low CP uptake. More than 40% of women who do know about CP are willing to consider it under some condition, and receiving this information from one's doctor may increase the appeal of CP. CP decisions are complex, stemming from overt comparisons with other risk-reduction options, and motivated by multiple concerns. Future research should explore (a) why a high proportion of (particularly African American) high-risk women are not told about the CP option, (b) what makes high uptake clinics or their patients unique, and (c) the degree to which CP decision-making is shaped by faulty information vs. genuine preference.	Validation of a web-based, provider-mediated tool for communicating cancer genetic risk findings to at-risk relatives Pande M, Peterson SK, Lynch PM Background: Identification of at-risk relatives of persons with conditions such as Lynch syndrome (LS) is key to genetic "cascade" testing and surveillance to prevent cancer. Existing standards of care place responsibility on the index patient for sharing genetic test results with relatives. This is haphazard and usually limited to first degree relatives. In response, we have developed a web-based program, "FamilyCONNECT", a provider mediated, patient-navigated, low-resource, online tool for family outreach. Our aim was to assess the usability and acceptability of FamilyCONNECT by surveying LS patients and families. Approach: We partnered with Lynch Syndrome International (LSI), a LS advocacy group, to anonymously survey members by posting a link on their website. This RedCap survey included screenshots of each feature of FamilyCONNECT, with linked questions/comment boxes for feedback about key features: email invite to at- risk relative, authentication of invited relative, secure account creation, consent to share/receive family information & genetic test results, pedigree expansion and provision of health information about additional at-risk relatives, contact information for such relatives. Results: 170 LSI members participated in the survey between Sept-Nov 2016, of which 33% completed the survey. A sharp drop in participation (66%) was observed at the informed consent (IC) field. Among respondents that remained, the IC was rated unfavorably (mean of 43 on a sliding scale from 0-100). For other key features, 87% favored receiving the email invite, 93% found the authentication field acceptable, 79% were agreeable to having the genetic test results display the affected person's name, 100% recognized a pedigree and 98% felt that it was desirable to have pedigrees show cancer and mutation information about all relatives, including distant relatives not known to them. Conclusion: Partnering with the target population of end-users we obtained rapid feedback about the acceptability and usability of the web-based family outreach approach, which will guide further development and refinement of FamilyCONNECT. Key negative feedback was for the informed consent, suggesting that the boiler-plate language may need to be simplified and shortened for online use.

37-T	38
Development of the theory-based diet and physical activity classroom and e-health program for Latina breast cancer survivors, Mi Vida Saludable Paul RC; Ogden Gaffney A; Sepulvada J; Dominguez N; Marin-Chollom A; Hershman D; Gray HL; Koch P; Contento I; Greenlee H National diet and physical activity recommendations for cancer survivors aim to decrease risk of recurrence, yet, most survivors do not meet these guidelines. Culturally-tailored and effective programs are needed to increase adherence to diet and physical activity guidelines, especially in underserved communities with known health disparities. We developed a theory-based classroom curriculum and electronic "e-health" education program, Mi Vida Saludable (My Healthy Life), targeting Latina breast cancer survivors. The overarching goal of the Mi Vida Saludable study is to examine the separate and synergistic effects of different modes of education on changes in diet and physical activity after 12 months. Mi Vida Saludable is funded by the National Cancer Institute (R01CA186080; PI: Greenlee). We used Contento's DESIGN process to develop the Mi Vida Saludable program, which follows six steps: 1) Decide behaviors, 2) Explore determinants, 3) Select theory, 4) Indicate objectives, 5) Generate plans, and 6) Nail down evaluation. Step 1 identified key behaviors to target: increasing fruit and vegetable intake, decreasing fat intake, decreasing sugar intake, and increasing physical activity. Steps 2 and 3 identified key psychosocial determinants for behavior change (self- efficacy and preferences) that fit into a larger behavioral theory (social-cognitive theory). Steps 4 and 5 crafted objectives and specific classroom and experiential activities for the selected theory-based determinants. Classes involve hands-on group education, tours of local markets, cooking healthy Hispanic recipes with healthful ingredients, and group exercise (dancing, brisk walking). The e-health program consists of emailed newsletters and text messages with motivational messages, facilitating information, and goal setting strategies. Step 6 developed assessment tools to measure the effect of the intervention on changes in psychosocial determinants and diet and physical activity. The Mi Vida Saludable curriculum was developed in both English and Spanish. The program was pilot tested in Spanish-speaking Latina breast cancer survivors (n=20). The Mi Vida Saludable trial (n=200) is currently enrolling participants in New York City and has randomized n=34 participants as of November 28, 2016.	Fatalism and (Mis)perceptions of Diet and Disease Risk among Bicultural Latinas: Sources of confusion and implications for nutrition communication and cancer prevention Ramirez, AS Cancer fatalism – beliefs about cancer causes and controllability – has been associated with cancer prevention behaviors and behavioral determinants including knowledge, self-efficacy, perceived control. Latinos and other ethnic minorities are considered especially likely to hold fatalistic beliefs, contributing to cancer disparities. However, recent critiques suggest that common operationalization of fatalism exposes a communication failure: "Fatalism" may reflect information overload or confusion resulting from an information environment riddled with misinformation and contradictory advice. PURPOSE: To examine beliefs about diet and cancer risk and sources for nutrition information among bicultural Latinas who face increased risk from dietary acculturation. METHODS: Mixed-methods (semi-structured depth interview, survey) with bicultural Mexican-American women ages 18-29 (n=29) in rural California. RESULTS: Participants were mostly confident defining a "healthy" diet, and described general nutrition principles such as major food groups and portion sizes. Foods were characterized as "bad" or "good"; judgment was often linked to understanding of how that food was associated with disease risk. For example, participants noted that sugar was a major cause of diabetes, so sugary foods were considered "bad." Despite articulating basic nutrition principles, participants expressed a desire for deeper knowledge/skills such as food preparation techniques and expressed frustration at the confusing nature of nutrition information. Many participants presented as facts misinformation/myths pertaining to how specific foods cause or heal diseases, yet were unaware of diet-cancer links; many perceived cancer as not preventable. Besides school, the most common sources for nutrition information were mass media, including websites, social media, television/radio news and talk shows, and family members. CONCLUSIONS: Among a high-risk, growing population, opportunities to improve knowledge of healthy diets and correct misperceptions of cancer risk suggest strategies for cancer prevention communication. However, effective cancer prevention nutrition communication must consider the broader – cluttered – information environment in which public health messages may drown.

39-T	40-T
Beyond Fatalism: Adapting the Cancer Information Overload Scale to Assess Exposure to Contradictory Nutrition Information Ramondt S, Ramirez AS Developments in information and communication technologies in the past two decades have been responsible for a dazzling increase in health information available to individuals. In a healthcare environment where patients are active participants in medical decision-making, making sense of this rich information environment is an increasingly important contributor to health. However, research has demonstrated that exposure to too much information – particularly contradictory information that characterizes much cancer- and nutrition-related information – can lead to feelings of overwhelm and may contribute to inaction on preventive behaviors. The Cancer Information Overload (CIO) scale evolved from traditional measures of fatalism and has shown promise in predicting cancer prevention behaviors. PURPOSE: To investigate the effects of the information environment on cancer preventive diet behaviors, we adapted the 8-item CIO scale to assess information about healthy diet and tested if a shorter version (5-items) would adequately represent information overload. METHODS: Competing confirmatory factor analyses with a community sample (n=217; 76% female; 61% Latino; 49% ≤H.S. education) in rural California. RESULTS: All Diet Information Overload (DIO) items loaded significantly on their relevant factor and the factor loadings were all acceptable ($\lambda > .40$). The DIO scale showed adequate fit (CFI = .947, RSMEA = .054, SRMR = .047). The Diet Information Overload scale – Short Form (DIO-SF) showed good fit (CFI = .978, RSMEA = .054, SRMR = .031). Information criteria favored the shorter version (AIC = 3139.99) over the original version (AIC = 4960.02) of the questionnaire. CONCLUSIONS: The information environment can contribute to troubling beliefs – previously characterized as fatalistic – that are particularly relevant to improving cancer-related outcomes. The DIO scale was successfully adapted to measure these beliefs specific to healthy diet. Model comparisons showed that the DIO-SF showed better fit to the data and might more appropriately measure IO beliefs. Assessing DIO beliefs is the first step in reducing the information overload burden and might improve interventions by utilizing more effective cancer prevention nutrition communication.	Focus groups and in-depth interviews to guide the development of lung cancer screening study materials Sharma A, Bansal-Travers M, O'Connor RJ, Griswold-Krupski L, Celestino P, Reid ME. Focus groups and telephone interviews were conducted to gather feedback on a specially created brochure used in an educational intervention study of current and former smokers who called a quitline. Intro: Lung cancer is the most lethal cancer in the United States among both men and women. The United States Preventive Services Task Force (USPSTF) recommends annual screening for lung cancer using low dose computed tomography (LDCT) among certain high risk individuals. Methods: Qualitative data was collected by conducting three focus groups and five phone interviews between October 2015 and February 2016. Participants (n=21) were current and former smokers eligible for lung cancer screening recruited from a state quitline and local community. Participants received questions regarding awareness of lung cancer screening, perceptions of benefits, barriers to screening, format/content of educational brochure, and intention to discuss screening with their doctor. Results: The majority of our sample was female (71%), held greater than a high school education (90%) and reported incomes of less than $30,000 annually (71%). The median age was 62.5 (men) and 60.8 (women) with 33% self-reporting as African American. Current smokers (defined as currently smoking cigarettes someday or everyday) comprised 57% of the sample. Despite favorable views about cancer screening, most participants had not heard of lung cancer screening. When presented with the study brochures, several participants felt confused by concepts such as the calculation of pack years and the age criteria for lung cancer screening. Participants also wanted to receive information regarding the LDCT scan including what it entailed and whether or not the test was invasive. Most participants were not concerned about associated monetary costs. Several participants provided feedback regarding study materials and recommended including more inspiring images, as well as images of the actual LDCT screening test procedure. Conclusion: Participants were eager to gain information on LDCT screening and provided valuable feedback regarding format and content of the brochure. The focus groups and in-depth interviews provided key guidance for revisions to the educational materials sent to smokers regarding lung cancer screening.

41-T	42
Knowledge and Awareness of Lung Cancer Screening Guidelines: Findings from International Tobacco Control (Wave 9) Survey Sharma A, O'Connor RJ, Hyland AJ, Cummings MK, Bansal-Travers M, Reid ME Objective of this research is to assess the state of awareness regarding lung cancer screening among current and former smokers. Intro: The 5 year survival from lung cancer is at 17.7% as indicated by SEER data. The United States Preventive Services Task Force (USPSTF) in 2013 recommended low dose computed tomography (LDCT) for early detection of lung cancer. Method: Data come from the International Tobacco Control U.S. wave 9 survey administered from 2013-2014. In this survey a random subset [50% of the participants age 40 and above] received a question regarding awareness of lung cancer screening (N = 905). Variables associated with demographics, health beliefs, smoking behaviors (for current smokers), and psycho-social beliefs were also collected. We stratified on smoking status to determine the association between the variables and awareness of lung cancer screening. Data was weighed using the ITC wave 9 cross sectional weights and analyzed using SPSS version 21. Results: Independent regression analyses found that, among both current and former smokers, being 55 or over was associated with increased awareness of lung cancer screening vs. those 40 to 54 years of age [current smokers OR = 1.40 (1.04, 1.87); former smokers OR = 1.41 (0.75, 2.66)]. Males had lower rates of awareness vs. females [current smokers OR = 0.77 (0.57, 1.02); former smokers OR = 0.73 (0.38, 1.40)]. Higher education and income increased odds of awareness among both current and former smokers. For several variables in our data, effect modification by smoking status was present. For example, LDCT awareness was greater among current smokers that regret starting smoking [OR = 1.51 (1.06, 2.14)]; however, this association was stronger among former smokers [OR = 2.04 (0.97, 4.30)]. Current smokers who reported enjoying smoking had an increase in LDCT awareness [OR = 1.19 (0.85, 1.65)]; while an inverse association was observed among former smokers that reported they enjoyed smoking [OR = 0.65 (0.29, 1.47)]. Conclusion: Results indicate differences are present between current and former smokers regarding their beliefs and perceived risks surrounding lung cancer screening. Our findings indicate that outreach efforts to increase awareness should be targeted for current and former smokers.	Survivorship Care Planning and Adherence to Recommended Health Behaviors Shay, LA; Grimes, A; Embry, L Introduction: With improvements to cancer screening and treatment, the number of cancer survivors living in the United States is increasing. Cancer survivors are at high risk of chronic health conditions and additional cancer diagnoses. To aid in long-term follow-up care, the National Cancer Institute recommends that all cancer survivors receive a written treatment summary and written plan for follow-up care, jointly called a survivorship care plan. However, survivorship care planning is underutilized and there little evidence yet linking its use to positive patient outcomes. Purpose: We used data from the 2014 Behavioral Risk Factor Surveillance System (BRFSS) survey to look at the association between survivorship care planning and health behaviors including a recent medical check-up, exercise, and smoking. Methods: We used 3 multivariable logistic regression models to test whether receipt of a written treatment summary and receipt of instructions for follow-up care were associated with attending a medical check-up in the past two years, exercising in the past month, and smoking status while controlling for patient demographic and cancer history related variables. Results: In total, 4264 off-treatment cancer survivors completed the 2014 BRFSS cancer survivorship module and were included in our analysis. Most survivors were female (63%), white (93%) and 65 years old or older at the time of the survey (63%). Breast cancer was the most common cancer diagnosis (22%) followed by melanoma (18%), and prostate cancer (11%). In total, 28% of survivors reported receiving a survivorship care plan (both a written treatment summary and written instructions for follow-up care). Additionally, 90% of survivors attended a check-up appointment in the past two years, 69% on exercised in the past month, and 12% were current smokers. In our adjusted models we found that receipt written survivorship care plan was significantly associated with attending a check-up appointment in the past two years (OR=1.9, 95% CI (1.4-2.4) and exercise (OR=1.5(1.3- 1.7). Receipt of a written survivorship care plan was not associated current smoking status. Conclusion: Regular medical visits and exercise are important health behaviors for cancer survivors, many of whom have higher odds of subsequent cancer diagnoses and other chronic conditions. Our study shows initial evidence for the impact of survivorship care planning on adherence to guideline- recommended health behaviors.

43	44-T
Feasibility and acceptability of messaging parents of 11-12 year olds about the HPV vaccine using medical and claims records Staras SA, Bian J, Thompson LA, Samarah E, Gurka MJ, Krieger J, Shenkman EA Purpose of Study: To assess the feasibility, acceptability, and preliminary efficacy of a text or postcard message to increase human papillomavirus (HPV) vaccine series initiation (receipt of at least one dose). Methods: We selected all 11-12 year olds attending one pediatric clinic (baseline initiation rate = 48%) who did not have records of receiving any doses of the HPV vaccine in the clinic's electronic health records (EHR) system or the Florida Medicaid and Children's Health Insurance (CHIP) claims. Stratifying by gender, we randomly assigned parents' of teens to receive messages about HPV vaccine via mailed postcard (n=46 boys and 0 girls because of previous efficacy), text message (n=45 boys and n=74 girls), or no messages (n=46 boys and n=75 girls). For evaluation, we sent a random sample of parents an acceptability survey and obtained medical and claims records of HPV vaccine receipt. We excluded the 12 teens that received the HPV vaccine between data extraction and message delivery. Results: Nearly all messages were deliverable: 98% of postcards and 70% of girls' and 80% of boys' texts. In the first 60 days following the messaging (May-July 2016), 4.2% (13 of 312) had record of receiving their first dose of the HPV vaccine. Within gender groups, vaccination rates were similar across message types: Girls (text = 4.1% and none = 4.0%) and Boys (text, postcard, and none = 4.5%). Parents found text and postcard messages acceptable. Six parents (6.8% of confirmed delivered) requested a call back from the clinic and scheduled an appointment. Among the parents responding to the survey who remembered receiving a message (n=20), approximately two-thirds took some action to learn about the vaccine (i.e., speak with child, friends or family or search Internet). All parents found the message information easy to understand and trustworthy. Most parents liked receiving the message (75% postcard and 88% text) and thought all parents of 11-12 year olds should receive similar messages (79% postcard and 83% text). Conclusions: Sending HPV vaccine educational messages via mailed postcards or text message using EHR and Florida Medicaid and CHIP enrollment files was feasible and acceptable to parents.	Stigma, Disease-Related Symptoms, and Daily Treatment Burden in Lung Cancer Survivors Steffen LE, Nguyen H Lung cancer stigma has been associated with distress, poor quality of life, and treatment nonadherence. Lung cancer survivors who feel blamed for their disease may be reluctant to disclose bothersome disease and treatment symptoms, which jeopardizes quality of life and treatment adherence. The purpose of this study was to examine the relations between lung cancer stigma, disease-related symptoms, and perceived ability to discuss concerns with others on daily treatment burden. Methods: Fifty lung cancer survivors (58% female, 78% non-small cell, 66% metastatic disease, M age = 68.66, SD = 8.78) completed a baseline questionnaire assessing stigma, physical health, mental health, and sociodemographics and 21 daily assessments (M = 20.3 days, SD = 1.3; 1,042 days of data) of disease-related symptoms (e.g., cough, dyspnea, fatigue), treatment burden (e.g., bothered by treatment side effects), and ability to discuss concerns with others. Multilevel modeling was used to examine effects of lung cancer stigma, symptoms, and ability to discuss concerns with others on daily reports of treatment burden. Models controlled for the previous day's report of treatment burden and potential confounds (e.g., treatment type, depression, smoking history). Results: Stigma and disease symptoms predicted higher treatment burden (b = 0.04, p = .023; b = 0.28, p = 0.046, respectively), whereas being able to discuss concerns with others predicted lower treatment burden (b = -0.21, p = 0.022). In the interaction model, survivors who reported more disease-related symptoms and higher stigma reported higher treatment burden than those with lower stigma or disease-related symptoms (b = 0.04, p = .086). Survivors who reported that they were able to discuss concerns with people close to them reported less of an effect of disease symptoms (b = -0.19, p = 0.024) on treatment burden. Conclusion: Lung cancer stigma contributes to higher treatment burden. Survivors with more severe disease symptoms who also report higher levels of lung cancer stigma may be in greatest need of intervention to help manage treatment side effects. Helping survivors disclose concerns to providers and to a friend or caregiver may reduce treatment burden.

45	46-T
The inflammatory potential of diet and ovarian cancer risk: results from two prospective cohort studies Tabung FK, Huang T, Giovannucci EL, Willett WC, Tworoger SS, Poole EM Background: Ovarian cancer is a rapidly fatal disease whose etiology is not completely understood. Circulating inflammation markers, including C-reactive protein, have been positively associated with ovarian cancer risk and diet has been shown to modulate inflammation. We used a previously developed empirical dietary inflammatory pattern (EDIP), a food-based index that characterizes the inflammatory potential of diet based on circulating levels of C-reactive protein, interleukin-6 and tumor necrosis factor alpha receptor 2. Here we investigate its association with ovarian cancer risk in two prospective studies. Methods: We followed 183,820 women in the Nurses' Health Study (NHS) from 1984 to 2010 and Nurses' Health Study-II (NHS-II) from 1991 to 2013, to examine associations between EDIP scores and ovarian cancer risk. Cox proportional hazards models were used to calculate hazards ratios (HR) for overall ovarian cancer risk and histologic subtypes [serous, non-serous, rapidly fatal (death within 3y), less aggressive]. EDIP scores were calculated from validated food frequency questionnaires administered every 4 years. Results: During 22–26 y of follow-up, 979 ovarian cancer cases were confirmed through medical records. In pooled multivariable-adjusted analyses, higher EDIP scores (more pro-inflammatory diet) were not significantly associated with ovarian cancer risk (HRquintile5vs1 1.02; 95% CI: 0.83, 1.27; P-trend=0.78). Similarly there were no substantial associations by subtypes of ovarian cancer, e.g., HRs comparing extreme EDIP quintiles were: HR, 1.00; 95% CI: 0.76, 1.31; P-trend=0.96 for serous; and HR, 1.00; 95% CI: 0.64, 1.47; P-trend=0.93 for non-serous. Conclusion: In contrast with 2 previous case-control studies that found a positive association between a nutrient-based dietary inflammatory index and ovarian cancer risk, our prospective analyses found no evidence of an association. This suggests that other inflammatory factors besides diet may be important for ovarian cancer etiology. On-going analyses will consider a dietary score specifically reflecting C-reactive protein which has been more consistently associated with ovarian cancer risk in prior studies.	Application of Online Crowdsourcing for the Development of Energy Balance Behavioral Cancer Prevention Interventions Tsai E; Basen-Engquist K Behavioral interventions focusing on energy balance behaviors such as physical activity and diet are well-established public health tools for cancer prevention, however, development of these interventions can often be costly and time consuming. This study explores an application of online crowdsourcing as a potentially useful tool to alleviate intervention development resource burdens, and inform user preferences for intervention content. Methods: Participants were recruited through Amazon's Mechanical Turk (MTurk) online crowdsourcing platform to elicit feedback on content for a physical activity and diet intervention. An MTurk "task" consisting of a survey was posted onto the MTurk public marketplace. The survey included demographic questions, behavioral assessments of physical activity (IPAQ) and diet (adapted BRFSS items), rating items of intervention messaging content based on instrumental and affective scales (0-7), preferences of intervention messaging delivery format, message ranking exercises, and a section where users generated their own intervention message content. Results: 400 participants were recruited in 36 hours for the study; data for n=196 participants was analyzed following application of a data quality filter. Participants were aged 33.6 years±10.6, generally female (56%) and white (76%), with 47.4% not meeting recommended activity guidelines and 92.3% not meeting recommended dietary guidelines. The majority of participants preferred intervention content to be delivered in informal and concise language, with a high degree of interactivity and delivery at random, (not scheduled) times. For affective and instrumental message evaluations, participants preferred content based on the constructs of self-efficacy, knowledge, and somatic sensations while content on behavioral modeling and social support was not well-received. Conclusion: Online crowdsourcing is a potentially valuable tool that can be used in the development process for behavioral cancer prevention interventions. This technique allows for rapid and cost-effective testing and feedback elicitation of intervention content by potential users, so that interventions can be tailored to user preferences for optimal efficacy. Based on this study, users may engage more readily with intervention content that is more informal and casually framed, interactive, and focused on facilitating behavioral self-efficacy, providing knowledge on how exercise and diet relate to cancer risk, and how to cope with unpleasant sensations experienced during exercise.

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Sleep characteristics and breast cancer risk in a prospective cohort White AJ Weinberg CR Park YM D'Aloisio AA, Vogtmann E, Nichols HB, Sandler DP Background: The US population has experienced increasing exposure to light and nonstandard work schedules, impacting sleep patterns and quality. Inadequate sleep has been associated with decreased metabolic and immune function and endocrine disruption. Prior research on sleep and breast cancer has been inconsistent, with few studies considering more than simply sleep duration, and few considering tumor subtypes. Methods: Sister Study cohort participants (n=50,884) were enrolled during 2003-2009. US and Puerto Rican women ages 35-74 were eligible if they had a sister who had been diagnosed with breast cancer but no history of breast cancer. Study participants completed questionnaires on established breast cancer risk factors as well as on sleep patterns. In 2012-2014, 91% of participants completed a follow-up interview with additional questions on sleep. Breast cancer diagnoses during follow-up and estrogen receptor (ER) status of the tumor were confirmed with medical records. Cox regression was used to estimate adjusted hazard ratios (HRs) and 95% confidence intervals (95% CIs) for breast cancer. The first two years of follow-up after baseline was excluded and analyses of sleep characteristics from the follow-up interview included only those in the cohort who were breast cancer-free at time of follow-up interview. Results: 2,067 breast cancer cases were diagnosed over ~5 years of follow-up. Average sleep duration at baseline was 7.1 hours (SD=1.1). There was little evidence that self-reported usual sleep duration was associated with breast cancer. However, women who reported having difficulty sleeping ≥4 nights a week were at an increased risk of overall breast cancer (HR=1.33, 96% CI: 1.09-1.61) relative to those who had no difficulty sleeping. Risk of ER+ tumors was higher for women who reported usually having a light or television on in the room while sleeping (HR=1.28, 95% CI: 1.01-1.62) or who got less sleep than needed to feel their best (HR=1.20, 95% CI: 0.97-1.48). Conclusions: Markers of inadequate or poor quality sleep, but not usual sleep duration, were associated with an increased risk of breast cancer. Associations were most pronounced for women with hormone receptor positive tumors, the most commonly diagnosed breast cancer subtype in the US.	Specific Metabolic Rates of Major Organs and Tissues Correlate with Biomarkers of Breast Cancer Risk Zhang X, Brown JC, Schmitz KH Objective: The human body includes multiple tissue compartments with metabolic demands that range from 4.5 kcal/kg/day (adipose tissue) to 440 kcal/kg/day (visceral organs). The heterogeneity of metabolic tissue demands may complicate the interpretation of a relationship between an anthropometric measure and breast cancer risk. We examined the relationship between specific metabolic rates of major organs and tissues with biomarkers of breast cancer risk. Methods: Participants included 139 premenopausal women at high risk of developing breast cancer. Metabolic rates of five individual tissue compartments (brain, bone, muscle, adipose tissue, and visceral organs) were calculated using dual-energy x-ray absorptiometry. Biomarkers of breast cancer risk included background parenchymal enhancement (BPE), adiponectin, and leptin. Results: The metabolic demands of muscle explained 30.8% of the variance in BPE ($P<0.001$), 6.9% of the variance in adiponectin ($P=0.003$), and 29.6% of the variance with leptin ($P<0.001$). The metabolic demands of adipose tissue explained 50.9%, 14.7% and 65.7% of the variance in BPE, adiponectin , and leptin, respectively ($P<0.001$). The metabolic demands of visceral organs explained 49.5%, 17.5% and 54.2% of the variance in BPE, adiponectin, and leptin, respectively ($P<0.001$). Interestingly, the metabolic demands of the brain explained 6.1% and 14.0% of the variance in adiponectin and leptin, respectively ($P<0.001$). We observed no relationship between the metabolic demands of bone with biomarkers of breast cancer risks. Multivariable regression models suggested the metabolic demands of visceral organs significantly associated with adiponectin ($P=0.006$), and the metabolic demands of brain and adipose tissue significantly associated with leptin ($P=0.003$, $P<0.001$). Conclusion: The metabolic demands of distinct tissues accounted for an array of the variance in biomarkers of breast cancer risk. These data highlight how the interpretation of a relationship between an anthropometric measure and breast cancer risk may be difficult to readily interpret. Future analyses will examine how exercise training may influence the metabolic demands of these tissue compartments and their influence on biomarkers of

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Assessment of Medicaid Eligibility Expansions on Colorectal Cancer Screening Georges Adunlin; Lindsay M. Sabik; Bassam A. Dahman The Affordable Care Act (ACA) has achieved its major goals of expanding enrollment and, thus, reducing the number of people without health insurance, particularly for individuals with existing health problems. With the potential for Medicaid expansion to provide coverage to million additional adults with incomes at or below 138% of the federal poverty level (FPL), examining the likely impact of Medicaid expansion on access to care for these Americans is of considerable public health importance. OBJECTIVE: To examine the impact of early ACA Medicaid expansions on colorectal cancer screening. METHODS: We use data from the Behavioral Risk Factor Surveillance System (BRFSS) data from 2007-2014. Our analytic sample includes respondents aged 50 to 64 years with incomes ≤ 138% of the FPL. We create several outcome variables related to being up-to-date with colorectal cancer (CRC) screening. Up-to-date with CRC screening was defined as either fecal occult blood test within the past year and/or sigmoidoscopy or colonoscopy within the past year. In addition, we considered outcomes related to access to care and self-reported health. We use a quasi- experimental difference-in-differences (DD) design that compared changes in CRC screening in expansion and nonexpansion states before and after ACA Medicaid expansions. Our study period includes 3 years before (2007 to 2010) and 3 years after (2011 to 2014) the first expansion. The DD approach adjusts for time-invariant differences in characteristics across the expansion and nonexpansion states as well as secular changes in outcomes over time. We use propensity score techniques to insure that the samples from the comparison states match the samples in the treatment on observable characteristics. We estimate separate models for men and women. We conducted several analyses to evaluate the assumptions of our model and assess the sensitivity of our results to alternative model specifications. CONCLUSION: Using the early Medicaid expansion experiment, this study will provide critical information on the effectiveness of health policies that target low-income adults. This study will also have important implications for understanding the role of coverage in impacting cancer outcomes.	A Prospective Study of Obesity, Metabolic Health, and Cancer Mortality among Blacks and Whites Akinyemiju T, Moore JX, Pisu M, Judd SE, Goodman M, Shikany JM, Safford M, Lakoski SG We examined whether metabolic health status increases the risk of cancer mortality regardless of obesity status among Blacks and Whites. Methods: Using a prospective cohort of 22,514 participants from the REasons for Geographic and Racial Differences in Stroke (REGARDS), metabolic unhealthy status was defined based on having three or more of the following criteria: 1) elevated fasting glucose, 2) high triglycerides, 3) dyslipidemia, 4) hypertension, and 5) elevated waist circumference. BMI was categorized into normal weight, overweight and obese. Cause of death was expert adjudicated. Cox proportional hazards regression was used to estimate hazards ratios (HRs) and 95% confidence intervals (CIs) in relation to cancer mortality during follow-up. Results: Among normal weight individuals, metabolically unhealthy participants were at a 57% increased risk of cancer mortality (HR: 1.57; 95% CI: 1.16 – 2.14) compared with metabolically healthy participants, but only among Blacks (HR: 2.11, 95% CI: 1.27-3.52). There was no significantly increased risk of cancer mortality for overweight (HR: 0.88, 95% CI: 0.67 – 1.14) or obese (adjusted HR: 1.16, 95% CI: 0.87 - 1.54) metabolically unhealthy participants. The overall mortality risk for metabolically unhealthy, normal-weight adults was stronger for obesity- related cancers (HR: 2.39, 95% CI: 1.20 – 4.78). Conclusion: There was an increased risk of cancer mortality among metabolically unhealthy normal weight adults, suggesting that metabolic health factors may be more important prognostic risk factors for cancer for Blacks and Whites.

51-T	52-T
Risk of Type II endometrial cancers by race and ethnicity: Is there variability across Hispanic sub-groups? Baeker Bispo JA, Schlumbrecht MP, Balise RR, Slomovitz B, Kobetz EK To evaluate heterogeneity in risk of Type II endometrial cancer (EC) histologies across race and Hispanic sub-groups using data from Florida's statewide cancer registry (FCDS). Methods: FCDS contains data on N=26,416 women diagnosed with EC from 2004-2013. Our analysis included women ≥18 years of age who were classified as non-Hispanic White (NHW), non-Hispanic Black (NHB) or belonged to one of seven Hispanic sub-groups, had complete information on grade at diagnosis, and had a histology code consistent with Type I or Type II EC. Type I EC was defined as grade I and 2 cancers with histology codes 8380 or 8323. Type II EC was defined as grade 3 and undifferentiated cancers with histology codes 8380 or 8323 (Grade 3 Adenocarcinoma, AG3); 8441, 8450, 8460 or 8050 (Serous); 8041 (Small Cell); 8020 (Undifferentiated); and 8950 or 8980 (Carcinosarcoma, CS). Binary logistic regression analyses were performed to model risk of Type II versus Type I ECs across racial and ethnic groups relative to NHW. Results: Of the N=17,471 women included in the analysis, 73.5% (N=12,604) were diagnosed with Type I EC, 16.76% (N=2,873) with AG3, 5.45% (N=935) with serous, and 4.18% (N=717) with CS. Relative to NHW, overall odds of being diagnosed with a Type II EC were significantly higher in NHB (OR=2.58, 95%CI: 2.34-2.89), Cubans (OR=1.33, 95%CI: 1.06-1.67) and South and Central Americans (SCA), excluding Brazil (OR = 1.82, 95%CI: 1.38 – 2.41). Compared to NHW, odds of serous EC were significantly higher in Cubans (OR=2.16, 95% CI: 1.52-3.08) and NHB (OR=2.57, 95% CI: 2.16-3.05); odds of CS were significantly higher in NHB (OR=3.04, 95% CI: 2.53-3.64) and Puerto Ricans (OR=2.38, 95%CI: 1.34-4.23); and odds of AG3 were significantly higher in NHB (OR=1.65, 95% CI: 1.46-1.86) and SCA (OR=1.79, 95%CI: 1.31-2.44). Conclusions: NHB share a disproportionate burden of all Type II EC sub-types. Risk of Type II EC varies considerably across Hispanic sub-groups, with Cubans, Puerto Ricans and SCA characterized by elevated odds for specific Type II histologies (serous, CS and AG3, respectively). Ongoing efforts to understand the genetic, environmental, and social mechanisms affecting the risks for these subgroups will be crucial to develop more precise cancer preventative strategies.	Risk of Type II Endometrial Cancer in Black Women: Does Nativity Matter? Baeker Bispo JA, Schlumbrecht MP, Balise RR, Slomovitz B, Kobetz EK To explore whether risk of Type II endometrial cancer (EC) varies by nativity status and country of origin, with an emphasis on non-Hispanic Black (NHB) women, using data from Florida's statewide cancer registry (FCDS). Methods: Data on women diagnosed with EC between 2004-2013 were obtained from FCDS. Women ≥18 years of age at diagnosis who were classified as non-Hispanic White (NHW), NHB, or Hispanic, had complete information on birthplace and grade at diagnosis, and had a histology code consistent with Type I or II EC, were included in the analysis. Type I EC was defined as grade I and 2 cancers with histology codes 8380 or 8323. Type II EC was defined as grade 3 and undifferentiated cancers with histology codes 8380 or 8323 (Grade 3 Adenocarcinoma, AG3); 8441, 8450, 8460 or 8050 (Serous); 8041 (Small Cell); 8020 (Undifferentiated); and 8950 or 8980 (Carcinosarcoma, CS). Foreign-born NHB were categorized into four origin groups: Haiti, Jamaica, other Caribbean country, and other. We used binary logistic regression to model risk of Type II versus Type I EC across foreign-born and US-born racial and ethnic groups, and across specific NHB origin groups. Results: A total of 7555 women (N=5278 foreign-born and N=2277 US-born) were included in the analysis. Relative to US-born NHW, risk of Type II EC was significantly higher for all foreign-born racial/ethnic groups (NHB OR=3.05, 95% CI 2.37-3.93; Hispanic OR=1.33, 95% CI 1.15-1.55; NHW OR=1.37, 95% CI 1.10-1.70) as well as US- born NHB (OR=2.74, 95% CI 2.31-3.24). Among NHB, risk of Type II EC was similar across all origin groups. Haitian-born women had the greatest risk of Type II EC relative to US-born NHB, although it did not reach statistical significance (OR=1.43, 95% CI 0.93-2.21, p=0.10). Conclusions: These findings provide preliminary evidence of possible variability in risk of Type II EC among NHB according to nativity status and specific country of origin, with a possible increased risk specifically in women of Haitian descent. More rigorous collection of data on birthplace in population-based registries is imperative in order to elucidate the degree to which nativity contributes to racial disparities in risk of Type II EC, as such data may translate into actionable preventive initiatives.

53-T	54-T
HPV vaccination uptake among foreign-born women, National Health Interview Survey 2013-2015 Cofie LE, Guo F, Berenson AB Human papillomavirus (HPV) vaccination is less prevalent among foreign born-women compared t compared to U.S.-born women. These differences may lead to disparities in HPV-related cancers in cancers in the future. There is limited research on factors associated with vaccination uptake bet uptake between these two groups. In order to address this, we examined the association between pl between place of birth and HPV vaccine uptake, and what determinants of vaccination attenuate attenuate this relationship. Methods Data was from the 2013-2015 National Health Interview Survey data on women aged 18 to 37 y to 37 years. Bivariate comparisons were made with chi-square analysis to examine differe differences in prevalence of HPV vaccination between foreign- (n=3080) and US-born women (women (n=12810). Multivariate binary logistic regression analysis was used to examine the ass the association between foreign born status and HPV vaccine initiation, after controlling for hea for health insurance status, having a usual source of care, obstetrician/ gynecologist visits, visits, pap tests, as well as length of U.S. residency and citizenship. All data were weighte weighted to account for complex sampling methods. Results Of 15,890 women, 26.40% reported initiating the HPV vaccine. We found that HPV vacc vaccination status, insurance status, having a source of usual care, and having visited an obst obstetrician/ gynecologist in the past year varied by whether women were born in the U.S. U.S. Compared with U.S.-born women, foreign-born women were significantly less likely to r to report HPV vaccine initiation (OR: 0.53, CI: 0.44-0.64). The relationship between fore foreign born status and HPV vaccine initiation was partially attenuated after adjusting for cova covariates (OR: 0.61, CI: 0.51-0.74). Among foreign-born women Asians were sign significantly less likely to report vaccination uptake than white women (OR: 0.61 CI: 0.39 0.39-0.96). Additionally, women who have lived in the US for more than 5 years were sign significantly more likely to report HPV vaccine initiation (OR: 1.45, CI: 0.97-2.14) comp compared with those who have lived in the US for less than five years. This relationship was was attenuated by US citizenship status. Conclusion Public health interventions to improve HPV vaccination need to be developed to address m multicultural audiences with limited access to health insurance and health care.	Feasibility Outcomes of a Pilot Randomized Controlled Trial to Increase Cruciferous and Green Leafy Vegetable Intake in Post-Treatment Head and Neck Cancer Survivors Crowder SC, Fruge AD, Delk A, Carroll WR, Spencer SA, Locher JL, Demark-Wahnefried W, Rogers LQ, Arthur AE. To determine the feasibility of a randomized control trial (RCT) to increase cruciferous (CV) and green leafy vegetable (GLV) intake in post-treatment head and neck (HNC) survivors. Methods: 17 post-treatment HNC survivors were recruited via an institutional cancer registry and randomized to one of two groups: 1) an intervention group (n=9) that received weekly telephone dietary counseling aimed at reaching a weekly intake of CV (2.5 cups/week) and GLV (3.5 cups/week) or 2) a usual care attention control group (n=8). Participants completed a survey, three 24-hour dietary recalls and anthropometric measures prior to randomization and at the end of the 12-week study period. Feasibility outcomes included recruitment, retention, adherence and safety. Retention was measured as the number completing the 12-week study. Adherence was measured as completion of the weekly telephone sessions (for both groups) and self-reported weekly CV and GLV intake for the intervention group. Results: During the enrollment period, 350 incident HNC cases were screened for eligibility. Of these, n=98 were eligible for study participation and n=252 were ineligible. Reasons for ineligibility were “deceased” (n=93), “inactive numbers/unable to reach” (n=60) and “medical exclusions” (n=27). Of the n=98 eligible HNC cases, n=24 agreed to participate for an enrollment rate of 24.5%. The most common reason for non-participation was “distance” (n=48). Other reasons for non-participation included “not interested” (n=19) and “too busy” (n=5). Throughout the study period the retention rate was 100%. Mean intervention adherence rates for weekly goals were 68.7% for GLV, 66.6% for CV, and 66.9% overall. The mean adherence rate for completion of weekly telephone counseling was 92.5%. No adverse events were reported. Participants in the intervention group reported an overall mean increase of 4.4 and 2.9 cups of GLV and CV per week from baseline intake. Conclusion: These results support the feasibility and acceptability of a post-treatment intervention aimed at increasing CV and GLV intake in HNC survivors and may offer a promising strategy to improve vegetable consumption in this population. A larger RCT is warranted to assess the efficacy of this intervention on disease outcomes.

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Malignant Melanoma Incidence among Children and Adolescents in Texas, 1995-2013 Danysh HE, Scheurer ME, Hunt RD, Venkatramani R Our knowledge of the epidemiology of malignant melanoma among children and adolescents in multi-ethnic populations is limited. We evaluated demographic predictors and trends of malignant melanoma incidence in those <21 years old in Texas, a state characterized by a large Hispanic population. Methods: We obtained information from the Texas Cancer Registry on all incident cases of cutaneous malignant melanoma diagnosed in 1995-2013 (n=655). Population estimates were obtained from the 2000 and 2010 U.S. Census. Poisson regression was used to estimate adjusted incidence rate ratios (aIRR) and 95% confidence intervals (CI) in order to assess associations between demographic factors (sex, age at diagnosis, race/ethnicity and area-level poverty) and melanoma incidence rates (IR). Joinpoint regression was used to assess the annual percent change (APC) in melanoma IRs over the 1995-2013 period. Results: The overall melanoma IR was 4.3 (95% CI: 4.0-4.6) per 1,000,000. In multivariable analysis, the following groups were associated with an increased melanoma IR: females (aIRR=1.30, 95% CI: 1.1-1.5), those with older age (15-20 years old aIRR=10.2, 95% CI: 7.2-14.3, compared to those <5 years old), non-Hispanic whites (aIRR=7.9, 95% CI: 5.7-10.9, compared to non-Hispanic non-whites), and those living in low poverty areas (aIRR=1.3, 95% CI: 1.1-1.5). The overall melanoma IR increased by 12.0% (95% CI: 5.2%, 19.2%) per year during 1995-2004; however, the IR decreased by 7.6% (95% CI: -12.6%, -2.2%) per year during 2005- 2013. In contrast, the IRs for those <10 years old (IR APC=7.2%, 95% CI: 2.8%, 11.7%) and Hispanics (IR APC=5.3%, 95% CI: -0.6%, 11.6%) increased over the entire study period (1995-2013). The IR trends in other demographic groups were similar to the overall IR trend, decreasing after 2004. Conclusion: Our results validate previously reported demographic predictors for malignant melanoma incidence among children and adolescents. In addition, we observed an overall decrease in melanoma IRs since 2004, perhaps a consequence of improved educational interventions on UV exposure. Despite these improvements, our data suggest that melanoma IRs continue to increase in those <10 years old as well as among Hispanics, groups characterized by poorer outcomes.	Survivors of Adolescent and Young Adult (AYA) Cancers Cohort: A Feasibility Pilot Study in a Multi-Ethnic Population Danysh HE, Scheurer ME, Lupo PL, Armstrong GN, Brown AL, Suzawa H, Bondy ML Purpose: To assess the late and long-term health and psychosocial effects experienced by cancer survivors diagnosed in adolescence and young adulthood (AYA), we are developing a statewide cohort of survivors of AYA cancers in a multi-ethnic population in Texas. First, we are conducting a multi-phase pilot study to evaluate (1) recruitment feasibility, (2) user-friendliness of completing a health survey, and (3) willingness to participate in a longitudinal cohort study. Methods: In Phase 1 of our pilot, we enrolled patients from survivorship clinics affiliated with Baylor College of Medicine (n=16). Eligible participants were diagnosed with cancer at 15-39 years old, ≥2 years post-diagnosis, and English-speaking. We asked participants to complete a self-administered health survey on paper followed by a short feedback survey, to be returned in clinic or via mail. We calculated descriptive statistics, and evaluated demographic differences between responders and non-responders using Fisher's exact test. Results: Of those approached, two declined to participate (11.1%). Of those enrolled, the mean (range) age at diagnosis and enrollment was 22 (15-37) and 30 (21-46) years, respectively. Lymphoma (38%) and germ cell tumor (19%) were the most common diagnoses. The majority of participants were Hispanic (44%) or non- Hispanic white (38%). Nine participants (56%) completed and returned the health survey; responders were older (≥30 years old) than non-responders at enrollment (p=0.04), but were similar on other demographic factors (p>0.05). Half of responders said they would prefer to complete the survey online. Additionally, 88% said they would be willing to complete a biannual health survey, travel to a health facility for a physical exam, and share parent contact information to invite them to participate; 100% said they would be willing to sign a medical records release and provide a biological specimen. Conclusion: Our response rate is comparable to other cohort studies targeting AYA. To ensure effective recruitment for the future cohort, Phase 2 of the pilot is currently underway, which involves (1) evaluation of an online version of the health survey (also in Spanish) and (2) focus groups to understand what motivates AYA to participate in long-term research studies.

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Anatomical Subsite and Race Disparities in Gastric Cancer Among Tennessee Adults Varga MG, Whiteside M, Griffin MR, and Epplein M Gastric cancer is third leading cause of cancer- related mortality worldwide and the single greatest risk factor for developing this malignancy is infection with Helicobacter pylori. Although H. pylori can induce either intestinal or diffuse type gastric cancers, tumors are typically localized outside the gastric cardia and are predominantly of the intestinal type within high- risk populations. As of 2013, gastric cancer was the 15th leading cause of death in the U.S. and its incidence has been on the decline since the turn of the 20th century. This discrepancy in gastric cancer mortality worldwide compared to the U.S. is most attributable to decreasing H. pylori prevalence and subsequently decreasing intestinal-type gastric cancers. However, H. pylori is more prevalent in other races compared to non-Hispanic white populations, and H. pylori eradication has been hypothesized to be associated with the unintended consequence of increased incidences of gastric tumors in the cardia. Therefore, we utilized the Tennessee (TN) cancer registry to examine gastric cancer incidence stratified by race over two 5-year periods ranging from 2004-2013 to determine whether the decline in gastric cancer incidence was reflective of all races or was driven by a decline in intestinal-type tumors among whites. We found that cardia gastric cancers were modestly increasing in TN overall and particularly among the white population where the incidence was almost double that of the black population. Additionally, we found that the incidence of non- cardia gastric cancer was 2-3 times more common among blacks, and that difference may be steady over time. These results suggest that although the national incidence of gastric cancers is trending downwards, the incidence in TN is stable or even increasing. This trend is driven by a noticeable lack of decrease in the rate of non-cardia tumors and a possible increasing rate of cardia tumors. With a 5-year survival rate of only 30%, gastric cancer remains a malignancy that must be carefully monitored despite overall advances in decreasing incidence; moreover, these advances do not accurately reflect trends in all gastric cancer subtypes or races, which is exemplified by our study in TN.	Disparities in completion of fecal immunochemical tests for colorectal cancer screening in a health maintenance organization setting Cameron B. Haas, Karen J. Wernli, Amanda Phipps, Anjum Hajat, Aruna Kamineni, Jessica Chubak Fecal Immunochemical tests (FIT) are one of the stool-based tests recommended for colorectal cancer (CRC screening) and is being an increasingly utilized. Return of FIT after clinician order is an important first hurdle to overcome in the CRC screening process. We investigated patient characteristics associated with completion of FIT when ordered by a physician. Methods: Using data collected for the Population-based Research Optimizing Screening through Personalized Regimens (PROSPR) consortium at Group Health Cooperative, we identified 64,164 health-plan enrollees aged 50 to 75 years who received a physician order for a FIT screening test in 2011-2012. We use the lab recorded date that the stool sample is received to indicate a completed FIT. Patients for whom a stool sample was not received were categorized as incomplete. We used generalized linear models to calculate prevalence ratios and 95% confidence intervals (CI) comparing FIT completion prevalences by enrollee gender, age at the time of the FIT order, race, ethnicity, BMI, and number of FIT orders up to completion or end of study period. Results: Of all individuals who received an order for a FIT in 2011-2012, 54% had a date for a received stool sample. Female patients were slightly less likely to complete FIT than their male counterparts (PR=1.04, 95% CI: 1.02-1.06). The prevalence of incomplete FIT was also inversely associated with age: patients in the oldest age group (70-75 years old) were 0.64 times as likely to have an incomplete FIT as compared to the youngest age group (50-55 years old) (95% CI: 0.62-0.67). Asian race was associated with lower proportions with incomplete FITs compared to white race (PR=0.79, 95% CI: 0.76-0.81); in contrast, Native Americans / Alaska Natives were more likely to have incomplete FITs (PR=1.11, 95% CI: 1.05-1.18). Compared to those with a normal BMI, patients who were overweight or obese were more likely to have not completed a FIT (PR=1.14, 95% CI: 1.09-1.18, and PR=1.31, 95% CI: 1.27-1.36, respectively). Conclusion: Patient factors do contribute to rate of return for CRC screening among an insured population. Further interventions should consider what barriers exist within these populations.

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Neighborhood socioeconomic factors and cervical cancer screening behaviors of low-income women in New Jersey Kaplan A, Navarro Silvera SA Racial/ethnic and socioeconomic disparities in cervical cancer outcomes have been well documented, and may be accounted for by corresponding variations in access to Papanicolaou testing. The rate of Papanicolaou testing within the past three years has varied by both race/ethnicity and by access to medical care. Correspondingly, there has been an increase in use of GIS to explore and understand cancer-screening behaviors. The goal of this analysis was to characterize the relationship between neighborhood socioeconomic factors and cervical cancer screening behaviors among low-income women in New Jersey using data collected from a cross-sectional survey (N= 459). An association was examined using multivariate logistic regression. Address data from 376 participants was geocoded using ArcGIS and linked to the United States 2010 census data. Neighborhood SES score was calculated by summing the z scores for net educational level, median income, and proportion unemployed for each census block. Hispanic and NH Black participants were more likely to live in low SES neighborhoods than their white counterparts ($p<.001$) and distance to affordable cancer screening centers was positively associated with neighborhood SES score ($p<.001$). Multivariate analyses indicated that women living in low SES score neighborhoods were more likely to report having been screened for cervical cancer in the past 3 years (OR = 2.49, 95%CI = 1.16 – 5.34) after adjusting for participant age, race, and insurance status. These findings indicate that low-income women living outside of the lowest SES communities may be at greater risk for not being screened due to difficulties accessing affordable care	Cancer Incidence among Latinos/Hispanics in Pennsylvania and the PSCI Catchment Area Dominic OG, Lengerich EJ The purpose of this study was to estimate the rate and trends of cancer incidence among Latino/Hispanic (L/H) population in Pennsylvania, including those who reside in the Appalachian and the 27-county catchment area of the Penn State Cancer Incidence (PSCI). Methods: We used 2002-2013 data from the Pennsylvania Cancer Registry to calculate age-adjusted rates, rate ratios, and site distribution for Pennsylvania, the entre catchment area of the PSCI, and the 18 Appalachian counties of the PSCI catchment area. Results: In 2010, 5.7% of the 12.7 million residents of Pennsylvania were H/L. From 2000 to 2010, the L/H population in Pennsylvania increased 82.6%, with large percentage increases in rural, Appalachian counties (e.g., 596%). Among L/H males, the leading sites for cancer incidence were prostate (21.8%), lung/bronchus (9.7%), and colon/rectum (9.4%); among L/H females, the leading sites were breast (34.0%), colon and rectum (6.3%), and lung/bronchus (5.8%). Of note, liver cancer was the 4th leading site for L/H males (7.2%) and kidney/renal pelvis cancer was 4th leading cancer site for L/H females. Within the catchment area of the PSCI, L/H population resided within rural and urban counties, with rates of cancer incidence similar to the rates for the state. The rates in Appalachia Pennsylvania were slightly less than those for all of Pennsylvania, but 42% of L/H cases were diagnosed at late stage. Conclusion: The L/H population is increasing throughout the U.S., including Pennsylvania and the PSCI catchment area. These data highlight the need for targeted intervention outreach and research in the rural and urban counties of the PSCI catchment area. Of particular concern is screening and early detection because over 40% of cancers are diagnosed at late stage; and the leading sites for cancers identified have screening options.

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Outcome Disparities Related to Travel Times to Treating Hospital after Controlling for Nearest Hospital Segel JE, Lengerich EJ Background: Previous studies have found negative health outcomes associated with greater distance to treating hospital for specific cancer sites; however, none have examined the impact across various sites. Methods: We used 2010-2014 data from the Pennsylvania Cancer Registry and a user- provided open-source routing machine program from Stata to calculate patient driving time to the treating and nearest facilities. We used linear regression clustered at the individual level to estimate differences by patient (age, sex, race/ethnicity, insurance, and metro/non-metro) and clinical (site, stage) characteristics, controlling for time to nearest facility. Results: Patients who traveled more than 30 minutes to the treating facility were more likely to be younger (mean age 63.0 vs 66.0; p<0.001), have private managed care insurance (41.6% vs. 35.8%; p<0.001), be white (96.4% vs. 85.8%; p<0.001), more likely to reside in a non-metro area (29.3% vs. 5.3%, p<0.001). Patients with lung/bronchus, colorectal, and female breast cancer had lower mean travel times than did patients with a cancer at a different site. Compared to metro patients, non-metro patients had lower mean travel time for cancers of the lung/bronchus, colon/rectum, prostate, and female breast but greater mean times for cancers of the cervix/uterus, oral cavity/pharynx, ovary, thyroid, and melanoma. Among females, metro patients with breast cancer traveled 8 minutes less than did non-metro patients, but 15 minutes more for cancer of the cervix/uterus and 11 minutes more for cancer of the ovary. Differences in travel time were substantial for patients with unknown stage at diagnosis. Discussion: Even after controlling for closest facility, we found travel times to be different for cancers of different sites and for metro/non-metro residence, suggesting that catchment area survivorship programs should recognize these differences. For example, distance-sensitive services (e.g., telemedicine support from a metro hospital) may be appropriate for non-metro patients with cervix/uterus and ovarian cancer whereas services for non-metro breast cancer patients may be best placed at non-metro locations. Non-metro patients with unknown stage at diagnosis may experience a disparity that should be investigated.	Development of a Promotor-Led Intervention to Increase Colorectal Cancer Screening Rates among Latinos De La Torre CL, Espinoza Giacinto R, Haughton J, Moody J, Gupta S, Nodora J, Wells K, Ramers C, Bharti B, Sosa E, García F, López JG, Ruiz E, & Arredondo EM. Latinos are at higher risk of colorectal cancer (CRC) mortality than Non-Hispanic Whites due, in part, to disparities in cancer screening. Purpose: To develop a promotor-led group intervention to increase CRC screening among Latino men and women ages 50-75 years. The unique aspect of the intervention is the direct link between the community-based education and opportunities to complete screening at a Federally Qualified Health Center (FQHC). The intervention was based on the community-based promotor-led Faith in Action study, which used the Ecological Model to inform development. Methods: The Juntos Contra el Cáncer program is a bilingual, culturally-tailored, interactive, group-based intervention targeting individuals not up-to-date with CRC screening. The intervention was informed by focus group data collected from community members, recommendations and feedback from the Community Advisory Board (CAB), and CRC screening curricula from National Cancer Institute-sponsored studies. Results: A promotor–led workshop on CRC screening was developed to provide basic cancer prevention screening education to Latino men and women. The workshop emphasizes group activities that promote participation, including an interactive slide presentation intended to debunk CRC myths, and a customized Mexican lottery game called “La Lotería” to reinforce key content. The workshop curriculum and presentation were written in English, translated into Spanish and culturally-tailored by bilingual and bicultural promotores and staff. A CAB subcommittee provided feedback on the workshop presentation’s delivery, content, and aesthetics. Two promotores were hired by our FQHC partner and completed an 80-hour training to recruit and screen potential participants, lead CRC screening workshops, administer the informed consent and surveys, and schedule “activated” study participants for clinical visits at our partnered FQHC. Promotores received training on health insurance options and a health insurance handout was developed for study participants. Conclusion: The curriculum will be tested on 286 men and women throughout the partnering FQHC’s catchment area. If effective, the Juntos Contra el Cáncer intervention could be implemented through existing promotor networks and FQHCs.

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Association between spirituality and increases in physical activity in African American adults

Mama S, Bhuiyan N, Fagundes C, Chaoul A, Cohen L, Hoover D, Strong L, McNeill L

Physical activity (PA) improves health and prevents cancer incidence, recurrence and cancer-related death. However, African American (AA) adults remain insufficiently active, putting them at increased risk for cancer and chronic disease. Culturally-adapted PA interventions that incorporate spiritual messages and prayer may be more culturally appealing and enjoyable to AA adults and lead to increases in PA. The purpose of this pilot study was to explore the association between changes in spirituality and light PA in sedentary, overweight/obese AA adults. Method: Fifty AA men and women were recruited to Harmony & Health (HH) through an existing church partnership, and eligible adults were randomized to a mind-body (MB) intervention or control group. AA adults in the MB group attended 16 sessions over 8 weeks that included yoga-based stretches, guided relaxation, and scripture. Participants self-reported spirituality (FACIT-Sp) and PA (IPAQ) at baseline and post-intervention. Bootstrapped linear regression models were used to explore the association between changes in spirituality and changes in PA in intervention participants. Results: AA adults (N=26, 92.3% women, M age=50.1±9.7 years, M BMI=33.9±5.3 kg/m2) reported significant increases in spirituality (M Δ=3.8, t=2.646, 95% CI: 1.3, 6.8) and PA (M Δ=10624.6 MET-min/week, t=1.680, 95% CI: 1820.1, 25063.2) from baseline to post-intervention. Increased spirituality was associated with increased self- reported PA (b=1218.8, SE=1405.8, 95% CI: 205.9, 5741.1). Conclusions: This study extends the literature on the use of MB practices to improve health and wellness in underserved populations. Findings suggest that a culturally-adapted MB intervention which strengthens spirituality may improve PA in AA adults. Spiritual messages and prayer may strengthen AA adults' commitment to leading an active lifestyle and meeting PA recommendations; are an important component of cancer prevention efforts in overweight/obese AA adults; and may reduce cancer health disparities in this underserved population.

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Financial Hardship and Self-Rated Health: Does the Choice of Indicator Matter?

Marshall GL & Tucker-Seeley RD

Recent efforts in cancer research to better understand the financial burden (e.g. financial toxicity) of cancer care have revealed how financial hardship impacts myriad outcomes as patients and their families navigate care; however, financial hardship may be present prior to diagnosis and further explication of this experience even before a disease diagnosis is warranted. The association between financial hardship and health has been studied in several population groups (e.g. cancer survivors, low-income housing residents, older adults); however, few of these studies use the same measure of financial hardship. Without consistent measurement and conceptual clarity of the construct across studies, it remains unclear what aspect of financial hardship these previous studies are capturing and impedes the development of interventions to reduce financial hardship. The purpose of this study was to examine the association between four specific forms of financial hardship (difficulty paying bills, ongoing financial stress, medication reduction due to cost, food insecurity) and their association to self-rated health among middle aged and older adults. Cross sectional logistic regression analysis was conducted using the 2010 wave of the Health and Retirement Study (N=7,619) to determine the association between the four financial hardship variables and self-rated health. Financial hardship variables (difficulty paying bills, ongoing financial stress, medication reduction due to cost, food insecurity) were treated as binary indicators (0= no financial hardship, 1= yes financial hardship). After adjusting for all socio-demographic factors, participants reporting difficulty paying bills had a 1.8 higher odds of poor self-rated health (95% CI; 1.57, 2.15) and those reporting taking less medication due to cost had a 2.5 times higher odds of poor self-rated health (95% CI: 1.97, 3.09) compared to those not reporting these hardships. When stratified by gender, and adjusting for socio-demographic factors, men who took less medication due to cost had a 1.93 higher odds of poor self-rated health (95% CI:1.39, 2.67). Women who had difficulty paying bills had a 2.03 higher odds of poor self- rated health (95% CI: 1.63, 2.54), and women who take less medications due to cost had a 2.9 higher odds of reporting poor self-rated health (95% CI: 2.23, 2.70) compared to women not reporting these hardships. Although these findings show a consistent pattern with those reporting financial hardship having higher odds of also reporting poor self-health the effect sizes do vary across the indicators. Additionally, these findings suggest that specific forms of financial hardship may be differentially experienced by older men and women. Additional research can provide greater conceptual and measurement clarity of the financial hardship experience as well as specificity of intervention targets prior to disease diagnosis.

65	66-T
Comparing two interventions' relative effectiveness to promote breast health among Latinas: Design development through the lens of multiple stakeholders Molina Y, Lucio A, Hernandez O, Garcia C, Coronado N, San Miguel L, Hernandez-Flores M, Delgadillo M, & Torres J. The current study's purpose is to describe the design processes of a trial that will compare two commonly used approaches to breast health promotion among Latinas – educating individuals versus empowering communities. Methods: The current study was conducted in 2015-2016 within two impoverished, predominantly Latino community areas in Chicago, IL. To identify priority content and optimal formats, we first conducted semi-structured group discussions with community leaders (CCTS community engagement advisory board members); target interventionists (self-identified as Latina, aged 50-74 years old, lifetime history of breast health promotion, residence in target community area); and target participants (self-identified as Latina, aged 50-74 years old, lack of mammography within the past 2 years, no previous history of breast health promotion, residence in target community area). Second, we developed interventions' materials and processes. To assess acceptability, we presented our intervention materials and protocol to new individuals from all stakeholder groups. Content analysis with inductive and deductive approaches was used. Results: In response to recommendations shared across all stakeholders (n=10-15 community leaders; 30 target interventionists; 40 target participants), our interventions will have three weekly group sessions, survivor testimonials, and action plans/menus. The education intervention focuses on screening and prevention (i.e., diet, exercise). The empowerment intervention focuses on screening, communication (i.e., with women in social network), and volunteerism. Recommendations diverged with regard to the ideal depth of information to provide about breast cancer as a disease and recruitment strategies. Thus, we will plan to use and assess multiple implementation strategies (e.g., number and type of participants across different recruitment venues) as well as conduct focus groups with participants post-trial. Conclusion: The current study describes the processes of developing two interventions using a pluralistic perspective. Shared perspectives were easily incorporated into study design. Different perspectives enabled important secondary analyses to aid adaptation and future implementation for larger-scaled studies.	Evaluation of racial disparities in optic pathway gliomas and malignant peripheral nerve sheath tumors: results from the Surveillance, Epidemiology, and End Results program, 2000-2013 Peckham-Gregory EC, Montenegro R, Lupo PJ, Stevenson DA, Viskochil D, Scheurer ME, Schiffman JD Very little is known about the epidemiology of optic pathway gliomas (OPGs) and malignant peripheral nerve sheath tumors (MPNSTs). One of the strongest risk factors for both of these malignancies is harboring germline mutations in NF1, but risk differences by race/ethnicity have yet to be fully defined. Therefore, we sought to estimate differences in the incidences of these NF-related tumors across race/ethnicity in the United States (US). Methods: OPG and MPNST data were obtained from the Surveillance, Epidemiology, and End Results (SEER 18) program, 2000-2013. Race/ethnicity was categorized as follows: non-Hispanic White (NHW); non-Hispanic Black (NHB); non-Hispanic Asian (NHAPI); non-Hispanic other; and Hispanic. Age-adjusted to the 2000 US standard population, incidence rate ratios (IRR) with 95% confidence intervals (CIs) were generated in SEER-STAT version 8.3.2. Results: A total of 644 OPGs (ages 0-19) and 972 MPNSTs (ages 0-85+) were abstracted from SEER 18. NHB, NHAPI, and Hispanic children experienced lower age- adjusted incidence rates of OPGs compared to NHWs (IRRNHB=0.38, 95% CI: 0.28-0.52; IRRNHAPI=0.40, 95% CI: 0.27-0.58; and IRRHispanic=0.37, 95% CI: 0.29-0.46, respectively). NHBs experienced a slightly elevated incidence of MPNSTs compared to NHWs (IRRNHB=1.22, 95% CI: 1.01-1.48), while NHAPI and Hispanics experienced modestly lower incidences of this phenotype compared to NHWs (IRRNHAPI=0.78, 95% CI: 0.60-1.00; and IRRHispanic=0.82, 95% CI: 0.67-1.01, respectively). Conclusions: The incidence of OPGs was highest among NHWs, whereas the incidence of MPNSTs was highest in NHBs. These differences in risk may reflect underlying genetics contributing to race/ethnicity. Further investigation may inform future studies that seek to evaluate modifying factors and introduce targeted early tumor surveillance for these NF1-related tumors.

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Multiple neighborhood social factors and tobacco smoking: social disorder as a robust correlate of current tobacco smoking prevalence Plascak JJ, Tseng A, Hohl BC, Thompson B. Purpose: To simultaneously investigate the roles of neighborhood-level social disorder, racial-ethnic residential segregation percent of residents below 100% the federal poverty level (% < FPL) and potential mediators of individual-level distress and social capital on the prevalence of tobacco smoking. Methods: Individual-level data were from 2012-2014 Behavioral Risk Factor Surveillance System, restricted to adult residents of Seattle, Washington. Distress was measured by the Kessler six-item scale (sum scored). Social capital was measured by frequency of community members to provide favors. Zip code tabulation area (ZCTA), racial-ethnic residential segregation and (% < FPL) were calculated from U.S. Census data. Principal component analysis of Seattle police incidence response data (2011-2014) was used to calculate ZCTA-level social disorder factors (violent/interpersonal disorder and impersonal disorder). Survey-weighted, multilevel logistic regression models were constructed to estimate odds of current tobacco smoking by levels of neighborhood-level social factors, adjust for potential confounders (demographic, socioeconomic) , account for clustering of individuals within ZCTAs, and adjust for non- response and coverage biases. Results: The tobacco smoking prevalence was 8.5% among 2543 respondents with complete data. After adjustment for potential confounders, a 1 standard deviation increase in violent/interpersonal disorder was associated with a 1.41 (95% CI: 1.10 – 1.74) higher tobacco smoking prevalence. The relationship between impersonal social disorder and tobacco smoking differed by sex; higher impersonal social disorder was associated with higher tobacco smoking prevalence among females but not males. Higher distress and lower social capital were independently associated with higher tobacco smoking prevalence, but did not change the associations between social disorder measures and tobacco smoking prevalence. ZCTA-level % < FPL, African American, or Latino residential segregation were not associated with tobacco smoking prevalence. Conclusion: These results suggest modifiable mechanisms (interpersonal/violent disorder and impersonal disorder) through which adverse characteristics of the social environment might result in increased tobacco smoking.	Cancer Epidemiology and Self-Reported Occupational Hazards among South Florida Firefighters Schaefer Solle, N., Caban-Martinez, A.J., Lee, D., Koru-Sengul, T., Kobetz, E. Purpose: Describe preliminary findings of a new comprehensive cancer risk assessment survey instrument administered to South Florida firefighters to examine cancer risk and occupational health and safety hazards. Methods: Firefighters were recruited through a large research initiative and collaboration between Sylvester Comprehensive Cancer Center and the fire departments of South Florida. Active, combat firefighters were recruited through e-mail lists, community events and station visits. The electronic, HIPAA compliant comprehensive survey included questions about personal and family history of cancer, cancer screening and prevention behaviors, physical exposure at fire sites, work-related exposures and other information to help assess past and future risk for cancer. Results: Data collection commenced in January 2016 and since then 2,471 active firefighters completed the survey. Among completed surveys there were 2,219 male and 245 female respondents with mean age 41.3 years (Standard deviation [SD] 9.29). Our study cohort predominantly consisted of Non-Hispanic whites (83.6%). The incidence of self-reported cancer was 6.6%, including thyroid, prostate, skin, testis and colorectal. Forty percent of male firefighters reported having a PSA, while 28.4% of all firefighters reported having a colonoscopy, and 47.4% reported having a skin examination for cancer in their lifetime. Fire truck diesel exhaust and fire plumes were highest reported workplace exposures of concern. Firefighters also reported health concerns related to stress and abnormal sleep patterns. Conclusion: Preliminary data from this annual cancer survey documents various cancer diagnoses and occupational exposures. There is a critical need to determine occupational risk factors in the fire service and future studies should aim to identify unique workplace exposures associated with cancer in the fire service.

69	70-T
Understanding Experiences with and Preferences for Cervical Cancer Screening among Transgender Men Seay JS, Ranck A, Weiss R, Salgado C, Fein L, Kobetz E Purpose: Transgender men are less likely than cisgender women to complete up-to-date cervical cancer screening. Barriers to screening likely include lack of health insurance, lack of access to care, discrimination, and gender dysphoria. We implemented a rapid assessment survey to better understand experiences with and preferences for cervical cancer screening among transgender men. Methods: A total of 91 eligible men ages 21-63 completed the survey. The survey was administered both in-person and online via REDCap. Descriptive statistics were calculated to assess sociodemographic characteristics, screening history, and preferences. We also conducted multivariable logistic regression analyses to evaluate potential associations between sociodemographic characteristics, screening history, and screening preferences. Results: The sample was 68.1% non-Hispanic White, 18.6% Hispanic, 5.4% non-Hispanic Black, 5.4% mixed race, and 2.2% other races. The majority of participants (81.3%) reported having some form of health insurance. However, only 49.5% of participants reported having a cervical cancer screening within the past 3 years. The majority (57.1%) of participants reported a preference for HPV self-sampling, a screening that can be done in private using a device that is similar to a tampon, over Pap smear screening. Participants who reported a previous history of discrimination when seeking preventive care were more likely to prefer the HPV self-sampling method of cervical cancer screening (OR = 3.29, 95% CI: 1.38-7.84, p = .007). Conclusion: Cervical cancer screening remains a significant issue for transgender men. HPV self-sampling may be a viable cervical cancer screening alternative and if implemented may improve overall cervical cancer screening uptake among transgender men.	Disparities in stage at breast cancer diagnosis by insurance status pre-diagnosis Sánchez-Díaz CT, Murphy AM, Molina Y, Rauscher GH Historically, Chicago has experienced large racial and socioeconomic disparities in breast cancer morbidity and mortality. This is partially due to unequal healthcare access, which has been previously associated with stage at diagnosis and mortality. Programs have been developed to address this issue and improve access for uninsured women, including the Illinois Breast and Cervical Cancer Program. Little however has been done to increase access among underinsured women. We sought to understand how insurance coverage might influence breast cancer outcomes and disparities in younger (under age 65) women. Methods: We compared breast cancer diagnostic outcomes by health insurance status among women in the Breast Cancer Care in Chicago study (N=685) who were not yet age-eligible for Medicare. Eligible patients were between 30 and 65 years of age at diagnosis, resided in Chicago and diagnosed with a first primary breast cancer (in situ or invasive) between 2005 and 2008. A three category variable for health insurance prior to diagnosis was defined as no insurance (17%), Medicaid insured (11%), and privately insured (72%). Multivariable logistic regression was used to model recent prior clinical breast exam, mammogram and later stage at diagnosis (stage 2,3,4 vs. 0,1) as dependent variables while controlling for age, race/ethnicity, and socioeconomic status (income, education, and tract-level disadvantage and affluence). Results: Compared to privately insured patients, uninsured and Medicaid insured women were equally less likely to have had a clinical breast exam (49% and 47% vs. 69%, p=0.0002) or a mammogram (26% and 24% vs. 43%, p=0.0006) in the year prior to diagnosis. Medicaid insured women appeared to be more likely to be diagnosed at a later stage of breast cancer than either uninsured or privately insured patients (60% vs. 47% and 47%, respectively, p=0.12). Conclusion: Despite our relatively small sample, results suggest the existence of barriers to timely detection and diagnoses specifically among Medicaid insured women. Future studies should examine barriers, including disability status, quality of screening process, and fragmented care resulting in delays of diagnostic follow-up or lost to follow-up.

71-T	72-T
Abstract withdrawn	Prism Regression: A Tool for Effect Modification to Sharpen the Effect of Race on Cancer Health Disparities Rao JS, Yu H, Kobetz E This research attempts to discover how multilevel determinants of health ranging from social to biological variables modulate the race effect on cancer outcomes, which has direct implications on understanding health disparities in cancer. We first present a new model which attempts to use individual level variables jointly to create a hypersurface through which the effect of race on outcome is modulated. Our particular formulation of the model uses a tree-based approximation which generates hyperrectangular subregions (i.e. subgroups), which when taken together, can be thought of as a prism through which to view the impact of race. Hence we term the new approach Prism regression. One extension of the model is hierarchical Prism (HPrism), where individual level variables can modulate the race effect through community level variables. Thus we are able to understand how multilevel determinants interact with race in explaining the distribution of disparities in a population. We also introduce a local variable importance measure which allows us to examine their relative impact in determining racial disparity for the Prism subgroups. We detail the Prism and HPrism algorithms, inferential procedures and graphical representations. We then fit the models to examine racial disparity of cancer survival in colon cancer from the Florida Cancer Data System (FCDS) registry and demonstrate significantly improved predictive performance of outcome differences between racial and ethnic groups. Prism and HPrism models provide a new sophisticated way of understanding how multilevel determinants of health interact with race to drive racial disparities in a population. These methods provide significantly improved predictive performance and also a deeper understanding of potential strategies to reduce such disparities.

73-T	74-T
Determinants of provider recommendation for colorectal cancer screening and factors associated with compliance Malik S, Osazuwa-Peters N, Adjei Boakye E, Tobo BB, Chen J, Buchanan P, Burroughs T Only 55% of age-eligible adults get screened for colorectal cancer (CRC), even though the US Preventive Task Force recommends that all adults at age 50-75 years, and as early 40 years for those at higher risk and family history of CRC screened for CRC. The aim of this study was to examine factors associated with provider recommendation of CRC screening, and to describe the sociodemographic characteristics of individuals who screen for CRC. Methods: Data on 3214 respondents aged 40-75 years from the Health Information National Trends Survey were used for this analysis. The outcome variables were provider recommendation (whether a doctor discussed the test with a respondent) and screening compliance (whether a respondent had used the screening). Sociodemographic variables assessed included age, gender, race, marital status, education, income, health insurance, having a regular provider, and most recent check-up. Weighted multivariable logistic regression models were used to assess the effect of sociodemographic factors on provider recommendation and screening compliance. Results: Approximately 46% of respondents reported having received a physician recommendation for CRC, and 53% indicated they had screened for CRC. In multivariate analysis, factors that were associated with provider recommendation of CRC screening were: 50-64 years ([Adjusted odds ratio=3.80; 95% CI=2.93-4.94) and 65-75years (4.29; 3.08-5.98) vs. 40-49 years of age; men (1.61; 1.30-2.01); and having not had a checkup over 2 years (0.39; 0.28-0.55) vs. having a checkup within a year. Factors associated with screening compliance included: 50-64 years (7.05; 5.22-9.51) and 65-75 years (19.36; 13.01-28.80) vs. 40-49 years of age; having no regular provider (0.65; 0.49-0.86); and having not had a checkup over 2 years (0.28; 0.18-0.42) vs. having a checkup within a year. Conclusions: Our study shows that that there are discrepancies in physicians' recommendation of CRC screening, and compliance with the CRC screening. In order to increase the use of CRC preventive services by age-eligible individuals, there is need to target individuals who may not have access to care, as well as encourage uniformity in physician CRC recommendation to all age-eligible individuals.	Predictors of Fecal Occult Blood Test (FOBT) Uptake Among Women Biederman, E., Marley, A., and Champion, V. The purpose of this study was to determine which factors predicted use of FOBT at six months post-intervention among women who were non-adherent to colorectal cancer (CRC) screening guidelines at enrollment. The Transtheoretical and Health Belief models informed the variables that were measured. Methods: Women aged 50-74 years (n=627), who were patients in Midwestern primary care clinics and non-adherent to CRC screening, were enrolled in a randomized intervention study designed to increase CRC screening. Data for this secondary analysis were collected using an online survey. Use of FOBT screening six months post-intervention was predicted using binary logistic regression that included demographics, stage of adoption (pre-contemplation vs. contemplation), doctor recommendation, and CRC health beliefs (i.e. susceptibility, benefits, barriers, knowledge, self-efficacy, fatalism, and fear). Results: At the end of six months, 29% of women were adherent to FOBT. Predictors of FOBT use among these women included barriers (p=.021), self-efficacy (p<.000), and doctor recommendation (p=0.025). The omnibus test of the overall model revealed that variables significantly predicted the outcome ($\chi 2 = 38.14$, df = 12, n=627). Conclusion: The data suggested that reducing barriers, increasing self-efficacy, and a healthcare provider's recommendation are important targets for future interventions to increase the use of FOBT screening.

75-T	76-T
Sex-stratified associations of leptin-related gene variants with colorectal cancer Chun KA, Kocarnik JM, Hardikar S, Robinson J, Berndt SI, Chan AT, Bezieau S, Le Marchand L, Slattery M, White E, Newcomb PA, for the GECCO Consortium Leptin and adiponectin are adipocyte-derived hormones whose primary roles include regulation of appetite, satiety, and insulin sensitivity. Both high levels of serum leptin and low levels of serum adiponectin are strongly correlated with obesity, which is a well-established risk factor for colorectal cancer (CRC). A growing body of evidence suggests that the dysregulation of circulating leptin and adiponectin levels associated with obesity may also play an etiological role in colorectal carcinogenesis. Objective: We aimed to characterize the association between 20 candidate variants in 4 genes, which have previously been shown to alter leptin and adiponectin serum levels, and CRC risk using 7,113 CRC cases and 7,714 population-based controls pooled from 11 studies within the Genetics and Epidemiology of Colorectal Cancer Consortium (GECCO). Methods: Odds ratios (ORs) for the association of each SNP with either obesity or CRC were calculated using multivariate logistic regression, with models stratified by sex and adjusted for age, BMI, study, and the first three principal components of genetic ancestry. False Discovery Rate (FDR)-adjusted p values were calculated for SNPs within each gene, with $p < 0.05$ considered statistically significant. Results: LEPR rs6588147 was associated with obesity among women (OR = 1.11, p = 0.03) and ADIPOQ rs17366743 was associated with obesity among men (OR = 0.50, p = 0.01). Three gene variants in leptin were associated with CRC among women: LEP rs2167270 (OR = 0.88, p = 0.003), LEP rs7799039 (OR = 1.07, p = 0.02), and LEP rs4731426 (OR = 1.09, p = 0.008). No variants were associated with CRC among men. Conclusion: Leptin gene variants may exhibit sex-specific associations with obesity and CRC risk. LEP SNPs rs2167270, rs7799039, and rs4731426 were associated with CRC risk among women, but not among men. These associations held after adjustment for BMI, suggesting that leptin gene variants may play an etiological role in CRC independent of obesity.	Laxative Type In Relation To Colorectal Cancer Risk Citronberg J, Hardikar S, Phipps AI, Hua X, Newcomb PA for the Colon Cancer Family Registry Existing studies on laxatives, utilized by roughly 20% of the U.S. population, and colorectal cancer (CRC) have yielded inconsistent results, which may be due to a failure to account for differential risks by major laxative types: bulk (fiber-based), and non-bulk (or non-fiber-based). The authors examined the association between non-fiber- based laxative use, fiber-based laxative use, and the risk of CRC in a population-based case control study including 5,576 primary invasive colorectal cancer cases and 4,263 population-based controls recruited to the Colon Cancer Family Registry. Epidemiologic risk factor questionnaires were administered to all participants at recruitment and exposures were ascertained approximately one year prior to diagnosis for cases and at a comparable time period for controls. Questionnaires were used to ascertain known and suspected CRC risk factors, including regular laxative use which was defined as laxative intake at least twice a week for more than a month. Individuals with familial adenomatous polyposis, ulcerative colitis, Crohn's disease and those missing laxative use information were excluded, leaving 1,254 study participants (820 cases, 434 controls) in the primary analysis. Logistic regression models adjusted for age, sex, aspirin use, NSAID use, hormone replacement therapy use, and family history of CRC were used to estimate the adjusted odds ratios (aORs) and 95% confidence intervals (95% CI). Both fiber-based laxative use and non-fiber-based laxative use was more common among controls (fiber-based: 48.2%; non-fiber-based: 30.6%) than cases (fiber-based: 30.7%; non-fiber-based: 25.9%). Individuals who reported using fiber-based laxatives regularly were at a significantly reduced risk for CRC compared to those who reported no laxative use (aOR = 0.52, 95% CI = 0.39-0.70). No statistically significant associations were observed between non-fiber-based laxative use and CRC (aOR = 0.93, 95% CI = 0.53-1.63). Findings from this study suggest that the risk of CRC decreases with fiber-based laxative use, while CRC risk is not significantly affected by non-fiber-based laxative use.

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Added benefit of double reading liquid-based cytology smears as a triage strategy among high-risk HPV positive women in Mexico Aiyu Chen, Yvonne N Flores, Catherine M. Crespi, Eduardo Lazcano-Ponce, Paula Ramírez, Daniel Alvarez-Escobedo, Leticia Torres-Ibarra, Berenice Rivera-Paredez,Leith León-Maldonado, Pablo Méndez-Hernández, Enrique Carmona, Héctor Figueroa, Rubi Hernández-López, Joacim Meneses-Leon, Jorge Salmerón Purpose: To evaluate if the detection of histologically confirmed cases of cervical intraepithelial neoplasia or worse (CIN2+) is increased by having each liquid-based cytology (LBC) slide read by two different cytologists. Methods: The FRIDA study is an ongoing population-based study that has recruited over 37,117 women aged 30 to 64 years in Tlaxcala, Mexico, between 2013 and 2016. For each participant, two cervical samples were collected during the same clinic visit to test for high-risk human papillomavirus (hrHPV) as the primary screening procedure, and for LBC as a triage procedure. All cytology slides were randomly distributed among five cytologists. Each slide was read independently by two blinded cytologists, and all slides with a result of atypical cells of undetermined significance or worse (ASCUS+) were reviewed by a cytopathologist who reported the final cytology diagnosis. The cytopathologist also read 5% of the slides that were negative in both readings, as a quality control measure. All women with ASCUS+ results were sent to colposcopy for further evaluation and diagnosis. A panel of two pathologist evaluated the biopsy specimens to confirm the final CIN2+ diagnosis. Results: A total of 3,606 women had a positive hrHPV test and were followed up with LBC as a triage procedure. The first and second cytology readings resulted in 44.6 and 41.8 CIN2+ cases detected, respectively, with an average of 43.2 CIN2+ cases identified by each single cytology reading. The double reading strategy detected an additional 7.8 CIN2+ cases, resulting in a total of 51 CIN2+ cases. The CIN2+ detection rate increased from 12.0 per thousand with a single reading to 14.1 per thousand with a double reading. This difference was not statistically significant. Conclusions: An 18.1% increase in CIN+ cases detected was achieved with a double reading of the LBC slides in this sample of hrHPV positive women. Although this difference was not statistically significant, these results suggest that the detection rate of CIN2+ cases could be improved by having two separate cytologists review each LBC slide. The specific costs and benefits of this strategy would have to be evaluated in future studies, in order to determine its value in different cervical cancer screening programs.	Comparing diagnosis detection and likelihood of intervention between screening digital breast tomosynthesis and digital mammography Fujii MH, Herschorn SD, Sowden M, Weaver DL, Hotaling EN, Sprague BL Background/Purpose: Digital breast tomosynthesis (DBT) is increasingly used for breast cancer screening and early findings have demonstrated some evidence for increased cancer detection and lower recall rates compared with digital mammography (DM). The purpose of this study was to determine whether the implementation of DBT has impacted detection of benign and malignant pathologies of the breast. Methods: We used data from the Vermont Breast Cancer Surveillance System, which includes a registry of all breast cancer screening and diagnostic imaging performed in the state of Vermont, and is linked to a statewide breast pathology registry and the Vermont Cancer Registry. We identified all benign and malignant diagnoses made following positive screening exams (35,197 DM and 25,707 DBT) at the University of Vermont Medical Center during their gradual transition from DM to DBT during January 2012 and June 2015. Multivariable-adjusted logistic regression was used to compare the likelihood of low risk benign, high risk benign and malignant diagnoses between DBT and DM. Results: Utilization of DBT screening increased over time and was slightly more common in younger women and women with dense breasts compared to DM screening. After adjusting for these patient factors, DBT was less likely to result in a positive exam (OR=0.76; 95% CI 0.71-0.83) but had a slightly higher biopsy rate (OR=1.14; 95% CI 0.95-1.38). DBT was more likely to detect low risk benign disease (OR=1.23; 95% CI 0.96-1.57), but had comparable detection of high risk benign (OR=1.01; 95% CI 0.42-2.46) and malignant cancer diagnoses (OR=1.01; 95% CI 0.71-1.43). Conclusions: DBT appears to detect a similar profile of benign and malignant diagnoses compared to DM, though there was some evidence for an elevation in the detection of low risk benign disease. Additional study is needed to evaluate potential differences using data from multiple institutions and to account for patient screening round and radiologist learning curve.

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National Trends in Hepatitis C Virus Screening Using the National Health Interview Survey 2013-2015 Kasting ML, Giuliano AR, Reich R, Vadaparampil ST Hepatocellular carcinoma (HCC) rates are increasing in the United States and Hepatitis C virus (HCV) infection is currently the primary cause of HCC. In 2012, the Centers for Disease Control and Prevention implemented a one-time screening for HCV of all persons in the age group that was determined to be at highest risk for infection: born between 1945 and 1965. However, little is known about HCV screening rates in this age group. Methods: We assessed the prevalence of HCV screening using a national sample from the 2013, 2014, and 2015 National Health Interview Survey (NHIS) for people born between 1945 and 1965. Multivariable logistic regression was used to assess HCV screening over time while controlling for age, sex, race/ethnicity, and marital status, all of which were independently significantly associated with HCV screening in bivariate analyses. All statistical analyses were conducted in 2016 with SAS, version 9.4 and SAS-callable SUDAAN, version 11.0.1. Results: After excluding those whose HCV screening status could not be ascertained (n=630), the final sample included 36,007 people. Mean age was 58.7 (SD=6.0). Most (66.3%) were non-Hispanic White, 14.6% were non- Hispanic Black, 6.7% were non-Hispanic Other, and 12.4% were Hispanic. Only 11.7% indicated they had ever received HCV screening. Screening prevalence was increasing across survey years (p<.05) with 2013 having the lowest rates (11.3%) followed by 2014 (11.4%) and 2015 (12.4%). Multivariate regression analysis controlling for age, sex, race/ethnicity, and marital status showed that the increase in HCV screening was not statistically significant from 2013 to 2014 (OR=1.03; 95% CI=0.92-1.16) but was statistically significant from 2013 to 2015 (OR=1.08; 95% CI=1.03-1.14) as well as from 2014 to 2015 (OR=1.13; 95% CI=1.01-1.25). Conclusions: Analysis of a national sample shows that while rates of HCV screening in the age eligible population rose slightly over this period, there is still substantial room for improvement. Future research should focus on interventions to increase HCV screening particularly among the age-eligible population born between 1945 and 1965.	Prevalence of Prostate Specific Antigen Testing for Prostate Cancer Screening among American Men from 2005-2015 Li J, Berkowitz Z, Richards TB, Marcus PM Background: In 2012, the US Preventive Service Task Force (USPSTF) recommended against prostate cancer screening for all men. We sought to measure the impact of this change among men at average and high prostate cancer risk. Methods: Using the National Health Interview Survey data from 2005, 2008, 2010, 2013, and 2015, we calculated the prevalence of PSA testing among men ≥40 years by age group and age-standardized race for each survey year, and by age-standardized cancer risk level for 2005, 2010, and 2015. Differences between years were assessed with linear contrasts using the respective combined data. We defined high risk men as those with black race or a family history of prostate cancer, with the remaining men defined as average risk group. Analyses were done in 2016. Results: The overall prevalence of PSA testing in 2015 (24.5%) was significantly lower (all P<0.02) than the corresponding prevalence in 2005 (26.7%), 2008 (31.0%) and 2010 (27.9%), but not 2013 (23.6%). This pattern also held for men aged 50 years and older, white men, and Asian/Pacific Islander men. For black men, the PSA testing prevalence in 2015 (22.4%) was only lower than that in 2008 (30.3%) (P=0.007). PSA testing was significantly lower in 2015 (23.1%) than 2010 (28.8%) among average risk men (P<0.001), but not among high risk men. Conclusions: The reported prevalence of PSA testing was highest in 2008, significantly decreased by 2013, and remained stable between 2013 and 2015, suggesting limited impact of the recent USPSTF screening recommendations on PSA testing.

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Prostate Cancer Screening Decision Making in Three States: 2013 Behavioral Risk Factor Surveillance System Analysis Li J, Hall IJ, PhD, Zhao G Background: Given the discordant prostate cancer screening recommendations in the United States, shared decision making (SDM) has become increasingly important. The objectives of this study were to determine who made the final decision to obtain prostate- specific antigen (PSA)-based screening and identify factors associated with the screening decision made by both patients and their health care providers. Methods: Using the 2013 Behavioral Risk Factor Surveillance System data from Delaware, Hawaii, and Massachusetts, we calculated weighted percentages of SDM. Associations between the SDM and sociodemographic, lifestyle, access to care, and PSA testing-related factors were assessed by using multivariate logistic regression. Results: There were 2,248 men aged 40 years or older who ever had a PSA-based screening in these 3 states. Only 36% of them made their prostate cancer screening decision jointly with their health care provider. Multivariate analyses showed that men who were married/living together or had a college degree and above were more likely to report having SDM than men who were never married or had less than high school education (P = 0.02 and 0.002). Moreover, men whose most recent PSA test occurred within the past year were more likely to report SDM than men who had the test done more than 2 years ago (P = 0.02). Conclusions: The majority of screening decisions were made by the patient or health care provider alone in these three states, not jointly, as recommended. Our study points to the needs to promote SDM among patients and their health care providers before PSA testing.	Inherited variants in IKZF1 and novel susceptibility loci are associated with acute lymphoblastic leukemia in children with Down syndrome Lupo PJ, Brown AL, Scheurer ME, Zwick ME, Feingold E, Sherman SL, Yang W, Devidas M, Mullighan CG, Hunger SP, Pui CH, Loh ML, Relling MV, Yang JJ, Rabin KR Children with Down syndrome (DS) have a 20-fold increased risk of acute lymphoblastic leukemia (ALL) compared to those children without DS. While genome-wide association studies (GWAS) have identified loci associated with ALL susceptibility, there have been no efforts to characterize risk variants in subjects with DS, thereby limiting genetic counseling and surveillance strategies in this high-risk group. Here we sought to determine the role of genetic variation on ALL risk among children with DS. We analyzed 311 newly diagnosed DS-ALL cases and 501 DS controls. DS-ALL cases were from recent Children's Oncology Group and St. Jude Children's Research Hospital ALL trials. Controls were selected from a multicenter study of outcomes in children with DS. Genotyping was performed with the Affymetrix Single Nucleotide Polymorphism (SNP) 6.0 array. After quality control measures and exclusion of SNPs with minor allele frequency <1%, > 670,000 autosomal SNPs were evaluated. Associations were tested using logistic regression, adjusting for genetic ancestry and sex. DS-ALL cases were also compared to non-DS ALL cases (n=1,809). Results: Six SNPs located in or near IKZF1, a susceptibility gene reported in non-DS ALL, were identified at or near genome-wide level of significance (p<5x10-8), including rs6964969 (OR=2.14, p=1.82x10-9) and rs11978267 (OR=2.08, p=1.22x10-8). The frequency of the rs6964969 risk allele was significantly higher in DS-ALL cases compared to non-DS ALL cases (p=0.04). ARID5B rs10821936, one of the strongest non-DS ALL susceptibility loci, was not among the top hits, and the risk allele frequency was lower in DS-ALL cases compared to non- DS ALL cases (p=0.03). We also identified three novel risk loci with p<1x10-6. Replication analyses are underway in an independent set of 279 DS-ALL cases and 1,591 DS controls. These findings suggest susceptibility to ALL in children with DS is strongly influenced by genetic variation in IKZF1, a master regulator of lymphoid differentiation. The significant over-representation of IKZF1 risk alleles, underrepresentation of non-DS ALL risk alleles, and identification of several novel potential susceptibility loci, suggest a unique genomic basis for ALL susceptibility in children with DS.

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What missed opportunities drive the invasive cervical cancer burden in a safety-net healthcare system? Pruitt SL, Werner C, Borton E, Sanders J, Balasubramanian BA, Barnes A, Skinner CS, Halm EA, Tiro JA Purpose: To identify missed opportunities for prevention of invasive cervical cancer (ICC) among women receiving care in a safety-net healthcare system. Methods: We conducted a retrospective manual electronic medical record (EMR) review of women diagnosed with primary ICC between 2010-2015 within a large, urban, integrated safety-net healthcare system in Texas. EMR data were reviewed for women screening age eligible (21- 68) at the time of their diagnosis. Missed opportunities were classified as failure to screen, failure to follow-up abnormal or unsatisfactory screening Pap or HPV tests, failure of a screening or diagnostic test to detect an abnormality, or treatment failure. Results: Of n=397 women diagnosed with ICC, stage distribution was as follows: 63% localized, 21% regional, and 12% distant disease. The majority were squamous cell (76%) or adenocarcinoma (20%). Median age was 45 years. Two-thirds of women with ICC (68%) had no recent primary care within the system prior to diagnosis; thus providers did not have opportunity to recommend and initiate the screening process. For 87% these women, cancer was diagnosed within one day of their first diagnostic Pap or colposcopy. Of the remaining 110, two-thirds of women (77%; n=85) had a discernable missed opportunity to prevent ICC: 40% (n=44) failure to screen, 19% (n=21) failure to follow-up abnormal or unsatisfactory Pap/HPV tests, and 18% (n=20) failure of screening and/or diagnostic tests to detect abnormality. No women had evidence of a treatment failure. Conclusions: Safety-net healthcare systems face a high burden of ICC. Our analyses showed most of these do not result from missed opportunities within safety net care. Rather, women presenting with invasive cancers have usually had no prior healthcare system contact or are referred from other systems for the purpose of subsidized diagnosis and treatment. However, there were some missed opportunities at multiple steps in the cancer screening continuum among patients engaged in safety-net outpatient care. Findings will inform quality improvement efforts to prevent ICC among this high-risk population.	An integrative diagnostic platform for a better prognosis of lung and bladder cancers Ahpa Sae Yeoh, Eric Ong, Zach Seet, Zijian Lim, He Cheng, Lihan Zhou, Sue-Ing Quek This study aims to develop an integrative diagnostic platform using stain-free multiphoton microscopy imaging (MMI) technology and microRNA expression profiling of cancer tissues for early detection and a more personalized prognosis and treatment of lung and bladder cancer. MMI of living lung and bladder tissue based on two-photon excited intrinsic fluorescence of tumour cells and second harmonic generation (SHG) signatures of collagen network in the stroma can provide sufficient morphologic and spectroscopic information to distinguish between normal and diseased tissues. Molecular abnormalities as revealed by the expression levels of specific microRNAs may serve as diagnostic and/or prognostic markers of tumorigenesis and as indicators of disease progression. Lung and bladder tissue microarrays (TMAs) were scanned for their microscopic second harmonic generation (SHG) and two-photon autofluorescence (TPAF) optical signatures using MMI technology. The tissues were subsequently subjected to microRNA isolation and expression profiling using real-time quantitative PCR. Our preliminary study on two human lung cancer TMAs indicated that MMI can differentiate normal vs different types of inflammatory and malignant subtypes and stages. For the bladder cancer TMA, optical signatures as revealed by SHG and TPAF signatures were significantly different between normal and malignant tissues. The expression profiling of microRNAs isolated from the lung and cancer tissues indicated that normal, inflammatory, and malignant tissues gave rise to distinct microRNA profiles, which may subsequently aid in disease stratification and thus, a better prognosis for patients. This integrative diagnostic platform of combining MMI and microRNA expression profiling can potentially be developed into a comprehensive diagnostic and/or prognostic test for early detection and a better disease stratification and risk prediction for cancer patients.

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Breast cancer incidence and mortality: Germline whole genome prediction Scannell Bryan M; Argos M; Jasmine F; Andrulis I; Hopper JL; Chang-Claude J; Malone K; John E; Gammon M; Chen L; Kibriya MG; Ahsan H To use germline whole-genome prediction methods to predict both breast cancer risk and mortality. Methods:The 3357 participants (2323 breast cancer cases and 1034 age-matched controls) who were not carriers of BRCA1 or 2 pathogenic mutations were genotyped on exome and genome-wide arrays. Case/control status was predicted using Kriging whole-genome prediction, which uses a linear mixed model to incorporate all germline genetic variation into the prediction model. The cases were followed for a median of 15 years (728 deaths observed), and prediction of ten year survivorship was calculated. Results:The Kriging prediction model predicted breast cancer incidence with an AUC of 0.630 (95%CI: 0.622-0.637). Incorporating a limited number of non-genetic risk factors (age, SES indicators, smoking history, birth control use, and reproductive history) into the model raised the AUC to 0.655 (95%CI: 0.649-0.660), which was a significant improvement over a model that only included the non-genetic risk factors (AUC for non-genetic risk factors 0.601; 95%CI: 0.579-0.623). All-cause mortality in women diagnosed with breast cancer was not predicted with the Kriging whole-genome model. The AUC for ten-year all-cause mortality was not significantly different from 0.5 (AUC=0.493; 95% CI: 0.479-0.510). Conclusions:These analyses demonstrate that incorporating array-based genotyping can significantly improve the ability to predict breast cancer incidence, but not mortality after breast cancer. The incidence model provides a predictive accuracy that is similar to existing models currently used for population-level prediction, and may be clinically meaningful in specific scenarios, such as women who are weighing the personal risk of other interventions that may influence breast cancer incidence. In contrast, these findings do not provide compelling evidence that all-cause mortality in breast cancer cases is strongly driven by germline genetic variation as measured in this study. While this analysis does not rule out the possibility of an association, it may be advantageous to design future studies to collect treatment information such that candidate gene-by-treatment interactions can be investigated.	Computed Tomography Screening for Lung Cancer in Everyday Practice: Results from the 2015 National Health Interview Survey Soneji SS, Yang JW, Tanner N, Rui D, Silvestri G, Black WB. Objective. The US Preventive Services Task Force (USPSTF) recommended annual computed tomography (CT) lung cancer screening for eligible adults in 2013 and the Centers for Medicare and Medicaid Services (CMS) issued a final national coverage determination on CT lung cancer screening in 2015. In this study, we assessed the prevalence and correlates of CT lung cancer screening among current and former cigarette smokers who quit within the past 15 years. Methods. We estimated the prevalence of CT lung cancer screening within the past 12 months, chest X-ray lung cancer screening within the past 12 months, and intention to receive CT lung cancer screening in the next 12 months among current cigarette smokers and former cigarette smokers who quit less than 15 years ago sampled in the 2015 National Health Interview Survey (NHIS) Cancer Control Supplement. Correlates included sociodemographic factors (age, sex, race/ethnicity, marital status, educational attainment), cigarette smoking status and pack-year smoking history, health insurance status, access to healthcare, exposure to cigarette smoking at home or work, and family history of lung cancer. We fit weighted multivariable logistic regression models for each of the three screening outcomes. Results. The prevalence of CT lung cancer screening within the past 12 months equaled 3.4% (95% confidence interval [CI]: 1.6%, 5.1%) for ≥30 pack-year current smokers and 6.5% (95% CI: 3.1%, 10.0%) for ≥30 pack-year former smokers who quit within the past 15 years. The prevalence of chest X-ray lung cancer screening within the past 12 months was higher for these two populations: 6.7% (95% CI: 4.4%, 9.1%) for ≥30 pack-year current smokers and 10.6% (95% CI: 6.6%, 14.6%) for ≥30 pack-year former smokers who quit within the past 15 years. The odds of CT lung cancer screening within the past 12 months did not increase with smoking pack-year history (e.g., adjusted odds ratio [aOR]=1.40; 95% CI: 0.70, 2.79 for ≥30 pack-years compared to <10 pack-years). The odds of CT lung cancer screening within the past 12 months did increase with greater healthcare utilization (e.g., aOR=12.62; 95% CI: 2.50, 63.74 for 1-2 doctor visits compared to 0 doctor visits in past 12 months). Conclusion. Lung cancer screening can only prove effective if timely and clinically recommended screening occurs among current and former smokers at highest risk for developing lung cancer.

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Early Implementation of Lung Cancer Screening across Federally Qualified Health Centers Zeliadt SB, Birkby G, Eberth JM, Hoffman RM, Land SR, Park H, Trapl E, Brenner AT, Reuland DS, Slatore CG, Flocke SA Purpose. This national survey assesses the capacity of Federally Qualified Health Centers (FQHCs) to implement lung cancer screening in low-resource settings. Methods. We randomly sampled 267 FQHCs serving a population with tobacco use prevalence above the median of all 1202 FQHCs nationally. We invited Medical Directors from these centers to complete a web-based survey assessing current practices and resources for lung cancer screening and smoking cessation services. Results. 112 (41%) FQHCs responded to the survey. Although all FQHCs are required to collect tobacco use data, only 13% indicated having data sufficiently detailed to identify patients eligible for screening, and only 4% indicated having a clinical reminder to notify patients who are eligible for discussing screening. 42% reported that some providers in their system offer screening; 38% reported that no providers are currently offering lung cancer screening; and 20% indicated they did not know if providers in their system are offering screening. Of those facilities offering screening, 17% reported that the clinic typically refers patients to a dedicated lung cancer screening program; 81% reported they typically refer to a nearby radiology facility; and 2% did not know the referral location. Of those facilities offering screening, 6% were ordering more than 10 screening tests per month, 51% were ordering fewer than 10 tests, and 43% did not know their volume. Overall, 41% of respondents were aware of a lung cancer-screening program within 30 miles of their system's largest clinic, regardless of whether they were routinely offering screening or not. Conclusions. FQHCs predominantly serve low socioeconomic populations with a high proportion of smokers who may be eligible for lung cancer screening. FQHC providers at nearly half of the nationally sampled clinics with high tobacco-use populations are offering screening to some patients, albeit at low frequency. Significant barriers to facilitating screening include difficulty systematically identifying eligible patients and lack of clinical reminders for lung cancer screening. Awareness of and referral to dedicated lung cancer screening programs is limited, suggesting access to high-quality screening services may be a concern for this population.	Knowledge Gaps and Biased Risk Perceptions Among Current Smokers Participating in Lung Cancer Screening Zeliadt SB, Greene PA, Krebs P, Klein DE, Ko B, Swanson LD, Todd K, Feemster LC, Au DH, Reinke LF, Slatore CG, Heffner JL Purpose. Ensuring that patients are well informed about the potential benefits and harms of lung cancer screening is a priority. Current smokers may be at risk of misunderstanding the potential benefits and harms of screening because of cognitive biases and stigma associated with smoking. Methods. We assessed decision-making and knowledge about screening as part of a smoking cessation trial of proactive outreach to participants in lung cancer screening at four VHA Medical Centers. The proactive intervention is designed to supplement in-clinic decision counseling, which is typically constrained by limited time. We recruited 27 participants who receive proactive telephone support, and a non-randomized control group of 56 usual care patients who underwent screening at the same sites. A follow-up telephone evaluation was conducted among both the intervention and usual care groups. We assessed shared decision-making using the 3-item CollaboRATE instrument (Barr 2014), and patient knowledge and risk perceptions with items adapted from Volk 2014 and the DECISIONS study (Fagerlin 2014). Results. The mean age of the Veteran participants was 64 years; 7% were female. Patients indicated high levels of participation in the decision process, although there is room for improvement as scores were not at the maximum level of provider engagement. We observed major gaps in knowledge overall with the usual care group answering 51% of the items incorrectly, and the intervention group answering 44% of the items incorrectly. Notably, 45% of usual care participants incorrectly believed non-suspicious screening findings meant that they were safe from lung cancer for a year, and 52% incorrectly believed screening would prevent more deaths than quitting smoking. Knowledge was slightly better among the intervention group with 26% and 37% participants, respectively, answering these items correctly, which were topics of the telephone counseling discussions. Conclusions. Counseling current smokers about lung cancer screening so that they are accurately informed is challenging. These findings suggest that barriers in addition to limited counseling time will need to be addressed to effectively counsel patients regarding the risks and benefits of lung cancer screening, especially current smokers who may have cognitive biases that lead to overestimating the value of screening and underestimating the value of cessation.

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Addressing Tobacco Cessation at Federally Qualified Health Centers (FQHCs): Current Practices and Resources Flocke SA, Birkby G, Eberth JM, Hoffman RM, Reuland DS, Brenner AT, Gullett HL, Land S, Zeliadt SB Federally Qualified Health Centers (FQHCs) are organized to serve the poor and under- insured particularly in urban and rural locations. Prior work has identified an exceptionally high burden of tobacco use among patient populations of FQHCs. This study assesses the current practices and capacity of Federally Qualified Health Centers (FQHCs) to address tobacco cessation with patients. Methods: Using data from the Uniform Data System, a total of 271 FQHCs serving a patient population above the median of tobacco use (> 26% of adult patients) were randomly sampled from all 1202 FQHCs. We invited Medical Directors from the sampled centers to complete a web-based survey to assess FQHCs' current practices and electronic health record (EHR) and community resources for tobacco assessment and cessation assistance. Results: 112 (40%) of sampled FQHCs responded and the medical director (69%), CEO, (15%) quality officer (5%) or other (11%) completed the survey. A tobacco use EHR clinical practice alert was used in 79% of FQHCs and 77% reported that smoking status is assessed at every visit. Nearly 50% indicated that 2 or more tobacco cessation resources were available and meet the needs of their patients; 25% had 1 such resource, and the remaining 25% had none that met the needs of patients. Resources were most frequently noted as fax referral to a state quitline (46%) followed by individual smoking cessation support at the clinic (45%). Tobacco use data from an EHR was used for population outreach efforts by 28% of FQHCs. The most frequently endorsed barriers to providing services were that patients lack insurance coverage (36%), limited transportation to smoking cessation program (28%) and that coverage of cessation services varies by insurance type (26%). Conclusions: The majority of FQHCs in this sample indicated having access to at least one tobacco cessation resource that meets the needs of their patients, however barriers of insurance coverage and access for patients appear to impede efforts. Systems changes to harmonize coverage of tobacco assistance including medications could have a positive impact on the essential efforts of FQHCs to provide tobacco cessation assistance.	Diet among smokeless-tobacco user households in Bangladesh Virk-Baker MK, Husain MJ, Parascandola M Tobacco users on average have less adequate diet as compared to non-users. While the majority of the studies are from developed countries, less is known about the influence of tobacco on dietary composition in developing countries where malnutrition is a major public health challenge. Additionally, the effect of smokeless-tobacco use on dietary composition are unknown. We are evaluating and comparing diet using the nationally representative Household Income Expenditure Survey (HIES-2010) from Bangladesh. Overall, 71% of the households reported positive expenditure on any form of tobacco (i.e. smoking and/or smokeless), and were considered tobacco users. Out of 12240 households, 2061 used smoking tobacco only (16.8%), 3284 used smokeless tobacco only (26.8%), and 3348 were dual- users (27.4%). Our results indicate that after controlling for household expenditure, household size, place of residence, and education, smokeless-tobacco user households consumed significantly lower mean per capita daily total calories (β = - 342.88; $p < 0.0001$) as compared to non-users. Dietary analyses revealed smokeless-tobacco users consumed significantly lower daily mean per capita of vegetables (β = -19.65 g/day; $p < 0.0001$), milk and dairy (β = -9.81 g/day; $p < 0.0001$), fish (β = -9.84 g/day; $p < 0.0001$), meat (β = -10.9360 g/day; $p < 0.0001$), legumes (β = -3.23 g/day; $p < 0.0001$), eggs (β = -1.60 g/day; $p < 0.0001$) as compared to non-users. However, mean per capita daily intakes of cereal products (β = 39.26 g/day; $p < 0.0001$) was significantly higher among smokeless-tobacco users as compared to non-users. Corresponding to these profound dietary differences, the intake of total dietary protein (β = - 10.01 g/day; $p < 0.0001$), dietary fat (β = - 27.55 g/day; $p < 0.0001$) were significantly lower, and dietary carbohydrate (β = 94.32 g/day; $p < 0.0001$) was significantly higher among smokeless-tobacco users as compared to non-users. The project will provide evidence to inform policy for addressing malnutrition burden among smokeless-tobacco user households in a developing country like Bangladesh and improving dietary

91	92-T
Pre-conference Oncology Nursing Workshop on Breast Cancer in Ethiopia Ben Ami S, Meron T, Deribe Kitawu L, Cook ED In Ethiopia, breast cancer is diagnosed at late stages, and patients have protracted delays prior to receiving treatment. A breast cancer workshop for nurses was conducted to provide education to promote clinical and self breast examinations and improve early diagnosis. Methods A 1-day pre-conference nursing oncology workshop on breast cancer was conducted before the 10th Annual Stop Cervical, Breast, and Prostate Cancer Conference in Addis Ababa, Ethiopia, in July 2016. The workshop was coordinated in collaboration with the Ethiopian Ministry of Health and The University of Texas MD Anderson Cancer Center (USA), with instructors from Sheba Medical Center (Israel). Attendees included around 30 nurses and midwives from Ethiopia, the Gambia, and Egypt. The workshop included lectures covering epidemiology, anatomy, prevention and early detection, clinical and self-breast examination. In addition, the participants discussed four issues relevant to breast cancer in Africa. Results The four issues discussed were: Available screening tools: Breast ultrasound is currently available in Ethiopia and the Gambia; mammography is mostly accessible to wealthier women in Ethiopia. Mammogram is not available in the Gambia. A national program for breast screening is currently unavailable. Awareness is promoted through a National Cancer Day in Ethiopia and the "First Ladies of Africa" anticancer initiative. Barriers to breast screening include personal, geographical, national/governmental, professional, and educational factors. Promoting patients adherence to breast screening depends on government/national and health system priorities, resource allocation, media, education, and accessibility to services. Participants concluded the workshop with comments such as: "Now I have much work to do in my country"; "I am thinking of how to apply this to my administration"; and "I will share information with my students and friends." Conclusions The workshop raised participants' awareness and knowledge regarding breast cancer as a national problem. It illuminated barriers to screening, as well as potential ways to increase public awareness of breast cancer and adherence to breast examinations.	Alcohol Consumption and Risk of Ductal and Lobular Breast Cancer Among Women Aged 55 to 74 Years Previous studies suggest that alcohol consumption and risk of breast cancer differs by histologic subtype and hormone receptor status although epidemiological evidence is not consistent. More studies are needed to further explore the association between breast cancer histologic subtypes and alcohol. In this population-based case-control study, we evaluated the association between alcohol consumption and risk of invasive ductal carcinoma (IDC), invasive lobular carcinoma (ILC), and mixed histologic cases among women aged 55-74 years of age. Using polytomous regression, associations between alcohol consumption at reference, overall and by type (beer, white wine, red wine, and liquor), and breast cancer risk were evaluated in 905 IDC cases, 567 ILC cases, 489 mixed histologic cases, and 891 controls. Current alcohol use at reference was moderately associated with risk of ILC (OR=1.25, 95% CI: 0.99, 1.58) but not with IDC or mixed histologic subtypes. A dose-response relationship was observed between average number of drinks per week at reference and risk of ILC (Ptrend=0.0005; ≥7 drinks/week compared to never drinkers OR=1.52, 95% CI: 1.11, 2.07). Liquor consumption was most strongly associated with risk of ILC (Ptrend =0.0005) and was also associated with risk of IDC (Ptrend =0.02). When further stratified by estrogen receptor (ER) status, alcohol use was significantly associated with risk of ER+ lobular cancer (Ptrend=0.002) and ER+ ductal cancer (Ptrend=0.02). Alcohol use was inversely associated with risk of ER- ductal cancer (Ptrend=0.01). No association between alcohol and risk of mixed histologic tumors, all or ER+ only, was observed. Our results suggest that alcohol consumption, particularly liquor, was significantly associated with risk of ILC. Alcohol consumption was associated with increased risk of ER+ lobular and ductal cancer but not in those with mixed histologic tumors. These data support previous studies that have shown that the association between alcohol consumption and risk of breast cancer varies by histologic subtype and ER status.

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Effect of lifestyle intervention and metformin on body composition in obese, post-menopausal women at increased risk for endometrial cancer Basen-Engquist K, Yates M, Schmandt R, Urbauer D, Levy E, Fellman B, Lu K Given that obesity is the leading risk factor for endometrial cancer prevention efforts in this population are warranted. Because the relationship with obesity is hypothesized to be driven by estrogen and hyperinsulemia, we tested the effects of metformin, which decreases glucose production and increases insulin sensitivity, and a lifestyle intervention based on the Diabetes Prevention Program on body composition and circulating and tissue biomarkers in a cohort of obese, post-menopausal women. Here we present the results of the two interventions on body composition, hypothesizing that both interventions would have significant effects on weight loss and body composition. Methods: 28 obese, hyperinsulimic post-menopausal women were randomized to one of four groups, in a 2 (metformin 1700 mg/day vs placebo [M+ vs M-]) x 2 (lifestyle intervention vs no lifestyle intervention [L+ vs L-]) factorial design. The L+ group received a 16-week lifestyle intervention, delivered by a registered dietician. Behavioral (diet and physical activity) and body composition assessments (height and weight, whole body DXA) were done at baseline and end of intervention. Results: Participants in the M+/L+ group lost the most weight (-7.4%), followed by M-/L+ (-5.2%), M+/L- (-3.1%), and M-/L- (+0.1%). Examining the main effects of the interventions, both metformin and lifestyle intervention had a significant effect on weight (M= vs M-, p=0.018; L+ vs L-, p=0.004). The lifestyle intervention also produced a greater loss of body fat percentage (L+ vs L-, p=0.007), while the M+ group lost more lean mass than the M- group (p=.007). Neither metformin nor lifestyle intervention were related to changes in visceral fat area, fat mass ratio, BMI, or android-gynoid ratio. Conclusions: Metformin and lifestyle intervention both resulted in weight loss. However, the lifestyle group had a more favorable pattern of weight loss, losing more body fat than lean mass, which could have implications for physical functioning, resting metabolic rate, and future disease risk.	Comparison of Two Methods for Assessing Diet Quality and Their Associations with Lung Cancer Mortality in NHANES III Bittoni M, Shivappa N, Steck S, Hebert J Dietary factors have shown significant associations with several cancers, including lung cancer (LC). Chronic inflammation also plays an important role in cancer development. The Dietary Inflammatory Index (DIITM) is a tool for assessing diet quality with an emphasis on the overall inflammatory potential of diet. It is based on extensive research and incorporates commonly consumed dietary components. The Healthy Eating Index (HEI) also assesses diet quality with a focus on healthy dietary patterns that may also be considered anti-inflammatory. The purpose of this study was to compare associations between these tools for measuring diet quality and LC mortality. Methods: Data were examined for persons aged 20-90 years in the Third National Health and Nutrition Examination Survey (1988-1994). LC mortality status was ascertained through probabilistic record matching using the National Death Index. The DII and HEI were computed from baseline dietary intake using 24-hour dietary recalls. Serum C-reactive protein (CRP) was measured as a marker of inflammation. Cox proportional hazards regression models assessed the relationship between diet quality and risk of LC death in the cohort. Results: Of 12,394 eligible participants, 178 died of LC during the 218-month follow-up period (n=113 males and n=65 females). Multivariate regression analyses revealed a significant increased risk of LC mortality in males in the highest versus lowest tertile of both DII and HEI values (HR=2.04; 95%CI=[1.18,3.54] for DII and HR=2.78; 95%CI=[1.39,5.71] for HEI when adjusting for age, race, smoking, total caloric intake, BMI and CRP). There was a similar almost 2-fold increased risk of LC mortality for elevated CRP (>3mg/dl) after multivariable adjustment. No significant relationships between DII or HEI and LC mortality emerged for females. Conclusions: The HEI and DII produced similar results in assessing diet quality and lung cancer mortality, with both tools showing increased risk of LC mortality with poorer diet quality among males, but not females. The small number of LC deaths in females may partially explain the lack of significant findings, although further research is warranted to examine gender differences in the association between diet quality and LC mortality.

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Adherence to Physical Activity Guidelines in a Cancer Prevention and Control Setting: The Impact of Body Mass Index Coletta AM, Marquez G, Thomas P, Thoman W, Austin A, Bevers T, Brewster A, Hawk E, Basen-Engquist K, Lakoski SG The objectives of this study were to identify adherence rates to national physical activity guidelines and determine if these adherence rates varied by weight status in patients seen in a cancer prevention and control setting. Methods: A total of 988 patients were interviewed by an Exercise Physiologist within the Cancer Prevention Center at The University of Texas M.D. Anderson Cancer Center. Adherence to the national physical activity guidelines was determined by asking patients about their engagement in aerobic and resistance exercise, specifically the frequency, intensity, duration, and mode of each type of exercise. Chi-square tests were used to examine the distribution of body mass index (BMI) according to adherence with physical activity guidelines. Odds ratios for not complying with guidelines by BMI category were determined from logistic regression modeling for the total sample and by cancer history. Multivariable models were adjusted for age, sex, race/ethnicity, and menopause status. Results: The majority of patients were middle-aged (57±10 years), obese (67%, BMI ≥ 30 kg/m2), females (94%), and did not adhere to national physical activity guidelines (80%). A total of 51% of patients had a history of cancer, with breast cancer being the most common tumor site (74%). Obese patients were less likely to reach activity guidelines (16%) compared to normal weight patients (37%) ($p<0.001$). Patients within class 3 obesity (BMI ≥ 40 kg/m2) were the least likely to achieve activity guidelines (9%) compared to normal weight patients (19%) ($p<0.001$). Results were similar when stratified by cancer history. Obese individuals had a 3-fold higher odds of not adhering to activity guidelines in adjusted models (OR3.04, 95%CI 1.89, 4.88). Results were similar when comparing obese versus normal weight cancer patients (OR2.49, 95%CI 1.41, 4.41). Conclusion: Eighty percent (80%) of patients within a cancer prevention and control setting are not meeting national physical activity guidelines. Obesity was an important predictor of guideline-based activity. These data speak to the importance of developing exercise-based interventions in the cancer prevention and control setting, with a special focus on obese patients.	The effect of a sulforaphane and maitake mushroom extract combination on the expression of the cytoprotective enzymes NQO-1 and HMOX-1 and the pro-inflammatory mediators IL-6, COX-2 and iNOS Cornblatt GA, Ownby SL, and Erwin, SA Oxidative stress and chronic inflammation have been linked to cancer initiation. Epidemiological studies have revealed a correlation between an increase in intake of fruits and vegetables and a decrease in cancer incidence. Phytochemicals provided by fruits and vegetables have been shown to modulate important pathways in the progression of cancer. Sulforaphane is one such phytochemical produced by the hydrolysis of its precursor glucoraphanin by myrosinase enzyme, both of which are found in cruciferous vegetables like broccoli. Maitake mushrooms have been used for centuries for their immunomodulatory properties attributed to their beta-glucan content. While sulforaphane and maitake mushrooms are potent individually, this study looks at the cytoprotective and anti-inflammatory properties of the novel combination, specifically their effects on the expression and production of the detoxifying enzyme NAD(P)H quinone oxidoreductase 1 (NQO-1), the anti-oxidative enzyme/heat shock protein heme oxygenase 1 (HMOX-1/HSP32) and their effect on pro-inflammatory markers including interleukin-6 (IL-6), cyclooxygenase-2(COX-2) and inducible nitric oxide synthase (iNOS). Methods and Results: To examine the effect of the combination on NQO-1 and HMOX-1, THLE-2 human liver cells were treated with 250 μg/mL maitake extract and a physiological level of sulforaphane (0.5 μM). The combination is able to induce the gene and protein expression of NQO-1 and HMOX-1. To examine pro-inflammatory properties, THP-1 human monocyte/macrophage cells were treated with 1 ng/mL LPS with or without the combination. Sulforaphane and maitake suppress gene expression of IL-6, COX-2 and iNOS. Conclusion: This study demonstrates the different roles the combination of sulforaphane and maitake mushroom have on the expression of key proteins in the Nrf2-ARE, HSP, and NFκB pathways. These results support the notion that the combination of sulforaphane and maitake mushroom are cytoprotective as they promote detoxification and decreased oxidative stress as well as diminish expression of pro-inflammatory mediators.

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Understanding the longitudinal relationship between self-efficacy for physical activity and self-efficacy for smoking cessation in cancer survivors. Cox-Martin, E., Cox, M.G., Basen-Engquist, K., Blalock, J. It has been suggested that change in self-efficacy for one health behavior may generalize to others. The purpose of this study was to examine longitudinal change in self-efficacy for smoking cessation (SESC) and self-efficacy for physical activity (SEPA) in cancer patients throughout smoking cessation treatment. Participants included cancer survivors who were current smokers attending an initial assessment at the Tobacco Treatment Program at MD Anderson Cancer Center. Data were collected via self-report survey at three time points: within one week of their first appointment, half way through cessation treatment (i.e, 6 wks), and end of treatment (i.e., 12 wks). Analyses first investigated longitudinal change of each variable individually. Growth curve modeling demonstrated a significant effect for change over time for SESC (B = .408, p < .001) but not for SEPA (p = .163). T-tests between specific time points showed significant increase in SESC between time 1 and 2 (t[39] = -4.799, p = < .001), as well as time 2 and 3 (t[37] = -2.219, p = .033); again no change was shown for SEPA. Analyses then examined the relationship between the two variables over time, with t-tests showing no significant differences between scores at time 1 or 2; however, scores were found to be significantly different at time 3 (t[40] = -4.218, p < .001) with SESC being higher. Additionally a significant correlation was shown between the changes in each variable between time 1 and 2 (r[27] = 0.654, p < .001), but not time 2 and 3. This study finds that while cancer survivors undergoing smoking cessation treatment demonstrate an increase in self-efficacy for this behavior, this change does not generalize to self-efficacy for physical activity. Positive associations in change between the two types of self-efficacy were found only during the first half of treatment, indicating that the beginning to middle of treatment may be the optimal time to leverage changes in self-efficacy for other health behavior change. Additionally, scores for the two variables were found to be significantly different at the end of treatment only, supporting active treatment, rather than the conclusion of treatment, as a prime window for multiple health behavior change intervention.	Circulating Systemic and Adipose Tissue Inflammation in Obese Postmenopausal Breast Cancer Survivors Dieli-Conwright CM, Parmentier J-H, Lee K, Spicer D, Mack W, Sattler F, Mittelman SD. This observational study was designed to assess whether systemic circulating inflammatory markers are associated with adipose tissue inflammation in obese postmenopausal breast cancer survivors. Obesity is a leading modifiable contributor to breast cancer mortality due to its association with increased recurrence and decreased overall survival rate. A central mechanism by which obesity stimulates cancer progression is through chronic, low-grade inflammation in white adipose tissue, leading to accumulation of adipose tissue macrophages (ATMs), in particular the pro-inflammatory M1 phenotype macrophage. However, it is important to assess whether circulating systemic inflammatory markers are associated with adipose tissue inflammation in an effort to determine whether systemic inflammatory markers may be used as a surrogate for adipose tissue inflammation. Methods. Postmenopausal BCS (BMI≥30 kg/m2) with early stage (I-III) breast cancers were recruited from the USC. All measures were performed under fasting conditions. Circulating systemic inflammatory markers measured in plasma included C-reactive protein (CRP), interleukin (IL)-6 (IL-6), IL-8. Superficial subcutaneous abdominal adipose tissue biopsies were performed under fasting conditions. Adipose tissue samples were analyzed using fluorescence-activated cell sorting (FACS) to characterize ATM characterization (%M1 vs %M2). Pearson's correlations were used to examine the association between CRP, IL-6, IL-8 and the percentage of M1 and M2. Results. Thirty obese postmenopausal BCS were included in our analysis with a mean±SD age of 52.7±7.9 years, BMI 33.9±6.4 kg/m2, percent body fat 37.0±5.0%, CRP 3.6±0.7 mg/L, IL-6 3.3±0.5 ng/L, IL-8 5.5±0.8 ng/L, ATM M1 25.4±6.3% and M2 4.2±1.0% levels. There was a significant positive correlation with circulating levels of IL-6 and %M1 characterized in adipose tissue (r=0.43, p=0.019). No other significant correlations existed between CRP and IL-8 with both %M1 and %M2 (p>0.05). Conclusions. IL-6 is associated with the pro-inflammatory M1 phenotype of adipose tissue inflammation in obese postmenopausal breast cancer survivors. Further investigations are warranted to assess this association in a larger sample with a more comprehensive panel of inflammatory biomarkers.

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Abstract withdrawn	Caloric restriction plus exercise results in significant weight loss in a presurgical trial among overweight and obese women with early stage breast cancer Frugé AD, Rogers LQ, Krontiras H, Demark-Wahnefried W Preclinical models suggest weight loss may slow tumor growth. We undertook a presurgical randomized controlled trial (NCT02224807) to explore the effects of acute negative energy balance on overweight and obese women with early stage breast cancer. Participants (n=32) were randomized to 1 of 2 arms: 1) weight-loss (WL) arm counseled to lose ~0.91kg/week via a healthy calorie-restricted diet and a supervised/at-home aerobic exercise program; or 2) attention control (AC) arm. Both arms were instructed on use of resistance bands to improve arm strength and received weekly guidance from a registered dietitian in correcting nutrient deficiencies per NDSR analysis of their baseline diet. The purpose of this analysis is to report changes in diet, physical activity and body weight between arms. Diet was assessed at both time points with two 24 hour recalls and analyzed using NDSR. Anthropometrics were measured using standard procedures. Moderate to vigorous physical activity (MVPA) was measured with the Godin Leisure Time Physical Activity Questionnaire; minutes of weekly MVPA were not normally distributed so between group differences were assessed with Mann-Whitney U tests. For all other variables, within group differences between time points were analyzed with t-tests and differences in change variables were assessed by analysis of variance. Participants had a mean BMI of 34.8 ± 5.7 m/kg2, and were 61 ± 9 years old; 47% were African-American and 53% Non-Hispanic White. Participants were on study for a mean duration of 30 ± 9 days, and 17 were randomized to WL. Women in WL lost more weight (-3.6 kg vs. -0.5 kg, $p<0.0001$) than AC, and WL significantly increased weekly MVPA compared to AC (median increase 180 min. vs. 0 min., $p<0.001$). Both arms reduced daily energy intake (-541 kcal vs. -355 kcal for WL and AC, respectively [$p=0.215$]); however, significant reductions in energy density were observed for WL compared to AC (-0.283 kcal/g vs. 0.054 kcal/g, $p=0.037$). This presurgical trial was successful in promoting significant weight loss in early stage breast cancer patients. Data suggest that while “drop-in” may have attenuated arm differences in energy intake, significant differences were still noted in weight loss, physical activity, and energy density of the diet.

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Maternal Factors and Benign Breast Disease in Adult Daughters Goldberg M, Cohn BA, Michels KB and Terry MB Higher birthweight has been associated with breast cancer risk, supporting the hypothesis that breast cancer risk may originate in utero. Maternal factors, such as prenatal smoke exposure, maternal pre-pregnancy body mass index (BMI) and gestational weight gain, all associated with birthweight, have been examined with regard to breast cancer risk and more recently with the risk of benign breast disease (BBD). These studies have not consistently observed associations with breast cancer risk, however many were based on retrospective reports of prenatal exposures. We used prospective data from two U.S. birth cohorts (n=1,121) to examine the association between maternal factors and BBD in their daughters at age 39-49 years. We conducted logistic regression with generalized estimating equations to estimate the associations between maternal smoking during pregnancy, pre-pregnancy BMI, gestational weight gain, maternal height, birth order, maternal age, maternal education and family income at birth and the risk of BBD, adjusting for age, site and maternal confounders. Overall, 197 women (17.6%) reported that a physician had diagnosed them with BBD (average age at diagnosis=30.8). We observed that daughters of women who smoked more than one pack of cigarettes per day had an increased risk of BBD compared to daughters of non-smokers (Odds ratio (OR)=1.61, 95% confidence interval (CI)=1.02-2.54), adjusting for site, daughter age at interview, maternal age at registration and maternal education. Daughters of women who smoked less than one pack per day were not at increased risk of BBD compared to daughters of non-smokers (adjusted OR=1.13, 95% CI 0.65-1.96 for ½ to 1 pack per day and OR=0.79, 95% CI 0.47-1.32 for less than ½ pack per day). Maternal pre-pregnancy BMI, gestational weight gain, maternal height, maternal age at registration, maternal education, family income at birth and birth order were not associated with BBD risk. Our results suggest that exposure to more than a pack of cigarette smoke per day in utero increases the risk of BBD in adulthood, supporting the hypothesis that the breast may be susceptible to toxic effects from high smoke exposure during fetal development. We did not observe associations between other maternal characteristics and BBD risk.	American Cancer Society Cancer Prevention Guidelines, vitamin D status, and colorectal adenoma Kohler LN, Hibler EA, Harris RB, Oren E, Roe DJ, Jurutka PW, Jacobs ET Adherence to the American Cancer Society's (ACS) Nutrition and Physical Activity Cancer Prevention Guidelines is associated with reductions in colorectal cancer, and lifestyle factors targeted by the guidelines are also associated with circulating concentrations of vitamin D metabolites. We examined the relationship between adherence to the ACS guidelines and three endpoints: 1) Characteristics of baseline colorectal adenoma; 2) Odds of new colorectal adenoma occurrence; and 3) Circulating concentrations of two vitamin D metabolites, 25-hydroxycholecalciferol [25(OH)D] and 1α,25-dihydroxyvitamin D [1,25(OH)2D]. Methods: We conducted cross-sectional analyses of pooled participants from the Wheat Bran Fiber (n=503) and Ursodeoxycholic Acid (n=854) trials for the study of baseline adenoma characteristics and vitamin D metabolite levels, and a prospective cohort design for new adenoma occurrence. A cumulative adherence score was constructed using baseline data regarding body size, diet, physical activity, and alcohol consumption, and associations were evaluated using logistic regression models. Results: Significantly reduced odds of having three or more adenomas at baseline were shown for moderate (odds ratio [OR]=0.61, 95% confidence intervals [CI]: 0.40-0.92) and highly adherent (OR=0.47, 95% CI: 0.30- 0.80) participants compared to those with low adherence (p-trend=0.007). Conversely, adherence was not associated with the development of a new colorectal adenoma. Concentrations of circulating 25(OH)D and 1,25(OH)2D were statistically significantly higher among participants with high versus low adherence to guidelines, with 25(OH)D concentrations of 32.0 ±0.8 and 26.4 ±0.7 ng/ml for high- and low-adherers, respectively; (p<0.001) and 1,25(OH)2D levels of 36.3 ±1.3 and 31.9 ±1.0 pg/mL, respectively (p=0.008). Conclusions: These findings suggest that preventative effects of following the ACS guidelines may occur not with prevention of new adenomas within a time period of 3-5 years, but may have a role in the development of multiple lesions over a longer time period. In addition, adherence to the ACS guidelines is associated with higher concentrations of both of 25(OH)D and 1,25(OH)2D, and may be a viable strategy for improving vitamin D status.

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Effect of menstrual and reproductive history on risk of lung cancer in Chinese female never-smokers. Jin K Purpose: to study the Effect of menstrual and reproductive history on risk of lung cancer in Chinese female never-smokers Methods: The study design of Jiangsu Four Cancers Study has been described previously[1]. The population-based case control study presented in this abstract was embedded in the Jiangsu Four Cancer Study and only included 514 lung cancer cases and 1483 cancer-free controls. All study subjects were postmenopausal, female life-time non-smokers. Cases were incident female primary lung cancer patients identified from the local cancer registry of Jiangsu Province in China, either pathologically or clinically confirmed within one year of interview. Controls were randomly selected from the same village or resident block as cases. Exposures of interest were age at menarche, age at first birth, parity, gravidity, breastfeeding status, oral contraceptive use, measures of birth control, outcome of first pregnancy, number of life-time miscarriage, induced abortion, stillbirth, live birth, length of reproductive window and number of ovulatory cycles. Unconditional logistic regression models were applied to estimate the crude and adjusted association between each exposure variable and risk of lung cancer. Multivariable models were adjusted for age, family history of lung cancer and environmental tobacco smoking (ETS ie. second-hand smoking). Results: Age at menarche was relatively late in this population (age=16.5 in cases and age=16.2 in controls). The most common measures of birth control in this population were ligation (41.39% in cases and 37.45% in controls) and intrauterine device (20.15% in cases and 22.78% in controls). After conditioning on age at interview, family history of lung cancer and environmental tobacco smoking (ETS), increased length of reproductive window/number of lifetime ovulatory cycles was associated with an increased risk of lung cancer (highest tertile comparing to the lowest: OR=1.39, 95% confidence interval=(1.07, 1.79) for length of reproductive window and OR=1.46(1.08, 1.96) for number of ovulatory cycles). The overall trend was statistically significant (Ptrend =0.0401 for length of reproductive window and Ptrend =0.0260 for number of ovulatory cycles). Conclusions: This population was distinctive in terms of age at menarche and measures of birth control. After adjusted for potential confounders, there was a significant association between increased length of reproductive window/number of lifetime ovulatory cycles and increased risk of lung cancer. This finding is supportive of the role of estrogen and other female hormones in the up-regulation of cell proliferation and tumor development in female never-smokers. References: [1] Zhao, J.K., et al., Jiangsu Four Cancers Study: a large case-control study of lung, liver, stomach, and esophageal cancers in Jiangsu Province, China. Eur J Cancer Prev, 2016.	2-amino-1-methyl-6-phenylimidazo[4,5-b]pyridine (PhIP) is present in human mammary adipose and induces epigenetic changes in adipocyte cell lines Hsu P-C, Guo J, Kar U, Rogers LJ, Turesky RJ, Kadlubar SA Meat consumption and obesity are two putative risk factors for breast cancer, but little is known about their interaction. In this study, we sought to determine if (a) meat-borne carcinogens, such as PhIP, can be detected in mammary adipose and (b) if exposure to PhIP can induce epigenetic changes. Methods: Mammary adipose was macrodissected from reduction mammoplasty tissue obtained from 6 non-cancer patients (3 African American, 3 European American). Adipose was digested and organic extracts were assayed for PhIP using triple quadrupole mass spectrometry. DNA methylation was determined using Illumina's MethylationEPIC BeadChip. Linear regression model swere used to identify differentially-methylated CpG sites (CpGs) between control and PhIP treatment. Biological functions of the differentially-methylated genes were assigned using the Ingenuity Pathway Analysis program. Results: Detectable levels of PhIP were found in all subjects. Levels were highly variable, ranging from 10 to approximately 300 pg/g tissue. No differences by race were evident. We then examined the effects of PhIP exposure on genome-wide DNA methylation in a human adipocyte cell line using physiologically-relevant concentrations. Among the top 8 differentially- methylated CpGs ($p < 1x10-5$), 6 were hypermethylated at higher doses and 2 were hypermethylated at lower doses. Among the top 88 differentially-methylated CpGs ($p < 1x10-4$), 41% of them were promoter-related while the others were in the gene body and intergenic regions. Those CpGs were enriched for cancer-associated genes with HIF1A, HMGB1, Akt, MAP3K10 and HSF4 as top upstream regulators. Network analysis also revealed differential methylation of 27 genes, including the cAMP signaling pathway. Conclusions: This study shows that dietary-derived meat mutagens such as PhIP can localize to mammary fat compartments. Within the adipocyte, PhIP mediates changes in DNA methylation in cancer-associated genes and signaling pathways. These data support the hypothesis that mammary fat can modify breast cancer risk associated with consumption of well-done cooked meat. Studies of these interactions are urgently needed to fully assess their implications.

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Risk of thyroid cancer among solid organ transplant recipients Kitahara CM, Yanik EL, Ladenson PW, Hernandez BY, Lynch CF, Pawlish KS, Engels EA Solid organ transplant recipients have an elevated risk of thyroid cancer. To understand this relationship, we evaluated a wide range of potential risk factors in a cohort of 229,300 U.S. solid organ transplant recipients linked with 15 state/regional cancer registries (1987-2012). Methods: Incidence rate ratios (IRRs) were adjusted for age, sex, race/ethnicity, year of transplant, and time since transplant. Analyses excluded the first six months after transplant to account for surveillance bias. Results: Following transplant, 292 thyroid cancers were diagnosed. Thyroid cancer incidence was 2.25-fold higher in transplant recipients than the general population (95% confidence interval [CI] 2.00-2.52). The incidence remained significantly elevated >10 years after transplant (standardized incidence ratio, SIR=2.48, 95%CI 1.77-3.39). Among recipients of different organs, kidney recipients had the highest incidence of thyroid cancer (IRR=1.29, 95%CI 1.03-1.61). Use of mycophenolate mofetil was associated with higher risk, particularly for regional/distant stage cancer (IRR=1.88, 95%CI 1.04-3.41). Elevated risks of overall and regional/distant stage thyroid cancer, respectively, were associated with cholestatic liver disease/cirrhosis among liver recipients (IRR=1.86, 95%CI 1.17-2.97) and longer prior dialysis among kidney recipients (5+ versus <1 year, IRR=3.60, 95%CI 1.70-7.62; P-trend<0.01). Conclusions: The elevated thyroid cancer risk among transplant recipients is multifactorial, with heightened surveillance explaining some, but not all, of the increase.	Racial/ethnic differences in the associations between exposures to maternal obesity, hyperglycemia and daughters' pubertal timing Kubo A; Laurent CA; Ferrara A; Kushi LH; Greenspan LC; Quesenberry CP; Deardorff J Purpose: To investigate whether in utero exposure to maternal obesity is associated with early onset of puberty their daughters, and how the associations differ by race/ethnicity. Early puberty is associated with increased future cancer risks, and the average age of pubertal onset among girls has declined dramatically over the past few decades, with substantial racial/ethnic differences. Methods: Retrospective cohort study including 13,077 diverse adolescent female members of Kaiser Permanente Northern California (KPNC) age 6-11 y. Pubertal onset was assessed using pediatrician-based pubertal maturation (Tanner) staging. Maternal height, and weight at AFP test were obtained from the electronic health record. Proportional hazards model with interval censoring, with the outcomes as age of transition from breast stage 1 to 2+ (BR2+) or pubic hair stage 1 to 2+ (PH2+). All models were adjusted for maternal age, education and girls pre- pubertal BMI, and stratified by race/ethnicity. Results: There were substantial racial/ethnic interactions in the associations between maternal obesity and timing of pubertal onset. Among African-American girls, having a mother who was obese (body mass index (BMI)>30 kg/m2) or overweight (BMI>25, <30) at the beginning of pregnancy was associated with substantially earlier breast development [adjusted hazard ratio (HR)=1.74, 95% confidence interval (CI) 1.27-2.40; HR=1.62 95%CI 1.15-2.29, respectively, vs. BMI<25]. The associations were weaker or not significant among whites, Latinas, and Asians. On the other hand, maternal obesity was significantly associated with earlier pubic hair onset only among Asians [HR=1.68 95%CI (1.27-2.21); HR=1.29 (1.08-1.55) for obese and overweight mothers vs. <25, respectively], while no similar association was found for other racial/ethnic groups. Conclusions: There are associations between maternal obesity and girls pubertal timing, independent of girls pre- pubertal obesity. There are also substantial effect modification by race/ethnicity, suggesting the importance of monitoring the obesity among pregnant women in high risk groups to prevent ever-accelerating pubertal maturation in girls, which may in turn result in reduction in cancer incidence and narrowing of cancer disparities.

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Are we harnessing the power of the group? A systematic review of group-based physical activity interventions in cancer survivors

Leach HJ, Mama SK, Harden SM

Group dynamics-based physical activity (PA) interventions target the group's environment, structure, and processes and enhance perceptions of group cohesion. For cancer survivors, this approach may be particularly effective for increasing PA, social interaction and quality of life. However, little is known about the degree to which group dynamics has been applied to improve PA behaviors among cancer survivors. Purpose: This review examined group-based exercise interventions targeting PA behavior change in cancer survivors, and described the implementation of group-dynamics based characteristics. Method: Following PRISMA guidelines, a systematic search was conducted in Medline for articles published from 2005 through December 31, 2015, following the release of the Institute of Medicine's exercise guidelines for cancer survivors. Included studies were in adult cancer survivors, used a controlled or uncontrolled (e.g., pre-post) experimental design, reported measures of PA pre- and post-intervention, and had a face-to-face group-based exercise component. Results: The initial search resulted in 2,285 publications. Fifty-eight full text articles were assessed for eligibility, and 18 unique interventions were included in final analyses. Study sample sizes ranged from 18-214 and included colorectal (N=2), prostate (N=3), breast (N=5), and mixed (N=8) cancer survivors. Intervention duration ranged from 6-52 weeks (M=12.6±5.1) and face-to-face exercise session contact ranged from 1.2-100 hours (M=33.1±29.4). Of the studies that included any group dynamics strategies (N=7, 39%), the number of strategies used ranged from 1 to 4 (M=2.0±1.2). Group-based studies that did not find improvements in PA behaviors (N=4, 20%) did not include any group dynamics-based strategies. Conclusions: While a large proportion of the interventions reported improvements in PA, none of the studies reported specific, intentional use of group dynamics-based strategies, measures of group cohesion, or mediation analysis of group cohesion as it relates to PA improvements. Taken together, group-dynamics based PA interventions may be an under-utilized strategy to increase physical activity, social support, and quality of life in cancer survivors.

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Effects of a Combined Aerobic and Resistance Exercise on Framingham Risk Score in Overweight/Obese Breast Cancer Survivors

Kyuwan Lee, Natalie Sami, Christina M. Dieli-Conwright

Breast cancer survivors (BCS) are at greater risk for cardiovascular disease (CVD) mortality, compared with age-matched women without a history of breast cancer, and in particular, overweight or obese BCS. Framingham risk score (FRS) is a gender- specific calculation, validated to predict 10-year risk of developing coronary heart disease, thus may be important to measure in at-risk populations such as BCS. Exercise improves risk factors of CVD such as hypertension and dyslipidemia in patients with CVD. However it is unclear as to whether exercise reduces the FRS in BCS. This study sought to examine the effects of a 16-week aerobic and resistance exercise intervention on FRS in overweight or obese BCS. Methods: Thirty overweight or obese (BMI>25kg/m2) sedentary BCS (stage I-III) who completed cancer treatment within 6 months prior to enrollment were randomized to the Control (CON; n=15) or the Exercise group (EX; n=15). The EX underwent supervised aerobic and resistance exercise sessions 3 times per week for 16 weeks. The CON was asked to maintain their current level of activity. FRS was calculated for each participant by assigning pre-set points for each of the five categories (age, systolic blood pressure; SBP, total cholesterol; TC, high-density lipoprotein cholesterol; HDL-C, and smoking status). Paired t-test and two-way repeated measures ANOVA were used to examine the effects of exercise on FRS. Results: Prior to the intervention, EX and CON did not differ by age (52.7 ± 7.9 yr), SBP (134.1 ± 6.8 mmHg), HDL-C (42.7 ± 5.7), TC (199.7 ± 3.0 mg/dL), and FRS (2.93 ± 1.41). Following the 16 week study period, FRS was significantly reduced (3.0 ± 0.4 to 1.1 ± 0.2), with improvements in SBP (133.0 ± 2.0 to 125.6 ± 1.2), HDL-C (43.7 ±1.6 to 59.8 ± 2.3), and TC (199.2 ± 9.5 to 160.8 ± 6.7) in EX compared to CON ($P<0.01$). There were no significant changes in TC, HDL-C, SBP, and FRS in CON ($P>0.05$). Conclusion: A 16-week supervised aerobic and resistance exercise intervention is an effective approach to reduce the 10-year risk of developing coronary heart disease by reducing cholesterol levels and SBP in overweight or obese BCS. Participation in combined exercise during cancer survivorship should be considered to reduce the risk for CVD mortality in BCS.

109-T	110-T
Abstract Withdrawn	Pro-inflammatory diet associated with increased risk of head and neck cancer Mazul AL, Shivappa N, Hébert JR, Steck SE, Rodriguez-Ormaza N, Weissler M, Olshan AF, Zevallos JP Diets high in fruits and vegetables and low in red meat intake have been associated with decreased risk of head and neck cancer. Additionally, chronic inflammation pathways and its association with cancer has been widely described. We hypothesize that a pro-inflammatory diet as measured by the Dietary Inflammatory Index (DII) is associated with increased risk of head and neck cancer. We used the Carolina Head and Neck Cancer (CHANCE) study, a population-based case control study of head and neck cancer. Cases (N = 1271) were recruited from a 40-county region in central North Carolina from January 2001 to December 2007. Age, race, and gender frequency matched controls (N = 1373) were identified through the North Carolina Department of Motor Vehicle records. The DII score adjusted for energy using the density approach (E-DII) was calculated from modified version of the National Cancer Institute's Diet History Questionnaire and split into 4 quartiles based on the control distribution. Odds ratios (OR) were estimated using unconditional logistic regression adjusted for smoking, education, income and alcohol use. Cases had higher E-DII score (i.e., a more pro-inflammatory diet) compared with controls (-0.14 versus -1.50; p-value <0.001). We saw a monotonic increase in risk of head and neck cancer for each increase in quartile of E-DII score. When compared with the lowest quartile, the OR for the highest quartile was 2.85 (95% confidence interval (CI): 2.12, 3.86), followed by 1.93 (95% CI: 1.45, 2.58) for the 3rd quartile and 1.33 (95% CI: 0.97, 1.81) for the 2nd quartile. There was no difference in the magnitude of the association by site of cancer. Additionally, there was no significant interaction between smoking and the E-DII score (p-value: 0.68). The results from this study further strengthen the association between pro-inflammatory diet and head and neck cancer and, with future studies, may contribute to preventive dietary recommendations.

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Pre-diagnostic physical activity and outcomes in patients with stage III colon cancer: A correlative analysis of phase III trial NCCTG N0147 (Alliance) Phipps AI, Shi Q, Chan E, Gill S, Goldberg RM, Hardikar S, Jahagirdar B, Limburg PJ, Newcomb PA, Sinicrope FA, Zemla TJ, Sargent DJ, Alberts SR Prior studies have supported an inverse association between physical activity and colon cancer risk, and have suggested the beneficial effects of physical activity may extend to cancer survival. In the context of a phase III randomized adjuvant trial for stage III colon cancer, we assessed the relationship of pre-diagnostic physical activity with subsequent cancer outcomes. Before treatment arm randomization (FOLFOX or FOLFOX+cetuximab), study participants completed a risk factor questionnaire through which information was collected on several patient attributes (N=1992), including items regarding usual daily activity level and frequency of participation in recreational physical activity. Using multivariate Cox models, we assessed associations of these aspects of physical activity with disease-free (DFS) and overall survival (OS). Overall, 75% of participants (N=1505) reported taking part in recreational physical activity at least several times a month. Participants reporting frequent physical activity were younger, more likely to be male or current alcohol consumers, less likely to be obese, and more likely to have a performance score of 0 (P<0.01). After multivariate adjustment, participants who reported taking part in recreational physical activity at least several times a month (vs. 0-1 time/month) experienced significantly more favorable DFS and OS (HR-DFS=0.82, P=0.04; HR-OS=0.76, P=0.007). Conversely, usual daily activity level was not associated with these cancer outcomes (P-DFS=0.80; P-OS=0.66). There was no evidence of significant effect modification in the association of physical activity with patient outcomes by age, sex, lifestyle factors, or tumor attributes (P-interaction>0.05) with the exception that the favorable association with OS appeared to be evident in patients with stage T3 but not T4 tumors (P- interaction=0.03). Favorable associations with physical activity were most pronounced among patients with KRAS- and BRAF-wildtype tumors, normal weight or obese patients (vs. overweight), and those assigned to FOLFOX alone (vs. FOLFOX+cetuximab). Overall, these results suggest that recreational physical activity prior to colon cancer diagnosis is favorably associated with subsequent survival outcomes, with some variability across patient groups.	Preliminary outcomes from a social network-based physical activity intervention for African American and Hispanic women Strong LL, Basen-Engquist K, Daniel CR, McNeill LH, Hoover DS, Christie, IC Physical activity (PA) is an important cancer preventive behavior, reducing the risk and recurrence of certain cancers through direct and indirect pathways. Racial/ethnic minority adults have lower rates of PA than non- Hispanic Whites, and women are less active than men. Intervening upon women's existing social networks may represent an important strategy for PA promotion. The purpose of this study is to describe preliminary findings from a pilot randomized trial of an intervention designed to build social support and behavioral skills for PA in dyads of women. African American (AA) and Hispanic women enrolled with a partner, and dyads were randomly assigned to intervention conditions. The 16-week intervention consisted of dyad-based telephone counseling, an activity monitor with social networking, and health education e-newsletters. Dyads assigned to the control condition received e-newsletters during the study and the activity monitor upon study completion. Participants were assessed in-person at baseline and 16 weeks. Participants included 62 AA (58%) and Hispanic (37%) women (n=31 dyads) aged 25-60 years (mean=44 years). At baseline, 79% of women were obese, and 76% were not meeting PA guidelines. Mixed effects models controlled for clustering within dyads and within participants over time. Models controlled for demographics, baseline body mass index, and partner relationship. All participants increased their self-reported moderate-to-vigorous PA (MVPA) over the 16-week study period (B=97.2, se=23.3, p<0.001), but intervention participants reported an average increase of 33 more minutes of MVPA than controls, although this difference was not statistically significant (B=32.6, se=47.1, p=0.49). The intervention was significantly associated with increased family and friend PA-related social support (B=0.44, se=0.20, p=0.03) and positive PA-related encouragement among dyad members (B=0.71, se=0.31, p=0.03), but not with self-efficacy (B=0.15, se=0.16, p=0.35). Analyses assessing intervention effects on objective PA are ongoing. Findings suggest that the intervention positively impacted the support given and received by dyad members. Explicitly engaging family or friends may be an important component for effective PA interventions in this population.

113-T	114-T
Feasibility of Playing Kinect and Wii Games among Breast Cancer Survivors in Support Group Setting Swartz MC; Deer RR; Lewis ZH; Martinez E; Silva HC; Hungate J; Lyons EJ Functional impairments are associated with decreased quality of life in aging breast cancer survivors. Few effective physical activity interventions have been disseminated to the community to combat functional declines. Active video games (AVGs) may be a solution for accelerating the translation process. AVGs contain evidence-based behavior change techniques and allow for low-cost activity intervention to promote activity and prevent functional decline. Thus, we aimed to evaluate the feasibility and acceptability of a 13-week AVG-based activity pre-pilot intervention among breast cancer survivors in a support group setting. Methods: Intervention group participants wore Wii Fit Meter pedometers daily and attended weekly group sessions which included play of AVGs using Wii U and Xbox 360 systems. Control group participants wore regular pedometers daily and attended existing monthly support group sessions. Both groups received step goals after randomization. Feasibility was measured by: group attendance, technological issues, adverse events, and number and type/difficulty of games played. Acceptability of the activity monitor, AVGs, and group setting was measured using a 5-point Likert scale (1=strongly disagree to 5=strongly agree). Results: Participants (n=20; intervention=10, control=10) were 54±12 years old, 70% White, mean BMI of 32±8.0 (kg/m2), 80% in Stage I and II, 48% in treatment, and time since diagnosis was 16±14 months. Intervention attendance rate was 77% (10/13 sessions) and control was 33% (1/3 sessions). One out of ten Fit Meters was damaged. No study-related adverse events were reported. Participants chose tai chi/yoga and/or a 5-minute dance game between weeks 1-5. Tai chi, yoga, leg/arm toning, and Zumba were chosen between weeks 6-13. Acceptability items for AVG-based intervention group were rated ≥4. Conclusions: The AVG-based activity intervention in a support group setting was feasible and acceptable to survivors on and off treatment. Attendance results suggest that incorporating AVGs into support group meetings may be a promising strategy for promoting group attendance and physical activity. Future studies are needed to compare AVG-enhanced support groups to standard support groups on a larger scale.	Gastroesophageal reflux disease and the risk of head and neck cancer: Pooled analysis from the International Head and Neck Cancer Epidemiology (INHANCE) Consortium. Voltzke KJ, Rodriguez Ormaza NP, Mazul AL, Taylor JM, Luce D, Stucker I, Serraino D, La Vecchia C, Olshan AF, Ahrens W, Merletti F, Lagiou P, Agudo A, Kjaerheim K, Zevallos JP Gastroesophageal reflux disease (GERD) is a chronic digestive disease where excess stomach acid flows back into the esophagus. GERD has previously been linked to Barrett's esophagus, esophageal cancer, and laryngopharyngeal reflux. A previous study has suggested that GERD is associated with an increased risk in laryngeal cancer, but this was based on a relatively small study. For the current study, pooled data from nine US and European case-control studies of head and neck cancers (HNC) within the International Head and Neck Cancer Epidemiology (INHANCE) were analyzed. This study comprised the largest study population on this topic to date with 8,013 cases and 12,434 controls. Logistic regression was used to estimate an adjusted odds ratios (OR) and 95% confidence interval (CI) for the effect of any history of GERD and any history of heartburn. Overall, ever history of heartburn was found to have an inverse association with HNC (OR=0.86, 95% CI=0.76- 0.98), whereas no association was found for GERD (OR=0.95, 95% CI=0.83- 1.10) after adjustment for age, race, sex, study center, education, BMI, alcohol intake, and duration of cigar, pipe and cigarette smoking. A history of GERD was found to be associated with an increased risk of laryngeal cancer (OR=1.26, 95% CI=1.02-1.57). However, a history of GERD was found to be associated with a decreased risk of oral cavity cancer (OR=0.74, 95% CI = 0.57- 0.97). A decreased risk of oral cavity cancer was also found for any history of heartburn (OR=0.78, 95% CI= 0.63- 0.96). The association between GERD and laryngeal cancer is biologically plausible due to proximity of the larynx to the esophageal inlet and the association with laryngopharyngeal reflux disease. The result for oral cavity cancer was unexpected and these findings warrant further examination with other measures of GERD and heartburn, as well as additional control for potential confounding.

115-T	116-T
Stroma modifies relationships between risk factor exposure and age-related epithelial involution in benign breast Chollet-Hinton L, Sandhu R, Puvanesarajah S, Kirk EL, Midkiff BR, Gierach GL, Sherman ME, and Troester MA Delayed age-related breast involution may be a biomarker of elevated breast cancer risk. However, most benign breast studies have evaluated a single tissue sample and variability across the breast is poorly understood. Furthermore, while stroma has an established regulatory role in the mammary gland, it is unclear whether stroma affects age-related involution. Methods: A measure of age-related involution (density of epithelial nuclei in epithelial areas) and stromal characteristics (percentage of section area comprised of stroma) were assessed by digital image analysis of approximately 1,800 hematoxylin and eosin stained sections of benign breast tissue from 416 participants in a cross-sectional study where risk factor data were collected via interview. At least two and up to sixteen slides per woman, from different regions of the breast, were evaluated. Results: Percentage stromal area showed substantial intraindividual heterogeneity (median difference between highest and lowest stromal area within a woman was 7.5%, but ranged from 0.01-86.7%). Percent stromal area modified associations between age and involution. Among women with at least 10% stromal area (N=317), epithelial nuclear density decreased with age (-637.1 cells/mm2 per decade of life after age 40, p<0.0001), increased with mammographic density (457.8 cells/mm2 per increasing density category p=0.002), and increased non-significantly with recent parity, later age at first pregnancy, and longer and more recent oral contraceptive use. All associations were attenuated in samples with <10% stroma (N=99). 30.6% of women evaluated had both adequate (≥10%) and poor (<10%) stromal regions of breast tissue, with the probability of having both types increasing with the number of samplings of breast tissue. Conclusion: Breast cancer risk factors are associated with delayed age-related involution, but stromal characteristics may modify relationships between risk factor exposures and breast epithelial morphometry.	Lifetime ambient UVR is a risk factor for cutaneous melanoma in Iowa Langston ME, Lynch CF, Brown HE, Roe JR, Dennis LK Intermittent sun exposure is the major environmental risk factor for cutaneous melanoma (CM). Cumulative sun exposure has not shown a consistent association with CM, and some of the observed inconsistency may be due to bias resulting from exposure assessment. Here we explored the association between cumulative sun exposure and CM using ambient ultraviolet radiation (UVR), a measure thought to be less prone to misclassification and recall bias. Methods: In a population-based, case-control study, we identified 1096 incident CM cases and 1033 controls and collected information on individual residential histories, sun sensitivity characteristics, sun exposure, and sun seeking behavior, using a computer assisted telephone interview. Self-reported residential histories were linked to satellite-derived ambient UVR to estimate sun exposure during various time periods: childhood, adolescence, adulthood, recent (within 5 years), and lifetime. The association between ambient UVR and CM was estimated using logistic regression. Results: CM was not associated with ambient UVR during childhood and adolescence, but was positively associated during adulthood. Lifetime ambient UVR was positively associated with CM in men (OR for highest vs. lowest quartile = 6.09, 95% Confidence Interval (CI) 2.21-16.8), but a similar strong association was not seen among women (OR for highest vs. lowest quartile = 2.15, 95% CI 0.84-5.54). Conclusion: Our findings suggest that lifetime and adulthood ambient sun exposure may be important risk factors for CM. They represent objective measures of potential UVR exposure obtained by residential histories.

117-T	118-T
Prior estrogen-only hormone replacement therapy is associated with levels of CD8+ tumor-infiltrating lymphocytes in high-grade serous ovarian cancer Natanzon Y., Ramus S., Kobel M., Hogdall E., Sieh W., Chang-Claud J., Moysich K., Fasching P., Menon U., Pharoah P., Karlan B., Bowtell D., Chenevix-Trench G., Winham S., Goode E. High levels in tumor-infiltrating lymphocytes (TILs), specifically CD8+ cytotoxic T cells, are associated with improved overall survival in high-grade serous ovarian cancer (HGSOC). Further exposure to estrogen in the form of hormone replacement therapy (HRT) has been associated with increased risk of ovarian cancer. The purpose of this study was to examine the relationship between hormone-related epidemiological risk factors and protein expression CD8+ TIL levels in HGSOC. Immunohistochemistry was performed tissue micro array block including multiple tumor cores per patients and a maximum score was included in the analysis. The CD8+ immune phenotype score ranged from 0=no TILs, 1=1-2 TILs, 2=3-19 TILs, and 3=20 or more TILs. HGSOC cases with information of CD8+ protein expression data were identified from 10 studies in the ovarian tumor tissue analysis consortium (OTTA). Epidemiological risk factors were collected independently by the study site and included BMI at age 18 (N=270), parity (0 full births; ≥0 full births) (N=578), breastfeeding (yes/no) (N=356), oral contraceptive (OC) use (≤2years; ≥2 years) (N=739), estrogen only HRT (N=306), estrogen and progesterone HRT (N=306), endometriosis diagnosis (yes/no) (N=357), and tubal ligation (yes/no) (N=243). The average age of women at diagnosis was 60 (49.0, 71.8). Epidemiological risk factor associations were evaluated with ordinal logistic regression in a case only analysis, each model adjusted for age and study site. Out of the eight risk factors assessed, only estrogen HRT was associated with the CD8+ immune phenotype score at a 0.05 significance level (p-value < 0.001). No exposure to estrogen only HRT increased the odds of a higher CD8+ immune phenotype score by 3.5 (2.4, 5.2). These results suggest that exposure to estrogen HRT negatively impacts immune system's cancer fighting capacity.	Smoking Cessation Interventions Among Cancer Survivors: Results of a Meta-Analysis Avishai A, Symes Y, Jones K, Abraham C, Ribisl KM, Mayer DK, Miles E, Sheeran P Smoking cessation is associated with reduced rates of mortality and morbidity and improved quality of life among cancer survivors. The present research quantified the effectiveness of smoking cessation interventions among this group (PROSPERO registration #CRD42016023412). Studies that were included in this review met the following criteria: (a) a randomized controlled trial design, (b) tested a smoking cessation intervention, (c) participants were cancer survivors, (d) a measure of smoking cessation was obtained in the wake of the intervention, and (e) the report was in English. Computerized literature searches (CINAHL, Cochrane Collaboration, EMBASE, MEDLINE, ProQuest, PsychInfo, PubMed, Web of Science) and informal sources identified 8,620 records. After de-duplication, we screened 6,119 titles and abstracts and assessed 134 full-text articles for eligibility. Eighteen interventions met the inclusion criteria. Random effects meta-analysis conducted via STATA (Version 14.2) showed that the interventions were not effective in promoting smoking cessation (d+ = 0.03, 95% CI = -0.06 to 0.11). Effect sizes were homogenous ($\chi 2[17] = 23.11$, $p = .15$; $I2 = 26.4\%$). The sample-weighted average quit rate in the treatment conditions was 17.3%, compared to 16.7% in control conditions. Moderator analyses focused on features of the intervention (e.g., mode of delivery), methodology (e.g., study quality), and participants (e.g., type of cancer). We also developed a novel taxonomy of 35 behavior change techniques that were used in smoking cessation interventions with cancer survivors. The techniques used in each intervention were coded and associations with study effect sizes were computed to determine which behavior change techniques predict greater effectiveness. These findings indicate that interventions tested to date do not promote smoking cessation among cancer survivors. The findings, however, point to specific behavior change techniques that hold promise if deployed in future interventions with this high-risk group.

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Metabolic and body composition changes and survival of pancreatic cancer patients Babic A, Rosenthal MH, Clish CB, Takahashi N, Lopez N, Yuan C, Morales-Oyarvide V, Welch M, Brais L, Zellers C, Khalaf N, Danai LV, Mayers JR, Vander Heiden MG, Fuchs CS, Kulke MH, Fernandez C, Bardeesy N, Koong AC, Yeh JJ, Petersen GM, Wolpin BM Cachexia, or body wasting, is a hallmark of pancreatic cancer, and is thought to contribute to reduced quality of life and decreased patient survival. We have previously identified that branched-chain amino acids (BCAAs) isoleucine, leucine and valine are elevated in the plasma of pancreatic cancer patients 2-8 years prior to diagnosis. These early metabolic changes are likely reflecting the breakdown of peripheral tissues, which is at the root of cachexia. The aim of this study was to evaluate the association of BCAAs and cachexia on patient survival using precise quantitative measurements of muscle and fat body compartments. Using CT imaging, we measured paraspinal muscle area, muscle attenuation, subcutaneous fat area and visceral fat area in 741 treatment naive patients with pancreatic cancer at six U.S. based clinical centers. In these same patients, we measured pre-treatment plasma levels of BCAAs by liquid chromatography-mass spectroscopy. The hazard ratios (HRs) and 95% confidence intervals (CI) for death by body components and BCAAs were calculated using Cox proportional hazards models, adjusting for age, gender, race, year of diagnosis, tumor stage, and clinical site. We found no association of muscle area, muscle attenuation, subcutaneous fat or visceral fat area, with survival. Compared to patients in the bottom quintiles, HRs were 1.00 (95% CI: 0.66-1.51) for those in the top quintile of muscle area, 1.18 (0.83-1.69) for visceral fat area, 1.07 (0.75-1.52) for the subcutaneous fat area, and 0.86 (0.65-1.14) for muscle attenuation. There was a statistically significant inverse association between plasma BCAAs and patient survival. Compared to patients in the bottom quartile, patients in the top quartile of valine had 31% lower hazard of death (HR=0.69, 95% CI: 0.54-0.87), while those in the top quartile of total BCAAs had 20% (HR=0.80, 95% CI: 0.63-1.00) decreased hazard of death. The results of this large prospective study of pancreatic cancer patients do not support a negative association between decreased muscle and fat area at diagnosis and patient survival. Higher levels of circulating BCAAs at diagnosis are associated with improved patient survival.	Adiposity at diagnosis and survival among African-American and non-Hispanic white women with invasive breast cancer in WHI Barrington WE, White E, Thompson B, Caan BJ, Chlebowski RT, Paskett ED, Reding KW, Kroenke CH, Zaslavsky O, Luo J, Hou L, Anderson GL Purpose: To test for differences in the role of adiposity and survival outcomes after invasive breast cancer diagnosis by race as well as by estrogen receptor (ER) status among African-American (AA) and non-Hispanic white (NHW) postmenopausal women in the Women's Health Initiative (WHI). Methods: We examined associations between surrogate measures of adiposity (i.e. WC, waist circumference; WHR, waist-to-hip ratio; BMI, body mass index) at diagnosis and survival among 559 AA and 7,482 NHW women with invasive breast cancer using Cox proportional hazard models to estimate hazard ratios (HRs) and 95% confidence intervals (CIs). Models were adjusted for demographics, smoking status, and medical history at baseline as well as cohort membership, tumor characteristics, and type of treatment. Effect modification was assessed via inclusion of a multiplicative term in models. Results: WHR, a measure of central adiposity, was more strongly associated with risk of death from all causes and causes other than breast cancer. Of non-breast cancer deaths, 28.7% were attributable to cardiovascular disease. In fully-adjusted models, women in the highest quartile of WHR were 36% more likely to die from any cause (HR=1.36; 95% CI: 1.19, 1.55; Ptrend<0.0001) compared to women in the lowest quartile. While WHR was also associated with risk of death from breast cancer in minimally-adjusted models, associations were attenuated and not significant when controlled for tumor characteristics and type of treatment. Results for WC were similar. When evaluating BMI, a cruder measure of adiposity, women with a BMI > 30 kg/m2 were 26% more likely to die from any cause (HR=1.26; 95% CI: 1.12, 1.41; Ptrend<0.0001) compared to normal weight women. BMI was not associated with risk of death from breast cancer. Findings did not differ between AA and NHW women or by ER status. Conclusions: Measures of central adiposity were stronger predictors of death from all causes, especially from causes other than breast cancer, post-diagnosis compared to BMI. Taken together, these findings support the need to emphasize obesity prevention as part of overall survivorship care for women with an invasive breast cancer diagnosis.

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Longitudinal Emotional Functioning of Colorectal Cancer Patients Bloomer AM, DeRenzis AC, Jim HS, Schmit SL, Shibata D, Siegel EM While several studies have examined overall quality of life (QOL) among colorectal cancer (CRC) patients, very few have focused specifically on emotional functioning. The objective of this study was to examine the emotional functioning of CRC patients in the two years after diagnosis. Methods This study included CRC patients enrolled in a longitudinal prospective cohort study. Patients completed the European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 questionnaire at baseline (72.6±79 days from diagnosis) and ~3, 6, 12 and 24 months post-enrollment. The EORTC QLQ- C30 emotional functioning scale (EFS range: 0-100) consists of 4 questions (feeling tense, worried, irritable, and depressed) with a higher score indicating better functioning. Data were analyzed using linear regression of EFS score by time point followed by an examination of factors potentially associated with the EFS score using analysis of variance and linear regression. Results This study included 519 CRC patients (84% Stage 0-III and 11.6% Stage IV) with a mean age at diagnosis of 63.5 years (±12.27), of which a majority were male (57.4%). The mean EFS score was lower at baseline for all patients (75±23) and increased to a relatively stable level from 3–24 months (79±20 at 3 mo and 79±22 at 24 mo). Younger patients had significantly lower EFS than older patients at all time points in univariate models (baseline, 3-, 6-mo follow up $p<0.0001$; 12-mo $p=0.004$; & 24-mo $p=0.038$). In multivariable linear regression modeling, age remained significantly associated with EFS at all but the 24-mo time-points while controlling for disease site (colon vs. rectal) and treatment (chemoradiation vs. surgery only/none). In stratified analysis, rectal cancer patients had lower EFS compared to colon cancer patients at baseline (70±24 vs. 78±21, $p<0.01$), and rectal cancer patients' EFS did not differ by age at any time-point. Conclusion An important aspect of a cancer patient's QOL during treatment and survivorship is emotional functioning. These results suggest that shorter time since diagnosis, younger age, and rectal cancer diagnosis are risk factors for worse emotional functioning. Additional research is needed to improve CRC patients' emotional functioning during survivorship.	Using Global Metabolomics to Identify Novel Biomarkers of Treatment-Associated Cognitive Impairment in Pediatric Acute Lymphoblastic Leukemia Brown AL, Rodgers CC, Taylor OA, Moore IM, Hooke MC, Pan W, Hockenberry MJ, Scheurer ME, Lupo PJ Central nervous system-directed chemotherapy is a critical component of pediatric acute lymphoblastic leukemia (ALL) treatment, but is associated with long-term cognitive impairment. Because few strategies exist to identify children who are at risk for this adverse outcome, we employed global metabolomics to identify biomarkers of cognitive impairment using routinely collected, biologically relevant cerebrospinal fluid (CSF) samples from patients undergoing ALL chemotherapy. Methods: CSF samples were collected at 4 months post-induction on pediatric ALL patients enrolled in a multicenter prospective study of symptom toxicity. Metabolomics of CSF detected 314 metabolites by gas chromatography-mass spectrometry (MS) and liquid chromatography-MS/MS. Cognitive performance at 12 months post-induction was assessed with the validated Parent-Perceived Child Cognitive Function scale and categorized using published cut-points: mild (≥50), moderate (41-49), and severe (≤40). Ordinal logistic regression evaluated associations between normalized median-scaled metabolite values and cognitive function, adjusting for patient and treatment factors. A false discovery rate-corrected p-value (q) was calculated to account for multiple comparisons. Results: Among the 96 patients (diagnosed 2012-14), 43% exhibited moderate (n=25) or severe (n=16) cognitive impairment. Significant alterations were observed in several biomarkers, including methionine sulfoxide (Log2 Fold Change [FC]=0.83, p=5.2e-7, q=0.001) and citramalate (FC=-0.29, p=4.6e-5, q=0.008). A pathway analysis of the top biomarkers ($q<0.3$) revealed an enrichment of metabolites involved in methionine ($p=0.0015$) and carnitine ($p=0.0052$) metabolism. Finally, compared to clinical factors alone, CSF biomarkers significantly improved the ability to predict cognitively impaired patients (area under curve [AUC]=0.68 vs. AUC=0.91, $p<0.001$). Conclusion: We identified several novel CSF biomarkers of treatment-related cognitive impairment among pediatric ALL patients. These findings may translate to clinical improvements in the management of cognitive outcomes by introducing the opportunity to deliver targeted interventions to high-risk patients prior to detectable or irreversible cognitive impairment.

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Collateral Damage from Metastatic Breast Cancer: Preliminary Results Love SM, Bernstein L, Obidegwu A, Ottenbacher A, Fischetti C, Eshraghi LD, Clague J When faced with metastatic breast cancer (MBC), managing and minimizing the collateral damage resulting from sequential and often continuous treatments is critical to improving quality of life (QoL). Our aim is to understand the unique experience of MBC and to identify potential areas of critical need in this underserved population. METHODS: The Health of Women (HOW) Study™ is an online study for women and men, with and without a history of breast cancer, aimed at identifying causes of breast cancer. The HOW Study periodically releases new questionnaires and is currently comprised of ten, collecting information on personal and family health history, lifestyle, environmental exposures, breast cancer diagnosis and treatment, and QoL. RESULTS: Of the 11,508 participants who completed the QoL questionnaire, 3,965 reported a diagnosis of breast cancer (205 with MBC). Overall, participants with MBC reported a lower QoL (20% excellent, 10% poor) than non-MBC (41% excellent, 3% poor) and NoHx participants (44% excellent, 2% poor; $p<0.05$). MBC and non-MBC participants did not differ on hot flashes, vaginal problems or fertility concerns. However, MBC participants were more likely than non-MBC participants to report: 1) Symptoms —digestive, mouth and nose, hair and skin, eye, pain, fatigue and night sweats — significantly affecting their lives; 2) Problems with concentration, mood swings, anxiety, depression, memory, and sleeping; 3) Attributing each symptom and/or problem to their breast cancer treatment; 4) Problems performing daily activities; 5) Better communication with their clinical team; 6) Severe financial and career concerns; and 7) Severe social concerns including feeling dependent, isolated, and being treated differently (all p-values<0.05). CONCLUSIONS: Participants with MBC had a considerably diminished QoL compared to non-MBC and NoHx participants. We identified key areas of concern and learned there are multiple areas of collateral damage not standard in research assessment. Our next step is to validate the current questions with a larger sample size and use these data to develop a formal, qualitative questionnaire. The combined data will guide us in developing recommendations for improving the QoL for people with MBC.	Smoking Bans in Cancer Patients Enrolling for Quitline Cessation Services: Results from the Arizona Smokers' Helpline (ASHLine). Crane TE, OConnor PA, Yuan NP, Vidrine JI, Garland LL, Thomson CA. To compare among clients who report a history of cancer versus clients without a history of cancer the impact of smoking bans on tobacco cessation outcomes. Background: Tobacco remains the leading cause of preventable cancer mortality. Previously we found that cancer patients who enroll for tobacco cessation services during cancer treatment have the highest odds of quitting as compared to cancer patients beyond treatment or clients without a history of cancer. One hypothesis to explain this differential response is that clients who are receiving treatment may experience treatment center smoking bans thereby increasing their chances of successful quit. Smoking bans are associated with increased quit attempts and longer duration of quit. Methods: A matched, case-control analysis was performed for clients enrolling in ASHLine between Jan 2011 and March 2016. The primary outcome was 7 mo quit rate; the primary exposure was self-reported smoking ban at the time of service enrollment. Clients were matched on age, gender, race/ethnicity, nicotine dependence, insurance status, number of coaching calls, medication usage and total number of chronic diseases and stratified by cancer status; no history of cancer (n = 559) and history of cancer (n = 559). Chi-square and Fisher's exact test were used to compare groups. Results: Clients in cancer treatment and with a history of cancer reported higher prevalence of smoking bans at the time of service enrollment as compared to clients without a history of cancer, ($p = 0.81$). Quit-rates at 7 mo follow-up did not differ among clients who had experienced cancer vs comparison clients without cancer when matched for treatment exposure and stratified by smoking ban status at baseline. Overall quit rates were highest for clients who reported smoking bans at the time follow-up, regardless of a cancer diagnosis and independent of a reported smoking ban at enrollment. Conclusions: These data suggest that smoking bans imposed during the quit (and not necessarily imposed at enrollment), regardless of prior cancer diagnosis, may support high 7 mo quit success. The results also suggest that other factors are contributing to the overall higher quit rates for clients with a history of cancer versus those without a history of cancer.

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Prediagnostic Circulating Vitamin D and Risk of Death After Colorectal Cancer Diagnosis: The Circulating Biomarkers of Breast and Colorectal Cancer Consortium (BBC3) Fedirko V, McCullough ML, Weinstein SJ, Zoltick ES, Ziegler RG, and Smith-Warner SA. The role of vitamin D in improving survival after colorectal cancer (CRC) diagnosis is of interest, yet data from prospective cohorts are limited. We investigated the association between prediagnostic circulating 25-hydroxyvitamin D [25(OH)D], the accepted measure of vitamin D status, and CRC-specific and overall mortality among CRC survivors based upon an existing, NCI-supported, large international collaboration, the Circulating Biomarkers of Breast and Colorectal Cancer Consortium (BBC3). Methods: Participant level data from 16 prospective cohorts, including 5,345 CRC and 2,918 subsequent deaths, were harmonized. 25(OH)D was newly measured through the consortium or, if previously measured, calibrated to the same assay. Season-standardized 25(OH)D was modeled as consortium-wide, sex-specific quintiles and categories based on Institute of Medicine (IOM) recommendations for bone health. Hazard ratios (HRs) for all-cause and CRC-specific mortality were calculated using Cox proportional hazards regression, stratified by study and adjusting for age at diagnosis, tumor stage, tumor site, year of diagnosis, and pre-diagnostic BMI, physical activity, and smoking status. Results: Median (interdecile range) 25(OH)D among CRC cases was 52 (28-83) nmol/L. Compared to the third 25(OH)D quintile (men: 48-59 nmol/L, women: 44-54 nmol/L), both male and female cases in the lowest quintile (men: <37 nmol/L, women: <33 nmol/L) had a higher overall mortality (men: HR=1.22, 95% confidence interval (CI), 1.03-1.45; women: HR=1.20, 95% CI, 0.99-1.44). Elevated risk was also observed for CRC-specific death, but significant only in men (Q1 vs. Q3: men: HR=1.28, 95% CI, 1.03-1.60; women: HR=1.08, 95% CI, 0.86-1.35). Higher 25(OH)D (men: >73 nmol/L, women: >66 nmol/L) was not associated with overall or CRC-specific mortality (Q5 vs. Q3: all-cause mortality, men: HR=1.02, 95% CI, 0.86-1.20; women: HR=0.96, 95% CI, 0.79-1.15; CRC-specific mortality, men: HR=1.07, 95% CI, 0.86-1.34; women: HR=0.84, 95% CI, 0.67-1.06). Conclusions: Our preliminary analyses suggested that low prediagnostic 25(OH)D levels may be associated with a higher risk of all-cause mortality in both sexes and CRC-specific mortality in men diagnosed with CRC.	Trajectories of Quality of Life Following Breast Cancer Diagnosis Goyal NG, Levine B, Avis NE Quality of life (QOL) improves over time for most breast cancer survivors (BCS). However, BCS may show different improvement patterns, and some may not improve at all. This longitudinal study sought to identify distinct QOL trajectories among BCS up to 24 months post-diagnosis and to examine characteristics associated with tr trajectory group membership. Methods: Women (N = 653; M age = 54.9 years; 90% Caucasian) completed baseline assessments within 8 months of breast cancer diagnosis. QOL was assessed with the Functional Assessment of Cancer Therapy-Breast Scale (FACT-B; possible range, 0– –140) at baseline and 6, 12, and 18 months later. Finite mixture modeling was used to determine QOL trajectories. Chi-square tests and ANOVAS examined group differences in in baseline demographic, medical, and psychosocial variables. Results: Six trajectory groups were identified. Group 1 consisted of 35% of women who had high FACT-B scores at baseline (M = 121) that slightly improved over time. Group 2 (25%) had good scores (M = 107) at baseline that remained stable. Two groups began with lower FACT-B scores (M ≈ 88), but group 3 (9%) improved, while group 4 (17%) did not. Two groups had poor baseline FACT not. Two groups had poor baseline FACT-B scores (M ≈ 66), with group 5 (8%) im improving and group 6 (6%) not improving. For the two improving groups, improvement se seemed to correspond with the end of chemotherapy. Overall, groups significantly di differed by age, race, ability to pay for basics, receipt of chemotherapy, surgery type, ha having children <18 years old, cancer stage, illness intrusiveness, depressive symptoms, pa passive coping, optimism, social support, spirituality, pain, and fatigue. Planned co comparisons between groups similar at baseline but with different trajectories over time (3 (3 vs. 4; 5 vs. 6) showed that those who improved had greater optimism and less passive co coping. In addition, group 3 (improving) was more likely to receive chemotherapy and ha have children <18 years at home, but had more social support compared to group 4. Conclusions: The majority of BCS have good QOL that remains up to 2 years post-diagnosis. Among women with poor to fair QOL post diagnosis. Among women with poor to fair QOL post-diagnosis, those with less optimism, m more passive coping skills, and less social support would be the most likely to benefit f from intervention.

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Telomere length genetic risk score is not associated with breast cancer survival Grieshober L, Wactawski-Wende J, Blair RH, Mu L, Preus L, Nie J, Han J, Meliker JR, Rohan T, Ochs-Balcom HM Telomeres are essential for genomic integrity, and telomeric dysfunction is linked to the initiation and progression of cancers. There have been few studies of telomere length (TL) and breast cancer survival, especially those that quantify TL in healthy women prior to cancer diagnosis. An alternative approach is to assess germline variation that is predictive of telomere length. The meta-GWAS discovery of seven single nucleotide polymorphisms (SNPs) associated with TL enables the use of an aggregated genetic risk score (GRS) for TL. We hypothesized that a higher GRS (representing shorter TL) is associated with reduced survival time among breast cancer patients. Methods: In a race/ethnically diverse sample of invasive breast cancer cases (N=1,108) from the Women's Health Initiative, we derived an unweighted TL GRS using seven previously identified TL-associated SNPs. Women were postmenopausal and average age at enrollment was 63.8 years. The mean follow-up time was 6.7 years and 303 (27.4%) deaths had occurred, 143 (12.9%) from breast cancer. We tested TL GRS associations with overall survival and breast cancer-specific survival using Cox proportional hazards models adjusted for age and race/ethnicity (in the entire sample) and age in strata of European American (EA; N=506), African American (AA; N=446), and Hispanic American (HA; N=146) cases. We considered stage, tumor characteristics, histology, hormone receptor status (estrogen, progesterone, and her2/neu), age at diagnosis, alcohol, BMI, history of mammogram, hormone therapy, physical activity, smoking, and US region as potential confounders. Results: We did not observe an association between the TL GRS and overall (HR=0.99, 95% CI: 0.92-1.06) or breast cancer-specific survival (HR=1.01, 95% CI: 0.91-1.12) among breast cancer cases. No associations were observed in race/ethnicity stratified analyses. Adjustment for other non-genetic breast cancer survival factors and potential confounders did not influence the hazards. Conclusions: Despite bypassing many sources of heterogeneity incurred in traditional TL studies, our results suggest that genetically-determined TL (defined by a TL GRS) is not associated with overall survival or breast cancer-specific survival.	A Prospective Analysis of Body Mass Index (BMI), Weight Change and Survival of Multiple Myeloma in the Nurses' Health Study (NHS) and Health Professionals Follow-up Study (HPFS) Harada S, Townsend MK, Rosner BA, Ghobrial IM, Colditz GA, Birmann BM Obesity is positively associated with multiple myeloma (MM) risk, whereas two studies have reported longer survival of patients with a higher body mass index (BMI) at MM diagnosis, and one also noted poorer survival with acute pre-diagnosis weight loss. We conducted this study in the Nurses' Health Study (NHS) and Health Professionals Follow-up Study (HPFS) cohorts to evaluate survival in MM patients in relation to pre- diagnosis obesity and weight change. Methods: Each cohort assessed current weight and medical diagnoses on biennial questionnaires. Through 2012 or 2013 we confirmed MM diagnoses in 296 NHS women and 180 HPFS men (respectively) who had no history of other cancers. We calculated survival time from MM diagnosis through the date of death, August 2013 (NHS) or June 2015 (HPFS). In the combined MM patients we used multivariable Cox proportional hazards models to calculate hazard ratios (HR) and 95% confidence intervals (CI) for MM-specific or all-cause mortality by category of pre-diagnosis BMI or weight change. Results: We ascertained 327 MM-specific and 383 total deaths in 2286.8 years of follow- up. Weight change from the second closest to closest pre-diagnosis questionnaire was inversely associated with MM-specific mortality (p-trend=0.01). Patients with ≥1kg gain had 20% lower mortality (HR, 95% CI: 0.8, 0.6-1.1) whereas those who lost ≥1 kg had 30% increased mortality from MM (HR, 95% CI: 1.3, 1.0-1.6) compared to patients with stable weight during this period. The difference in median survival between patients gaining ≥5kg versus those losing ≥5kg was ~3 years. We observed similar MM-specific mortality results for ≥1 kg gain (HR, 95% CI: 0.8, 0.6-1.1) but null results for ≥1 kg loss between the third closest and closest pre-diagnosis follow-up cycles (p-trend=0.11). Neither current nor maximum pre-diagnosis BMI was associated with MM-specific mortality. All-cause mortality findings resembled those for MM mortality. Conclusions: The modest inverse findings for pre-diagnosis weight change and null findings for BMI suggest that previous reports of better survival in MM patients with higher BMI at diagnosis reflect reverse causation related in part to differing influences of less versus more aggressive MM progression on pre-diagnosis weight.

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Physical activity in relation to overall and colorectal cancer specific survival in the Colon Cancer Family Registry Hardikar S, Hua X, Phipps AI, Campbell PT, Lindor NM, Figueiredo JC, Buchanan DD, Cotterchio M, Win AK, Ahnen D, Potter JD, Newcomb PA. Although previous studies have consistently suggested that physical activity is associated with a reduced risk of colorectal cancer (CRC), the association with CRC survival is less clear. We evaluated the association of pre-diagnostic physical activity with overall and CRC-specific survival among 20-74 year-old primary invasive non-metastatic CRC cases enrolled through population-based cancer registries in the Colon Cancer Family Registry from 1998-2007. Cases completed a detailed risk-factor questionnaire, including decade-specific recreational physical activity. Tumor markers, including BRAF- and KRAS-mutation status and microsatellite instability (MSI) were also evaluated. Physical activity was summarized as average weekly metabolic equivalent-task hours (MET-h/week).Follow-up for mortality was completed via linkage to vital records. Adjusted hazard ratios (HR) and 95% confidence limits (95%CI) were estimated using Cox regression. Primary analyses included 2568 CRC cases who self- reported their physical activity, of whom 861 died [425 (49.4%) deaths attributable to CRC; median follow-up 10.2 years]. After adjusting for age at diagnosis, sex, body mass index, smoking status, and education, those who engaged in physical activity prior to CRC diagnosis had a better overall survival than those who were inactive or minimally active (HR(95% CI)= 0.74(0.59,0.92), 0.73(0.59,0.91), 0.80(0.64,0.99), and 0.80(0.64,1.00) for 3.5-, 8.75-, 17.5-, ≥35 MET-h/wk of activity vs. <3.5 MET-h/wk, respectively). Results for CRC-specific survival were similar and suggested improved survival among physically active cases, although the trend did not reach statistical significance (Ptrend= 0.12). Adjustment for tumor markers, including BRAF, KRAS and MSI, did not alter the results. Stratified analyses indicated that results did not differ between tumor sub-sites (colon vs. rectum) or by tumor marker status. Our results suggest that individuals who are physically active prior to CRC diagnosis experience more favorable overall and CRC-specific survival, compared to inactive or minimally active individuals. This beneficial effect of physical activity is not specific to any particular molecular phenotype of CRC, and is, in fact, consistent across strata defined by tumor characteristics.	Aderence to the WCRF/AICR Cancer Prevention Recommendations among White and African-American Cancer Survivors Hastert TA, Reed AR, Baird T, Schwartz AG, Beebe-Dimmer JL The World Cancer Research Fund (WCRF) and American Institute for Cancer Research (AICR) cancer prevention recommendations related to body weight, diet, physical activity, and alcohol consumption have been linked with lower incidence and mortality of several cancers. Cancer survivors are also encouraged to follow these recommendations, but adherence and disparities in adherence have not been explored in a survivorship population. The objective of this study is to estimate overall adherence to the WCRF/AICR cancer prevention recommendations and to examine whether exist between white and African-American cancer survivors using data from the Cancer Survivorship in Metropolitan Detroit (CSMD) cohort study. Data from CSMD include responses from 682 (275 white, 407 black) adults (ages 27-79) diagnosed with a first primary breast, colorectal, lung, or prostate cancer since January 1, 2013 and diagnosed or treated at the Karmanos Cancer Center. Health behavior questions include items designed to estimate adherence to the WCRF/AICR diet recommendations in the previous month plus self-reported height and weight. Logistic regressions controlled for age, sex, income, and education. Overall, both white and African-American survivors met an average of 2 recommendations. Adherence was highest for the recommendation related to alcohol, and a higher proportion of African-American (82.6%) than white survivors (77.1%) met this recommendation (p=0.073). Approximately 40% of both white and African-American survivors met the recommendation related to red and processed meat, and approximately 20% met the recommendations related to body weight, energy density, and fruits and vegetable consumption. The greatest difference in adherence was for the recommendation related to physical activity with 22.3% of white survivors meeting the recommendation compared with 13% of African-American survivors (p<0.001); however, this association was no longer significant in adjusted models. Overall, adherence to the WCRF/AICR cancer prevention recommendations was low and largely similar among white and African-American survivors in Detroit. Interventions to improve these behaviors could improve outcomes for both white and African-American cancer survivors.

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Are breast cancer diagnostic and treatment outcomes associated with characteristics of the facility where the problem was initially presented to the health care system? Implications for racial/ethnic disparities in breast cancer outcomes. Hughes AH, Silva A, Murphy AM, Rauscher GH We previously found that breast cancer patients presenting at highly accredited/higher-resource facilities appeared to receive higher quality screening and experienced shorter diagnostic delays. The purpose of the present analysis is to examine whether characteristics of these same presentation facilities have more downstream associations with the types of diagnostic work-up received and with aspects of treatment. Methods: For 848 newly diagnosed (2005-2008) patients we measured facility disproportionate share hospital (DSH) status, certification as a Breast Imaging Center of Excellence (BICOE), membership in the National Consortium of Breast Centers (NCBC), and the National Accreditation Program for Breast Centers (NAPBC). We examined associations with indicators of higher quality diagnosis and treatment, including receipt of a core needle biopsy, receipt of a sentinel node biopsy, clear surgical margins, and timely treatment initiation (<60 days from presentation). Prevalence differences were adjusted for age, stage at diagnosis, socioeconomic status, race/ethnicity, insurance, and family history. Results: NL Black and Latina patients were more likely than nL Whites to present at a DSH facility (38% and 48% vs 12%; p<0.001) and less likely to present at a BICOE (45% and 49% vs. 79%, p<0.001) or NAPBC facility (22% and 10% vs. 53%, p<0.001). BICOE Presentation was positively associated with timely treatment initiation (p=0.002) and core needle biopsy (p<0.001), while NAPBC presentation was positively associated with timely treatment initiation (p<0.001) and receipt of sentinel node biopsy (p=0.003). Presentation facility characteristics were/were not associated with recommendation or initiation of radiation, chemotherapy or hormone therapy. Conclusion: Presentation facility characteristics were associated with several aspects of diagnosis and treatment quality indicators. Where a patient presents initially to the healthcare system has implications not only for screening and diagnostic imaging but also for pathologic diagnosis and treatment. Results implicate a role of presentation facility in diagnostic and treatment-related quality disparities.	Development and application of an electronic health care data algorithm to identify key characteristics and clinical outcomes related to route of lung cancer presentation Pham M, Farhangfar CJ, Kim E, Wheeler MS, Kowalkowski MA Lung cancer (LC) is the leading cause of cancer-related death. Low-dose CT screening improves survival, but concerns over specificity and slow adoption into practice suggest additional methods are needed to improve screening. This study integrates medical record (EMR) and administrative data (AD) to classify diagnosis route and examine factors for late/emergent presentation that can inform targeted approaches to successful screening. Methods: A presentation route algorithm was developed and tested using data from 250 persons diagnosed with LC in an integrated health care system in 2012 (9 excluded due to diagnosis outside system) and randomly divided into training and test sets. Diagnoses were obtained from cancer registry data. EMR abstraction was used as the gold standard. AD included encounters up to 6 months before diagnosis. An a priori framework was adapted to develop algorithm rules based on healthcare utilization. Univariate tests analyzed characteristics associated with presentation. Cox regression evaluated the effect of presentation on survival. Results: The algorithm correctly classified 68/71 (96%) persons in the training set and 139/170 (82%) persons in the test set against EMR abstraction. 101 (42%), 137 (57%), and 3 (1%) persons presented via Emergency (ED), Outpatient (OP), or Inpatient routes, respectively. ED presenters (EDP) were younger (mean age=65 vs 69; p=0.04) and more frequently Medicaid/uninsured (25% vs 10%; p=0.02) unmarried (66% vs 42%; p=0.01), and diagnosed at stage 3/4 (77% vs 53%; p<0.01). 52% EDP had zero OP visits during the year before LC while 90% OP presenters (OPP) had ≥2 (p<0.01). EDP had poorer survival than OPP (HR=1.62; p<0.01) but the effect was attenuated after controlling for disease stage. Conclusions: OPP had multiple OP visits before diagnosis that may represent missed screening opportunities and, if addressed, can improve early diagnosis in this cohort. More EDP were Medicaid/uninsured, had late-stage LC, and limited OP use suggesting poor access to current screening requiring novel strategies to improve early detection and outcomes. The AD-based algorithm identified presentation route with good accuracy but also opportunities for further refinement to support targeted screening efforts.

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Patient navigation and short-term surveillance for patients with surgically-resected, early-stage non-small cell lung cancer Gentile D, Kowalkowski MA, Raghavan D, Blackley K, Plate K, Kim E, Morris V, Farhangfar CJ Risk of recurrence is high among early-stage non-small cell lung cancer (NSCLC) patients after surgical resection (10-55%). Routine CT surveillance assists in detecting recurrent or second primary NSCLC early, when other curative options are still available to enhance survival. Patient navigation has been shown to improve breast cancer surveillance adherence but has not been evaluated in lung cancer. Methods: A nurse-led navigation (NN) program, comprised of in-person and virtual interactions to coordinate diagnosis, management and complication follow up, was initiated at an academic, multi-site community-based cancer institute in January 2013. We conducted a quasi-experimental retrospective study of adults diagnosed with surgically-resected, early-stage (I-IIIa) NSCLC from January 2013-December 2014 to assess differences in CT surveillance between patients who did and did not receive NN. The primary outcome was the proportion of patients who received surveillance chest CT at 6 and 12 months after surgery, consistent with NCCN guidelines. Propensity-score weighting was used to reduce overt bias between NN and non-navigated standard-of-care (SC) patients. Logistic regression models evaluated associations between NN and adherence to guideline-based CT surveillance. Results: Among 598 patients diagnosed with early-stage NSCLC, 257 were resected and 197 (94 NN/103 SC) met all inclusion criteria (≥12 mo follow-up, navigation started ≤3 mo post-surgery in NN group). The proportion who received CT surveillance consistent with NCCN guidelines was not different between NN and SC overall (42% vs 38% p=.59; OR=1.2 95%CI=0.7-2.1) nor by insurance status or race. CT surveillance was improved among NN vs SC patients with stages II/IIIa disease (65% vs 40% p=.04, OR=2.7 95%CI=1.1-7.0) or who received adjuvant therapy (70% vs 37% p<.01, OR=3.9 95%CI=1.4-10.7). Conclusions: As in previous research CT surveillance adherence was low overall, suggesting x-ray is still frequently utilized despite guidelines. Adherence was improved among NN with higher risk of recurrence (stages II/IIIa, received adjuvant therapy) possibly due to increased medical oncology involvement. Further studies are needed to measure other surveillance modalities and correlate with clinical outcomes	Fear of recurrence among older breast, ovarian, endometrial, and colorectal cancer survivors: findings from the WHI LILAC study Krok-Schoen JL, Bernardo BM, Naughton MJ, Young GS, Paskett ED Fear of cancer recurrence (FCR) is common among cancer survivors. Although there has been more research on FCR in recent years, most studies have been limited to breast cancer patients, with often inconsistent findings. It is unclear if there are differences in FCR by other cancer types. This study examined the prevalence of and factors associated with FCR following treatment for breast, ovarian, endometrial, and colorectal cancer. Methods: Participants in this study were enrolled in both the Women's Health Initiative (WHI) and the WHI Life and Longevity After Cancer (LILAC) study. Eligibility criteria were a diagnosis of breast (n=2,939), ovarian (n=82), endometrial (n=457) or colorectal (n=505) cancer after enrollment in WHI, completion of the LILAC baseline and 1 year follow-up forms, and a WHI Form 151 (n=3,983) completed within +1.5 years of the LILAC follow-up form. Descriptive statistics and multivariate logistic regression models were used to assess the impact of demographic, clinical, and quality of life variables on survivors' FCR, dichotomized as <14 (low FCR) or ≥14 (high FCR). Results: There were no significant differences in FCR by cancer type (p=0.99), with a mean FCR score of 10.81 (SD=2.84) all cancer types combined. Approximately 15% of all participants were in the high FCR group. Multivariate models found that being younger (OR=0.95, 95% CI=0.93-0.97), fewer years since diagnosis (OR=0.93, 95% CI=0.91-0.96), having at least 1 financial problem (OR=1.42, 95% CI=1.12-1.80), higher symptom burden (OR=1.14, 95% CI=1.11-1.16), having had chemotherapy (OR=1.45, 95% CI=1.18-1.77), and lower global quality of life (OR=0.84, 95% CI=0.79-0.89) were significantly associated with high FCR (scores ≥14). Conclusions: FCR was experienced by a small (15%) but significant proportion of cancer survivors, and is associated with multiple demographic, clinical, and psychosocial variables. These results will better inform researchers and clinicians regarding the individuals who are at risk of FCR.

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Adapting a Psychoeducational Intervention for Young African American Breast Cancer Survivorship Nolan TS, Ivankova N, Carson TL, Davies S, Enah C, Meneses K Young African American breast cancer survivors (YAABCS) report poorer quality of life when compared to young Caucasians breast cancer survivors. National recommendations support the provision of targeted evidence-based survivorship care to improve care quality and patient-reported outcomes among all cancer survivors; yet, targeted survivorship care interventions do not exist for the nearly 23,000 young African American breast cancer survivors (YAABCS) in a southern tri-state area (Alabama, Louisiana, and Mississippi). Further, there is paucity of literature that describes survivorship experiences and/or intervention efficacy among YAABCS. The purpose of this abstract is to describe the alignment of the lived experience of YAABCS with a Research-Tested Intervention Program (Breast Cancer Education Intervention- BCEi), wh which will inform the adaptation a psychoeducational intervention for YAABCS. Methods A transcendental phenomenological study of 15 YAABCS from a southern tri-state area was guided by the conceptual framework of the BCEi (Quality of Life Model Applied to Breast Cancer) and a methodological framework for evidence-based intervention adaptation. Data collected included two semi-structured interviews, a sociodemographic survey, field/reflective notes, and volunteered personal effects. Data were analyzed with NVivo NVivo 11 Pro Software, then validated among participating YAABCS. Results Participants (mean age= 35 years) perceived survivorship as a labile “new normal” and ongoing “struggle” in which spirituality and survivorship knowledge were key. While participants reported that the BCEi would assist with survivorship, they said the BCEi did not fully align with their survivorship needs. They suggested the following changes: (a) content related to finances and insurance, communicating survivorship concerns, dating and relationships, and self-management activities and resources; (b) available to su survivors at any stage of survivorship; (c) multiple modes of delivery accompanied by a tr trained, caring support person; and (d) diverse images. Conclusions Findings provide formative data to adapt a targeted intervention for YAABCS. Age and culturally-specific adaptation of evidence-based survivorship interventions may decrease d disparity among YAABCS.	Age-specific differences in patient navigation preferences among AYA cancer patients and survivors Pannier ST, Warner EL, Fowler BW, Fair D, Spraker-Perlman HL, Yancey J, Randall L, Kirchhoff AC To describe age-specific differences in patient navigation preferences among adolescent and young adult (AYA) cancer patients and survivors diagnosed ages 15-39. Methods: Patient interviews (N=39) were analyzed through first and second cycle coding. A constant comparative analysis was performed based on age at diagnosis; adolescents (15-18 years), emerging adults (19-25), and young adults (26-39). Discrepancies were discussed and resolved. Patient navigation themes derived from coding included: care coordination, emotional/social support, educational support, finances/insurance, family support, and timing and format of contact. Results: All AYAs felt the navigator could assist with care coordination and be an important source of emotional/social support. Adolescents wanted the navigator to communicate with both them and their caregivers and were the only group who requested educational support (e.g., help with scholarships). Likewise, adolescents felt comfortable having the navigator act on their behalf whereas emerging and young adults saw the navigator in more of an advisory role. Emerging adults were hesitant to discuss non-clinical needs with their oncology team, but wanted help accessing community resources more than any other group. Both adolescents and emerging adults wanted general information on finances/insurance (e.g. how to make a claim), whereas young adults were more specific, citing concerns about how to bill insurance for out of network services and paying for childcare. Unlike their younger peers, young adults saw finances/insurance, care coordination, and family support as the areas of greatest need for a navigator to address. All AYAs desired contact with a navigator at regular intervals throughout treatment and into survivorship, and held a strong preference to meet the navigator in person before using other forms of communication including texting, email, or phone calls. Conclusions: There is considerable variation in the supportive care needs of cancer patients and survivors within the AYA age group. Targeting supportive services to a patient’s age may improve patient navigation for AYAs. These findings present actionable recommendations for organizations that are developing patient navigation programs in oncology and other domains.

137	138-T
The Contribution of Excess Body Weight to Cancer-related Fatigue Symptoms, Symptom Interference, Lipids, and Inflammation among Breast Cancer Survivors Peppone LJ, Cole CL, Padula GDA, Kamen CS, Guido JG, Asare M, Kerns SL, Peoples AR, Usuki KY, Deutsch JM, Mustian KM, Cole S, Janelsins MC The impact of excess weight and cancer-related symptoms in breast cancer survivors is understudied and could ultimately impact cancer progression and mortality. The purpose of this study is to examine the role of excess body weight to cancer-related fatigue (CRF) symptoms, co-morbid symptoms, and inflammatory biomarkers. Methods: 105 breast cancer survivors 4-36 months post-adjuvant therapy with a CRF level of 4 or greater (on a 0-10 scale) were included in this study. Body mass index (BMI) was calculated at baseline and subjects were categorized into: Normal (NL: 18.5-24.9), Overweight (OV: 25.0-29.9) and Obese (OB: ≥30.0). The multidimensional fatigue symptom inventory (MFSI; 0-72) assessed CRF symptoms and the symptom inventory (SI) assessed 19 common cancer symptoms and interference with activities on a 0-10 scale. Serum levels of cholesterol, fatty acids, and inflammatory markers (CRP, IL6, and TNFα) were also measured. Results: At baseline, 16.3% were NL, 26.9% were OV, and 56.7% were OB. Obese survivors had significantly more CRF-specific symptoms than normal BMI survivors (MFSI Score: NL=19.0 vs OV=22.4 vs OB=28.3; p=0.04). Obese survivors reported greater symptom interference with walking (NL=1.9 vs OV=3.6 vs OB=4.5; p=0.01) and activities of daily living (NL=2.3 vs OV=3.3 vs OB=3.7; p=0.06). HDL cholesterol was lower for obese survivors (NL=72.0 vs OV=58.1 vs OB=53.5; p<0.01), while triglyceride (NL=85.7 vs OV=110.7 vs OB=146.7; p=0.01) and serum saturated fat (NL=3.3 vs OV=3.6 vs OB=4.0; p=0.03) levels were greater for obese survivors. Obese survivors had higher levels of CRP (NL=13.3 vs OV=14.5 vs OB=15.2; p<0.01), IL6 (NL=0.6 vs OV=1.2 vs OB=1.4; p=0.02), and TNFα (NL=2.1 vs OV=2.2 vs OB=2.5; p=0.04). Conclusion: Obese breast cancer survivors had significantly more symptoms specifically related to CRF, which significantly interfered with their ability to walk and perform activities of daily living. Obese survivors also had lower levels of HDL cholesterol and higher levels of triglycerides, saturated fats, and inflammation. Weight loss may be an effective strategy to reduce CRF symptoms in obese breast cancer survivors and may also reduce the risk for co-morbid conditions related to increased inflammation and poor lipid profiles.	Disparities in Completion of Physical Activity Program for Sedentary Breast Cancer Survivors Rangel ML, Ma HY, Basen-Engquist, K Physical activity is shown to help improve quality of life, reduce cancer recurrence and improve survival. Although, the benefits of physical activity are well established, cancer survivors from minority groups are less likely to engage in physical activity compared to White cancer survivors. Also, minority cancer survivors have limited physical activity facilities and low adherence to physical activity programs. The purpose of the study was to examine baseline characteristics of sedentary breast cancer survivors in predicting completion of a physical activity program. Method: We obtained information about physical activity and quality of life outcomes from individuals enrolled in the program, Active Living After Breast Cancer. This is a physical activity program to improve the quality of life of sedentary breast cancer survivors. We evaluated the influence of race, ethnicity, insurance status and baseline physical activity level and quality of life on program completion. Physical functioning was as measured by 6-minute walk, and 30 second sit-to-stand. Quality of life were measured with in both physical and mental domains. Independent t-test was done to compared mean differences between completed versus not completed program participants. Results: A total of 161 participants who enrolled in the program were used in final analysis. The majority of the participants were black (35.4%) followed by 34.2% white, 24.2% Hispanics and 3.7% Asians. The average age of participants were 59.5 years. About half of the participants had private insurance (43.5%) followed by Medicare (28%), Medicaid (8.1%), County healthcare assistance (Gold card) (10.6%), and Uninsured (5%). The completion rate of the program was 65% with 104 completing and 57 not completing the program. There was no relationship between insurance status and program completion. However, participants that did not complete the program were more likely to be Black, have higher BMI and weight, and lower 6-minute walk, poorer quality of life (physical and mental) at baseline compared to participants that completed the program. Conclusion: Our findings suggest the need to include strategies to reduce racial/ethnic and socioeconomic disparities in physical activity program to improve physical function and quality of life outcomes in minority cancer survivors. Culturally tailoring physical activity is necessary to address characteristics specific to sedentary breast cancer survivors in order to enhance physical activity promotion effects.

139-T	140-T
Trends in BRCA Test Uptake, Cost, and Subsequent Health Services Use Roberts M, Dusetzina S We aimed to describe BRCA testing trends, breast cancer-related services use following testing, and test reimbursement trends to better understand the potential impact of a celebrity health disclosure. MarketScan Commercial Claims data (2012-2014) were used to compare trends in BRCA testing before and after Angelina Jolie disclosed her BRCA status using an interrupted time series model among women aged 18 to 64. We used modified Poisson regression to estimate risks for health services use (surgical consult, mastectomy, Magnetic Resonance Imaging, genetic counseling) following BRCA testing. BRCA testing rates increased from 12.5 to 19.0 tests/100000 women between January 2013-October 2014. In the time period immediately following the health disclosure, testing increased by approximately 37% ($p<0.001$). Although BRCA testing increased, use of post-testing follow-up services declined in the same time period. Mean insurance reimbursement and patient out-of-pocket spending on the test decreased by 3% and 36%, respectively. While genetic testing uptake increased in the period following the health disclosure, the subsequent health services use associated with BRCA positive mutations declined, suggesting a potential increase in genetic testing overuse.	Breast cancer sub-type and synchronous patterns of distant metastasis Robinson JR, Newcomb PA, Cohen SA, Phipps AI. Hormone and growth factor receptor status of primary breast tumors influence cancer outcomes and progression, but their relationship to specific patterns of metastatic spread is not well understood. Using data from Surveillance, Epidemiology, and End Results (SEER) cancer registries, we explored the association between primary tumor receptor status in metastatic breast cancer (mBC) and synchronous patterns of metastasis to the bone, brain, lungs, and liver. Women diagnosed with incident mBC between 2010-2013 were identified from 18 SEER registries. Statistical analyses included women with complete data on estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth receptor 2 (HER2) status, and on site of synchronous metastasis (N=8,587). We used polytomous logistic regression to estimate odds ratios (OR) and 95% confidence intervals (CI) for the association between primary tumor receptor status and metastatic pattern at diagnosis, relative to women presenting with bone- only metastases. Separate analyses were stratified by patient and tumor attributes. All model estimates were adjusted for age at diagnosis, race, ethnicity, T-stage, and N-stage. The most common pattern of metastatic spread was to the bone alone (N=3,480), regardless of receptor status. Compared to women with ER+ primary tumors, women with ER- tumors were more likely to be diagnosed with metastatic patterns not involving the bone, such as to the brain alone or to both the lungs and liver (ORbrain-only vs. bone-only: 7.71, 95% CI: 5.31-11.19 and ORlungs+liver vs. bone-only: 5.14, 95% CI: 3.84-6.88). Among women with ER- tumors, women with HER2+ tumors were more likely than those with HER2- tumors to present with metastatic patterns including the bone and visceral organs, such as to both bone and liver, versus being diagnosed with bone-only metastases (OR: 2.14, 95% CI: 1.53-3.01). Similar patterns were noted when analyses were stratified by race or age. Our findings suggest that, in general, women with ER- breast tumors are more likely than women with ER+ tumors to develop metastatic patterns involving the brain and/or visceral organs – sites associated with poor prognosis. These patterns may partially explain the prognostic difference observed between ER+ and ER- mBC cases.

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Quality of Life and Symptom Reporting Among Men with Low-Risk Prostate Cancer at Two Years Post-Diagnosis: The PREPARE Prospective Cohort Study Taylor, KL, Hoffman RM, Davis KM, Lobo T, Luta GL, Leimpeter A, Shan J, Aaronson DS, and Van Den Eeden SK As many as 40% of men diagnosed with prostate cancer (PCa) have low-risk disease, which results in the need to decide whether to undergo immediate active treatment (AT), active surveillance (AS), or delayed active treatment (delayed AT). The treatment decision can have a significant effect on long-term quality of life and prostate-related symptoms. Few large-scale studies have assessed these outcomes among men with low-risk PCa. Methods: In the PREPARE prospective cohort study conducted at Kaiser Permanente Northern California, we conducted pre-treatment telephone interviews (N=1,139; 69.3%) with low-risk PCa patients (PSA<10, Gleason<6) and a follow-up assessment 24 months post-diagnosis (N=944; 83.7% among those alive at 24 months). We assessed general depression, anxiety, and physical functioning (PROMIS scales), prostate-specific anxiety, and prostate-specific symptoms (EPIC subscales) at both interviews. Clinical variables were obtained from the medical record. Results: Men were 62 (SD=7.1) years old and 83% were white. At 24-months, 44.5% had undergone AT (surgery or radiation), 46.2% were on AS, and 9.3% were on AS for a minimum of 12 months but had an AT between 12-24 months (prior to the 24-month assessment). Linear regression analyses (adjusting for pre-treatment functioning and other relevant covariates) revealed that at 24-months, the AS group reported significantly better sexual (p<.001) and bowel functioning (p<.05) than the AT group, but did not differ from the delayed AT group. The AS group reported better urinary incontinence scores than both AT and the delayed AT groups (p<.006). There were no group differences on general anxiety, depression, or physical functioning. However, the AS group did report greater prostate-specific anxiety compared to the AT group (p<.001). Conclusions: Among men with low-risk PCa, at two years post-diagnosis, the AS group reported fewer prostate-related symptoms than the AT group. The groups did not differ on general depression and anxiety, but the AS group did report greater prostate-specific anxiety. These results suggest that men who remain on AS may require additional support in order to remain comfortable with this decision and to continue with active surveillance when it is clinically indicated.	Differences in health-related quality of life (HRQOL) between middle-aged and older adult cancer patients Suzanne S. Vang Although older adults (age 65) make up almost two-thirds of the cancer survivor population, there is a paucity of research that specifically focuses on older adult cancer survivors' health-related quality of life (HRQOL). Studies have suggested that cancer survivors face immense physical and psychological difficulties – such as persistent pain, fatigue, disability, and psychological distress – even well after receiving treatment. Adjusting to these effects could be particularly challenging for older adult survivors, who are already dealing with decreases in physical functioning and social supports. Given our limited understanding of how cancer diagnosis and treatment affect adults in late life, this study examines the differences in HRQOL predictor and outcomes between middle-aged (age 45-64) and older adult cancer survivors. Data for this study were drawn from the 2014 Behavioral Risk Factor Surveillance System (BRFSS) study. The current data analyses include participants over the age of 45 who have had a cancer diagnosis and completed the 2014 cancer survivorship module (n=5,656). Univariate analysis showed that 67% of the sample were over the age of 65, 58% were female, 57% were married, and 10% were racial/ethnic minorities. Additionally, 20% reported having a college degree or higher, 51% were currently retired, and 54% reported ever being a smoker. Multiple logistic regression suggested that being older, having completed treatment, and never experiencing a stroke were indicators of better mental and physical HRQOL. Age group comparisons indicated important differences in HRQOL predictors. Being a racial/ethnic minority or unmarried was significantly associated with poorer mental HRQOL among older cancer survivors, but not in middle-aged survivors. Similarly, having a history of depression and chronic obstructive pulmonary disease were found to be significant predictors of poorer physical HRQOL in older survivors, but not in middle-aged survivors. These findings highlight the unique impact that comorbid conditions can have on older survivors' HRQOL. Additionally, the results indicate that racial/ethnic background and social support might be greater influences of HRQOL for cancer survivors who are in later life compared to those in middle adulthood.

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Post-treatment follow-up care communication and needs of early stage lung cancer survivors Weaver KE, Johnson A, Nightingale C, Petty WJ, Ruiz J, Canzona M, Tooze JA Low dose CT screening for lung cancer is expected to grow the population of early stage lung cancer (ESLC) survivors, yet little is known about their post-treatment follow-up care experiences and needs. Methods: We recruited ESLC survivors from an institutional registry who had completed treatment for AJCC stage 0-II lung cancer in the last 3-24 months. Survivors completed a questionnaire assessing experienced and desired follow-up care communication, supportive care needs (Cancer Survivors' Unmet Needs measure), and health information needs (Beckjord et al., 2008). Results: The mean age of survivors (N=63, 39% response) was 67 years (SD=13.8; 81% white, 11% black, and 5% American Indian; 3% Hispanic); most participants were female (66.7%) and 40% lived in a rural area. All participants had non-small cell lung cancer, primarily AJCC Stage I disease (84%) and were treated with surgery (78%) and/or radiation (27%). 23% of survivors were current tobacco users. With regards to follow-up care, 98% reported that a doctor spoke with them about follow-up care. Reported follow-up care topics included tests for recurrence (88%), recommendations for healthy behaviors (83%), signs and symptoms to call about (68%), symptoms or side effects after treatment (61%), late and long term effects (58%), and tests or exams for late effects (53%). Discussion of psychosocial topics was less common, with less than 25% discussing impact on family, friendships or work or accessing support groups; 41% reported a discussion regarding emotional well-being. Almost half of survivors reported more than one need in at least one supportive care domain (48%) and the mean number of unmet needs was 5 (SD= 7). Treatment (surgery only vs other modalities) and rural residence were not associated with total unmet needs; there was a trend for women to report higher unmet needs (difference= 3.5, t(61)=1.92, p=.06). A majority of survivors also reported at least one health information need (57%), with 25% reporting needs about 5 or more topics. Conclusions: Substantial gaps in survivorship care occur for many early stage lung cancer survivors; unmet psychosocial, supportive care, and informational needs are common. Enhancement of survivorship services is recommended for this population.	Balancing hope and risk for adolescent and young adult cancer patients with late stage cancer Figueroa Gray M, Ludman E, Beatty T, Wernli KJ Approximately 69,000 adolescent and young adult (AYA) cancer patients are diagnosed each year, and five-year survival is about 80%. AYA patients with late stage cancer represent a rare outcome that is understudied given the limitations in sample size. Our objective was to conduct a qualitative research study to understand patient perspectives in clinical decision making when diagnosed with advanced stage cancer. Methods: We conducted 12 patient interviews using social media as the primary source for recruitment. We posted recruitment materials through Facebook, Reddit, and Twitter. We also directly contacted authors of personal and professional blogs regarding participation. Patient participated in 60 minute telephone interviews using a structured interview guide, and received a personalize thank you card with $50 cash for participation. Results The majority of interviews were conducted with women regardless of our intent to interview both young men and women. Participants were primarily in the 20s-30s. Cancers represented included: colon, breast, lung, sarcoma, lymphoma, pancreas, and thyroid. The most common themes to emerge through patient interviews were the balance between: hope for a life that includes adult milestones, such as starting a family; and risks to undertake additional treatment without clinical evidence to support effectiveness for longevity. Discussion AYA cancer patients want to talk about their clinical experiences to help others. Clear communication regarding risks and benefits of clinical care are needed to help AYA patients make decisions which align with their needs and values. Qualitative research with oncology patients can strengthen cancer prevention and survivorship research.

145	146-T
Does habitual protein intake affect changes in skeletal muscle mass and function upon resistance training for breast cancer survivors? Secondary analysis of data of the PAL randomized controlled trial Winkels RM, Zhang X, Brown JC, Schmitz KH Resistance training for cancer survivors has several beneficial effects, including effects on muscle mass and muscle function. The current study explored whether habitual dietary intake of protein affected the response of resistance training on body composition and muscle function. METHODS: We conducted a post hoc analysis of data of the Physical Activity and Lymphedema (PAL) trial. In this trial, 295 breast cancer survivors were randomized to a one year twice-weekly slowly progressive weight lifting program or to the usual care control group. The intervention did not include any advice to alter diet. The current analysis only included only the intervention group (n=148). Appendicular skeletal muscle was quantified using Dexa as the sum of the lean tissue (non-fat and non-bone) of both arms and legs. Dietary intake was assessed with the Diet History Questionnaire and was adjusted for energy intake using the residual method. Linear regression was used to assess whether protein intake affected the change in skeletal appendicular muscle mass, bench press, leg press and handgrip strength in response to resistance training. RESULTS: Energy-adjusted protein intake was 62.5±19.1 g per day or 0.83 ± 0.03 g/kg of body weight. 45% of participants had an intake below 0.8 g/kg. Protein intake was not associated with changes in appendicular skeletal muscle mass (beta for change in kg of muscle per g protein -7.5 95%CI -17.2, 2.2), nor was it associated with change in bench press strength (beta for change in kg strength per g protein -0.03 95%CI -0.21, 0.14), leg press (beta for change in kg strength per g protein (0.04 95%CI -0.54, 0.63), or grip strength (beta for change in kg strength per g protein-0.02 95%CI -0.07, 0.02). DISCUSSION: Habitual protein intake did not affect the response in muscle mass or strength upon resistance training in breast cancer survivors. Several factors need to be taken into account in interpreting these findings: although we used energy-adjustment, there is likely to be residual error in the protein intake data. Also, we did not study changes in protein intake over time, but will do so in future analyses. We did not have information on the timing of protein intake relative to exercise, while this may importantly affect the anabolic response.	Barriers associated with delayed cancer follow-up care among young adult survivors of melanoma Wojcik KY, Miller KA, Wysong A, Milam JE, Cockburn MG This population-based study examined barriers to cancer-related follow-up care (CRFC) among young adult survivors (current age 18-39) of childhood, adolescent, and young adult melanoma (age≤24 at diagnosis in 1996-2010 in Los Angeles County). Participants (n=104, 84% non-Hispanic white, 10% Hispanic white, 7% other race/ethnicity; 88% localized, 12% regional/remote stage at diagnosis), recruited through the LA County cancer registry, responded to a self-report survey via mail/online. Participants did not differ from non-participants by stage or SES, but were more likely to be non-Hispanic white and older (20-24yrs) at diagnosis. Among participants, 43% reported no CRFC in the prior 2 years and 23% reported at least one barrier to seeing any doctor in the last year. Those reporting any barrier were more likely to present with higher stage at diagnosis, be lower SES, and of Hispanic ethnicity. The most common reported barriers included finances/insurance (13%) or challenges regarding childcare, work/school, not having a primary doctor, or getting a doctor's appointment (12%). Logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals (CI) for the outcome of delayed CRFC, defined as >2years ago or never. Compared to those who reported no barriers, participants with at least one barrier were 4.5 times as likely to have delayed CRFC (OR: 4.51,95%CI:1.57-12.93, adjusted for age, sex, race, and SES). Financial/insurance-based barriers had the strongest relationship with delayed CRFC (OR: 11.07,95%CI: 1.84-66.69, adjusted for age, sex, race, and SES). Delays in CRFC may reduce the ability to detect new melanomas at an earlier and more curable stage, which is important because melanoma survivors are at a nine-fold greater risk of a second primary melanoma compared to general populations. For young adult survivors of melanoma, financial and health insurance barriers may delay optimal CRFC. Programs designed to address financial concerns among young adult survivors of melanoma are needed to optimize access to recommended medical follow-up. In addition, enhanced clinical encouragement of lower-cost strategies for early melanoma detection such as regular total body skin self-exams may be appropriate.

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Evaluating the Cancer Research Network
Rolland B

This evaluation of the Cancer Research Network (CRN) was conducted to assess the impact on the network's operations and scientific progress of the National Cancer Institute's (NCI) decision to shift the network from a project-based funding model to an infrastructure-only funding model. Methods I conducted semi-structured interviews with 25 members of the CRN, including participants from the NCI, the network, and external researchers seeking to use the CRN infrastructure. Interview transcripts were coded and analyzed using a grounded theory approach. Results The CRN is an NCI-funded collaboration among eight integrated healthcare delivery systems, charged with facilitating cancer research across these systems. The CRN's greatest strength is the diverse population represented, as well as its ability to access substantial, longitudinal data on this population. Over the past 17 years, the CRN has developed its Virtual Data Warehouse (VDW) to make cross-site research more efficient. In its transition from CRN3 to CRN4, the Network was asked to expand from a project-based network to an infrastructure network tasked with supporting the broader cancer research community. While much has been accomplished, challenges remain in all three areas of collaborative infrastructure: data, human, and administrative. Three cross-cutting themes emerged. First, the challenges of using the CRN infrastructure make it unable, in its current state, to serve fully as an accessible, usable, efficient, off-the-shelf research resource for the cancer research community. Second, the shift from research network (i.e., CRN1-CRN3) to infrastructure network (CRN4) was not easy, leaving CRN staff and PIs confused about their roles and responsibilities. Finally, while NCI was explicit about the success metrics, noting in the RFA that the Network was expected to produce high- impact grants and publications, the connection between building infrastructure and producing high-impact science is not straightforward. Conclusion This research provides further evidence that how a network is structured greatly impacts its scientific output and outcomes. Funding agencies must consider a project's overarching goals when designing such networks, including the incentive and governance systems

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2017 Joseph W. Cullen Memorial Award for Excellence in Tobacco Research

The UNC Lineberger Comprehensive Cancer Center and the Gillings School of Global Public Health faculty and staff congratulate Kurt Ribisl, PhD, for being named the recipient of the Joseph W. Cullen Memorial Award.

Dr. Ribisl is a national thought leader in the field of tobacco use prevention and control. His research has focused on evaluating and improving the reach of population-level efforts to reduce tobacco use, with a particular emphasis on policy and information technology. He specializes in studying policy issues related to tobacco products at the point of sale and on the internet, including tobacco product marketing, pricing, promotions and youth access. In addition to conducting research, he is the author of more than 150 peer-reviewed scientific articles.

Dr. Ribisl is the center director of the UNC TCORS. He is also the co-founder of Counter Tobacco, a point-of-sale resource, and Counter Tools, a non-profit focused on advancing place-based public health. He is a former member of the congressionally mandated Tobacco Products Scientific Advisory Committee for the U.S. FDA Center for Tobacco Products. He has won several UNC teaching honors, and regularly serves on master's and doctoral thesis dissertation committees.

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Postdoctoral Research Positions Available

National Cancer Institute (NCI) funded postdoctoral research positions are available at the University of Washington in association with the Fred Hutchinson Cancer Research Center.

The program in **Cancer Prevention Training: Epidemiology, Nutrition, Genetics & Survivorship** provides focused training to young epidemiologists, nutritional scientists, geneticists, and clinician-researchers. The program includes: 1) formal coursework in Epidemiology, Nutrition, and Genetics/Human Biology; 2) innovative and transdisciplinary research experiences in cancer prevention and survivorship research; and 3) development and practice of skills necessary to promote preparation towards an independent research career.

The Biobehavioral Cancer Prevention & Control Training Program is for health professionals, researchers, health promotion specialists, and policy analysts who wish to apply social and behavioral sciences theory and methods toward the prevention and control of cancer. The training consists of a combination of didactic coursework and hands-on practical experience in interdisciplinary research through participation in new and existing research projects on cancer prevention (tobacco and tobacco related cancers, nutrition, genetics, chemoprevention, cancer communications and physical activity) and on cancer control (survivorship, health services research and policy).

Applicants to the post-doctoral training programs should have a MD, PhD, or comparable doctoral degree from an accredited domestic or foreign institution. Fellowships are restricted to U.S. citizens and permanent residents. Previous training or experience in cancer prevention and control is preferred. The postdoctoral fellowship 2017-2018 stipend is determined according to NSRA guidelines and adjusted according to years of experience. Fellowships are renewable for a second year with acceptable progress. The fellowship includes health insurance for the trainee and modest travel support.

- If you would like to learn more about the program in Cancer Prevention Training: Epidemiology, Nutrition, Genetics & Survivorship, please contact Polly Newcomb, PhD at pnewcomb@fredhutch.org.
- If you would like to learn more about the Biobehavioral Cancer Prevention & Control Training Program, please contact the program coordinator at bcpt@uw.edu.

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The Ohio State University Comprehensive Cancer Center – James Cancer Hospital and Solove Research Institute is a proud sponsor of

ASPO 2017

ASPO/BCRF
2017 Cancer Research Fellowship
For Young Scientists at the Postdoctoral or Clinical Fellow Level

* *

2017 Research Fellowship in Cancer Research: This Fellowship, sponsored by The Breast Cancer Research Foundation (BCRF), will provide a one-year award of $40,000 per year (2nd year contingent upon funds available and sufficient progress made in Year 1) to an early stage investigator in the U.S. engaged in meritorious cancer prevention research focusing on breast cancer in the clinical setting.

Letter of Intent

Each applicant is required to submit a very brief letter of intent (via e-mail) to the address below by **April 3, 2017.** This letter should be no more than two paragraphs and should include the following: 1) Name of Applicant and Degree(s) held; 2) Institution and Department Affiliation; 3) Name of Mentor, Degree(s) and Institution Affiliation; 4) Title of Research Project; and 5) Specific Aims of the Project. **Letter can be sent to: Heidi Sahel (e-mail: hasahel@wisc.edu) or by fax at (608) 265-5330.**

Eligibility

Candidates must have completed the MD, PhD, or other doctoral degree. Candidates must currently be a postdoctoral or clinical research fellow, but for no more than 4 years prior to the year of the award. **Academic faculty holding the rank of assistant professor or higher, graduate or medical students, federal government employees and employees of private industry are not eligible**. A candidate need not be a member of ASPO at the time of application, but must be nominated by an ASPO member. Student members may not be nominators.

Application Process

Application should include:

1. One page statement from applicant regarding his/her research goals.
2. Letter of recommendation from mentor and a statement from mentor that he/she has reviewed the application and discussed it with the applicant.
3. Evaluation section: Explain how the data generated during this proposal will be used for future grant applications and expected publication.
4. A biosketch is required from applicant and mentor (NIH format is acceptable).

Papers that have been accepted for publication but not yet submitted may be included in the Appendix.

Abstracts should be no more than 500 words. Please use ½ inch margin with 11 pt Arial font.
Deadlines: Letter of Intent – April 3, 2017
Full application due: - May 1, 2017

Selection Process

Applications will receive careful scientific evaluation by a multidisciplinary committee consisting of ASPO members who are experts in basic, behavioral, and clinical cancer research. Applications must be **received** in complete form by **May 1, 2017. After e-mailing a PDF file of the final application to Heidi Sahel (hasahel@wisc.edu) please send the original to the address below. An application can be found at www.aspo.org**

For Further Information, contact:

Heidi Sahel
American Society of Preventive Oncology
330 WARF Building, 610 Walnut St., Madison, WI 53726
Telephone: (608) 263-9515; e-mail: hasahel@wisc.edu

The Fellowship recipient will be announced in early June 2017

FLORIDA'S TOP CANCER HOSPITAL,

THE NATION'S 6th RANKED.

Join Moffitt's collaborative and interdisciplinary team environment and contribute to the prevention and cure of cancer. Our impact on cancer research spans basic science, prevention and clinical research with a focus on translating discoveries into better care.

Visit our booth to discuss postdoctoral training and career opportunities and discover what it means to be part of the Moffitt team. Current openings are posted at postdocjobs.com and moffitt.org/careers-education/careers/.

See the many faces of courage at MoffittCourage.org.

MOFFITT CANCER CENTER

MOFFITT
CANCER CENTER

POST-DOCTORAL TRAINING IN MOLECULAR EPIDEMIOLOGY

The Cancer Epidemiology Program of the H. Lee Moffitt Cancer Center & Research Institute, Inc. invites applications to its T32 Post-Doctoral Training Program in Molecular Epidemiology of Cancer. This NCI-supported interdisciplinary training program is designed to prepare fellows for careers as independent investigators engaged in cancer epidemiological research that incorporates biomarkers identified at the molecular, biochemical, or -omic level. The two year program combines a specialized curriculum (formal didactic training and one-on-one interactions with mentors) with research experience (participation in funded studies under the guidance of an experienced investigator).

Mentoring will be provided by teams of experienced faculty from a variety of epidemiology-related disciplines, including cancer epidemiology, statistical genetics, cancer genetics, bioinformatics and clinical specialties spanning diverse areas of research interests and cancer sites. Primary training faculty include: Kathleen Egan, ScD, Anna Giuliano, PhD, John Heine, PhD, Peter Kanetsky, PhD, MPH, Nagi Kumar, PhD, RD, Alvaro Monteiro, PhD, Jong Park, PhD, Cathy Phelan, MD, PhD, Dana Rollison, PhD, Matthew Schabath, PhD, and Thomas Sellers, PhD.

Applicants must have a terminal degree in epidemiology, nursing, public health, medicine or related discipline. Given the program's focus in molecular epidemiology it is anticipated that most candidates will have some previous training in epidemiology and/or biostatistics. Stipends and benefits are highly competitive. Review of applications will begin immediately and continue until our two open positions for the 2016-17 academic year are filled. Applicants must be U.S. citizens or legal permanent residents. Individuals on temporary visas are not eligible.

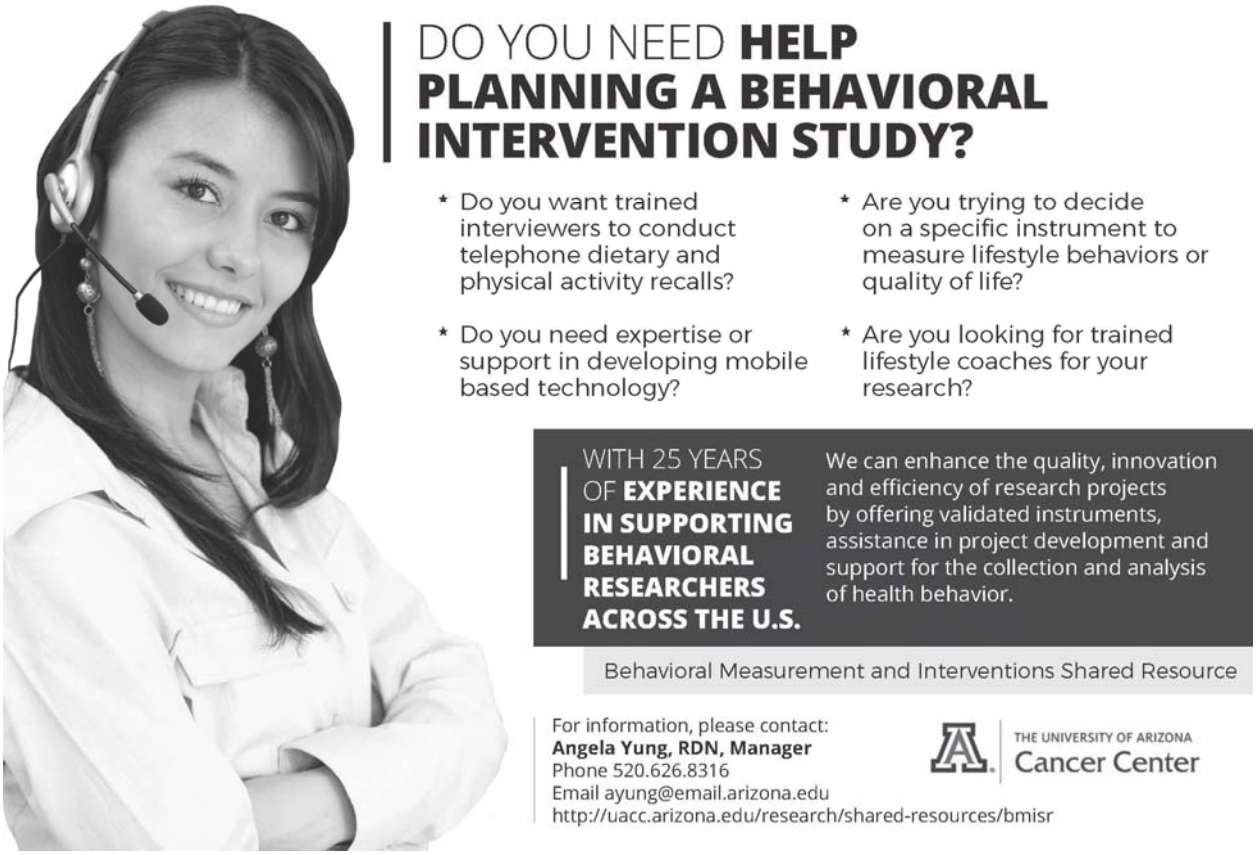
Please visit our website www.moffitt.org/CancerEpidemiologyT32 for information on applying and application materials. A completed application packet should be sent to Suellen Sachariat, H. Lee Moffitt Cancer Center & Research Institute, Inc., 12902 Magnolia Drive, MRC-CANCONT, Tampa, Florida 33612; e-mail: Suellen.Sachariat@Moffitt.org.

THE UNIVERSITY OF ARIZONA CANCER CENTER

NCI-FUNDED POST-DOCTORAL TRAINING IN CANCER PREVENTION AND CONTROL HEALTH DISPARITIES

Four National Cancer Institute-funded post-doctoral research positions are available at the University of Arizona Cancer Center in Tucson, AZ. The T32 Program offers a multi-disciplinary mentored environment integrating behavioral to biological science research focused on cancer disparities and understanding and preventing cancer. The traineeship provides preparation for an individual who wishes to pursue an independent academic research career in cancer health disparities that contributes to decreases in cancer morbidity and mortality in underserved populations. The trainee will work with established investigators and will be expected to engage in a research project; develop research proposals; produce two to three publications per year; and work with a multidisciplinary team.

For further information on the program, eligibility, and the application process, please visit us online at http://uacc.arizona.edu/academics/cpc-fellowship, or contact the T32 Coordinator, Betsey Wagener, at UACC-CPCtraining@uacc.arizona.edu.



Baylor College of Medicine

DAN L DUNCAN COMPREHENSIVE CANCER CENTER

CANCER EPIDEMIOLOGISTS

Baylor College of Medicine in Houston, Texas is seeking cancer epidemiologists for faculty positions at all levels. The individuals will have the opportunity to collaborate with geneticists, biologists, and clinicians in the Cancer Center and its affiliated hospitals (Texas Children's, the Houston VA Medical Center, CHI Baylor St. Luke's Hospital, and Ben Taub Hospital). Collaborations with faculty in health services research at our Center of Excellence at the VA Medical Center and with MD Anderson Cancer Center are encouraged. Current peer reviewed grant funding and relevant publication record are required. The candidate will be expected to develop an independent research program with peer-reviewed funding.

The Dan L Duncan Comprehensive Cancer Center has strong research programs in the basic, population, clinical, and translational sciences. The Center in Precision Medicine and Human Genome Sequencing Center, Human Microbiome Center and the Children's Nutrition Research Center at Baylor provide other important resources for collaboration. The Cancer Center is further supported by a broad array of Shared Resources including the Population Sciences Biorepository that provides Biospecimen collection, processing, and storage coupled with clinical and risk factor data collection for a variety of cancers as part of our growing molecular epidemiology program.

APPLICATIONS WILL BE ACCEPTED UNTIL POSITION FILLED

SEND EMAIL TO:
Melissa Bondy, PhD
at mbondy@bcm.edu

One Baylor Plaza
MS: 305, Room 422A
Houston TX 77030

http://www.bcm.edu/epipop/

Baylor College of Medicine

DAN L DUNCAN COMPREHENSIVE CANCER CENTER

POSTDOCTORAL FELLOWSHIP

The Dan L Duncan Comprehensive Cancer Center at Baylor College of Medicine announces the availability of two postdoctoral fellowships in Integrative Epidemiology supported by the Cancer Prevention and Research Institute of Texas (CPRIT) Post-Graduate Training Program. Our program is specifically designed to accelerate the training of the next generation of cancer epidemiologists in integrating epidemiologic studies with rapidly emerging technological advancements in data sciences, analytic platforms and bioinformatics that have transformed the practice of epidemiology.

We are seeking PhD epidemiologists or MDs/DVMs with master's degree training in epidemiology who wish to become successful cross-trained epidemiologists. This is a three-year broad and flexible program with individually tailored teams of mentors from multiple disciplines (basic, clinical, and population scientists) and personalized educational curricula. Our unique institutional core resources and experienced cadre of faculty mentors will provide rich research and educational opportunities. Exciting opportunities also exist to work with MD Anderson Cancer Center and Rice University faculty.

Fellows are not restricted to permanent U.S. residents or citizens. Baylor College of Medicine is an Equal Opportunity/Affirmative Action/Equal Access Employer.

APPLICATIONS WILL BE ACCEPTED ON A ROLLING BASIS AND SHOULD BE SUBMITTED TO

Margaret Spitz, MD
Baylor College
of Medicine
One Baylor Plaza
Houston, TX 77030

OR BY EMAIL TO
spitz@bcm.edu

For further details visit our website at www.bcm.edu/epitraining.

NIH NATIONAL CANCER INSTITUTE

Division of Cancer Control and Population Sciences
Visit cancercontrol.cancer.gov

Your SOURCE for

- Cancer control research tools, resources, and funding announcements
- Survey instruments and public-use data for many topic areas, such as cancer information seeking and decision making, diet, physical activity, tobacco use and cessation, cancer screening, quality and cost of care, cancer outcomes, and survivorship
- Cancer statistics, geospatial data, statistical software, and interactive tools from the Surveillance, Epidemiology, and End Results (SEER) program and State Cancer Profiles websites, among others
- Reports, including the *Cancer Trends Progress Report* and the *Annual Report to the Nation on the Status of Cancer*
- Monographs about tobacco control, diet and physical activity, cancer incidence, cancer costs, patient-centered communication, cancer staging and registry data, mortality, and survival
- Intervention products for health communications, nutrition, cancer screening, and smoking prevention and cessation
- Information concerning current trans–National Institutes of Health (NIH) and National Cancer Institute (NCI)–funded research initiatives
- Employment and training opportunities in the division
- Smokefree.gov online and mHealth resources for use in research studies
- Information on dissemination and implementation research
- Newsletters, webinars, and social media accounts

What's NEW

- NCI Monograph 21: *The Economics of Tobacco and Tobacco Control*, which examines the current research surrounding the economics of tobacco control in many countries around the world
- Grid-Enabled Measures (GEM) website, which enables collaboration, encourages use of common measures, and facilitates sharing of harmonized data
- Cohort Metadata Repository, a research tool that documents data harmonization across cohorts
- Cancer Epidemiologic Research in Understudied Populations webinar series
- *Scientific News from the Behavioral Research Program* newsletter
- Behavioral Research Program Twitter account @NCIBehaviors, providing the latest behavioral news and information, including funding opportunities
- Access to research tools for measuring patient-reported outcomes, including the Patient-Reported Outcomes version of the Common Terminology Criteria for Adverse Events (PRO-CTCAE™) and HealthMeasures
- Information about the SEER-Consumer Assessment of Healthcare Providers and Systems (SEER-CAHPS) linked data resource, which has publicly accessible data
- Access to updated SEER-Medicare data, with information on more than two million patients
- Free public-use data files from all iterations of the Health Information National Trends Survey (HINTS) from 2003 to 2015
- Surveillance Research Program blog: Toward Precision Cancer Surveillance
- Information on the SEER 2018 renewal
- NCI GeoViewer, which enables users to create maps of cancer statistics, demographics, and risk factors
- Updated prevalence figures, Cancer Stat Facts, and statistical summaries for common cancer types
- *Did You Know?* video series, highlighting key topics and trends in cancer statistics
- SEER*Explorer, an interactive website that provides easy access to a wide range of SEER cancer statistics (e.g., cancer site by gender, race, calendar year, and age)
- Redesigned search interface for Cancer Control Publications, highlighting research conducted or supported by the division
- Smokefree.gov online and mHealth smokeless tobacco resources for young adults and veterans

VANDERBILT UNIVERSITY School of Medicine

Epidemiology: Postdoctoral Fellow and Tenure-track Faculty Positions

Vanderbilt Epidemiology Center at the Vanderbilt University Medical Center is accepting applications for postdoctoral fellows and tenure-track faculty positions at Assistant, Associate, or Full Professor rank. The center is particularly interested in expanding its research and training programs in chronic disease epidemiology. We conduct clinical and population-based studies, including three large cohort studies in the U.S. and abroad with survey data and biological samples from approximately 225,000 study participants. Areas of ongoing research include diet and nutrition, health behaviors, environmental exposures, genetic and other biomarkers for disease risk and progression, and racial disparities in health outcomes. VUMC fosters a rich environment of cross-disciplinary collaboration, providing exciting opportunities to work on cohort consortium projects and collaborate on ongoing research projects in epidemiology.

Faculty applicants must have a doctorate in epidemiology or a related field with additional training or experience in epidemiologic research, and a demonstrated ability to develop and sustain an independent research program in chronic disease epidemiology.

Postdoctoral applicants must have a doctoral degree in epidemiology, genetics, computational biology, bioinformatics, biostatistics, or a related area.

Vanderbilt University School of Medicine is ranked #14 (tied) on the US News and World Report 2016 list of top medical schools for research in the United States and in the Top 10 for NIH-funded research. VUMC is an Equal Opportunity/Affirmative Action Employer.

To apply, email a cover letter, briefly describing research experience and interests, and curriculum vitae to kim.kreth@vanderbilt.edu. Address cover letter to: Dr. Wei Zheng, c/o Kim Kreth, Vanderbilt University Medical Center, 2525 West End Ave., 8th floor, Nashville TN 37203-1738.

NIH NATIONAL CANCER INSTITUTE

Cancer Prevention Fellowship Program

Application period
May 1 - August 25
Fellowships start the following June

The National Cancer Institute (NCI) Cancer Prevention Fellowship Program (CPFP) is looking for future leaders in the fields of cancer prevention and control.

As part of the program, fellows receive:

- The opportunity to obtain an M.P.H. degree at an accredited university.
- Mentor-led research with investigators at the NCI.
- Competitive stipends, paid health insurance, reimbursement for moving expenses, and a travel allowance to attend scholarly meetings or training.

Criteria:

- Candidates must have a doctoral degree (M.D., Ph.D., J.D., or equivalent) or be enrolled in an accredited doctoral degree program.
- Candidates must have no more than 5 years relevant postdoctoral experience.
- Must be a citizen or permanent resident of the United States.

To view the program catalog and apply online: **http://cpfp.nci.nih.gov**

U.S. Department of Health & Human Services | National Institutes of Health

PRESENT IN AN INTERNATIONAL FORUM!

PREVENTING OVERDIAGNOSIS

Winding back the harms of too much medicine

Prepare your scientific abstract for the **5th International Preventing Overdiagnosis Conference**, which will take place from **August 17-19, 2017** at the **Québec City Convention Centre**.

USEFUL LINKS

Overdiagnosis: Findings and Action Plan, QMA, April 2014

La médecine souffre d'une nouvelle maladie, L'Actualité médicale, December 2013 (French only)

Halte au surdiagnostic, L'Actualité, September 2014 (French only)

Choosing Wisely campaign

Others articles

QMA Doctors INACTION
QUÉBEC MEDICAL ASSOCIATION

WHAT IS OVERDIAGNOSIS?

Overdiagnosis occurs when a patient is diagnosed with an illness that will never cause symptoms or death. It can also include any actions that do not add value to a treatment.

ABOUT THE CONFERENCE

The conference gathers doctors and scientists from over 30 countries. This year's theme is: *Towards Responsible Global Solutions*. The conference will focus on overuse and overmedicalization, moving from evidence to action, communicating about overdiagnosis and engaging with citizens, patients and the public.

The Québec Medical Association will host this 5th edition of the International Preventing Overdiagnosis Conference, which is organized by Oxford University and its partners.

PREPARE YOUR ABSTRACT!

Any proposals related to overdiagnosis, including those not directly related to this year's theme, can be submitted now, in English or in French, at www.preventingoverdiagnosis.net

Act now! Submissions are open until March 30, 2017.

Conference partners

thebmj · Consumer Reports · The Dartmouth Institute for Health Policy & Clinical Practice · Nuffield Department of Primary Care Health Sciences, University of Oxford · CEBM · Wiser Healthcare

2017 Local partners

Association médicale canadienne · Canadian Medical Association · Choosing Wisely Canada (In partnership with the Canadian Medical Association) · Université Laval

Postdoctoral Training Program, Quantitative Biomedical Sciences in Cancer, Geisel School of Medicine at Dartmouth invites applications for a multidisciplinary program preparing quantitative scientists for careers in cancer research. Candidates are appointed 2 yrs/min, stipends provided. Applicants must possess a PhD or MD degree and be citizens, non-citizen nationals or permanent residents of the U.S.
Send applications to: Vicki.Sayarath@Dartmouth.edu.
Dartmouth is an affirmative action/equal opportunity employer.

Eric Fearon, M.D., Ph.D., Director U-M Comprehensive Cancer Center

TAKING ON CANCER

Research innovation, cutting edge treatment options, patient-focused care — that's the future of cancer care.

Harnessing the power of one of the largest, most robust research universities in the world, the University of Michigan Comprehensive Cancer Center is committed to improving the health and well-being of people who have — or are at risk of getting — cancer. Through research in prevention and early detection, by developing new and better treatments and by training the next generation of cancer researchers and providers, we are taking on cancer. **Find out more at mcancer.org.**

COMPREHENSIVE CANCER CENTER
MICHIGAN MEDICINE

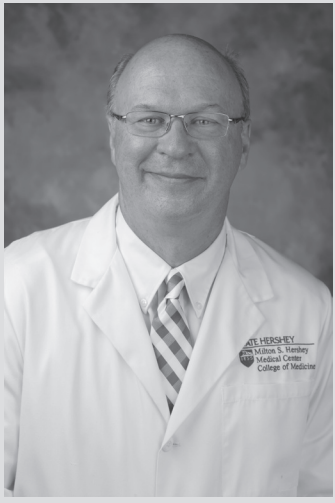
Family and Community Medicine Research Tenure Track Faculty Positions Penn State Health Milton S. Hershey Medical Center Hershey, PA

The Department of Family and Community Medicine, Penn State College of Medicine/Milton S. Hershey Medical Center in Hershey, PA seeks applicants for research faculty positions. The full spectrum of cancer prevention and control research including surveillance, survivorship, dissemination, health disparity, and molecular markers will be considered. Appointments in the Penn State Cancer Institute are available. Joint appointments in other units are available.

THE DEPARTMENT HAS RESEARCH EXPERTISE IN THE FOLLOWING AREAS:

- Cancer Prevention and Early Detection
- Health Services Research
- Practice Transformation
- Validation of Clinical Utility of Molecular Markers
- Chronic Disease
- Health Disparity
- Rural Health

The Department has senior research faculty available for mentoring, dedicated core research support staff, and a rural community-based research network. There are many opportunities to collaborate across the Hershey Medical Center and Penn State campus. The positions are open to physician scientists and doctoral level trained applicants with a research focus linked to primary care. Tenure positions are available across all ranks with support package and relocation resources.



For more information and to apply online, please visit and search Family and Community Medicine positions at: **http://careers.pennstatehershey.org/job-opportunities/physicians**

Interested candidates are encouraged to contact **Mack Ruffin, MD, Department Chair for Family and Community Medicine** at mruffin@hmc.psu.edu or by phone at 717-531-8187. If you are interested look for Dr. Ruffin during the ASPO meeting.

WE LOOK FORWARD TO YOU JOINING US TO CELEBRATE OUR 50TH ANNIVERSARY IN 2017.

PennState Health
Milton S. Hershey
Medical Center

50 YEARS
Family and Community Medicine

The Penn State Health Milton S. Hershey Medical Center is committed to affirmative action, equal opportunity and the diversity of its workforce. EOE – M/W/P/V/D.

Public Health Sciences Research Tenure Track Faculty Positions
Penn State Health Milton S. Hershey Medical Center, Hershey, PA

The Penn State Cancer Institute (PSCI) Population Health and Cancer Control (PHCC) program is growing our research efforts with the addition of new faculty. A currently open position focuses on health disparities. Information on this position is available at **https://psu.jobs/job/68991**. Forthcoming faculty positions will focus on nutrition epidemiology, nutrition interventionists, and cancer survivorship research. Multiple post-doc positions are also available.

Join a deeply collaborative team on the cutting edge of population health and cancer control, located in the sweetest place on earth!

CURRENT EXTERNALLY FUNDED RESEARCH IN THE PHCC PROGRAM INCLUDES:

- Nutritional interventions for chemoprevention
- Effects of the Affordable Care Act on out-of-pocket expenses
- Telemedicine to support metastatic breast cancer patients
- Yoga for rural cancer survivors
- TCORS (Tobacco Center for Regulatory Science)
- TREC Center (Transdisciplinary Research on Energetics & Cancer)

Infrastructure relevant to population health and cancer control researchers include a CTSA award, a biorepository, biostatistics core, clinical trials office, community sciences and health outcomes core, DNA sequencing core, flow cytometry core, genome sciences facility, molecular and histopathology core, organic synthesis core, and a proteomics and mass spectrometry core, in addition to a research concierge service and an exercise intervention unit within the chemo infusion suite. The PSCI catchment area includes 27 counties with a population of approximately ~4 million, including diverse populations in the cities of Harrisburg, Lancaster and Reading.

Interested candidates are encouraged to contact:
Kathryn Schmitz, PhD, MPH, Professor of Public Health Sciences, Associate Director of Population Sciences at kschmitz@phs.psu.edu or by phone at 717-531-4387.

For more information and to apply online, visit: psu.jobs/college_of_medicine_hershey/jobs

PennState
Cancer Institute

The Penn State Health Milton S. Hershey Medical Center is committed to affirmative action, equal opportunity and the diversity of its workforce. EOE – M/W/PV/D.

Discovery–Delivery–Comprehensiveness

Join the Research Team at the UNM Comprehensive Cancer Center

Join our team of world-class physicians and scientists in the heart of the Southwest. The University of New Mexico Comprehensive Cancer Center is one of the nation's 47 NCI-Designated Comprehensive Cancer Centers. Our 130 board-certified oncology physicians treat multiethnic patients from throughout New Mexico who have strikingly different patterns of cancer incidence, mortality and disparity. Supported by almost $60 million in annual research funding, our vibrant team of 130 population, basic, translational, and clinical investigators are focused on discovering the causes and cures for these cancers, with outstanding research programs in cancer control and disparities; cancer genetics and genomics with community and clinical translation; cancer cell and systems biology; and cancer drug discovery and targeted therapeutics.

Cancer Molecular or Genetic Epidemiology Position

For full details visit:
cancer.unm.edu/JoinTheBEST

UNM COMPREHENSIVE CANCER CENTER

Seeking population scientists with expertise in molecular epidemiology to expand programmatic efforts in cancer control and population science in New Mexico. We seek individuals with expertise in the molecular epidemiology of colorectal, liver or genitourinary cancers and with experience with molecular epidemiology laboratory methods (e.g. epigenetics, gene-environment interactions or host- and viral biomarkers for these cancers). We further seek individuals interested in addressing cancer disparities among Hispanics and/or American Indians in these or other cancers using molecular epidemiologic approaches. The UNMCCC houses or has close links to many resources including the NCI SEER New Mexico Tumor Registry, the Center for Native American Environmental Health Equity, the Clinical and Translational Science Center, and several UNMCCC Shared Resources and National Centers. These exceptional resources enable cutting-edge cancer prevention and control research. *Posting #: 0836528.*

Tenure track positions at all academic ranks, significant resources, comprehensive start-up packages and endowed positions are available. Search Chairs: Linda Cook PhD and Cosette Wheeler PhD. For inquiries or questions, contact Search Coordinator Amanda Leigh at: ALeigh@salud.unm.edu, (505) 272-2201.

The University of New Mexico is an Equal Opportunity/Affirmative Action Employer and Educator

Wake Forest® Baptist Medical Center

NCI Designated Comprehensive Cancer Center

Faculty Positions in Cancer Survivorship

The Cancer Prevention and Control Program of the Wake Forest Baptist Comprehensive Cancer Center (WFBCCC) is committed to strengthening our vibrant research program in cancer survivorship. We seek to fill two positions at the Associate Professor or Professor rank. Candidates with interest in the following areas are particularly encouraged to apply: cancer symptom science, health services and health outcomes research, health promotion interventions for cancer survivors, and treatment/genomic decision-making. The Cancer Prevention and Control Program places a high priority on intervention and translational research, as well as research that focuses on cancer disparities.

The WFBCCC Cancer Prevention and Control Program has a large and dynamic group of faculty in 13 departments, inclusive of social and behavioral scientists, implementation and health outcomes researchers, clinicians in primary and specialty care, and basic scientists. The WFBCCC serves as an NCI Community Oncology Research Program (NCORP) Research Base and active member of the National Clinical Trials Network. Opportunities for collaboration exist with the Maya Angelou Center on Health Equity, the Clinical and Translational Science Institute, the Center for Integrative Medicine, and the Sticht Center on Aging. The WFBCCC is dedicated to inter-programmatic research across our four programs: Cancer Prevention and Control, Clinical Research, Cancer Biology and Biochemistry, and Tumor Progression and Recurrence. For information about the Comprehensive Cancer Center, visit http://www.wakehealth.edu/Research/Comprehensive-Cancer-Center/.

Departmental home will align with a candidate's interests. Applicants should have a Ph.D., ScD., M.D or equivalent degree, with current extramural funding in cancer survivorship**.** Experience leading multidisciplinary research, a strong record of research achievement, and excellent written and oral communication skills are required. Opportunities for teaching exist within our Graduate and Medical Schools. The WFBCCC is located in Winston Salem, North Carolina and is within easy driving distance of the Blue Ridge Mountains and the beaches. It is known as the "City of the Arts" with a vibrant arts community, a thriving downtown district, and the newly developed Wake Forest Innovation Quarter.

Applicants should send a cover letter, curriculum vitae, and summary of research interests to Dr. Kathryn Weaver (keweaver@wakehealth.edu) and cc' jeharrel@wakehealth.edu.

It is the policy of Wake Forest Baptist Medical Center to administer all educational and employment activities without discrimination because of race, sex, age, religion, national origin, disability, sexual orientation, gender identity or veteran status (except where sex is a bona fide occupational qualification or a statutory requirement) in accordance with all local, state, national laws, executive orders, regulations, and guidelines. EOE/AA

Some Things to Do/See in Seattle

Much of the 'Emerald City' is easy to get around in by bus and walking.
Here are a couple of websites with more details about some Seattle attractions:

http://www.visitseattle.org/things-to-do/sightseeing/top-25-attractions/
http://dazzlingplaces.com/

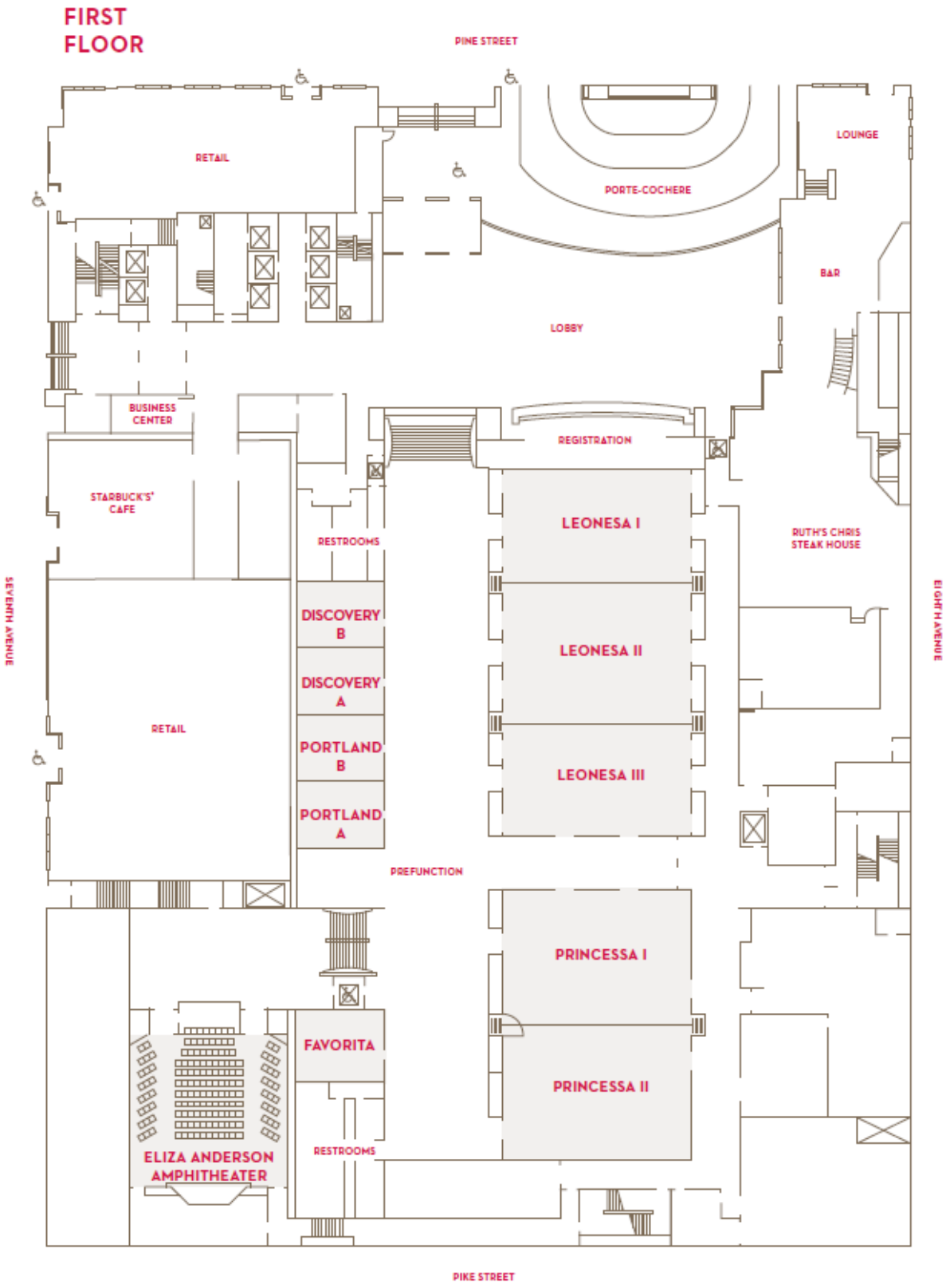
Including:

- **Starbucks Reserve Roastery and Tasting Room** – A Seattle landmark for the caffeinated world.
- **Pike Place Market** – Seattle's most iconic attraction – food, farmer's market, crafts, shops, history
- **Seattle Art Museum (SAM)** – excellent shows, check out the huge floating tree by the ticket office
- **First Starbucks location** - Located on 1st and Pike near the Pike Place Market
- **Central Public Library** – an architectural masterwork of design by Rem Koolhaus worthy of viewing
- **Chinatown-International District** – rich with flavorful Asian cuisines, history, intriguing shopping
- **Pioneer Square** – birthplace of Seattle, richly historic architecture, shopping, tours
- **Olympic Sculpture Park** – waterfront location, outdoors, free
- **Seattle Aquarium** – Pier 59 on the Waterfront. Stunning underwater dome, exhibits
- **Seattle Great Wheel** – sits 157 feet above Pier 57 on the waterfront with enclosed gondolas
- **Gates Foundation Visitor Center** – "Arrive curious. Leave inspired".
- **Amazon Campus –** Take a tour, too! See also the new Domes forming near Westlake and 6th
- **Space Needle** – Seattle's most iconic structure with fabulous 360 degree views
- **REI Flagship Store** – outdoor adventure gear, complete with climbing wall and nearby eateries
- **Washington State Ferries** – Stroll the waterfront, walk on. Fun, and great views of the city.

Restaurants near the Grand Hyatt Seattle

(in no particular order)

- **Blueacre Seafood**
- **Café Yumm**
- **Tap House Grill**
- **Mexico Cantina y Cocina**
- **Gordon Biersch Brewing Company**
- **The Carlile Room (great! Seattle'sTom Douglas')**
- **Palomino**
- **Urbane**
- **Thai Ginger**
- **Loulay Kitchen and Bar**


FIRST FLOOR
PINE STREET
RETAIL
PORTE-COCHERE
LOUNGE
BAR
LOBBY
BUSINESS CENTER
REGISTRATION
STARBUCK'S' CAFE
RESTROOMS
LEONESA I
RUTH'S CHRIS STEAK HOUSE
SEVENTH AVENUE
EIGHTH AVENUE
DISCOVERY B
DISCOVERY A
LEONESA II
RETAIL
PORTLAND B
PORTLAND A
LEONESA III
PREFUNCTION
PRINCESSA I
FAVORITA
PRINCESSA II
RESTROOMS
ELIZA ANDERSON AMPHITHEATER
PIKE STREET