40th Annual Meeting
Program & Abstracts

March 12-15, 2016

Blackwell Hotel, Columbus, OH

American Society of Preventive Oncology

40th Annual Meeting

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

Program Co-Chairs:

Ann Hsing, PhD
Stanford University

Mira Katz, PhD
The Ohio State University

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. Ann Hsing and Mira Katz** for their extraordinary commitment in facilitating the development of the program for this meeting, and to the entire 2016 ASPO Program Committee for sharing their expertise and their valuable contributions to the program.

2016 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	Susan Steck (2016)
At-large member	Elena Martinez (2017)
At-large member	Karen Basen-Engquist (2018)
At-large member	Amy Trentham-Dietz (2016)
Honorary	Al Neugut
Honorary	Melissa Bondy
ACS representative	Susan Gapstur
ASCO representative	Ernest Hawk
Staff	Heidi Sahel

Special Interest Groups:

Behavioral Science & Health Communication	Chair: Jada Hamilton (2017) Vice-Chair: TBD
Molecular Epidemiology & The Environment	Chair: Roberd Bostick (2016) Vice-Chair: Mack Ruffin
Lifestyle Behaviors, Energy Balance & Chemoprevention	Chair: Carolyn Fang (2017) Vice-Chair: Elisa Bandera
Survivorship & Health Outcomes/ Comparative Effectiveness Research	Chair: Katie Sterba (2017) Vice-Chair: TBD
Cancer Health Disparities	Chair: Beti Thompson (2017) Vice-Chair: Aimee James
Early Detection & Risk Prediction of Cancer	Chair: Deb Glueck (2016) Vice-Chair: Mira Katz
Early Career Development	Chair: Brian Sprague (2016) Vice-Chair: Hazel Nichols
International Issues in Cancer	Chair: Meira Epplein (2017) Vice-Chair: Tomi Akinyemiju

Task Force Chairs

Financial	Electra Paskett
Membership	Ann Hsing
Website	Amy Leader
Development	Polly Newcomb
Career Development	Cheryl Thompson
Publications	Melissa Bondy & Amelie Ramirez
Evaluation	Frank Meyskens

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

2016 AWARDS

2016 ASPO Joseph F. Fraumeni, Jr., Distinguished Achievement Awardee:
Alfred I. Neugut, MD, PhD, Columbia University

2016 Joseph Cullen Award in Tobacco Research: **Peter Shields, MD,** The Ohio State University

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

1. **Mandeep Virk-Baker, PhD,** National Cancer Institute
Dietary Adequacy among Tobacco User Households in Bangladesh

2. **Felisa Gonzales, PhD,** National Cancer Institute
Measurement of Mammography History

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

Samuel Antwi, PhD, Mayo Clinic
Pancreatic cancer: Associations of Inflammatory Potential of Diet, Cigarette Smoking, and Long-standing Diabetes

2016 ASPO Travel Awards for top-ranked abstracts among junior investigators:

1. **Xinwei Hua, MPH**, Fred Hutchinson Cancer Research Center
Pre- and post-diagnostic non-steroidal anti-inflammatory drug use and colorectal cancer survival in Seattle Colon Cancer Family Registry

2. **Jilali Zheng, MPH**, University of South Carolina
Association between Post-cancer Diagnosis Dietary Inflammatory Potential and Survival in WHI Observational Study and Dietary Modification Trial

3. **Barret Zimmermann, BA**, The Ohio State University
Perspectives from Healthcare Providers and Women about Completing Human Papillomavirus (HPV) Self-Testing at Home

4. **Megan Roberts, PhD,** The Ohio State University
Point-of-Sale Marketing for a Variety of Tobacco Products in Urban and Rural Ohio

5. **Nathan Doogan, PhD,** The Ohio State University
Cigarette Tax Revenues and Consumption under Current and Minimum-Price Regimes

6. **Natalie Hemmerich, JD**, The Ohio State University
E-cigarette Marketing Online: A Systematic Content Analysis of Manufacturers and Retailers

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:

National Cancer Institute
(conference grant R13CA206375-01)

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

The conference organizing committee wishes to express appreciation to:

American Institute for Cancer Research (AICR)

The American Institute for Cancer Research champions the latest and most authoritative scientific research from around the world on cancer prevention and survival through diet, weight and physical activity. We do this so we can help people make informed lifestyle choices to reduce their cancer risk.

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.

The American Association for Cancer Research

International Breast Cancer & Nutrition

International Breast Cancer & Nutrition fosters the development of a community of scientists across disciplines and public health experts dedicated to research on the primary prevention of breast cancer. It is an international, multidisciplinary and integrated collaborative program to identify the impact of nutrition on breast cancer onset (and recurrence) and to elucidate the cellular and molecular mechanisms involved in nutrient-induced breast tissue alterations and cancer development.

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 14th in the patio area of the Blackwell Hotel. The poster boards will be in place by Monday at 11am. Please have your poster displayed by 3pm for judging purposes. The poster session and reception will be from 5:30pm – 7:30pm. Posters must be taken down immediately following the poster session.

A distinguished panel of senior 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 Blackwell Hotel is complimentary after accepting the terms and conditions.

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 41st Annual Meeting of the American Society of Preventive Oncology will be:

March 11-14, 2017

The Grand Hyatt Hotel, Seattle, Washington

In celebration of ASPO's 40th anniversary:

40th Anniversary Gala Celebration

at The Center for Science and Industry (COSI)

Drinks and buffet dinner will be held at COSI. Buses will provide transportation.

6:30pm:	Buses will begin loading at the main entrance of The Blackwell Inn
7:00 - 8:00pm:	Cocktail hour (1 free drink ticket, then cash bar)
	* passed hors d'oeuvres
	* access to the Life and Progress exhibits

http://www.cosi.org/exhibits/life - Interactive stations to determine your strength, flexibility and heart rate; echo-free chamber to experience a quiet world; trace the first moments of life from conception to birth, 3 visible OSU research labs, etc.

http://www.cosi.org/exhibits/progress - Travel through time and explore the American street at two different times in history (1898 and 1962)

8:00pm:	Buffet dinner
	Disc jockey and dancing
9:30pm:	First round of buses leave
9:45pm:	Second round of buses leave

A few tickets remain. If you would like to attend the gala, please speak to Heidi at the Registration Table by 4pm on Sunday.

This 40th anniversary gala celebration is generously underwritten by the Ohio State University.

ASPO 2016 PROGRAM

SATURDAY, MARCH 12, 2016

3:00 pm – 7:00 pm
Pfahl 140

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 13, 2016

8:00 am – 5:00 pm
Ballroom Foyer

Registration

8:00 am – Noon
Pfahl 140

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

10 am – 12:30 pm
Pfahl 230

New Investigators Workshop (Invited Applicants only)
Faculty: Judith Jacobson, DrPH, Columbia University (organizer)
Deborah Glueck, PhD, University of Colorado- Denver
Polly Newcomb, PhD, Fred Hutchinson Cancer Research Center
Michael Scheurer, PhD, MPH, Baylor College of Medicine

Chosen Participants:
Austin Brown, MPH, PhD, Baylor College of Medicine
Project: Molecular Epidemiology of Cisplatin Ototoxicity among Pediatric Cancer Patients

Marcelle Dougan, ScD, Stanford University
Project: Metabolomic Profiles and Breast Cancer in the Breast Cancer Family Registry: a Pilot Study

Andrew Frugé, PhD, RD, University of Alabama at Birmingham
Project: Investigating a Signature of Prostate Cancer in the Human Gut Microflora

Georges Khalil, MPH, PhD, UT M.D. Anderson Cancer Center
Project: Designing a Game-based Stress Management Program for Cancer Patients Who Recently Quit Smoking

Sara Oppeneer Nomura, PhD, Georgetown University
Project: Advanced Glycation Endproducts and Breast Cancer-related Biomarkers in African American Women: A Possible Biological Link for Breast Cancer Disparities?

Alexandra White, PhD, National Inst of Environmental Health Sciences
Project: Shift work, Sleep Patterns and Light at Night in Association with Breast Cancer Incidence and DNA methylation in the Prospective Sister Study cohort

SUNDAY, MARCH 13, 2016

12:30 pm – 3:30 pm
Executive Board Room

Working Lunch Meeting of the ASPO Executive Committee

1:00 pm – 4:00 pm
Pfahl 140

ASPO Early Career Sessions (Organized by Early Career SIG)

1:00 pm – 2:20 pm

Strategies for Building, Prioritizing, and Sustaining a Research Group: How to Manage Time and Leverage Available Resources Effectively
Co-Chairs: Tracy E. Crane, MS, RD and Linda K. Ko, PhD

This interactive workshop will include a few examples of effective research groups as well as advice from successful senior and mid-level faculty with expertise on leading research teams as well as junior investigators with recent experience starting a research group. Presenters include Dr. Karen Basen-Engquist from The University of Texas MD Anderson Cancer Center, Dr. Katherine Reeves from The University of Massachusetts Amherst, Dr. Christine Rini from The University of North Carolina Chapel Hill, and Dr. Karen Wernli from Group Health Research Institute in Seattle, Washington. Topics to be covered include: identifying resources, utilizing pilot funds, recruiting graduate students, identifying mentors and collaborators, how to say no, and recognizing opportunities that will build your CV.

2:20 pm – 2:40 pm

NCI Funding Opportunities for Junior Investigators
Speaker: Ming Lei, PhD, NCI Cancer Training Branch

2:40 pm – 4:00 pm

Understanding Burnout in Academic and Research Environments
Co-Chairs: Lynette Phillips, PhD, Stephanie A. Navarro Silvera, PhD

Presenter: Shine Chang, PhD, UT M.D. Anderson Cancer Center
While burnout can occur in any field, academic research and clinical income expectations and the ever more competitive funding environment create specific stressors that can lead to burnout among people in academia. Dr. Shine Chang will facilitate an interactive session that begins with an overview of burnout and includes an activity to help participants identify symptoms that contribute to burnout. The session will also provide some strategies to combat the stressors in work and home lives to help prevent burnout, with ample time for questions from the audience

1:00 pm – 3:00 pm
Pfahl 240

Meeting of NCI R25/T32 Training Program Principal Investigators
Organizer: Shine Chang

4:00 pm – 4:10pm Ballroom	**OPENING SESSION OF THE ASPO GENERAL MEETING** **ASPO Welcome:** Polly Newcomb, PhD, Fred Hutchinson Cancer Research Center President, American Society of Preventive Oncology Michael Caligiuri, MD, CEO, James Cancer Hospital and Solove Research Institute, Director, OSU Comprehensive Cancer Center
4:10 pm - 4:40 pm Ballroom	**Joseph F. Fraumeni, Jr., Distinguished Achievement Award Address**: **Clinician versus Population Scientist: Decision-Making in Cancer** Alfred I. Neugut, MD, PhD, Columbia University
4:45 pm – 6:30 pm Ballroom	**Symposium 1: Understanding Health Disparities as viewed by the NIH Funded Centers for Population Health and Health Disparities** **Chair:** Richard Warnecke, PhD, University of Illinois - Chicago **Multilevel Research Designs for Understanding the Determinants of Disparities** Electra Paskett, PhD, Ohio State University **Policy Outcomes and Framing Research Outcomes for Dissemination to Key Policy Stakeholders** K. Vish Viswanath, PhD, Dana Farber Cancer Institute **Ensuring We Get It Right from the Community Perspective** Beti Thompson, PhD, Fred Hutchinson Cancer Research Center **Disparities from the Genetics Perspective** Kathleen A. Cooney, MD, University of Michigan **Getting what Is Learned into Practice: The Providers' and Clinics' Perspectives** Kent Hoskins, MD, University of Illinois - Chicago **Discussant**: Shobha Srinivasan, PhD, NCI, DCCPS
6:30 pm – 9:00 pm	**40th anniversary gala celebration at The Center for Science and Industry (COSI)** Drinks and buffet dinner to be held at COSI; buses will provide transportation
6:30 pm 7:00 pm - 8:00 pm 8:00 pm 9:30 pm 9:45 pm	Busses will begin loading at the main entrance of The Blackwell Inn Cocktail hour (1 drink ticket, then cash bar) * Passed hors d'oeuvres * Access to the Life and Progress exhibits Buffet dinner Disc jockey and dancing First round of buses leave Second round of busses leave *This 40th anniversary gala celebration is generously underwritten by the Ohio State University*

MONDAY, MARCH 14, 2016

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

Pfahl 140

1) Special Interest Group Breakfast: Lifestyles Behaviors, Energy Balance and Chemoprevention SIG

Obesity and Cancer Biomarkers: New Perspectives

Co-chairs: Carolyn Fang, PhD, Fox Chase Cancer Center and
Elisa V. Bandera, MD, PhD, Rutgers Cancer Institute of New Jersey

Obesity and Screening Biomarkers: PSA as a Case Study
Andrew Rundle, DrPH, Mailman School of Public Health, Columbia University

Obesity and Tissue Biomarkers
Adana Llanos, PhD, MPH, Rutgers University-Cancer Institute of New Jersey

Obesity and Metabolomics
Steven C. Moore, PhD, MPH, National Cancer Institute

Challenges and Opportunities for Obesity and Cancer Research
Karen Basen-Engquist, PhD, MPH, The UT MD Anderson Cancer Center

Q & A Panel Discussion

This breakfast is generously supported by the American Institute for Cancer Research

Pfahl 202

2) Special Interest Group Breakfast: Early Detection and Risk Prediction of Cancer SIG

Co-chairs: Deborah Glueck, PhD, UC-Denver, and
Mira Katz, PhD, The Ohio State University

Speaker: Ellen Peters, PhD, The Ohio State University
Dr. Peters is Professor of Psychology and Director of the Decision Sciences Collaborative at The Ohio State University. She conducts basic and applied research in judgment and decision making. She has worked extensively with the U.S. National Cancer Institute and Food and Drug Administration to advance the science of human decision making as it applies to health and health policy. She is current President of the Society for Judgment and Decision Making and is former Chair of FDA's Risk Communication Advisory Committee. She is also a Fellow of the Association for Psychological Science and the Society of Experimental Psychology. She has been awarded the Jane Beattie Scientific Recognition Award, an NIH Merit Award, and two Best Paper Awards from Risk Analysis. Her research has been funded extensively by the National Science Foundation and NIH.

9:30 am – 10:00 am **Break**

MONDAY, MARCH 14, 2016

10:00 am – 11:30 am
Ballroom

Concurrent Paper Session 1: Cervical Cancer Screening, HPV, and HPV Vaccine (chosen from top-ranked abstracts)
Chair: Anita Kinney, PhD, University of New Mexico

HPV Infection among Sexual Minority Women: Does it Matter How Sexual Orientation is Measured?
Paul Reiter, PhD, The Ohio State University

Perspectives from Healthcare Providers and Women about Completing Human Papillomavirus (HPV) Self-Testing at Home
Barret Zimmermann, BA, The Ohio State University

Disparities in Collaborative Patient-Provider Communication about Human Papillomavirus (HPV) Vaccination
Jennifer Moss, PhD, National Cancer Institute

Geographic and Gender Disparities in Physician Recommendation of HPV Vaccination for US Adolescents: Trends Analysis From the National Immunization Survey - Teen, 2011-2014
Kahee Mohammed, MD, MPH, St. Louis University

Provider's Recommendation versus Patient Choice in Papanicolaou Testing among Women with History of Hysterectomy
Fangjian Guo, PhD, University of Texas Medical Branch

10:00 am – 11:30 am
Pfahl 140

Concurrent Paper Session 2: Assorted Cancer Topics (top-ranked abstracts)
Chair: Ann Hsing, PhD, Stanford University

Hormone Contraception before the First Birth and Ovarian Cancer Risk
Linda Cook, PhD, University of New Mexico

Pancreatic Cancer: Associations of Inflammatory Potential of Diet, Cigarette Smoking, and Long-standing Diabetes
Samuel Antwi, PhD, Mayo Clinic

Dietary Changes Impact the Gut Microbe Composition in Overweight and Obese Men with Prostate Cancer
Andrew Fruge', PhD, RD, University of Alabama-Birmingham

Association Between Post-cancer Diagnosis Dietary Inflammatory Potential and Survival in WHI Observational Study and Dietary Modification Trial
Jiali Zheng, PhD, University of South Carolina

Patient Navigation Associated with Decreased 30-day All-Cause Readmission
Marc Kowalkowski, PhD, Carolinas HealthCare System

MONDAY, MARCH 14, 2016

11:30 am - Noon

Break

Noon – 1:30 pm
Ballroom

Best Hot Topic Papers: Cancer Epidemiology, Biomarkers and Prevention (CEBP)

Box lunch provided

Chair: Electra D. Paskett, PhD, The Ohio State University

Circulating 25-hydroxyvitamin D Levels and Prognosis among Cancer Patients: A Systematic Review (CEBP June 2014 23:917-933)
Adetunji Toriola, MD, PhD, MPH, Washington University School of Medicine

Improving the Quality of Biomarker Discovery Research: The Right Samples and Enough of Them (CEBP June 2015 24:944-950)
Ziding Feng, PhD, UT M.D. Anderson Cancer Center

Physicians' Human Papillomavirus Vaccine Recommendations in the Context of Permissive Guidelines for Male Patients: A National Study (CEBP October 2014 23:2126-2135)
Teri L. Malo, PhD, University of North Carolina at Chapel Hill

1:30 pm – 2:00 pm

Break

MONDAY, MARCH 14, 2016

2:00 pm – 3:30 pm
Ballroom

Concurrent Symposium 2: **Cancer Screening Dissemination, Diffusion, and Discovery: Status Update on the Evidence and Impact on Disparities**
Chair: Jasmin Tiro, PhD, UT-Southwestern

Cross-Organ Research on the Challenges of Delivering Breast, Cervical, and Colorectal Cancer Screening Interventions in Real-World Settings
Elisabeth Beaber, PhD, Fred Hutchinson Cancer Research Center

Guideline Debate about Hepatocellular Cancer Screening of Patients with Cirrhosis
Amit Singal, MD, UT – Southwestern Medical Center

Promising Cancer Screening Biomarkers from the Early Detection Screening Network
Ziding Feng, PhD, UT M.D. Anderson Cancer Center

2:00 pm – 3:30 pm
Pfahl 140

Concurrent Symposium 3: Metabolomics, Precision Medicine and Cancer Prevention
Chair: Sophia Wang, PhD, City of Hope

Metabolomics: Principles and Applications in Cancer Etiology and Prevention
Steven. C. Moore, PhD, MPH, National Cancer Institute

Metabolomics Discovery of Pre-diagnostic Biomarkers for Lung Cancer
Bill Wikoff, PhD, University of California - Davis

Metabolomics and Pancreatic Cancer
Brian Wolpin, MD, Harvard University

Metabolomics, Genomics and Microbiome – Integrated-omics and Implications for Precision Health and Personalized Medicine
Brian Piening, PhD, Stanford University

Symposium 3 is generously supported by Nutramax Laboratories Consumer Care, Inc.

3:30 pm – 4:00 pm

Break

MONDAY, MARCH 14, 2016

4:00 pm - 4:30 pm Ballroom	**Joseph Cullen Awardee Address:** **Tobacco Research and Regulation: Translational Science Cannot Be More Clear** Peter G. Shields, MD, Deputy Director, Comprehensive Cancer Center, The Ohio State University
4:30 pm – 5:30 pm Ballroom	**ASPO Business Meeting** (open to all)
5:30 pm - 7:30 pm Patio Area	**Poster Session and Reception** (on Patio Area – light appetizers, 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
7:30 pm	**Dinner on your own**

TUESDAY, MARCH 15, 2016

8:00 am – 9:30 am
Pfahl 202

Concurrent Breakfast Sessions (continental breakfast served)

Special Interest Group Breakfast: International Issues in Cancer Prevention SIG
Translational Research in International Health: Moving Beyond Associations
Chairs: Meira Epplein, PhD, Vanderbilt University, and Tomi Akinyemiju, PhD, Columbia University

Speakers:
Ann Hsing, PhD
Professor, Department of Medicine, Stanford Prevention Research Center, Stanford Cancer Institute, Stanford University School of Medicine

Akinlolu Ojo, MD MPH PHD
Associate Vice President for Clinical Research and Global Health Initiatives
Professor of Medicine, University of Arizona College of Medicine

Tomi Akinyemiju, PhD
Assistant Professor of Epidemiology, University of Alabama at Birmingham
Associate Member, UAB Comprehensive Cancer Center

8:00 am – 9:30 am
Pfahl 140

Special Interest Group Breakfast: Cancer Health Disparities
Health Disparities in Cancer Survivorship: Rural, African American, and Latino Survivors
Organizer: Beti Thompson, PhD, Fred Hutchinson Cancer Research Center

Speakers:
Rural Cancer Survivors: Understudied and Underserved?
Kathryn Weaver, PhD, Wake Forest School of Medicine

Cancer and Coping: Addressing Healthy Survivorship among African Americans
Marilyn Allicock, PhD, UT Health Sciences Center at Houston

Latina Cancer Survivors: What Should Be our Targeted Priorities and What are Opportunities for Survivor Leaders?
Yamile Molina, PhD, UI – Chicago, Center for Research on Women and Gender

9:30 am – 10:00 am **BREAK**

TUESDAY, MARCH 15, 2016

10:00 am – 11:45 am
Ballroom

Symposium 4: International Breast Cancer and Nutrition (ICBN)
Chair: Connie Weaver, PhD, Department of Nutrition Science, Purdue University

Blood-based Epigenetic Biomarkers of Breast Cancer Risk
Mary Beth Terry, PhD, Columbia University

A Normal Breast Tissue Bank: Will a Source for "Normal" be the Key to Unlocking Breast Carcinogenesis?
Anna-Maria Storniolo, MD, Indiana University School of Medicine

The Public Value of Biomarkers for the Primary Prevention of Cancer
Martine Bellanger, PhD, Professor of Health Economics, French School of Public Health, Rennes, France

The Epigenetic Protective Signature of the Breast as a Source for Biomarkers of Prevention Intervention
Sophie Lelievre, PhD, DVM, Purdue University

This symposium is generously sponsored by the International Breast Cancer and Nutrition group at Purdue University.

Noon – 1:30 pm

Concurrent Lunch Programs (box lunches provided)

Pfahl 140

1) ASPO Junior Member Lunch: NCI Session on Career Development for Doctoral Students, Postdoctoral Fellows, and Junior Faculty (organized by Early Career SIG)
Speakers:
Ming Lei, PhD, Branch Chief, Cancer Training Branch, and Deputy Director, Center for Cancer Training, NCI
Susan Perkins, PhD, Deputy Branch Chief, Cancer Training Branch, NCI

The NCI Cancer Training Branch supports a number of award programs designed to help junior investigators move from a mentored status to full independence as successful and independent cancer researchers. This presentation will cover fellowships, including the new F99/K00 predoctoral to postdoctoral transition award; the individual mentored career development awards (K07, K08, and K23); and the transition awards (K99/R00 and K22). In addition, the session will describe common mistakes to avoid in K applications and provide tips on how to write a competitive application.

Presentations will be followed by a Q/A panel discussion.

Noon – 1:30 pm
Pfahl 202

2) Mid- and Senior Faculty Development Lunch
Topic: Career Burnout
Speaker: Jeffrey Sloan, PhD, Mayo Clinic

1:30 pm – 2:00 pm	**Break**
2:00 pm – 3:30 pm Ballroom	**Concurrent Paper Session 3: Breast Cancer Topics (Chosen from top-ranked abstracts)** **Chair:** Amy Trentham-Dietz, PhD, University of Wisconsin-Madison
	Childhood Socioeconomic Position and Pubertal Onset: Implications for Breast Cancer Robert Hiatt, MD, PhD, UC – San Francisco
	Effects of Surgical vs. Non-Surgical Weight Loss on Mammary Tumor Burden Emily Rossi, PhD, University of North Carolina
	How Have Breast Cancer Screening Intervals Changed since the 2009 USPSTF Guideline Update? Karen Wernli, PhD, Group Health Cooperative
	Influence of Personal Exposure to the Cancer of a Loved One on the Breast Cancer Prevention Decisions of High Risk Women Tasleem Padamsee, PhD, The Ohio State University
	The Association Between Post-diagnosis Health Behaviors and Quality of Life in Survivors of Ductal Carcinoma in Situ Vicki Hart, PhD, University of Vermont
2:00 pm – 3:30 pm Pfahl 140	**Concurrent Paper Session 4: Tobacco (chosen from top-ranked abstracts)** **Chair:** Jamie Studts, PhD, University of Kentucky
	Dietary Adequacy among Tobacco User Households in Bangladesh Mandeep Virk-Baker, PhD, National Cancer Institute
	Point-of-Sale Marketing for a Variety of Tobacco Products in Urban and Rural Ohio Megan Roberts, PhD, The Ohio State University
	Active Tobacco Smoke and Environmental Tobacco Smoke Exposure during Potential Biological Windows of Susceptibility in Relation to Breast Cancer Alexandra White, PhD, National Cancer Institute
	Cigarette Tax Revenues and Consumption under Current and Minimum-Price Regimes Nathan Doogan, PhD, The Ohio State University
	Cancer Patients Report Better Tobacco Quit Outcomes during Cancer Therapy: Results from Arizona Quitline Tracy Crane, PhD, The University of Arizona
3:30 pm	**Conference Concludes**

PAPER SESSION ABSTRACTS -- Monday, March 14, 2016
Session 1: Cervical Cancer Screening, HPV, and HPV Vaccine

Paul Reiter, PhD	Barret Zimmermann, BA
HPV Infection among Sexual Minority Women: Does it Matter How Sexual Orientation is Measured? Reiter PL, McRee AL Sexual minority women are at risk for infection with human papillomavirus (HPV), yet little is known about the prevalence of HPV infection among this population. Further, it is not known how the prevalence of HPV infection might vary based on how sexual orientation is measured and operationalized. Methods. We analyzed data from the 2003-2012 National Health and Nutrition Examination Survey (NHANES) among women ages 20-59 (n=7,132). We examined two dimensions of sexual orientation for each woman (sexual identity and sexual behavior), as well as multiple operational definitions for each dimension (aggregating sexual minority women into one group and disaggregating sexual minority women into subgroups). Weighted logistic regression models determined how HPV infection outcomes (any HPV type, high-risk HPV type, and vaccine-preventable HPV type) varied by dimension. Results. Similar patterns emerged for sexual identity and sexual behavior. In bivariate analyses, HPV infection outcomes were more common among non-heterosexual women compared to heterosexual women (any type: 49.7% vs. 41.1%; high-risk type: 37.0% vs. 27.9%), as well as among women who reported any same-sex partners compared to women who reported only opposite-sex partners (any type: 55.9% vs. 41.0%; high-risk type: 37.7% vs. 28.2%; vaccine-preventable type: 19.1% vs. 14.0%)($p<0.05$). When we disaggregated dimensions of sexual orientation into subgroups, bisexual women and women who reported partners of both sexes had greater odds of HPV infection outcomes ($p<0.05$ in bivariate analyses). Multivariate models attenuated several of these differences, though lesbian women and women who reported only same-sex partners had lower odds of most HPV infection outcomes in multivariate analyses ($p<0.05$). Conclusions. HPV infection is common among sexual minority women. However, prevalence estimates vary slightly between sexual orientation dimensions and greatly depending on how a dimension is operationally defined. These findings highlight the importance of measuring sexual orientation in various ways and can help inform targeted HPV and cervical cancer prevention efforts for sexual minority women.	Perspectives from Healthcare Providers and Women about Completing Human Papillomavirus (HPV) Self-Testing at Home Zimmermann BJ, Katz ML, Moore D, Paskett ED, Reiter PL Cervical cancer (CC) incidence and mortality rates are increased and CC screening rates are low among women living in Ohio Appalachia. Mailing human papillomavirus (HPV) self-tests to women to complete at home is a potential new strategy in the United States to engage women in the CC screening process. Our study sought to understand both providers' and women's perspectives on an HPV self-test that could be mailed to women and how those viewpoints may differ and/or concur. Methods: Focus groups were conducted (2014-2015) among: 1) healthcare providers practicing in four Federally Qualified Health Centers (FQHCs) located in three Ohio Appalachia counties; and 2) women living in Ohio Appalachia. Results: Providers (n=28) and women (n=15) were accepting of HPV self-testing, however, the reason for acceptance differed between groups. Providers thought HPV self-testing would increase the possibility that under-screened women would return to the healthcare system, while women thought completing HPV self-tests at home would eliminate logistical/ psychological CC screening barriers. Facilitators of completing an HPV self-test at home reported by women included decreased embarrassment, and the time and money saved by avoiding a doctor's appointment. Barriers to completing an HPV self-test at home reported by providers and women included women not being aware of the test, concerns about incorrectly completing the test and potential contamination of the obtained specimen, potential discomfort associated with completing the test, safety of the sample when returning it through the mail, issues associated with communicating test results (timing, channel, findings), and needed follow-up care. Both providers and women stressed the importance of including educational information about HPV and cervical cancer and detailed HPV self-test instructions with the mailed device. Conclusions: Findings provide insights into the facilitators and barriers of completing an HPV self-test at home, returning it, reporting results, and providing needed follow-up care. This information will be useful in developing CC screening programs that include mailed HPV self-tests.

Jennifer Moss, PhD	Kahee Mohammed, MD, MPH
Disparities in collaborative patient-provider communication about human papillomavirus (HPV) vaccination Moss JL, Gilkey MB, Rimer BK, Brewer NT Research suggests that healthcare providers vary their communication style based on patients' demographic characteristics. Because human papillomavirus (HPV) vaccine uptake is highly dependent on provider communication, variation in communication style could give rise to differences in coverage and, subsequently, cancer outcomes. Methods. Participants were 4,124 parents who completed the 2010 National Immunization Survey-Teen about their daughters (ages 13-17). We assessed demographic disparities in parental reports of collaborative communication in discussions about HPV vaccines with their daughters' healthcare providers. Next, we examined whether collaborative communication mediated the relationship between demographics and HPV vaccination (receipt of 1+ dose). Results. Half of parents reported collaborative communication, and this style was positively associated with HPV vaccination ($p<.05$). Poor, less educated, Spanish-speaking, Southern, and rural parents, and parents of publicly insured and Hispanic adolescents, less often reported collaborative communication (all $p<.05$). These disparities explained geographic variation in HPV vaccination, i.e., higher rates of uptake in the Northeast versus the South (mediation $z=2.31$, $p<.01$) and in urban/suburban versus rural areas (mediation $z=2.87$, $p<.01$). These disparities also adversely affected vaccination among subgroups with relatively high coverage, suppressing what could have been even higher uptake among Hispanic compared to non-Hispanic white girls (mediation $z=-3.04$, $p<.01$) and publicly versus privately insured girls (mediation $z=-3.67$, $p<.001$). In addition, we found similar suppression effects in models of vaccination differences by poverty level, maternal education, and language preference. Conclusions. Collaborative communication was characterized by widespread disparities, being least frequent among traditionally underserved groups. Furthermore, collaborative communication helped to explain the differences—and lack of differences— in HPV vaccination among subgroups of adolescent girls. Leveraging patient-provider communication, especially for underserved groups who suffer a disproportionate burden of HPV- associated cancers, could improve HPV vaccination coverage and cancer prevention efforts.	Geographic and Gender Disparities in Physician Recommendation of HPV Vaccination for US Adolescents: Trends Analysis From the National Immunization Survey – Teen, 2011 – 2014 Mohammed KA, Geneus CJ Physician recommendation of the human papillomavirus (HPV) vaccination is the most important predictor of vaccine uptake; however, physicians are not giving strong recommendations for the vaccine. We aimed to determine the prevalence of vaccine recommendation in adolescents and to investigate the impact of gender, geographic region, and other sociodemographic factors on recommendation of vaccine. Methods: We used weighted multivariable regression to analyze the National Immunization Survey (NIS) – Teen, 2011 – 2014 data on 131,114 male and female adolescents aged 13-17 years to investigate trends in HPV vaccine recommendation. Furthermore, we used the 2014 data on 34,478 adolescents to evaluate factors associated with vaccine recommendation by a physician. Results: physician recommendations of HPV vaccine steadily increased from 2011 to 2014 (34.73 to 62.15%); an increase from 58.50% to 74.34% for girls and 14.25% to 53.90% for boys from 2011 to 2014. Highest vaccine recommendation was in the Northeast; 43.40% in 2011 to 72.87% in 2014, while lowest in the South; 33.09% in 2011 to 60.54% in 2014. After adjusting for covariates, significant disparities in the physician recommendation of HPV vaccine were detected based on geographic region, adolescent's gender, and mother's education level. Overall, female adolescents had higher odds of receiving vaccine recommendation (aOR = 2.57, 95% CI = 2.35 – 2.82). Adolescents residing in Northeast (aOR = 1.65, 95% CI = 1.47 – 1.85), Midwest (aOR = 1.18, 95% CI = 1.07 – 1.30), and West (aOR = 1.31, 95% CI = 1.14 – 1.51) had higher odds of receiving vaccine recommendation, compared to their peers in South; the disparity existed even after stratification by gender. Adolescents of lesser-educated mothers had lower odds of receiving vaccine recommendation compared to their college graduate peers (aOR = 0.57, 95% CI = 0.47 – 0.68). Conclusion: This study highlights significant missed clinical opportunities for HPV vaccine recommendation, particularly for males, those residing in states other than Northeast, and adolescents of lesser-educated mothers. Thus, tailored interventions on the provider level are needed to address physicians' hesitation and barriers to vaccine recommendation for certain groups of populations.

Fangijian Guo, PhD

Provider's Recommendation versus Patient Choice in Papanicolaou Testing among Women with History of Hysterectomy

Guo F

National guidelines recommend against cervical cancer screening in women who have had a hysterectomy. However, Pap smears are often performed in U.S. women after hysterectomy. This study is to assess the role of health care providers versus patients in the use of screening Pap smears among U.S. adult women with a history of hysterectomy. Methods: This cross-sectional study used nationally representative data from 3238 women (≥20 years of age) in the 2013 National Health Interview Survey, who had a hysterectomy. Participants reported the date of their most recent Pap smears, as well as whether they received a recommendation for a Pap test from their doctors in the past year. We assessed the proportions of Pap smears attributable to doctors' recommendations and to patients' request. Results: In this sample, 42.4% received screening doctors' recommendations in the past year, and 32.1% of women received Pap smears. Among women who received doctors' recommendations for Pap testing, 56.5% obtained a Pap smear, while only 14.2% of women who reported not receiving a doctor's recommendation for Pap testing were screened. Among women who visited an OB/GYN in the past year, 82.5% of women who received recommendations actually were screened, while 53.3% of women who did not receive a recommendation were screened. Woman who did not visit an OB/GYN provider were unlikely to be screened. A sensitivity of 1689 women between 20 and 65 years old with a history of hysterectomy yielded similar results. According to the 2010 US population, about 7 million unnecessary Pap smears were performed annually among this group (>$210 million of direct medical cost). Conclusions: Overutilization of Pap smears was common among women with a history of hysterectomy. The majority of unnecessary Pap smears were performed at a doctor's recommendation, though a significant portion (over one fourth) were requested by patients without a doctor's recommendation. Health care providers should be educated about the latest screening guidelines, so they can prevent unnecessary and potentially harmful testing, and advise patients on appropriate use of screening services.

PAPER SESSION ABSTRACTS -- Monday, March 14, 2016
Paper Session 2 - Various Cancer Topics

Linda Cook, PhD	Samuel Antwi, PhD
Hormone Contraception before the First Birth and Ovarian Cancer Risk Cook LS, Pestak CL, Leung ACY, Le ND Combined oral contraceptive (OC) use strongly and consistently reduces the risk for epithelial ovarian cancer (EOC); longer durations of use and more recent use are associated with the strongest reductions in risk. However, it is unknown if exclusive OC use before the first birth is associated with a reduction in EOC risk many years later. Therefore, we investigated the risk for EOC among parous women associated with exclusive OC use before the first birth. Methods: From a population-based case-control study in Alberta and British Columbia, Canada, 2001-2011, we included 1144 invasive EOC cases and 2513 controls who were >40 years at diagnosis/reference date. Participants reported OC use and all pregnancies via a telephone interview or self-administered questionnaire (in the early years of the study). Duration of OC use was evaluated as a continuous variable and by categories: non-users (never use or <6 months of use), <5, 5-<10, >10 years, unknown. Using logistic regression, we estimated adjusted odds ratios (aORs) and 95% confidence intervals (CI), controlling for study site, age, parity, breastfeeding, first degree family history of breast/ovarian cancer, tubal ligation, and BMI. Results: OC use at any time during reproductive life was associated with a 42% reduced risk for EOC relative to non-users (aOR=0.58, 95%CI=0.49, 0.69). Among parous women, each additional year of exclusive OC use before the first birth conferred an 11% risk reduction relative to non-users (aOR=0.89 95%CI=0.86-0.94, linear trend p-value <0.01). Results were similar when we restricted to cases with high grade serous cancers (aOR=0.90 95%CI=0.84-0.95, linear trend p-value <0.01) and for cases with endometrioid/clear cell cancer (aOR 0.88 95%CI=0.80-0.95, linear trend p-value <0.01). Discussion: Among parous women, exclusive use of OCs before the first birth was associated with a strong reduction in EOC risk many years later. Because OCs stop ovulation, this reduced risk may be due to a reduction in lifetime ovulatory cycles. However, it is also possible that OC use at younger ages, before the first birth, represents a window of opportunity to have a substantial impact on reducing risk that remains for many years, informing possible prevention strategies.	Pancreatic cancer: Associations of inflammatory potential of diet, cigarette smoking, and long-standing diabetes Antwi SO, Oberg AL, Shivappa N, Bamlet WR, Chaffee KG, Steck SE, Hebert JR, Petersen GM Pancreatic cancer (PanC) is a rapidly lethal malignancy with poorly understood etiology. Epidemiologic studies show strong associations between PanC and inflammatory conditions or stimuli such as cigarette smoking and diabetes, suggesting that inflammation may play a key role in PanC. Studies of dietary patterns and cancer outcomes also suggest that diet might influence an individual's risk of PanC through modulation of inflammation. We, therefore, examined independent and joint associations between inflammatory potential of diet, cigarette smoking and long-standing type II diabetes (greater than 5 years) in relation to risk of PanC. Methods: Data were from a clinic-based, case-control study of rapidly ascertained patients with incident adenocarcinoma of the exocrine pancreas (n=819) evaluated at Mayo Clinic and non-cancer control patients (n=1,769) recruited from Mayo Clinic primary care facilities. Controls were frequency-matched to cases on age, race, and sex. Inflammatory potential of diet was measured using the dietary inflammatory index (DII), calculated from dietary intake assessed via a 144-item food frequency questionnaire and adjusted for energy intake. Logistic regression was used to calculate odds ratios (ORs) and 95% confidence intervals (CIs), adjusting for age, sex, race, body mass index, diabetes, smoking, and education. Results: Higher DII scores, reflecting a more pro-inflammatory diet, were associated with increased odds of PanC (OR Quintile5vs1 =2.80, 95%CI=2.06-3.79, Ptrend<0.0001). Increased odds of PanC also were observed among current (OR=2.55, 95% CI=1.75-3.72) and former (OR=1.26, 95%CI=1.05-1.51) smokers as compared to non- smokers, and among participants with long-standing type II diabetes (OR=2.96, 95% CI=1.95-4.51) compared to non-diabetics. Joint associations were observed for the combined effect of having greater than the control median DII score and a) being a current smoker (OR=4.20, 95%CI=2.67-6.61),or b) having long-standing type II diabetes (OR=6.13, 95%CI=3.47-10.80) as compared to having less than or equal to the control median DII score and being a non-smoker or non-diabetic, respectively. Conclusion: These findings suggest that a pro-inflammatory diet may act synergistically with cigarette smoking and diabetes to increase the risk of PanC beyond the risk of any of these factors alone.

Andrew Frugé, PhD	Jiali Zheng, PhD
Dietary changes impact the gut microbe composition in overweight and obese men with prostate cancer Frugé AD, Ptacek TS, Morrow CD, Rais-Bahrami S, Tsuruta Y, Desmond RA, Hunter GR, Demark-Wahnefried W Dietary factors and obesity influence cancer risk and progression - effects that may be mediated through the microbiome. Methods: Microbiome analysis was conducted in 22 overweight/obese men with prostate cancer enrolled in a presurgical weight loss trial; 11 men were assigned to the weight loss arm and 11 men were assigned to usual care. At baseline and follow-up, we conducted 2-day dietary recalls (ASA24) and collected fecal samples (16S rDNA was extracted and pyrosequenced). Associations between nutritional factors and operational taxonomic units (OTU) were examined at baseline as well as changes over time. Changes from baseline to follow-up were analyzed using paired t-tests for within group changes and t-tests for between group changes. Results: At baseline, significant associations were observed between dietary protein and the phyla Actinobacteria (ρ= -0.461) and Bacteroidetes (ρ= 0.523), and both dietary fiber (ρ= 0.459) and sugar (ρ= 0.472) were associated with Campylobacterales (phylum Proteobacteria). No associations were detected between change in body weight and change in major phyla. Analysis using three different beta diversity metrics identified patient subgroups that had different microbe compositions as determined by changes in consumption of meat, poultry, and lutein and zeaxanthin (false discovery rate $p<0.05$). Increasing meat consumption was associated with significant decreases in several orders of bacteria including Flavobacteriales (phylum Bacteroidetes); YS2 (phylum Cyanobacteria); Bacillales, Turicibacterales, Erysipelotrichales (phylum Firmicutes); Pasteurellales, Pseudomonadales, and Xanthomonadales (phylum Proteobacteria). Men who decreased their poultry consumption had a significantly higher abundance of Clostridiales (phylum Firmicutes) than men who increased or had no change in their intake (65.3+/-4.1% vs. 43.8+/-3.9%, $p<0.001$). Conclusion: In this study, diet composition contributed more to changes in the microbiome than weight loss. The generalizability of our data, however, is influenced by a striking abundance of Proteobacteria (10.7+/-3.3%), which is much higher than previous reports; whether this is characteristic of men with prostate cancer warrants further investigation.	Association between post-cancer diagnosis dietary inflammatory potential and survival in WHI Observational Study and Dietary Modification Trial Zheng JL, Tabung FK, Zhang JJ, Shivappa N, Ockene JK, Caan B, Kroenke C, Hebert JR, Steck SE Inflammation regulates key biologic processes in chronic disease and can be modulated by diet. Our objective was to use the dietary inflammatory index (DII), a novel tool to characterize the inflammatory potential of diet, to examine how post-cancer diagnosis dietary quality is associated with overall survival in the Women's Health Initiative (WHI) Observational Study (OS) and Dietary Modification Trial (DM). Methods: After excluding baseline cancers and energy outliers, the analytical cohort had 4,241 postmenopausal women (19% of total cancer cases), aged 50 to 79 years at baseline, in the WHI OS (n= 1,852) and DM (n=2,389), who developed invasive cancer during follow-up and completed a food frequency questionnaire after diagnosis. These women were followed from dietary assessment until death from any cause. Energy-adjusted DII scores from food only and from food plus supplement (any reported dietary supplement related to DII parameters) after cancer diagnosis for each subject were calculated by multiplying the inflammatory effect scores determined based on extensive literature review and intake values for each food parameter, and then summing across all the food parameters. Death was ascertained by clinical center follow-up or by searching the National Death Index with central or local adjudication. Cox proportional hazards models were fit to estimate multivariable-adjusted hazard ratios (HRs) and 95% confidence intervals (CI) for all-cause mortality comparing women in higher DII quartiles with those in the first quartile. Results: After a median 11.2 years of follow-up, 1,470 deaths occurred. After adjustment for key covariates, women who consumed a more pro-inflammatory diet (in higher quartiles of DII score from food only) after a cancer diagnosis had a significantly higher risk of death from any cause compared to women consuming a more anti-inflammatory diet (HR Q4:Q1= 1.18; 95% CI=1.01-1.38; P trend=0.015). In analyses using DII score from both diet and supplements, a pro-inflammatory DII score was associated with even higher risk of all-cause mortality (HRQ4:Q1=1.63; 95% CI=1.40-1.91; P trend<0.0001). Conclusions: Consuming a more pro-inflammatory diet after cancer diagnosis was associated with increased risk of death from any cause.

Marc Kowalkowski, PhD

Patient navigation associated with decreased 30-day all-cause readmission

Kowalkowski MA; Raghavan D; Blackley K; Morris V; Farhangfar C

Oncology patient navigation (PN) programs have been developed to improve outcomes and reduce disparities. Limited data exist to describe the effect of PN on important clinical outcomes, such as readmission, post cancer diagnosis. Methods: We conducted a retrospective cohort study of adults (≥18yrs) diagnosed with first primary cancer from Jan 2013-Nov 2014 at a multi-site academic community based cancer institute. "Nearest-neighbor with caliper" propensity-score (PS) matching was used to match PN to similar not navigated (NN) patients. Patients had ≥3mo follow-up post cancer diagnosis. 30d all-cause readmission (ACR) was any inpatient admission within 30d of discharge from index hospitalization (IH). IH was the first inpatient admission ≤12mo post cancer diagnosis. When IH ended in transfer to another acute care facility, ACR was calculated from final discharge from acute care. Deaths during IH and discharges against medical advice were excluded from ACR analysis. Multivariable random effects and conditional logistic regression models evaluated associations between PN and length of hospital stay (LOS) and ACR. Results: 10532 patients were eligible (2592 PN; 7940 NN). 4324 PS-matched patients (2162 PN/NN) were included, with balanced demographic (age, sex, race, ethnicity, insurance, marital status, employment, rurality) and tumor characteristics (site, stage, grade, vascular invasion, metastases) and overall health (comorbidity index, inpatient admission 12mo before cancer diagnosis) between groups. There were 4156 total inpatient admissions ≤12mo post cancer diagnosis. 1190 PN and 958 NN had ≥1 inpatient admission (55% vs 44% $p<0.01$). Controlling for principle diagnosis, procedures performed, and charges, LOS was slightly shorter in PN than NN (log LOS β=-0.05 [5% shorter stay] p=0.05). Among those with eligible IH, 17% PN and 21% NN were readmitted ≤30d. Controlling for principle diagnosis, procedures performed, and LOS during IH, PN had lower odds of ACR (OR=0.66 95%CI=0.48-0.92). Conclusion: In a large, diverse PS-matched cohort, PN patients had shorter LOS and lower odds of ACR. Results suggest PN improves care transition and clinical outcomes for cancer patients after inpatient admission. Additional analyses will explore subgroup differences

PAPER SESSION ABSTRACTS -- Tuesday, March 15, 2016

Paper Session 3 – Breast Cancer Topics

Robert Hiatt, MD, PhD	Emily Rossi, PhD
Childhood socioeconomic position and pubertal onset: implications for breast cancer Hiatt RA, Stewart SL, Hoeft KS, Kushi LH, Windham G, Biro FM, Pinney SM, Wolff M, Teitelbaum S, Braithwaite D Higher socioeconomic position (SEP) has been associated with increased risk of breast cancer. Its relationship with the age of menarche, which is inversely associated with risk of breast cancer, and to the age of pubertal onset, is less clear. We studied the relationship of SEP to pubertal onset in a multiethnic cohort of girls aged 6-8 years at baseline and followed for 5-8 years in the Breast Cancer and the Environment Research Program in three study sites across the United States that included annual clinical examinations performed from 2004 to 2012. Analyses were conducted with accelerated failure time models using a Weibull distribution, with left, right and interval censoring. Among 1059 girls, an index of SEP comprised of household family income, mother's education and whether the home was owned or rented was assessed for associations with pubertal onset, measured by breast budding (Tanner Stage B2) and pubic hair development (Tanner Stage PH2). Girl's BMI% at entry to the study and black or Hispanic race/ethnicity were the strongest predictors of age at pubertal onset by both measurements, but the SEP index was an independent predictor in adjusted models. Girls from the lowest quintile of SEP entered puberty on average 6% earlier (6.0-7.5 months) than girls from the highest quintile (time ratio=0.94, 95% confidence interval 0.91-0.97) adjusted for BMI%, race/ethnicity and their interaction. The meaning of SEP in this relationship bears further study, but our results suggest that early life social circumstances beyond race/ethnicity and body size may influence the timing of pubertal development.	Effects of Surgical vs. Non-Surgical Weight Loss on Mammary Tumor Burden Rossi EL, Bowers LW, Khatib SA, Smith LA, Doerstling SS, Lewis A, Seeley RJ, Hursting SD Obesity is associated with increased incidence of basal-like breast cancer (BLBC), the most aggressive and lethal breast cancer subtype. Epidemiological data is conflicting on whether weight loss offers protection against BLBC in obese women; only interventions that typically result in significant sustained weight loss, such as bariatric surgery, produce a consistent anti-cancer benefit. Purpose: We sought to determine the differential effects of surgical and non-surgical weight loss interventions on inflammation, metabolic hormones and tumor burden in a mouse model of pre- menopausal breast cancer. Methods: Mice were fed a low fat control (Con) or high fat diet-induced obesity (DIO) regimen for 15 weeks to model chronic obesity. Obese mice were then randomized to continue the DIO diet (Obese) or receive a surgical or diet weight loss intervention, resulting in formerly obese (FOb)-Surg or FOb-Diet, respectively. FOb-Surg mice were subject to sleeve gastrectomy (~70% of the stomach excised), while FOb-Diet mice received a low fat diet. FOb-Surg and FOb-Diet mice normalized body weight and body fat percentage to levels seen in the Con group. After weights stabilized, all mice were orthotopically injected with E0771 mammary tumor cells, which model BLBC. Results: At study endpoint, the average tumor weight in FOb-Surg mice was statistically equivalent to Con mice that maintained a healthy weight throughout study. However, the average tumor weight in FOb-Diet mice was statistically equivalent to Obese mice, both groups significantly greater than Con mice. Additionally, FOb-Surg had statistically lower serum insulin and interleukin-6 compared to FOb-Diet and Obese mice, suggesting that the sleeve gastrectomy more effectively reduced obesity-associated inflammation. Conclusion: Our results suggest that the anti-cancer benefit seen with bariatric surgery may be related to a significant reduction in systemic inflammation and growth factor signaling, which did not occur with non-surgical weight loss despite an equivalent amount of weight and body fat loss in FOb-Diet mice. Identifying the mechanisms underlying the protective effects of bariatric surgery against breast cancer could help identify new targets and strategies for breaking the obesity-cancer link.

Karen Wernli, PhD	Tasleem Padamsee, PhD
How have breast cancer screening intervals changed since the 2009 USPSTF guideline update? Wernli KJ, Arao RF, Hubbard RA, Sprague BL, Alford-Teaster J, Haas JS, Henderson L, Hill D, Lee CI, Tosteson AN, Onega T Beginning in 2009, the U.S. Preventives Services Task Force (USPSTF) breast cancer screening guidelines recommended biennial mammography screening for women aged 50-74 years, and shared-decision making for women aged 40-49 years. We evaluated changes in screening interval after release of the 2009 recommendations. Methods: We compared screening intervals over the period between 2006 and 2012, expecting that the screening interval would lengthen over this time period, using data from the Breast Cancer Surveillance Consortium on 909,972 screening mammograms among 351,271 women aged 40-89 years. We stratified intervals based on whether the exam at the end of the interval occurred before or after the 2009 USPSTF decision. Differences in mean interval length by woman-level characteristics were compared using linear regression. Results: Contrary to expectations, the mean interval length (in months) minimally decreased after the 2009 USPSTF guideline compared to prior. Among women aged 40-49 years, the mean interval length decreased from 17.3 months to 17.1 months (difference -0.20, 95% confidence interval [CI] -0.33 to -0.06). Similar small reductions were seen for most age groups. The largest decreases in interval length in the post-USPSTF period were observed among women with a first-degree family history of breast cancer (difference -0.65, 95% CI -0.79 to -0.52) or a 5-year breast cancer risk ≥ 2.5% (difference -0.53, 95% CI -0.66 to -0.40). Conclusions: The 2009 USPSTF guideline update did not lengthen the average mammography screening interval among women routinely participating in mammography screening. Future studies should evaluate whether breast cancer screening intervals lengthen towards biennial intervals following new national 2015 breast cancer screening recommendations, particularly among women under 50 years.	Influence of Personal Exposure to the Cancer of a Loved One on the Breast Cancer Prevention Decisions of High Risk Women Padamsee, TJ; Wills, C; Yee, L; Paskett, E To explore the impact of close personal exposure to cancer in a family member or friend in the prevention decisions of women at elevated risk of breast cancer. Methods: 50 semi-structured interviews with 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 are analyzed with NVivo 10, using grounded theory methods. Results: Prevention decision making by women who have had close contact with the cancer diagnosis and treatment of a loved one (most often a mother or grandmother, but sometimes a sister, cousin, or close friend) is importantly influenced by these experiences. The process of deciding whether and when to undertake prophylactic mastectomy or oophorectomy, chemoprevention, enhanced surveillance, and/or genetic testing is substantially different in women who have and have not had close personal experience with the cancer of a loved one. Women who have experienced the deaths of one or more loved ones express strong motivation and willingness to undertake definitive interventions; most often this means prophylactic surgery, but this can also include chemoprevention. These women often feel that they are likely to be diagnosed with breast cancer eventually, and seek decisive methods to avoid what they perceive as a life-threatening diagnosis. Women whose loved ones have survived and thrived after a cancer diagnosis are more oriented toward careful surveillance through screening tests and physician checks. These women usually see breast cancer as a challenge they may have to deal with in the future, and they are motivated to set the stage for treatment success by establishing ongoing relationships with highly competent healthcare providers, and by being diagnosed as early as possible. Conclusions: Cancer care has strong effects beyond the cancer patient herself, affecting the decision-making processes and the prevention-related decisions of loved ones as well. Future prevention research for women at elevated risk should consider how their prior experiences with the cancer of friends or family members structure women's expectations of cancer risk, prevention, and outcomes.

Vicki Hart, PhD

The association between post-diagnosis health behaviors and quality of life in survivors of ductal carcinoma in situ

Hart V, Berkman A, Ba Y, Fujii M, Veal CT, Hampton JM, Gangnon RE, Newcomb PA, Trentham-Dietz A, Sprague BL

Survivors of ductal carcinoma in situ (DCIS), an early stage breast cancer, tend to decrease physical activity, gain weight, and maintain alcohol use following treatment. However, the impact of these health behaviors on long-term quality of life (QoL) in DCIS survivors has not been investigated. Methods: We examined the association of post-diagnosis body mass index (BMI), physical activity and smoking with QoL among 1,448 DCIS survivors aged 20-74, who were diagnosed during 1995-2006 and enrolled in the population-based Wisconsin In Situ Cohort. Health behaviors and QoL were self-reported during biennial post- diagnosis interviews. Physical and mental QoL were measured using the validated SF-36 questionnaire (higher scores reflect more positive QoL). Generalized linear regression was used to establish QoL mean scores in cross-sectional analyses, with multivariable adjustment for age, comorbidity status, education, and income. Results: Women reported 3,444 QoL observations over an average 7.9 years of follow-up. Physical health summary scale measures of QoL were significantly higher among women with healthy BMI (46.5 for healthy weight versus 40.5 for obese, $p=0.02$) and those who were physically active (45.9 for active women versus 42.6 for inactive, $p=0.03$). Mental health summary scale scores were significantly higher among non-smokers (51.2 for non-smokers versus 47.1 for current smokers, $p<0.01$). These associations were consistent over increasing time since treatment up to 15 years. Conclusion: Our preliminary analysis suggests that maintaining healthy behaviors following DCIS treatment is associated with improved long-term QoL. Longitudinal analysis using cross-lagged regression is underway to evaluate the temporal association between health behavior and QoL. Understanding factors that impact QoL in DCIS survivors may inform interventions aimed at preventing negative health behaviors and optimizing long term quality of life following a DCIS diagnosis.

PAPER SESSION ABSTRACTS -- Tuesday, March 15, 2016
Paper Session 4 – Tobacco

Mandeep Virk-Baker, PhD

Dietary Adequacy among Tobacco User Households in Bangladesh

Virk-Baker MK, Parascandola M.

Smokers have less adequate diet as compared to non-smokers. The indirect effects of tobacco on diet may have profound implications for health and disease outcomes. Less is known about the influence of tobacco on dietary intakes in low-income countries where malnutrition is a major public health challenge. Additionally, the effect of smokeless tobacco on dietary intake are unknown. The purpose of this study was to evaluate influence of tobacco use on dietary intakes in a developing country. Methods: We used the nationally representative Household Income Expenditure Survey (HIES-2010) from Bangladesh. Detailed dietary data including both ethnic and regional specific foods were collected for 14 days and comprised of 7 visits with two days recalls. Overall, 71% of the households reported positive expenditure on tobacco (smoking and/or smokeless), and were considered tobacco users. Results: 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, tobacco users consumed significantly lower daily mean per capita of vegetables (β = -18.35 g/day; $p < 0.0001$), milk and dairy (β = -12.83 g/day; $p < 0.0001$), fish (β = -11.19 g/day; $p < 0.0001$), meat (β = -7.60 g/day; $p < 0.0001$), legumes (β = -3.31g/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 = 24.744 g/day; $p < 0.0001$) was significantly higher among tobacco users as compared to non-users. We observed similar significant associations for smokeless tobacco users as compared to non-users. Conclusion: The project provides evidence to support policy recommendations for addressing poor dietary intakes and malnutrition burden among tobacco user households in a developing country like Bangladesh. Addressing tobacco use in relation to malnutrition would make tobacco control a higher priority for effective tobacco related chronic disease prevention, as well as achieving the Millennium Development Goal 1, and post-2015 development agenda of eradicating extreme poverty and hunger.

Megan Roberts, PhD

Point-of-Sale Marketing for a Variety of Tobacco Products in Urban and Rural Ohio

Roberts ME, Berman ML, Slater MD, Klein EG, Wewers ME, Glover K, Keller B, Hinton A, Lu B, & Ferketich AK

Considerable research has examined how cigarette point-of-sale advertising is closely related to smoking-related cancer disparities across communities. Yet few studies have examined marketing of alternative tobacco products (e.g., e-cigarettes). The purpose of the present study was to examine external point-of-sale marketing of various tobacco products and determine its association with community-level demographics (population density, economic- disadvantage, race/ethnicity) in urban and rural regions of Ohio. During the summer of 2014, fieldworkers collected comprehensive tobacco marketing data from 199 stores in Ohio (99 in Appalachia, 100 in Columbus), including information on external features. The address of each store was geocoded to its census tract, providing information about the community in which the store was located. Results indicated that promotions for e-cigarettes and advertising for menthol cigarettes, cigarillos, and cigars were more prevalent in communities with a higher percentage of African Americans. Cigarillos advertising was more likely in high-disadvantage and urban communities. A greater variety of products were also advertised outside retailers in urban, high-disadvantage, African American communities. Findings provide evidence of differential tobacco marketing at the external point-of- sale, which disproportionately targets urban, economically-disadvantaged, and African American communities. There is a need for tobacco control policies that will help improve equity and reduce health disparities.

Alexandra White, PhD	Tracy Crane, PhD
Active tobacco smoke and environmental tobacco smoke exposure during potential biological windows of susceptibility in relation to breast cancer. White AJ, D'Aloisio AA, Nichols HB, DeRoo LA, Sandler DP Our objective was to prospectively examine active smoking and environmental tobacco smoke (ETS) in relation to breast cancer risk, with a focus on exposures during potential windows of susceptibility. Methods: Sister Study cohort participants (n=50,884) were enrolled between 2003 and 2009 and were followed for a breast cancer diagnosis. Women ages 35-74 in the United States and Puerto Rico were eligible if they had a sister who had been diagnosed with breast cancer. Study participants completed extensive telephone and paper questionnaires including information on established breast cancer risk factors as well as active smoking history and exposure to ETS while in utero and during childhood and adult years. Cox regression analysis was used to estimate adjusted hazard ratios (HRs) and 95% confidence intervals (95% Cis) for invasive breast cancer incidence associated with active smoking and ETS exposure. Results: During follow-up (mean=6.4 years), 1,843 invasive breast cancers were diagnosed in the study population. Exposure to ETS in adulthood was not associated with increased breast cancer risk. However, nonsmoking women who were exposed to ETS throughout their childhood (18 years) had an 18% higher risk of breast cancer (95%CI: 1.02-1.38) relative to those without any childhood ETS. In utero ETS exposure also was associated with a modest increase in breast cancer incidence (HR=1.16, 95%CI: 1.01-1.32) among nonsmokers as was paternal smoking prior to the participant's mother's pregnancy (HR=1.12, 95%CI: 0.98, 1.29). Additionally, active smoking prior to first pregnancy for 10 or more pack-years (HR=1.31, 95%CI: 1.02-1.67) was associated with an elevated risk of breast cancer. Conclusions: In this large, prospective study, we report evidence that both active smoking and ETS exposure during potential windows of susceptibility, including in utero exposure, childhood and prior to first pregnancy, are associated with higher risk of breast cancer.	Cancer Patients Report Better Tobacco Quit Outcomes During Cancer Therapy: Results from the Arizona Smokers' Quitline Crane TE, Holloway DA, Brady BR, Garland LL, Thomson CA The purpose of this study is to compare tobacco cessation outcomes among Arizona Smokers' Helpline (ASHLine) clients who report being in cancer treatment versus those who are beyond treatment or clients without cancer. Background: Tobacco remains the leading cause of preventable cancer deaths. Cancer outcomes are markedly improved when patients quit tobacco regardless of where they are in the cancer continuum. Despite the documented effectiveness of tobacco quitline services, referrals to these programs remains low for patients active in cancer therapy. Methods: A matched, case-control multiple logistic regression was performed for clients who enrolled in ASHLine services between January 2011 and March 2015. The referent group was clients receiving ≤5 coaching calls and no cessation medication; the primary outcome was 7-month quit rate. Clients were matched on age, gender and total number of chronic diseases and stratified by cancer status; no cancer (n = 1300), in treatment (n = 356), beyond treatment (n = 944). Based on face validity we controlled for demographic (insurance, referral and mental health status) and in-program treatment variables (number of coaching sessions and cessation medication use). Results: Cessation medication was not associated with 7-month quit outcomes. In clients who received ≥6 coaching sessions and no cessation medication the odds of quitting were OR 4.24, CI: 1.99 -8.99 for patients in treatment, OR 3.052, CI: 1.9 - 4.86 for those beyond cancer treatment and OR 3.27, CI: 2.19 - 4.86 for those without cancer. Conclusions: Tobacco quitlines are an effective approach to supporting tobacco cessation overall and in those diagnosed with cancer. Interestingly, enrolling in cessation services during cancer treatment afforded the best outcomes. Future work should focus on increasing provider engagement for referrals and developing specialized tobacco cessation programs for patients with cancer to meet their unique needs.

Nathan Doogan, PhD	(cont.)
Cigarette Tax Revenues and Consumption under Current and Minimum-Price Regimes Doogan NJ; Berman ML; Wewers ME Because nine out of ten lung cancer deaths are attributable to smoking, significant reductions in smoking are likely to reduce lung cancer death as well. It is well known that cigarette demand and consumption are negatively related to price, and that cigarette smokers use price minimization strategies to maintain their tobacco use patterns at a reasonably low cost when prices go up. Two consumer strategies that have received significant attention are legal tax avoidance and illegal tax evasion. These strategies are most common when there is a price differential in an area such as an adjacent state that imposes a relatively lower excise tax on cigarettes. Their effect is a reduction in the intended public health effect of excise taxes that is expected to occur via a drop in consumption, and a reduction in state tax revenues, which may be used to fund tobacco control efforts. An increasingly discussed solution is a minimum price law. If the price is set high enough, among-state price disparities of cigarettes and other tobacco products can be eliminated along with a prominent consumer price reduction strategy. Purpose: In this study, cigarette consumption data are used to inform a novel model of consumption that incorporates the effect of adjacent state price differentials. The model is then used to (1) estimate lost (or gained) revenues by state, as well as (2) expected changes in consumption in a scenario involving a minimum price law for cigarettes that sets a nationwide price of $10 per pack (approximately the average price in New York state in 2014), which would eliminate an among-state price differential, and therefore much of the incentive to avoid or evade taxes. This scenario also raises the price of cigarettes substantially in almost all states. Methods: We use yearly state-level cigarette consumption and price data from the Tax Burden on Tobacco from the years 2004-2014. The developed model is a log-linear regression model that uses latent variables (i.e., random effects) to capture basic price effects and adjacent-state price differential effects in a mixed effects model framework. The latent variables offer a simple means of allowing both price effects to vary by state. We analyze the fitted model in two ways. First, we compare model-based consumption predictions under a regime of existing state price and border- state price differentials with predictions from a regime in which the differential is removed. This comparison results in estimates of state-specific consumption lost (or gained) due to border state price differentials; the estimates of lost consumption are multiplied by state-level excise tax and interpreted as lost (or gained) state revenues. A second analysis compares the current regime to one in which cigarette packs are set at $10 each nationwide to determine the expected consumption reduction.	Results: Overall, the effect of price on demand is negative, statistically significant, and well within range of the price elasticity estimates available in the literature. The effect of border-state price differential is also negative and statistically significant suggesting that a state's consumption is negatively related to the difference between its cigarette price and the average price of its neighboring states. Both effects are heterogeneous across states. In the first analysis of the fitted model, calculation of lost (or gained) revenue relative to what would be earned if no price differential existed is examined. The analysis reveals that New York and Illinois are, by a large margin, losing the most yearly tax revenue (nearly $140M each) to out-of-state cigarettes. Other top ranking revenue-loss states in order include Florida, Washington, Minnesota, Massachusetts, Arizona, and Ohio. On the other end of the spectrum, states gaining the most revenue under the current price regime are in order, Pennsylvania, New Hampshire, Indiana, West Virginia, Delaware, Missouri, Virginia, and Iowa. When all state gains (or losses) are summed, the net is a loss at $294.6M nationwide. In a second analysis of the fitted model, state-specific consumption estimates are derived under a regime in which a pack of cigarettes always costs the consumer $10 and in which there is no border price differential. The analysis reveals that the 2014 consumption estimate of approximately 13 billion packs of cigarettes drops to just under 8 billion under the nationwide $10 per pack regime. Conclusions: The analysis results suggest that state excise tax revenues are unfairly distributed due to tax avoidance or evasion behavior, and the net effect is a nationwide loss of almost $300 million in state revenues. This is money that could have been spent by high tax states towards their tobacco control goals, but instead went at a discount to states that have a lower excise tax, and likely weaker tobacco control goals. The analysis also revealed that a nationwide minimum price on tobacco could have a very strong effect on cigarette consumption, cutting out over a third of current consumption. These estimates are drawn from a model fitted to real and recent data. Moreover, the nature of the model allows for state specific idiosyncrasies that may affect price and adjacent state price effects to bear on the results, an approach not seen in the literature to date. However, the calculations involve assumptions that may not be realistic. For example, it is not clear that the price effect will remain the same at all price levels (i.e., the price effect may be non-linear). Also, a minimum price on cigarettes would not necessarily remove price differentials as assumed in the 10$ per pack scenario. Thus, the results of this study are best viewed as somewhat stylized views of what we are losing in the current price regime, and what we could achieve under another.

2016 ASPO POSTER DIRECTORY (-T denotes Trainee)

Poster #	Last Name	Poster Title
60-T	Algotar	Association of ERG-PTEN expression with PSA velocity and its role in preventive prostate cancer progression
11	Antognoli	Improving cancer prevention through increasing HPV vaccination rates: a systems approach
51-T	Ba	Platelet-to-Lymphocyte Ratio, Race, and Overall Survival in Patients with Colorectal Cancer
87	Barrington	Mortality outcomes associated with intake of fast food items & sugar-sweetened drinks among adults in the VITAL study
53	Batai	Benefit of high vitamin D intake for prostate cancer prevention among African Americans
43-T	Beckmeyer-Borowko	Racial/ethnic differences in endometrioid endometrial ca treatment types among women identified through the Nat Ca Database.
18	Berenson	Healthcare Provider Acceptance of a Postpartum HPV Vaccination Program
3	Berman	A Critical Examination of FDA Premarket Review of Tobacco Products
8	Bernardo	Beliefs about Mandatory School Vaccination and History of Vaccination Refusal among Ohio Appalachian Parents
83	Borresen	A dietary chemoprevention randomized-controlled trial with navy beans and rice bran for enhanced intestinal health in CRC survivor
89-T	Bowers	Weight loss via chronic or intermittent calorie restriction reverses the enhancing effects of obesity on mammary tumor growth
72	Brasky	Non-steroidal anti-inflammatory drugs and endometrial cancer mortality in the NRG Oncology/Gynecologic Oncology Group 210 tria
109-T	Brown	Second Malignancy Risk among Fusion-Positive and Fusion-Negative Index Sarcomas Survivors
64	Burnett-Hartman	Interval Colorectal Cancer After Colonoscopy: Tumor Characteristics, Demographics, and Polyp History
115-T	Cases	Gardening Intervention Decreases Sleep Medication Dependence in Senior Adult Cancer Survivors
84	Cespedes	Metabolic Phenotypes and Survival After Colorectal Cancer
1	Clarke Hillyer	Examination of e-communication and health information preferences among Hispanics in Northern Manhattan
66	Cohn	Electronic health information sharing preferences among family members: Implications for cancer risk assessment
93	Cook	Body size and risk of luminal, HER2-overexpresing, and triple negative breast cancer
94	Cook	Stage of endometrial cancer and distance to surgery in Hispanics and non-Hispanic whites
113	Cox	Optimizing a weight control intervention for BRCA+ breast cancer survivors
17	de Armas	#LookWhoIsTalking: A Visual Analysis of Tweets about HPV Vaccination
45	DeRouen	Impact of individual and neighborhood factors on disparities in prostate cancer survival
46	DeRouen	Impact of individual and neighborhood factors on disparities in prostate cancer incidence
103-T	Dieli-Conwright	Metabolic Syndrome and Cancer Staging in Overweight/Obese Latina Breast Cancer Survivors
106-T	DiMartino	The relationship between cancer survivorsâ€™ socioeconomic status and reports of follow-up care discussions with providers
12	Flocke	Understanding patterns and practices of little cigar and cigarillo use among young people
13	Flocke	A teachable moment communication process intervention for smoking cessation counseling: Effect on patient outcomes
14	Flocke	Primary care resident training and preparedness to provide nutrition and physical activity counseling for cancer prevention
75-T	Ford	Overweight and obesity diminish excess risk of weight gain in non-Hispanic Black postmenopausal women relative to non-Hispanic W
44	Gathirua-Mwangi	Mammography Adherence in African American Women: Results of a Randomized Controlled Trial
35-T	Geneus	Theory Based Approach to Assess HPV Vaccination Uptake Among University Students.
36-T	Geneus	Multilevel Model of correlates of In-Hospital Mortality among Patients with Leukemia: Analysis from the National Inpatient Sample
102	Glueck	Informing Women and Their Physicians about ACS Guidelines for Adjunct Screening Breast MRI Improves Adherence: A Cohort Study
80-T	Goldberg	Early Life Growth and Benign Breast Disease
31-T	Gonzales	Measurement of Mammography History
15	Gorman	Adoption: Consideration and concerns among young female cancer survivors
16	Hamilton	Examining information preferences and psychological responses to multiplex genetic testing among breast cancer patients & survivo
34	Hemmerich	E-cigarette marketing online: A systematic content analysis of manufacturers and retailers
4	Hirth	Concordance between parent and provider report of HPV vaccination among 13-17 year olds participating in NIS-Teen, 2008-2013
50	Hohl	Moving towards Transdisciplinary Outcomes: A Cross-Initiative Perspective
90	Houghton	Why do studies show different associations between prenatal smoke exposure and age at menarche?
61-T	Hsu	Metabolomic Profiles of Current Cigarette Smokers
24	Jacob	Early Predictors of Delayed and Late Pulmonary Toxicities after Radiation Exposure
67-T	Jarstad-Stein	Distress and sources of distress among cancer patients attending their first chemotherapy session at an urban cancer center.
25	Jenkins	Perceived harms and norms associated with electronic cigarette and smokeless tobacco use
48-T	Josey	Changing trends in practice settings for colonoscopy in SC: implications for colorectal cancer prevention
49	Jung	Bioavailable Insulin-Like Growth Factor-I as Mediator of Racial Disparity in Obesity-Relevant Br and Crc Risk among Postmenopausal
32	Kepka	Factors associated with increased receipt of the HPV vaccine in U.S. male adolescents include Hispanic ethnicity & other vaccines
26-T	Khalil	Adolescentsâ€™ Experience with a Web-based Intervention for Smoking Prevention: A Randomized Controlled Trial
91-T	Khatib	Reversal of Obesity-Associated Alterations in Inflammation and Mammary Tumor Growth by Sulindac Supplementation
56-T	Khushalani	Disparities in Breast Reconstruction Surgery: Systematic Review and Meta-Analysis
95-T	Kim	Gene-environment interactions between polymorphisms of stem cell and microRNA-related genes & tobacco smoke exposure
68-T	Kiwata	Relationship between Energy Balance and Sarcopenic Obesity in Prostate Cancer Survivors on Androgen Deprivation Therapy
54	Knerr	Effects of systematic referral to free genetic counseling in high risk women with and without a college degree.
57-T	Ko	The Impact of Medical Tourism on Colorectal Cancer Screening among Korean Americans
117	Kocarnik	Weight change after colorectal cancer diagnosis is associated with long-term survival
38	Krok-Schoen	Cancers Associated with Human Papillomavirus in Ohio
96	Kuang	A web resource for exploring - omics and clinical data from healthy breast tissues
62	Lan	Associations among tissue vitamin D metabolites and breast cancer risk factors in women undergoing reduction mammoplasty

37-T	Le	WMN4HLTH: Development of a Spiritually-Based SMS Text Messaging Pilot Intervention to Increase Cervical Cancer Awareness .....
110	Leader	Examining Relationships between Age Category at Diagnosis and Health-Related Quality of Life Outcomes in Prostate Cancer Survivo
19	Lian	Neighborhood socioeconomic deprivation and geographic heterogeneity of tobacco environment in Missouri.
74-T	Lucas	Characteristics Associated with meeting Physical Activity Guidelines in Breast Cancer Survivors during Early, Post-Treatment
101	Lynch	Telomere Length and Neighborhood Circumstances: Evaluating Biological Response to Unfavorable Exposures
7	Malo	Training providers to recommend HPV vaccine effectively: Process evaluation of a randomized controlled trial
52	Mama	Longitudinal associations between social support and physical activity among overweight and obese Appalachian adults
69-T	Mazul	Oral health and HPV-associated head and neck squamous cell carcinoma
27	McAdams	Tobacco-Related Chronic Diseases and Smoking Cessation
59-T	Mohammed	Predictors of Venous Thromboembolism in Hospitalized Patients with Metastatic Cancer: Findings from the Nationwide Inpatient Sa
9-T	Moss	Safe, effective, and efficient: The role of concomitant vaccination in human papillomavirus (HPV) vaccine coverage and cancer preve
111	Mouw	Care Transitions in Pediatric Cancer Survivorship: A Qualitative Analysis of Provider Perspectives
112-T	Mouw	Improving Childhood Cancer Survivorsâ€™ Social Well-Being: Multidisciplinary Providersâ€™ Perspectives
116-T	Newcomb	Pre- and post-diagnostic non-steroidal anti-inflammatory drug use and colorectal cancer survival in Seattle Colon Cancer Family Regi
78	Nichols	Breast cancer chemoprevention in an integrated healthcare setting
79	Nichols	Oxidative stress and premenopausal breast cancer
42-T	Nightingale	Health-Related QOL in Rural and Urban Cancer Survivors and Adults without Cancer
23	Obidegwu	An Efficient Resource to Accelerate Research into the Cause and Prevention of Breast Cancer: The Army of Women
39	Ochs-Balcom	Sleep Duration, Quality, and Breast Cancer Aggressiveness (WHI Ms2524)
114-T	Ou	Risk of Hospitalization among Survivors of Childhood Acute Lymphoblastic Leukemia
28	Paskett	The Walk by Faith Study: A Group Randomized Trial to Promote Exercise and Diet in Appalachia
40-T	Peckham	Maternal race and child sex disparities associated with childhood lymphoma in Texas, 1995-2011
76		withdrawn
41-T	Plascak	Neighborhood disorder, interpersonal discrimination and cancer-related risk factors
21	Post	Perspectives of patients and physicians regarding adherence to adjuvant hormonal therapy
108	Reeves	Predictors of vasomotor symptoms among breast cancer survivors
2- T	Rendle	HPV vaccination resistance in educated, affluent parents: Are countervailing mechanisms to blame?
22-T	Rodriguez	Friendly tanning: College studentsâ€™ engagement with friends around indoor tanning
88-T	Sardo Molmenti	Dietary inflammatory index and risk of colorectal adenoma recurrence: A pooled analysis.
6-T	Shay	Survivorship care planning and unmet information and service needs among adolescent and young adult cancer survivors
47-T	Shen	Evaluating the Association between Area-level Socioeconomic Status Measures and Colorectal Cancer Screening Adherence
58	Sheppard	Chemotherapy Use in Patients with Triple Negative Breast Cancer
98	Shields	Genome-wide DNA Methylation Analysis in Normal Breast Tissues of Obese Women and integration with Gene Expression
92-T	Song	Racial differences in genome-wide methylation profiling and gene expression in breast tissues from healthy women
55	Springfield	Describing dietary adherence in African American Breast Cancer Survivors using the Alternative Healthy Eating Index (AHEI)
71-T	Swartz	Factors Associated with Adherence to Activity Monitor-Based Physical Activity Intervention in Older Adults
85-T	Tabung	Associations between Adherence to the WCRF/AICR Ca Prev Recommendations & Biomarkers of Inflammation and Insulinemia
5-T	Tagai	Predictors of decisional conflict for colorectal cancer screening among African Americans
104-T	Tarleton	Changes in Health-Related Quality of Life in Cancer Survivors Following 26-Weeks of Aerobic and Resistance Training
105-T	Tarleton	Decreased Prevalence of Metabolic Syndrome and Improvements in Body Composition in Cancer Survivors Following 26-Weeks of AI
63	Taslim	Genome-wide tissue-based microRNA signature in healthy women predicting breast cancer risk
99-T	Taylor	Differences in host phenotypic and histopathological tumor features between familial and population-based cutaneous melanoma
29	Tehranifar	Prospective changes in breast cancer worry and risk perceptions following breast density notification in an urban screening sample
30	Tehranifar	An analysis of breast density notification legislation and implications for health disparities
97-T	Thompson C.	Vitamin D and Breast Cancer Tumor Grade
70	Trinh	Demographic, Medical, and Environmental Correlates of Sedentary Behavior in Kidney Cancer Survivors
118-T	Tsai	Exercise self-regulation in cancer survivors: A qualitative study
81-T	Veal	Influence of Health Behavior on Mortality in Women Diagnosed with Ductal Carcinoma In Situ
73-T	Virk-Baker	Dietary Intakes among Heavy vs. Light Smokers from the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study Cohort
33	Wallington	Improving HPV Vaccination Completion in the District of Columbia: Avoiding Missed Opportunities
20-T	Warner	Knowledge and beliefs about cancer and cancer screening: How do they relate to cancer screening behavior?
107	Weaver	Early Stage Lung Cancer Survivorsâ€™ Challenges during the Transition to Post-treatment Follow-up Care
100	Weghorst	Inherited Alteration of TGF Beta Signaling Components in Appalachian Cervical Cancers
65	Wernli	Current patterns of colorectal cancer screening in an insured population
82-T	Xu	Dietary energy intake early in life alters gut microbiota.
86-T	Zhang	Wiser after Ovarian Cancer Exercise Pilot Study
77	Zhao	The Use of Tamoxifen and Raloxifene among Older Women with Ductal Carcinoma in Situ
10	Zollicoffer	Evaluation of the Effectiveness of an EMR (EHR) Alert on ZOrdering of Screening Mammography in the Primary Care Setting

1	2-T
Examination of e-communication and health information preferences among Hispanics in Northern Manhattan: Prelude to delivering a public-centered precision medicine curriculum Hillyer GC, Schmitt KM, LIzardo M, Bazan M, Sandoval R, Alvarez M, Adbul K, Hopson M, Kershbaum A, Orjuela MA Introduction: Precision medicine (PM) utilizes knowledge of a patient's molecular and genetic profiling to examine the likelihood of response to treatment. To assist Spanish-speaking and low literacy patients in making future informed decisions involving PM, curricula explaining complex genetic concepts tailored to their literacy level and learning preferences are needed. To inform a larger initiative to deliver a curriculum educating our largely disadvantaged Latino community about PM, we examined e-communication technology use and preferred channels for obtaining health information among individuals seeking services at a community-based organization in Northern Manhattan. Methods: Adult community members were queried about access to the internet, use of cell phones, email and text messaging capabilities, social media use, sources of health information, and health topics of interest. Demographic characteristics and level of acculturation including language preference were also gathered. Health literacy was assessed using a single item screener. Analyses evaluating communication channel preferences stratified by age (≤45 vs >45 years) and language preference (English vs Spanish) were performed. Results: Of the 474 interviews, 84% were conducted in Spanish. Most participants were female (68.4%), >45 years (62.6%), had ≤high school education (71.5%) and were foreign-born (85%). About 31% had low health literacy and 28.8% had higher acculturation. Compared with Latinos who preferred to speak English, Spanish-preference Latinos were older ($p<0.0001$), reported less frequent use of 1) the internet both in general (47.6% vs 84.2%, $p<0.0001$) or for health information (47.1% vs 75.3%, $p<0.0001$), and 2) cell phones for emailing (42.3% vs. 69.0%, $p<0.0001$) or text messaging (75.5% vs 94.3%, $p=0.002$). Compared with participants >45, younger ones reported lower use of their health care providers as a source for health information (68.2% vs 82.0%, $p=0.001$) while preferring the internet (73.4% vs 38.4%, $p<0.0001$). Discussion: Educational strategies targeting Latinos in Northern Manhattan for initiatives involving PM will require tailoring to fit varied literacy, language and and age-related preferences for using e-communication and other sources of health information.	HPV vaccination resistance in educated, affluent parents: Are countervailing mechanisms to blame? Rendle, KA Originally proposed by Link and Phelan (1995), Fundamental Cause Theory (FCT) argues that due to differential access to resources (financial, healthcare or otherwise), distribution of and benefit from novel medical interventions often replicate extant social inequalities. An important, but often overlooked, component of FCT is the notion of countervailing mechanisms (Phelan, Link & Tehranifar 2010). In many cases, populations with access to resources will select health behaviors that are associated with improved health. However, in some cases, countervailing mechanisms (driven often by social norms or beliefs) may result in these populations selecting against beneficial health behaviors. For example, the historic association between masculinity and smoking promoted by popular media is believed to have contributed to high rates of smoking in the late twentieth century despite increased public awareness of the risks. Drawing from in-depth interviews and questionnaire data from 50 parents living in the San Francisco Bay Area, I use the concept of countervailing mechanisms to discuss how the following three social norms and beliefs operate as barriers to HPV vaccination in educated, affluent parents: 1) scientific doubt; 2) pharmaceutical distrust; and 3) discomfort with discussing or acknowledging adolescent sexual activity. Parents who reported greater distrust in pharmaceutical companies and greater uncertainty in the scientific evidence documenting the benefits of HPV vaccination were less likely to have vaccinated their child. Furthermore, parents often drew upon perceptions of their child's sexual (in)activity to support decisions to delay HPV vaccination to later age. These findings suggest that clinical and public health efforts to increase adolescent HPV vaccination might need to be designed to both educate and invoke normative change to be most effective. Beyond HPV vaccination, countervailing mechanisms should be considered as a potential theoretical approach for identifying factors driving patient or provider resistance in others areas of cancer prevention and control (such as cancer screening or treatment decision-making), and for designing potential avenues for change.

3	4
A Critical Examination of FDA Premarket Review of Tobacco Products Berman ML, Lester J, Jenson D In 2009, Congress passed the Family Smoking Prevention and Tobacco Control Act, providing the US Food & Drug Administration (FDA) with the authority to regulate tobacco products. A major goal of the law was to prohibit product manipulation that has led to more addictive and attractive tobacco products over time. To that end, the law requires new tobacco products to undergo premarket review by the FDA before they can be sold. To assess the FDA's implementation of its premarket review authorities, we reviewed FDA actions on new product applications, publicly available data on industry applications to market new products, and related FDA's guidance documents and public statements. We found that the FDA is (1) prioritizing the review of premarket applications that allow for the introduction of new tobacco products over the review of potentially noncompliant products already on the market; (2) accommodating the industry's repeated submissions of deficient premarket applications; and (3) allowing the tobacco industry to illegally market new and modified products that have not completed the required review process. These findings suggest that significant reforms are needed in order for the FDA to implement its premarket review authorities in a manner that best protects public health. NOTE TO REVIEWERS: This abstract does not fit well within any of the pre-defined categories. We hope you will consider this abstract for presentation, as FDA tobacco regulation is a critically important issue for cancer prevention, and ASPO members can play a key role in advocating for policy change at the FDA.	Concordance between parent and provider report of HPV vaccination among 13-17 year olds participating in NIS-Teen, 2008-2013 Hirth JM, Kuo YF, Haque Laz T, Rupp RE, Starkey JM, Rahman M, Berenson AB The purpose of this study was to examine characteristics associated with concordance of parent and provider report of human papillomavirus (HPV) vaccination among respondents of the National Immunization Survey (NIS)-Teen between 2008 and 2013. Methods: The NIS-Teen was used to examine the accuracy of parent reports for HPV vaccination across time and by demographics among female teenagers aged 13-17 years who participated between 2008 and 2013. Concordance of parental report with provider report of HPV vaccine initiation was used as the outcome. Using weights to adjust for complicated sampling protocols, we examined the proportion of parents that over- and under-reported HPV vaccination in their teenage children. Multivariable logistic regression models were used to examine associations between teenager demographics and the odds that parent report was concordant with provider report for HPV vaccination. Results: Overall, 42% of parents and 47% of providers reported that one of the 51,746 adolescents received a HPV vaccine, with 84% concordance between reports. However, concordance varied by race/ ethnicity, geographic region, year of the survey interview, and income. Variations in agreement between parents and providers were mainly due to differences in underreporting of HPV vaccination. In the fully adjusted model, Hispanics (adjusted odds ratio (aOR): 0.66; 95% confidence interval (CI: 0.57-0.75) and black teens (aOR: 0.66; 95% CI: 0.58-0.76) were less likely to correctly report their vaccination status than white teens. Parents of teens living in the West (aOR: 0.73; 95% CI: 0.65-0.94) were less likely to correctly report their vaccination status compared to those in the Northeast, and lower income was associated with lower odds of correct reporting. A later interview year was also associated with a decrease in correct recall of HPV vaccination. Conclusions: Correct parent report of HPV vaccination was high overall in the sample. However, it should be noted that the majority of incorrect responses were due to parents underreporting their children's vaccination status. These findings are particularly important for researchers working with parents of Hispanics, as they may be significantly underreporting their children's HPV vaccination status.

5-T	6-T
Predictors of decisional conflict for colorectal cancer screening among African Americans Tagai EK, Holt CL, Garza MA African Americans are disproportionately impacted by colorectal cancer (CRC) incidence and mortality. Finding CRC early can lead to reduced mortality. However, African Americans are screened for CRC at lower rates than Whites. The ability to make an informed decision regarding CRC screening is related to increased screening completion. Reduced decisional conflict has been negatively associated with decision making outcomes, including cancer screening. Factors associated with decisional conflict for CRC screening, however, are not well understood, particularly among African Americans. Using data from a church-based intervention on cancer early detection, predictors of decisional conflict for CRC screening were examined. A total of 101 intervention participants completed a baseline and 14-month follow-up survey assessing study variables including decisional conflict. The outcome measure was a Decisional Conflict Scale with four subscales: uncertainty, informed, values, and support. Participants with greater education and high health literacy reported lower decisional conflict total scores, as well as lower scores on the uncertainty, informed, and values subscales (ps < .05). Individuals with greater baseline CRC knowledge had lower scores on the support subscale (p < .05). Married participants had greater decisional conflict total scores and a greater score on the values subscale compared to single participants (ps < .05). Lastly, individuals with greater scores on the Multidimensional Scale of Perceived Social Support reported lower decisional conflict total scores and lower conflict on all four subscales (ps < .05). The findings suggest education, health literacy, CRC knowledge, marital status, and perceived social support are associated with decisional conflict for CRC screening among this sample of church-attending African Americans. Future studies should consider implications of the current findings for the development of decision making tools for CRC screening in this population.	Survivorship care planning and unmet information and service needs among adolescent and young adult cancer survivors Shay LA, Vernon SW, Parsons HM We examined whether survivorship care planning (receipt of written treatment summary and instructions for follow-up care) was associated with unmet needs among adolescent and young adult cancer survivors (AYA; aged 15-39 at diagnosis). Methods: We used data from the 2010 LIVESTRONG Survey for People Affected by Cancer. Outcome variables of interest were survivor reports of unmet needs including: information on the late effects of cancer treatment, fertility preservation, cancer recurrence, family cancer risk, and financial concerns. We used multivariable logistic regression models to determine if receipt of a treatment summary and instructions for follow-up care were associated with each of the unmet needs after controlling for age at diagnosis, current age, race, sex, level of education, marital and employment status, income, years since treatment, type of cancer, and currently seeing an oncologist or primary care provider. Results: AYA respondents (N=1,395) were mostly female, white, married, and had relatively high levels of education and income. Only 30% reported receipt of a written treatment summary while 86% received instructions for follow-up care. The most commonly reported unmet need was addressing recurrence concerns (80%), followed by information about late effects (78%), family risk of cancer (51%), fertility preservation information (45%), and financial concerns (33%). Multivariable analyses demonstrated receipt of a written treatment summary was significantly associated with lower odds of having unmet needs around late effects information (OR 0.56(0.39-0.81)) and recurrence concerns (OR 0.57(0.39-0.84)). Receipt of instructions for follow-up care was associated with lower odds of unmet needs around late effects information (OR 0.25(0.13-0.57)), fertility preservation information (OR 0.58 (0.37-0.88)), and financial concerns (OR 0.50(0.32-0.78)). Conclusions: Survivorship care planning including written treatment summaries and instructions for follow-up care may help reduce the unmet information and service needs of AYA survivors. Unmet needs have been associated with increased anxiety and poorer quality of life. This study provides further evidence for the importance of survivorship care planning as a way to improve survivor outcomes.

7	8
Training providers to recommend HPV vaccine effectively: Process evaluation of a randomized controlled trial Malo TL, Gilkey MB, Hall ME, Lathren C, Brewer NT Infrequent and hesitant healthcare provider communication about human papillomavirus (HPV) vaccine continues to undermine vaccine uptake and prevention of anogenital cancers. We sought to evaluate a peer-led provider training on more effectively recommending HPV vaccine for adolescents. Methods. As part of a randomized controlled trial in 2015, we delivered HPV vaccination communication trainings to providers at clinics in North Carolina. A physician conducted one-hour, in-clinic sessions during which providers learned and practiced one of two communication strategies for recommending HPV vaccine. Providers received continuing medical education (CME) credit. We used structured observation during the training to evaluate participation; pre-training, post-training, and follow-up surveys to evaluate provider satisfaction; and an expense tracking log to calculate training delivery cost. Results. We trained 83 providers at 20 clinics serving 28,769 patients ages 11-17. Participation was high, with an average of 89% (median: 100%) of clinics' vaccine providers in attendance. All providers reported they would recommend the training to a colleague. Providers' self-efficacy regarding recommending HPV vaccine in a way that leads to vaccination increased from pre- to post-training (mean = 3.79 vs. 4.59, $p < .001$). Providers' confidence in addressing parents' concerns about HPV vaccine also increased (mean = 4.27 vs. 4.62; $p < .001$). Almost all (94%) providers planned to continue using the HPV vaccine communication strategy they learned. The average cost of delivering each training was $306, including costs associated with evaluation. Conclusions. These process findings are very promising. Trainings were well-attended, well-received, and inexpensive, indicating a highly disseminable intervention. Trainings also increased providers' self-efficacy, an encouraging finding as we prepare to examine clinic-verified changes in HPV vaccine uptake once these 6-month outcomes data become available.	Beliefs about Mandatory School Vaccination and History of Vaccination Refusal among Ohio Appalachian Parents Krok-Schoen JL, Bernardo BM, Weier RC, Peng J, Katz ML, Reiter PL, Richardson MS, Pennell ML, Tatum CM, Paskett ED OBJECTIVE: To examine how demographic, religious factors, general health, and political affiliation are correlates of belief about mandatory school vaccinations and history of vaccination refusal among parents in Ohio Appalachia. METHODS: In 2013 and 2014, baseline data were obtained from parents (n=337) of girls ages 9-17 from 12 counties in Ohio Appalachia enrolled in the Community Awareness, Resources and Education (CARE II) Project. Multivariable logistic regression models identified correlates of parents' beliefs about mandatory school vaccination and history of refusing a vaccine for their child(ren) that was recommended by a doctor. RESULTS: About 47% of parents agreed with the statement that parents should have the right to refuse vaccines that are required for school for any reason. Participants who reported their political affiliation as Republican (OR=2.45, 95% CI=1.28-4.66) or Independent (OR=3.31, 95% CI=1.70-6.44) were more likely to agree that parents should have the right to refuse school-mandated vaccination than parents who reported their political affiliation as Democrat. Approximately 39% of parents reported ever refusing a vaccine for their child(ren). Participants who were female (OR=3.90, 95% CI=1.04-14.58) and believed that parents should have the right to refuse mandatory school vaccination (OR=3.27, 95% CI=1.90-5.62) were more likely to report ever refusing a vaccine for their child(ren). CONCLUSION: Many parents in Ohio Appalachia reported a history of vaccination refusal for their children or believed in the right to refuse mandatory school vaccinations. Demographic factors, such as parent's political affiliation and gender, may be associated with these vaccine-related outcomes. Human papillomavirus (HPV) - related cancers in Ohio Appalachia are known to be higher than non-Appalachian Ohio, while uptake of the HPV vaccine remains low in the region. These study findings can advance cancer prevention research by allowing researchers to better understand factors linked to parental vaccination refusal in a medically underserved area.

9-T	10
Safe, effective, and efficient: The role of concomitant vaccination in human papillomavirus (HPV) vaccine coverage and cancer prevention Moss JL, Reiter PL, Brewer NT Increasing concomitant (same day) delivery of human papillomavirus (HPV) vaccine alongside other recommended adolescent vaccines could dramatically improve population-level coverage and protection from HPV-associated diseases, including several cancers. However, little is known about who receives vaccines concomitantly. Methods. We used healthcare provider-verified data from 99,921 adolescents (ages 13-17) in the 2008-2012 National Immunization Survey (NIS)-Teen to examine uptake of HPV vaccine, tetanus, diphtheria, and pertussis (Tdap) booster, and meningococcal vaccine. We calculated single versus concomitant uptake of HPV vaccine (first dose only). We excluded from analysis those adolescents who had not initiated the HPV vaccine series. Stratifying by sex, we conducted multivariable logistic regression to identify adolescent and household correlates of concomitant versus single HPV vaccination. Results. Among vaccinated adolescents, 52% of girls and 25% of boys received HPV vaccine concomitantly with another vaccine. For girls and boys, concomitant HPV vaccination was less common among adolescents who were older (girls: odds ratio [OR]=0.87 per 1-year increase, 95% confidence interval [CI]=0.83-0.90; boys: OR=0.71 per 1-year increase, 95% CI=0.62-0.81) or living in the Northeast region of the U.S. versus the South (girls: OR=0.74, 95% CI=0.65-0.84; boys: OR=0.43, 95% CI=0.25-0.76). In addition, girls' concomitant HPV vaccination was more common in later survey years, for those without private health insurance, and for those whose mothers had lower education (all $p<.05$). Boys' concomitant HPV vaccination was more common for those living in non-metro versus metro areas ($p<.05$). Conclusions. We found differences in concomitant HPV vaccination by sex, age, and region, and some suggestive socioeconomic differences among girls. However, missed opportunities for concomitant HPV vaccination were numerous and persistent. Public health programs should educate parents about concomitant HPV vaccination, and healthcare providers should recommend this practice to their patients. By increasing concomitant HPV vaccination, such promotion efforts can improve HPV vaccine coverage and protect adolescents from HPV-associated cancers and other diseases.	Evaluation of the Effectiveness of an EMR (EHR) Alert on ZOrdering of Screening Mammography in the Primary Care Setting Zollicoffer, DA Breast cancer is the second leading cause of cancer death among women in the United States. Mammography is the most effective method of diagnosing early-stage cancer with an estimated 30% reduction in breast cancer mortality. EMR alerts are effective in reminding clinicians to order preventive screenings. Clinical Problem There was not an effective method of capturing and quantifying data about ordered mammograms. There was no systematic method to track when a mammogram was ordered. There were no clinical practice guidelines (protocols) for ordering screening mammograms within the EMR system. There was only an 11% screening mammogram rate per year. Purpose of the Project To implement and evaluate the effectiveness of an EMR alert on the number of screening mammograms ordered for female patients aged 40 to 69 years, who qualified for mammography. Theory Kotter Change Management Theory was used in the planning and implementation of this project. Methodology Evidence-based quality improvement incorporated an EMR alert for ordering screening mammogram into the EMR system. Results There was an 11.3% increase in the number of screening mammograms ordered in the 9-week data collection period. Twenty-nine of 31 clinicians accessed the alert to order screening mammogram. Implications for Practice This project promotes early detection of breast disease using mammography screening. The alert supports improved compliance with standard-of-care guidelines and better coordination of care and clinician accountability.

11	12
Improving cancer prevention through increasing HPV vaccination rates: a systems approach Antognoli EA, Gullett, H Human papillomavirus (HPV) vaccination can prevent several types of cancer-related morbidity and mortality, but rates lag far behind other adolescent vaccines. Prior work has largely focused on identifying barriers and facilitators at the provider or parent / teen level. The purpose of this research was to develop a framework for identifying effective opportunities and strategies for improving HPV vaccination on multiple levels and from a system-wide lens. Methods We conducted a mixed methods environmental scan of HPV vaccination in Cuyahoga County, Ohio by engaging with stakeholder groups, conducting 27 key informant interviews, and doing two in-depth practice ethnographies. Meeting notes, interview transcripts and ethnographic field notes were analyzed iteratively using a crystallization-immersion approach. Results Based on our analyses we developed a systems-oriented framework, highlighting the relations between multiple levels of vaccine supply and delivery, as a tool for efforts to improve HPV vaccine uptake. Within this framework, we describe and delineate organizational strategies for addressing low rates of HPV vaccination, including: interoperable information systems, a culture of quality improvement, clear and consistent messaging, collaboration across key stakeholders, and primary prevention as a strategy to address population health. Conclusions The complexity of HPV vaccine supply and delivery systems means that an issue in any one component of the system can seriously impair vaccine coverage, even when efforts and resources have been delegated to improve rates. Therefore, an approach that considers a broad systems framework and prioritizes the local context holds great promise.	Understanding patterns and practices of little cigar and cigarillo use among young people Elizabeth Antognoli, Sue Flocke, Erica Wolfish, Aaron Womer, Erika Trapl, Mary Step, David Cavallo, Rose Perez, Sarah Koopman Gonzalez Existing measures of nicotine dependence (ND) have not been developed or validated for use with little cigar and cigarillo (LCC) users, despite the dramatic increase in the use of these products in the United States. The purpose of this study is to examine the contexts, practices, and preferences for smoking LCCs among young adults in order to inform the adaptation of a ND measure that is relevant for LCC users. Methods: Using purposive sampling, we conducted in-depth interviews with 25 adults aged 18-28 who reported smoking at least one LCC per week between June-August 2015. Interviews were based on a structured guide designed to capture participants' daily smoking patterns and levels as well as the experiences of smoking, craving, and addiction. Interviews were audio recorded and transcribed. Analysis was guided by a phenomenological approach designed to identify emergent themes. Results: Participants had a mean age of 23.2 (SD = 2.2), were mostly African-American (80%) and female (56%). Participants smoked an average of 19.2 (SD = 13.45) LCCs per week. We identified several common patterns and practices of LCC smoking including smoking a single LCC in multiple sessions and sharing a LCC in social settings. Respondents varied in the degree of willingness to substitute a cigarette when a LCC is not available. Observed behaviors outside the norm are useful to develop LCC-specific items to assess nicotine dependence. For example, smoking an entire LCC at once, and not sharing an LCC in social settings, may signify greater ND. Conclusion: Our study identified common patterns of LCC users. This work reveals potential indicators of nicotine dependence unique to smokers of little cigars and cigarillos that can inform the development of new ND items.

13	14
A teachable moment communication process intervention for smoking cessation counseling: Effect on patient outcomes Flocke, SA Step, MM Smith, S Antognoli, EL Marsh, S Parran, T Krejci, S Jackson, B Lawson, PJ Seeholzer, E Primary care clinicians are well positioned to address smoking cessation with a large portion of the population, however, the delivery of efficient and effective brief advice falls below target levels. The Teachable Moment Communication Process (TMCP) is a strategy that enables clinicians to leverage patients' own health and life concerns into a tailored and partnership-oriented health behavior change discussion. This study examines the degree to which a TMCP training intervention for smoking cessation counseling impacts intermediate patient outcomes. Methods: This study was a group randomized trial of 31 community-based primary care clinicians practicing in Northeast Ohio and 784 of their adult patients who reported smoking tobacco. Clinicians were randomly assigned to receive either an attention control or the Teachable Moments Communication Process (TMCP) intervention for smoking cessation. The TMCP intervention consisted of 6 hours of training involving didactic segments, video demonstration, and skill practices with standardized patients in a simulation center. The TMCP directs clinicians to: 1) link smoking to a patients salient concern, 2) provide brief advice in a spirit of optimism and partnership, 3) elicit the patients readiness to quit, and 4) respond in alignment to the patients readiness. Patient participants visits were audio recorded to assess delivery of TMCP and patients completed surveys before, 48 hours after, and 6 weeks after the index visit. Patient outcomes include recall and usefulness of the smoking discussion, importance and confidence to change, and a 15-item smoking behavior change measure. Results: Patient characteristics were similar across both the intervention and comparison groups at baseline. Intent-to-treat analyses showed few differences in the outcome measures. However, in cases where clinicians used the TMCP, a greater proportion of patients reported that the smoking discussion was useful (98% vs 86%, p=0.02) and showed positive movement in their stage of change (40% vs. 18%, p=0.003) after the visit. Conclusions: The associations between the TMCP approach and patient-reported smoking outcomes show promise, but the effects are modest and patients appear to require further support to sustain change over time.	Primary care resident training and preparedness to provide nutrition and physical activity counseling for cancer prevention Flocke, SA, Seeholzer, EL, Gullett H, Jackson B, Smith S, Antognoli, E, Park H Physical activity, proper nutrition and a healthy weight reduce the risk of developing some cancers. Annually, most US adults receive care from a primary care clinician, thus, primary care clinicians are uniquely positioned to promote healthy lifestyles among a large portion of adults. Prior studies indicate that graduating primary care residents do not feel prepared in diet and exercise counseling. The goal of this project is to describe resident knowledge of the association of physical activity, diet and obesity with specific cancers, and resident preparedness to provide physical activity and diet counseling. Method In 2013-2014, a purposive sampling strategy was used to recruit 25 family medicine (FM), internal medicine (IM) and OB/GYN residency programs across Ohio. Senior residents were invited to complete a survey to assess knowledge of the associations between cancer risk and exercise and nutrition; preparedness to provide physical activity and nutrition counseling and the degree to which residents report discussing physical activity and nutrition in the context of cancer prevention. Features of the residency training program specific to didactics, behavioral health counseling techniques taught and obesity/nutrition or physical activity fellowships were assessed. Results A total of 219 senior residents completed the survey (62% response rate). On the 23 item measure of knowledge of health behavior and cancer risk, the mean resident score was 70.7 (std dev 8.2, range 39- 87). Only 19% and 11% of respondents reported feeling very prepared to counsel patients for physical activity and nutrition, respectively; rates were highest for highest for breast cancer screening (72%) and colon cancer screening (72%). 42% of residents reported that they always or often mention cancer prevention when counseling patients about physical activity and nutrition; compared to 88% for diabetes. Resident and training program characteristics explain little variation in cancer risk knowledge scores or reports of preparedness. Conclusions: There is substantial room for improvement in knowledge and preparedness of residents to counsel about behaviors that could contribute to preventing some cancers.

15-T	16
Adoption: Consideration and concerns among young female cancer survivors Gorman JR, Malcarne VM, Roberts SC, Dominick SA, Su HI The purpose of this study is to describe young female cancer survivors' interest in and concerns about adoption. While adoption is often part of a broader discussion about family building after cancer, there is scarce research on young survivors' perspectives. Methods: We conducted an internet-based cross-sectional survey with 204 young female cancer survivors, age 18-35 years, in the United States. We asked them whether they had considered adoption before or after their cancer diagnosis and to identify their current concerns about adopting a child. Results: Participants were 28.3 years old on average and were diagnosed at a mean age of 22.7 years. Almost 80% of them reported considering adoption after their cancer diagnosis, while only 44% had considered adoption prior to their cancer diagnosis. In comparison, 18-25% of US adults age 18-34 report ever considering adoption. Seventeen percent of participants reported having no concerns about adopting a child as a cancer survivor. Participants most commonly reported concerns included the cost of adoption (n=86, 42%), preference for having a biological child instead of adopting (n=84, 41%), worry about not being perceived as a good candidate by an adoption agency (n=83, 41%), a desire for more information before pursuing adoption (n= 71, 35%), and concerns about personal health and survival (n=57, 28%). Conclusion: Our results suggest that adoption is a consideration for many young women who have survived cancer. Adoption is an important family building option for those who want to have a child, but are unable to or choose not to have a biological child. However, the results of this study suggest that young survivors may need more information regarding the cost and the process of adoption, including how adoption agencies may use medical history to determine candidacy, in order to make informed decisions. Young survivors and their partners would benefit from future research to determine the ideal timing, content, and delivery of information about adoption.	Examining information preferences and psychological responses to multiplex genetic testing among breast cancer patients and survivors Hamilton JG, Amoroso K, Sheehan M, Sekhri N, Harlan Fleischut M, Arnold AG, Siegel B, Trottier M, Salo-Mullen EE, Marcell V, Hay JL, Walsh MF, Stadler ZK, Offit K, Robson ME Multiplex genetic testing involves the simultaneous analysis of a panel of known cancer susceptibility genes. These tests can provide patients with valuable information for cancer prevention and control, but can also reveal variants in moderate penetrance genes of unclear clinical utility, and multiple variants of uncertain significance. Clinicians are increasingly adopting multiplex testing despite limited knowledge about patients' experiences with these tests. We addressed this gap with a prospective study of patients' information preferences and short-term psychological responses to multiplex testing. Participants included 194 breast cancer patients and survivors who previously received uninformative BRCA1/2 results (99% female, 84% white, ages 27-76). Participants were asked to select which information they wanted to receive from a multiplex test; 16% chose to learn less than all of the information available (with 25% declining genes unrelated to breast/ovarian cancer, 21% declining genes lacking established clinical utility, 18% declining CDH1, and 14% declining TP53). Information preferences were unrelated to demographic (age, race, time since cancer diagnosis and BRCA1/2 testing) or self-reported psychological factors (baseline testing-related distress, uncertainty, and positive experiences; anxiety; depression). Participants who chose to learn all available information reported greater concerns about their children's cancer risk than did those who chose to learn less information ($p=0.01$). Participants experienced a small increase in testing-related distress and positive experiences from baseline to 1 week after receiving results ($p<0.001$). In multivariable analyses controlling for baseline psychological functioning, only non-white race was consistently associated with elevated post-result anxiety, depression, and testing-related distress and uncertainty. Participants who had BRCA1/2 testing 1 or more years ago also reported fewer positive experiences following their results. Study findings suggest that some patients would prefer to customize the specific risk information provided through multiplex testing. In addition, these findings highlight characteristics of patients who may benefit from additional psychosocial support during multiplex testing.

17-T	18
#LookWhoIsTalking: A Visual Analysis of Tweets about HPV Vaccination de Armas EA, Leader A, Massey P Black A; Fisher K, Budenz A, Klassen AC The purpose of this study was to identify the types of conversation networks that were formed by HPV vaccination discussions on Twitter. The Pew Research Center identifies six types of conversation networks: polarized crowds, tight crowds, brand clusters, community clusters, broadcast networks and support networks. Tweets containing at least one of 13 keywords related to HPV vaccination were collected between August 1, 2014 and January 1, 2015. All tweets on the first day of each month were analyzed using NodeXL, a social media analysis tool, to visualize the conversation networks. ArcGIS was used to map tweet locations. A total of 12,107 unique tweets were analyzed. The highest number of tweets was on September 1st (n=5,152) while the lowest number was on January 1st (n=757). Both health-related organizations (CDC, NCI, Planned Parenthood) and individuals (physicians, nurses, advocates for or against vaccination) tweeted about HPV vaccination worldwide. Although many users tweeted about HPV vaccination, and the majority of tweets were retweeted, there was little direct conversation among users. This indicates a broadcast network, which is when a user is retweeted by many followers, but no direct communication takes place. Secondary conversation networks included brand and community clusters, which form when small clusters are created around popular topics or users. Findings suggest that mass interest is being created around HPV vaccination around the world, but exchange of ideas between Twitter users is seldom and primarily sparked by personal experiences and opinions. Knowing the types of Twitter conversations forming around HPV vaccination can help public health agencies develop effective ways to better engage and interact with social media users in order to potentially impact vaccine uptake.	Healthcare Provider Acceptance of a Postpartum HPV Vaccination Program Berenson AB. Gross TT, Rahman M, Wright A, Hirth J, Sarpong KO, Rupp R, Barrett A The objective of this qualitative study was to assess healthcare providers' acceptability of an ongoing postpartum human papillomavirus (HPV) vaccination program in Southeast Texas as well as its integration into everyday clinical care. Methods: In 2012, the OB/GYN Department at University of Texas Medical Branch (UTMB) began offering HPV vaccination as part of standard postpartum care to increase vaccination rates among young women in Galveston County. First vaccine doses was offered post-delivery on the postpartum unit while subsequent doses were coordinated with postpartum visits and well-baby visits. Thirty months after project initiation, semi- structured interviews of physicians (n=12) and nurses (n=6) involved in postpartum and pediatric care at UTMB were conducted to assess the program's acceptability. Interview transcripts were analyzed using thematic analysis in Nvivo10. Results: Three themes emerged: 1) provider acceptance of postpartum HPV vaccination, 2) integration into system of care, 3) potential areas for improvement. Overall, providers demonstrated "pro-vaccine" attitudes during their interviews and accepted the program as an effective strategy for vaccinating hard-to- reach women. Cancer prevention was the main perceived benefit while follow-up compliance was the primary perceived patient barrier. The initial challenges with integrating postpartum HPV vaccination included miscommunication between providers regarding vaccine orders and coordination issues with well-baby visits for follow-up doses. Providers' suggestions to improve the program included: enhancing postpartum HPV vaccine education, providing more continuing education for providers, and increasing community awareness of HPV vaccination. Conclusions: These findings can help healthcare providers understand how to integrate postpartum HPV vaccination into their current practices and how to overcome perceived vaccination barriers.

19	20-T
Neighborhood socioeconomic deprivation and geographic heterogeneity of tobacco environment in Missouri Lian M, Sefko J, Struthers J, Schootman M. To examine neighborhood characteristics associated with geographic distribution of tobacco sale outlets in Missouri. Methods. We obtained the addresses of tobacco outlets in Missouri from the Missouri Department of Mental Health. We geocoded these addresses and computed the outlet density by 5-digit ZIP codes. Using the data from the 2008-2012 American Community Survey, we developed a ZIP Code Tabulation Area (ZCTA)-level socioeconomic deprivation (SED) index. We analyzed the relationships of tobacco outlet density with neighborhood SED index and five separate socioeconomic indicators (%population with less than high school, %population unemployed, %households below the poverty, % population under the poverty, and %African Americans). Results. There were more than 5,000 tobacco retailers within Missouri in January, 2014. The number of tobacco retailers ranged from 0 to 56 (median=2) per ZIP code, while tobacco outlet density ranged from 0 to 29 per 1,000 persons age 18+ (median: 1.18). Tobacco outlet density was significantly correlated with neighborhood SED (rho=0.21, P<0.001). The consistency of quartiles of both variables was also statistically significant (weighted Kappa=0.11, P<0.001). Logistic regression analysis indicated that neighborhood SED was associated with more than 3 times higher odds of denser tobacco outlets (>median density) (the most vs. least deprived quartile: odd ratio=3.24, 95% confidence interval=2.26 to 4.65). Similar results were also found for each of the five individual socioeconomic indicators. Conclusion. Geographic distribution of tobacco retailing outlets was strongly associated with neighborhood SED environment. Neighborhoods with greater SED condition were also more likely to have a higher density of tobacco retailing outlets in Missouri. Our finding implies that higher accessibility to tobacco retailing outlets might play an important role in geographic SED disparity in smoking. Future studies should examine the degree to which neighborhood SED effect on smoking behaviors is mediated by higher accessibility to tobacco retailing outlets. This insight can help policy-makers develop appropriate geographic priority to effectively allocate tobacco control programs to reduce cigarette smoking in Missouri.	Knowledge and beliefs about cancer and cancer screening: How do they relate to cancer screening behavior? Warner, ET Using a nationally representative sample, we examined respondents' knowledge and beliefs about cancer and cancer screening and how those factors relate to screening utilization. Methods: Our analytic sample included 3,256 respondents from the National Cancer Institute's 2014 Health Information National Trends Survey (HINTS), a cross-sectional survey of US residents. Among those eligible for screening, we used multivariable logistic regression to generate odds ratios (OR) and 95% confidence intervals (CI) for the association between beliefs about cancer and cancer screening with utilization of Pap smears, (n=1472) mammography (n=1408) and PSA testing (n=650). Analyses were conducted in 2015. Results: Nearly one-quarter (23.9%) of respondents strongly agreed that there were so many cancer recommendations that it was "hard to know which ones to follow". Approximately one-fifth of respondents believed that health behaviors (20.1%) and genetics (18.1%) were either "a little" or "not at all" related to whether a person develops cancer. The majority of respondents (51.1%) believed that cancer screening tests can "definitely tell that a person has cancer", while 20.2% thought that the harms of cancer screening tests "sometimes outweigh the benefits". None of the cancer or cancer screening beliefs examined was associated with receipt of a Pap smear in the past three years. Women that somewhat (OR: 2.09, 95% CI: 1.06, 4.11) or strongly (OR: 2.55, 95% CI: 1.18, 5.51) disagreed that there were "too many recommendations" had more than double the odds of not receiving a mammogram in the past two years compared to those who somewhat agreed. Compared to men who stated that health behaviors have "a lot" to do with whether someone develops cancer, those who said "somewhat" were 72% more likely to have never had a PSA test (OR: 1.72, 95% CI: 0.99, 2.96). Men who did not know whether the harms of screening sometimes outweigh the benefits had nearly twice the odds of having never had a PSA test (OR: 1.98, 95% CI: 1.00, 3.95). Conclusions: A substantial proportion of US residents may be overwhelmed about cancer risk reduction messages and are also confused about the purpose and limitations of cancer screening tests. However, these misconceptions were generally not strongly associated with cancer screening behavior.

21	22-T
Perspectives of patients and physicians regarding adherence to adjuvant hormonal therapy Post DM, Aker H, Atkins J, DeGraffinreid, Kaal J, Lustberg M, Melin S, Moon J, Wood M, Paskett ED Adjuvant hormonal therapy (AHT) significantly improves long-term survival of breast cancer patients. However, many breast cancer survivors fail to take the dosage at the prescribed frequency or discontinue therapy. Primary study objectives were to: 1) assess patients' and physicians' experiences regarding AHT; 2) examine patient/physician communication during AHT; and 3) explore perceptions of an intervention aimed to promote adherence. Methods: Patients and physicians were recruited from four oncology clinics located in various regions of the U.S: Midwest, Northeast, and two clinics in the Southeast. Focus groups (n=3) were conducted with patients who previously experienced AHT and one-on- one phone interviews (n=10) were conducted with oncologists. All transcripts were coded in NVivo independently by two staff members who reviewed all nodes and reached consensus when discrepancies surfaced. After transcripts were coded, themes were identified. Results: Patients' beliefs and attitudes regarding treatment and AHT were generally positive. Nonadherence was associated with more serious and/or persistent symptoms, as well as symptoms worsening over time. The value of social support and open, consistent, and immediate communication with the health care team were identified. Patients with adherence difficulties had negative perceptions of their quality of life. Physicians emphasized the importance of patient education and identified barriers to adherence as insufficient time for visits, patient forgetfulness, patient-physician communication difficulties, and cost of medication. Physicians indicated that effective symptom monitoring and management is the key to positive patient adherence. Both patients and physicians viewed our intervention as beneficial to patients. In particular, physicians viewed the intervention component of receiving patients' symptom-related data as valuable. Conclusion: Data from patient focus groups and physician interviews provided valuable information that was integrated into our intervention. Content was primarily incorporated into a video that patients view prior to the start of AHT. Large-scale research on the topic of adherence to AHT is needed.	Friendly tanning: College students' engagement with friends around indoor tanning Rodríguez VM, Hay JL, Daniel CL, Foucault-Welles B, Geller AC Use of indoor tanning devices, particularly during adolescence and early adulthood, significantly increases risk for melanoma, and is exceedingly common in college-aged women. Generalized social influences, such as tanning norms, are well-established significant promoters of indoor tanning, but little is known about how tanners actually engage with their friends around tanning (i.e., tanning together, talking about it). To this end, we examined tanning and tanning-related communication with friends at three undergraduate institutions. Participants completed a brief, self-administered survey regarding communication about tanning risks and benefits and past use and intentions to use tanning beds with three friends. Of the 837 participants, 261 (31%) reported ever indoor tanning (90% female, 85% Caucasian). Of those, 148 (57%) currently indoor tanned and comprised our study sample. A large proportion of current tanners talked with friends about both risks and benefits of tanning, with risks being discussed more frequently (Friend 1: 74% vs 65%; Friend 2: 64% vs 59%; Friend 3: 58% vs 54%). A third to half of current tanners reported having gone tanning with a friend in the past (Friend 1: 56%, Friend 2: 47%, Friend 3: 42%) and planning to go tanning with a friend in the future (Friend 1: 42%, Friend 2: 36%, Friend 3: 35%). More participants reported going/intending to tan with their closest named friend (#1) than more distal friends (#2 or 3). In brief, findings revealed that tanners are well-aware of the risks associated with tanning and also proactively discuss these risks with friends at a higher rate than benefits, despite their current tanning behavior. In addition, close to half of current tanners reported having gone tanning with a friend in the past, and more than a third indicated planning to go tanning with friends in the future. Indoor tanning can be a social experience and communication may be a potential vector for intervention. For instance, social technologies (e.g., text messaging, social media) could promote knowledge of tanning risks and safer ways of socializing among friends. Future research is needed to examine the nature of college students' indoor tanning discussions with friends and their potential to encourage indoor tanning cessation.

23

An Efficient Resource to Accelerate Research into the Cause and Prevention of Breast Cancer: The Army of Women

Eshraghi LD, Obidegwu AU, Love SM

It is well established that more research into the cause and prevention of breast cancer is needed. While many studies are done in cell lines and laboratory animals, translation of findings to women often falters due to perceived difficulty in recruiting women for research. The Dr. Susan Love Research Foundation's (DSLRF) Army of Women® (AOW) program started in 2008 as an on-line resource designed to facilitate the recruitment of women to participate in research aimed at identifying the cause and prevention of breast cancer. Methods: Researchers submit a proposal to the AOW Scientific Advisory Committee. If a study is accepted, a mass e-mail describing the study procedures and inclusion/exclusion criteria is sent to the entire AOW database. Women sign up at www.armyofwomen.org to join and receive AOW e-mails about breast cancer research studies. Women self-select based on interest and study criteria, and undergo a secondary on-line screening before contact information is passed on to the researcher for the enrollment process. Results: Over 379,000 women have signed up, including survivors and women without a history of breast cancer, ranging from ages 18 to 100, representing all 50 US states and 49 countries. To date, the AOW has recruited for 97 studies, recruiting both regionally and nationally, that vary from biomarker and genetic research to psycho-social and quality of life studies. With more than 94,600 AOW members having participated in the research process, this method of recruitment has been found to be effective and efficient. The diversity of the AOW members has proved beneficial for many studies, such as those needing to enroll racial/ethnic minorities, women of varying sexual orientations, or young survivors. Conclusions: The AOW has proved to be a successful resource for scientists to accelerate accrual, expand the number and diversity of their subject population and to obtain exactly the type of specimens they need when they need it. This partnership between women and scientists has revolutionized research and accelerated efforts to eradicate breast cancer. The public is ready and willing to partner with the research community to find the answer to urgent clinical problems.

24

Early Predictors of Delayed and Late Pulmonary Toxicities after Radiation Exposure

Feifei Song, Arnab Chakravarti and Naduparambil K Jacob

The objective of the current study is to develop biomarkers for evaluation of acute radiation toxicities and for early detection of delayed and late effects such as pneumonitis and fibrosis. The physical dosimeters and the available biologics have limitations to accurately evaluate the effect of radiation, because they vary depending on individual's genetics, immune status and other confounding factors. Therefore, development of biomarkers that provide readout of individual's own physiological response would have significant prevention and predication value. Methods: An amplification-free hybridization based nanoString assay was used to compare radiation induced changes in circulating miRNAs. BALB/c mice were exposed to clinically relevant doses of whole body, organ targeted/protected irradiation. Serum miRNA were compared for changes in evolutionarily conserved miRNAs. Micro-CT imaging and Luminex bead-based cytokine and chemokine assay were used to evaluate the correlation during the progression of radiation pneumonitis. Results: Consistent with the data from our previous studies on total body irradiation (Jacob et al., 2013), a dose- and time-dependent depletion of serum miR-150 was observed after partial body irradiation. These changes were correlated with the percentage of marrow exposed, confirming that the decrease in circulating miR-150 serves as an indicator of bone marrow damage. Parallel analysis of over 80 serum microRNAs in thoracic, gut versus total body irradiation in rodent models, enabled us to develop a panel of microRNA biomarkers, providing early readout of pneumonitis and potentially cardiac toxicity as well. Several miRNAs that exhibited progressive changes in their serum levels after whole thorax lung irradiation (WTLI) had high tissue expression and/or were reportedly connected to injury and/or inflammatory responses. For example, an increase in miR-21 and miR-29a was observed two weeks after WTLI, a time point when lung inflammation and active release of exosomes were detected, with concomitant increase in circulating pro-inflammatory cytokines. Increase in candidate inflammation- associated microRNAs such as miR-146a was prominent by four weeks, which progressed further at later time points. Pneumonitis in these animals was evident from microCT analysis at or after 16 weeks following irradiation, a time point when several human patients receive lung or total body irradiation also exhibit respiratory distress. Conclusion: Our study has identified sensitive biomarkers that facilitate rapid, early detection and management of toxicities in cancer patients who receive therapeutic radiation. These finding could provide minimally invasive early readout of delayed toxicities in patients who receive TBI or lung

	targeted radiation therapy.

25	26-T
Perceived harms and norms associated with electronic cigarette and smokeless tobacco use Waters EA, Mueller-Luckey G, Fogleman A, Crumly D, Jenkins WD To better understand electronic cigarette (Ecig) and smokeless tobacco (ST) use, we investigated: 1) what demographic variables are related to perceived harms and social norms of using electronic cigarettes (Ecig) and smokeless tobacco (ST); 2) how are perceived harms and social norms related to Ecig and ST use; and 3) how are perceived harms and norms related to reasons for using E-cigs and ST. METHODS We surveyed current and never Ecig and ST users at the Illinois State fair, one of the largest state fairs in the US. Multivariable linear and logistic modeling were used to examine the influence of age, gender, race, education and income on research questions. RESULTS We recruited 158 current and 105 never Ecig users, and 58 current and 194 never ST users. There were significant differences in use status by gender for ST (male OR=3.01, 95% CI=1.66-6.10) and race for Ecig (white OR=1.88, 95% CI=1.06-3.32). People with ≤high school degree and who had incomes of ≤$20,000 were less likely to believe that Ecig liquid could harm children (p=0.001 and 0.04, respectively). Ecig social norms were more favorable among white participants (p=.001). No other demographic variables were associated with perceived harms or social norms. Neither perceived harms nor perceived norms were associated with Ecig use. However, using Ecigs for the purpose of reducing smoking was associated with being male (p=.02) and more favorable social norms. People with ≤high school degree and incomes of ≤$20,000 perceived lower ST-associated harms (p=0.03 and 0.04, respectively), and no variables were associated with social norms. Men were more likely to report using ST to reduce smoking (p=0.02). Perceived community support for product use differed by product, but not by use status with 14% reporting discouragement for Ecig use and 32% reporting ST discouraging. CONCLUSIONS The absence of relationships between perceived harms, social norms, and Ecig and ST use was surprising. Research investigating whether these findings are due to the uniqueness of the sample, which was more rural than other studies of e-cig use, or some other factor, is critical.	Adolescents' Experience with a Web-based Intervention for Smoking Prevention: A Randomized Controlled Trial Khalil GE, Wang H, Mitra N, Prokhorov, AV Epidemiological research indicates that 9 out of 10 daily adult smokers begin smoking before the age of 18 and become addicted during adolescence. As a result, it is vital to strategically design and implement interventions for smoking prevention among adolescents. Specifically, a smoking prevention interactive experience (ASPIRE) is an entertaining and interactive web-based program for smoking prevention among adolescents. While ASPIRE has previously shown overall success, little is known about the role of the user experience of entertainment and interactivity on smoking-related intentions. Methods: In a randomized controlled trial (RCT), we recruited and randomized 101 adolescents (aged 12-18) to either a treatment condition (ASPIRE) or a control condition (a version of ASPIRE without interactivity or entertainment). Data were collected three days before and immediately after the intervention. The RCT was followed by one-on- one interviews with 20 randomly selected adolescents in the ASPIRE group. Repeated-measures mixed effect models were conducted for quantitative data analysis, and the generation of themes from two coders was conducted for qualitative interview analysis. Results: Compared to the control group, adolescents who used ASPIRE were more likely to decrease in intention to smoke. Perceived interactivity and perceived entertainment were significantly related to the decrease in intention to smoke. However, compared with entertainment, interactivity showed a stronger relationship with the decrease in intention. During the interviews, adolescents reported that interactivity allowed them to be involved in the content and discover a variety of hidden health messages. Adolescents expressed interest in entertainment through cartoon-based videos, humoristic videos, and testimonies. Adolescents expressed interest in having interactive games embedded in ASPIRE. Conclusion: The design of smoking prevention interventions among adolescents can benefit from both entertaining, and interactive features. An emphasis on interactive elements and game play may help adolescents decrease their intention to smoke.

27	28
Tobacco-Related Chronic Diseases and Smoking Cessation McAdams RJ Katz ML Ferketich AK Smoking among adults with one or more tobacco-related chronic diseases is a continuing public health problem. The purpose of this study is to determine if the diagnosis of a tobacco-related chronic disease influences an individual to quit smoking and to identify smoking cessation barriers among this high-risk population. Semi-structured telephone interviews were conducted (November –December 2015) with 20 adults aged 55 or older purposively sampled from patients of a lung cancer screening program. Transcribed interviews were analyzed with thematic analysis approach. Participants were former (n=10) or current (n=10) cigarette smokers. All participants began smoking cigarettes as young adults when it was socially acceptable, and even encouraged to smoke. Most (78%) participants expressed an understanding that smoking cigarettes is detrimental to their health. Most (80%) current smokers, regardless of smoking-related disease status, indicated wanting to quit, attempting to quit at least once, and experiencing societal pressure to stop smoking. Additional key findings include: 1) The majority of participants reported that a smoker who has been diagnosed with a smoking-related disease would have greater motivation to quit smoking compared to a smoker without a smoking-related disease; 2) Some participants who have been diagnosed with a smoking-related disease continue to smoke cigarettes; 3) Diagnosis of a smoking- related disease motivated some smokers to change their smoking behavior shortly after diagnosis, but smoking cessation often did not last; 4) Former smokers who were not diagnosed with a smoking-related disease, cited their motivation to quit smoking came from their understanding that smoking is harmful to one's health and that smoking is a financial burden; and 5) Smokers stated the main reason why quitting smoking is difficult even if diagnosed with a smoking-related disease is because of the addiction associated with smoking cigarettes. Findings provide insights into why older smokers initiated smoking cigarettes, what motivates them to quit smoking, and how a diagnosis of a smoking-related disease facilitates smoking cessation. This information will be useful in developing smoking cessation interventions among older adults with chronic diseases.	The Walk by Faith Study: A Group Randomized Trial to Promote Exercise and Diet in Appalachia Baltic RD, Paskett ED, Katz ML, Lesko SM, Kennedy SK, Lengerich EJ, Roberto KA, Schoenberg NE, Young GS, Dignan MB Significant disparities in incidence and mortality for cancers associated with obesity exist among Appalachian residents. The purpose of this study is to describe the outcomes and dissemination of an intervention to increase exercise and improve diet. Methods: Churches in Appalachian counties of Ohio, Pennsylvania, Virginia, West Virginia and Kentucky were assigned to an intervention to reduce obesity (Walk by Faith: WbF) or a cancer screening education program (Ribbons of Faith: RoF) by county. Adult church members with BMI¡Ý25 were recruited to participate. WbF participants received pedometers, journals, and an eHealth website. Monthly education sessions, demonstrations, and group walks were conducted over a 12-month (mo) intervention phase. RoF participants received cancer screening materials and education sessions about cancer screening. After an active phase, materials were refined and a WbF toolkit was developed. Ohio and Pennsylvania RoF participants were invited to take part in assessing the toolkit during a dissemination phase and were weighed and surveyed at baseline and after 6-mo. Results: Participants (n=663) from 28 churches enrolled, were mainly female (71%), with an average BMI of 33.2. Although the difference in weight loss from baseline to 12-mo for WbF compared to RoF was not statistically significant (-1.1% in weight-WbF vs RoF, p=0.17), results varied by gender. Men in WbF experienced a 2.5% loss in weight compared to men in RoF (p=0.03). All participants in WbF increased fruit and vegetable intake by 26% at 12-mo compared to RoF (p=0.03). The WbF toolkit was implemented with 71 participants in 6 churches. To date, 53 participants completed follow-up measurements. There was not a significant change in weight or METs from baseline to 6-mo, but the direction of effect was towards more activity with a 38% increase at 6-mo over baseline (95% CI: 0.85, 2.24), and 24 of 53 participants (45.3%, 95% CI: 40.5%, 68.4%) reported walking 30 minutes or more at 6-months. Conclusions: The WbF program facilitated weight loss among male participants, and all participants improved fruit and vegetable intake. Participants in the dissemination phase increased physical activity. Results lend support to church- based interventions for underserved rural communities.

29	30
Prospective changes in breast cancer worry and risk perceptions following breast density notification in an urban screening sample Tehranifar P, Joe C, April-Sanders A, Schmitt KM, Desperito E, Terry MB 24 states have passed legislations mandating that women with clinically determined high mammographic breast density (MBD) receive written notification about their density. The New York State legislation, enacted in 2013, informs women about the lower sensitivity of mammography and increased breast cancer risk associated with high MBD and advises them to seek risk assessment and additional screening; women with low MBD do not receive density information. MBD information may influence psychological processes and breast cancer screening behavior. As women may experience elevated psychological distress at the time of mammography with a subsequent decline following mammography, capturing these changes over time in relation to MBD notification status is necessary to understand the impact of density information. Methods: We collected epidemiologic data from 174 women (67% Hispanic; 52% foreign-born; aged 40-64 years) at the time of mammography in 2013-2014 (baseline) and on average 17 months after the baseline (follow-up). At both baseline and follow-up, women reported how often they worried about developing breast cancer (rarely/never, sometimes, often/all the time) and how likely they were to develop breast cancer in the future (low/somewhat low, moderate, somewhat/very high). We used multinomial regression models to examine the change in perceived risk and worry between baseline and follow-up (no change, decrease, increase) for women who receive notification (high MBD) compared to women who do not receive this information (low MBD). Results: 29% of women had high MBD requiring breast density notification. In multivariable models adjusting for age, ethnicity and time since baseline mammography, women with high MBD relative to women with low MBD were more likely to have an increase in perceived risk (22% vs. 13%; odds ratio [OR]=2.3, 95% confidence interval [CI]: 0.9, 6.1) and less likely to have a decline in breast cancer worry (16% vs. 27%; OR=0.4, 95% CI: 0.2, 1.0). Conclusion: Breast density notification may affect cognitive and emotional predictors of breast cancer screening. Given the large proportion of women with high MBD, the breast density notification may have population level impact on breast cancer screening.	An analysis of breast density notification legislation and implications for health disparities Thomas A, Tehranifar P Laws in 24 states now require the disclosure of clinical breast density information to women as part of their written mammography report; 10 additional states have pending bills. As > 40% of U.S. women aged 40-74 years are estimated to be eligible for this notification and few BC screening and disparities. We compared states with enacted laws, pending bills and no current legal actions in terms of mammography rates and analyzed the content of each law. Methods: We obtained publicly available data on state level mammography rates and breast density notification legislation information, including the mandated reporting texts for the states with enacted laws. We coded each of the 24 state law in terms of elements of information provided to women, and assessed the readability of mandated notification reports available for 22 states using the Flesch-Kincaid grade level scale. We used descriptive statistics and ANOVA tests. Results: States with enacted laws have a higher average biennial mammography rates (80.2%) than states with pending legislation (77.2%) and no legislative actions (75.2%) ($p<0.01$). We identified 4 main elements within the mandated notification texts: 1) lower sensitivity of mammography for dense breasts in 24 states, 2) recommendation for physician consult and/or risk assessment in 23 states, 3) increased breast cancer risk associated with high breast density in 17 states, and 4) advice about supplemental screening tests in 14 states. There was substantial variation across states regarding the number and combination of elements with only 8 states including all 4 elements. The readability grade level scores of the mandated reports ranged from 7 to 20 (mean 11.3 grades, SD 3.6), and 41% of the laws required more than a high school education to understand the notification report. Conclusion: Studies are warranted to elucidate the reasons for differences in state level breast density laws and whether these may lead to regional variations in breast cancer screening and early detection. The high literacy levels of the information disclosed to women make it difficult to understand in low literacy populations, and have implications for health disparities.

31-T	32
Measurement of Mammography History Gonzales, FA; Yu, M; Taplin SH; Breen N; Cronin KA Background: The 2009 US Preventive Service Task Force (USPSTF) breast cancer screening recommendation coincided with a change in the way the National Health Interview Survey (NHIS) assessed mammography history. Thus, it is difficult to know whether changes in mammography trends after 2009 reflect the impact of the new guideline or measurement differences. We examined: 1) the extent to which responses to two types of mammography history questions used in different years of the NHIS were consistent; and 2) estimated changes in past year mammography after the 2009 USPSTF recommendation change when the NHIS questions were concordant and discordant. Methods: Data from women ages 50-74 without a history of breast cancer were drawn from the 2008 and 2013 NHIS. In 2013, mammography history was assessed with two types of questions: dependent (¡°Have you ever had a mammogram? When did you have your most recent mammogram?¡±) and direct (¡°Have you had a mammogram in the past 12 months?¡±). In 2008, only the dependent question was asked. Using the 2013 data, we calculated a kappa statistic to assess agreement of responses in the overall sample and by race/ethnicity. Logistic regression models provided estimates of changes in mammography when questions in the pre (2008) and post (2013) periods were concordant (both dependent) and discordant (dependent/direct). Results: Women were more likely to report past year mammography when asked the direct question. Kappa coefficients were indicative of substantial agreement across responses to the two types of mammography history questions in the overall sample (©§=0.78) and among the racial/ethnic subgroups (range: ©§=0.71-0.81). Models testing changes in mammography behaviors when pre and post questions were discordant showed a significant increase in mammography in the overall sample (p=0.03) and among ¡°Other¡± women (p=0.05). However, when the pre and post questions were concordant, no significant changes were observed and point estimates indicated decreases in mammography. Conclusions: Changes to the NHIS questions can introduce measurement error in studies that explore behaviors over time. Researchers interested in assessing impact of practice or policy recommendations using NHIS data should use equivalent questions.	Factors associated with increased receipt of the HPV vaccine in U.S. male adolescents include Hispanic ethnicity and receiving other vaccines Kepka DK, Ding Q, Hawkins AJ, Henry KA, Warner EL, Boucher KM Purpose: To investigate the socio-demographic and healthcare factors that relate to receipt of the Human Papillomavirus (HPV) vaccine among adolescent boys to guide future interventions that will improve low rates of male HPV vaccination in the United States. Methods: Provider-validated data from the 2012 National Immunization Survey-Teen (NIS-Teen) for male adolescents ages 13–17 years (N=10,141) were analyzed using multivariable Poisson regression to estimate prevalence ratios (PR) for factors associated with HPV vaccine initiation and completion. Summary of the Results: In multivariable models, non-Hispanic Whites were less likely to initiate and complete HPV vaccination than Hispanic adolescents (PR = 0.66, 95% CI =0.55-0.80; PR = 0.50, 95% CI= 0.38-0.77). Non-Hispanic Blacks were also less likely to complete the HPV vaccination series than Hispanic adolescents (PR = 0.55, 95% CI = 0.36-0.83). Those who were provided health insurance through a source other than parent employment or parent union membership were 1.2 times more likely to initiate vaccination, and 1.6 times more likely to complete the vaccination series than boys who did receive health coverage through these mechanisms (PR = 1.24, 95% CI = 1.02-1.51; PR = 1.55, 95% CI = 1.05-2.28). Compared to those without recommended adolescent vaccinations, receipt of seasonal influenza vaccination related to HPV vaccine initiation (PR = 1.77, 95% CI = 1.52-2.05) and completion (PR = 3.20, 95% CI =2.37–4.33), as did receipt of Meningitis vaccination (PR = 4.98, 95% CI = 3.53-7.00; PR = 5.55, 95% CI = 2.82-10.91). Receipt of TDAP vaccination also related to HPV vaccination completion (PR = 1.61, 95% CI = 1.16-2.25). Statement of Conclusions: Adolescent male HPV vaccine initiation and completion in the U.S. is far below the Healthy People 2020 goal of 80% 3-dose completion among boys. In 2012, less than 7% of adolescent boys ages 13-17 years had completed the 3-dose series. Adolescent males who are Hispanic and those who are up to date on other recommended adolescent vaccinations were most likely to complete the HPV vaccine. Public health interventions are needed to improve low HPV vaccination rates among adolescent males in the United States. Consistently recommending the HPV vaccine alongside other adolescent immunizations will improve rates of HPV vaccine receipt.

33	34
Improving HPV Vaccination Completion in the District of Columbia: Avoiding Missed Opportunities Wallington SF Among both men and women, the human papillomavirus (HPV), the most common sexually transmitted virus in the United States, remains a considerable public health problem. HPV is associated with cervical, vulvar, vaginal, penile, anal, and oropharyngeal cancers. Three HPV vaccines are licensed in the United States but the promise of these HPV cancer-preventing vaccines has gone unfulfilled. Emerging research is focusing on missed vaccination opportunities and lack of physician vaccination recommendation. The likelihood of HPV vaccination is strongly linked to physician recommendation, and the strength of that recommendation plays a significant role in patient and parental vaccination decisions. Health providers, immunization experts, and an HPV researcher collaborated on a training program to educate physicians, nurses, pharmacists, and other health care professionals involved in the care of patients or delivery of HPV education and training materials. Informed by the literature and the Theory of Reasoned Action and the Theory of Planned Behavior, three modules were developed: HPV Vaccine Barriers and Opting; The Art of the Strong HPV Recommendation, and Missed Opportunities; and HPV Reminder Recall & HPV Vaccine Reminder Recall & Notification. An extensive literature review examined health care providers' roles in increased vaccine initiation and completion, barriers encountered, and opportunities to recommend HPV vaccination. We defined the module content and training format, gathered resources, and assembled an HPV Providers' Tool Kit that contains scientific HPV information to promote informed HPV decision making. All materials developed were peer reviewed by key stakeholders (e.g., physicians, nurses, and immunization staff), health department officials, and parents. We pilot tested the training with pediatricians, nurse practitioners, and medical assistants as part of an active evaluation process. The tool kit was used at workshops for 240 health professionals. In addition to evaluations completed for continuing education, pre- and post-training questionnaires were used to assess knowledge change. The Centers for Disease Control and Prevention along with support from the American Academy of Pediatrics funded this training activity.	E-cigarette marketing online: A systematic content analysis of manufacturers and retailers Klein EG, Berman M, Hemmerich N, Carlson C, Htut S, and Slater M Purpose: To identify the current atmosphere of online sales of Electronic Nicotine Delivery Systems (ENDS) in regards to key health-related and legal claims being made and to analyze the legal framework for regulating such claims. Methods: In December 2014, a systematic search protocol was employed with 3 popular search engines using six terms: 1) e-cigarettes, 2) e-cigs, 3) e-juice, 4) e-liquid, 5) e-hookah, and 6) vape pen. Websites from ENDS manufacturers and retailers were eligible for inclusion, and excluded review sites, blogs, or other non-commercial sites. Three pages of content were examined for each search term. In Phase I, included sites were independently coded for several health-related and legal themes, including: Modified or Reduced Risk, Cessation, Smoke anywhere, Health Benefits, Cleanliness, Environmentally Friendly, and Modern. In Phase II, gathered qualitative data was further coded for primary (explicit) and secondary (implicit) claims. Results: The final web search (n=115) identified eligible sites and these were divided into two categories Manufacturers (n=78) and Retailers (n=32). Between both groups, the most common claims were Modified or reduced risk claims (63.6%), Cessation claims (41.8%), and Claims regarding one's ability to get around clean indoor air laws (42.7%) for Manufacturers and Retailers, combined. Overall, Manufacturers were more likely to make any health or legal claim than Retailers. Conclusions: The unregulated marketing of ENDS has led to a proliferation of health-related claims. Applying a legal/regulatory perspective, this research reveals the different types of health-related claims being made by ENDS manufacturers and retailers on their websites. For claims that are misleading or deceptive, the specifics content and context of each claim may influence whether the FDA has the current regulatory authority to address it. This research demonstrates that the FDA should complete the proposed "deeming" rule and develop a comprehensive regulatory scheme to addresses health-related claims by ENDS manufacturers and retailers.

35-T	36-T
Theory Based Approach to Assess HPV Vaccination Uptake Among University Students Geneus CG, Osazuwa-Peters N, Christopher K, Rohde R, Walker R, Varvares M. Introduction The burden of the Human Papillomavirus (HPV) has exponentially increased due to its prevalence as the most common sexually transmitted infection, as well as its association with multiple cancers. Despite the proven benefits of the HPV vaccine, its uptake remains low among vaccine-eligible populations, including university students. Objective This study investigates factors that differentiate between university students who were either vaccinated (at least one of three doses) or unvaccinated. Methods Socio-demographic information and knowledge of HPV/HPV vaccine were accessed along with constructs of the Theory of Planned Behavior (TPB): attitude, subjective norms, and perceived behavioral control in an anonymous online survey administered to university students aged18 to 26 years. A multivariate two-group discriminant function analysis was performed on vaccinated and unvaccinated University students. Results The 929 who took the survey, TPB constructs were measured for 756 students (82%).The discriminant function accounted for a statistically significant percentage of the between-group differences (Wilk's $\Lambda = 0.46$, $\chi 2 = 526.78$, $p < 0.0001$) and explained 52.8% of the variance. Structure matrix showed that, among the TPB constructs, subjective norms ($r = 0.76$), and perceived behavioral control ($r = 0.40$)were positively associated with the discriminant function, which differentiated between university students who were reported to have received the HPV vaccine and those who were unvaccinated. Gender was negatively associated with the discriminant function ($r = -0.27$).Additionally, the discriminant function analysis also showed to correctly classified 88.4%ofcases, exceeding chance expectations. Conclusion Our results suggest that subjective norms and perceived behavior control are the strongest constructs of the Theory of Planned Behavior that predict HPV vaccination status of university students. Interventions aimed at increasing HPV vaccination uptake among university students should apply these behavioral constructs in order to optimize HPV vaccine uptake.	Multilevel Model of correlates of In-Hospital Mortality among Patients with Leukemia: Analysis from the National Inpatient Sample Geneus CJ, Mohmmed KA, Armbrecht ES, Burroughs TE In this study, the effect of sociodemographic and hospital-level factors on in-hospital mortality was investigated among patients with Leukemia. METHODS To account for the nested relationship between patients and hospital-level predictors, a weighted multilevel hierarchical logistic regression model was used to analyze data on (N = 44,346) patients diagnosed with all types of leukemia using the Health Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) and the International Classification of Disease, ninth edition, Clinical Modification (ICD-9-CM Codes). RESULTS Analysis revealed the overall in-hospital mortality in patients with leukemia was 5.94%. After controlling for the type of leukemia and receipt of chemotherapy, individual-level socio-demographic correlates showed that for every ten year increase in age, the odds of in-hospital mortality increased by 1.25 (OR = 1.25; 95% CI: 1.031 – 1.034), compared to Whites, Black patients had (OR = 1.23; 95% CI: 1.14 – 1.33) higher odds of in-hospital mortality, other race/ethnic had higher odds of mortality (OR = 1.16; 95% CI: 1.01 – 1.33) while Native Americans had 53% lower odds of mortality (OR = 0.47; 95% CI: 0.30 – 0.73). Additionally, men had 1.09 (OR = 1.09; 95% CI: 1.04 – 1.14) higher odds of mortality compared to their peers. Uninsured patients with leukemia had 1.81 (OR = 1.82; 95% CI: 1.65 – 2.01) higher odds of mortality compared to those who were insured. With respect to hospital level factors, patients in non-teaching hospitals had 30% (OR = 0.70; 95% CI: 0.61 – 0.82) lower odds of in-hospital mortality compared to those in teaching hospitals; patients in hospitals with smaller bed size had 37% (OR = 0.66; 95% CI: 0.58 – 0.85) lower odds of mortality compared to larger bed size hospital. Patients admitted on weekends had significantly higher odds of mortality (OR = 1.22; 95% CI: 1.15 – 1.28). Finally, increasing Elixhauser comorbidity score (aOR = 1.25 per 1 unit increase, 95% CI = 1.23 -1.26) was associated with in-hospital mortality. CONCLUSION These findings highlight socio-demographic disparities that exist even after adjusting for the presence of chemotherapy and types of Leukemia among this high-risk group. Research should examine other factors such as stage of Leukemia and other socio-demographic factors that contribute to disparities and These findings can lead to the development of prognostic tools to help better identify patients at high risk of death during hospitalization.

37-T

WMN4HLTH: Development of a Spiritually-Based SMS Text Messaging Pilot Intervention to Increase Cervical Cancer Awareness and Pap Test Screening Intention among African American Women

Le, D.; Holt, C.

African American (AA) women account for a disproportionate burden of cervical cancer incidence and mortality rate when compared to non-Hispanic White women. Given that religion occupies an essential place in AA lives, framing health messages with important spiritual themes and delivering them through a popular communication delivery channel may allow for a more culturally-relevant and accessible technology-based approach to promoting cervical cancer educational content to AA women. This presentation aims to describe the development of the "WMN4HLTH" project, a spiritually-based SMS text messaging pilot intervention to increase cervical cancer awareness and Pap test screening intention among church-attending AA women (ages 21-65). Through semi-structured focus group interviews, formative research was conducted to explore the range and sources of knowledge, beliefs, attitudes, barriers, facilitators, motivators, and psychosocial predictors in cervical cancer screening. The interviews were also used to identify logistical factors that should be considered when developing the "WMN4HLTH" project. Culturally-appropriate and spiritually-grounded SMS text messages were developed based on the analysis of focus group data and the review of previous empirical studies that incorporated technology into health behavior change interventions. After the "WMN4HLTH" pilot intervention was developed, cognitive response interviews were used to assess the content of the SMS text messaging library. Development of the SMS text messages involved consideration related to the content of the messages and technological specifications. Focus group participants overwhelmingly reported cellphone use and an interest in receiving spiritually-based SMS text messages on cervical cancer prevention. Findings from the cognitive response interviews revealed that the content of the text messaging library was acceptable and understandable with the target population. Initial usability testing also showed early feasibility. The development of the "WMN4HLTH" pilot intervention provides important insight into what may be considered an overlooked minority population and missed opportunity in health information technology research.

38

Cancers Associated with Human Papillomavirus in Ohio

Krok-Schoen JL, Sobotka HL, Fisher JL, Stephens JA, Kollman J, Lynn MB, Weier RC, Baltic RD, Paskett ED

Some types of the human papillomavirus (HPV), including high-risk HPV types 16 and 18, have been linked to cancer in men and women. Each year in the U.S., an estimated 26,000 new cancers are attributed to HPV, about 17,000 in women and 9,000 in men. Trends in HPV-associated cancers in Ohio have not been previously reported. The goal of this study was to examine trends in cancer incidence and mortality rates of HPV-associated cancers in Ohio and differences by demographic characteristics and region (Ohio and Appalachian Ohio). Cancer incidence and mortality data were obtained from the Ohio Cancer Incidence Surveillance System and the Bureau of Vital Statistics at the Ohio Department of Health, respectively. In 2008-2012, approximately 1,157 cases of cancer were attributed to HPV each year in Ohio. HPV-associated cancer incidence rates increased from 1996 to 2012 for cancers of the vulva, anus and oropharynx; oropharyngeal cancer incidence rates nearly doubled. HPV- associated cancer incidence rates were 48% higher among females compared to males and 6% higher among whites compared to blacks. The majority of Ohio counties with the highest HPV-associated cancer incidence rates were located in Appalachian Ohio. Incidence rates for HPV-associated cancers among males in Ohio were similar to those for the U.S., with the exception that the oropharyngeal cancer incidence rate was greater in Ohio. Among females, incidence rates in Ohio were similar to those for the U.S., with the exceptions that vulvar and anal cancer incidence rates were slightly higher in Ohio, compared to those for the U.S. Cervical cancer had the highest average annual number of deaths (170) of the HPV-associated cancers in Ohio from 2008 to 2012, followed by oropharyngeal cancer, with an average of 131 deaths. These results suggest that there are differences in HPV- associated cancer incidence and mortality rates by demographic characteristics and region. Understanding incidence and mortality rates of HPV-associated cancers in Ohio is important for public health professionals and researchers to develop, implement, and promote cancer prevention and control activities and research.

39	40-T
Sleep Duration, Quality, and Breast Cancer Aggressiveness (WHI Ms2524) Soucise A, Vaughn C, Thompson CL, Millen AE, Freudenheim JL, Wactawski-Wende J, Phipps A, Hale L, Qi L, Ochs-Balcom HM Epidemiological studies have reported that short sleep duration and poor sleep quality may increase breast cancer risk. However, whether sleep is associated with breast cancer tumor aggressiveness, particularly in regard to hormone receptor status and tumor grade has largely been unexplored. We evaluated the relationship between sleep and breast cancer tumor attributes, with consideration for possible heterogeneity by race. Methods. The study population included 4171 non-Hispanic whites (NHW) and 235 African Americans (AA) diagnosed with incident, primary, invasive breast cancer in the Women's Health Initiative (WHI) observational study. We used logistic regression models to examine the association of self-reported baseline sleep patterns (usual sleep duration, typical sleep quality, the WHI Insomnia Rating Scale (WHIIRS)) with tumor characteristics (grade, stage, hormone receptor status, HER2 status). Results. On average, sleep was measured 6.9 years (standard deviation=4.6) prior to diagnosis. NHW women who reported sleeping 6 hours/night were more likely to develop tumors classified as regional/distant stage (odds ratio (OR): 1.25, 95% confidence interval (CI): 1.05-1.48) compared to women reporting 7-8 hours of sleep/night. We observed no significant associations for the WHIIRS score or typical sleep quality with tumor attributes in NHWs. Among AAs, women who reported 'average quality' or 'restless or very restless sleep' were more likely to be diagnosed with triple negative breast cancer than women who reported their typical night's sleep as 'sound or restful,' OR: 2.91 (1.11, 7.63) and 3.74 (1.10, 12.77), respectively. Other tumor attributes were not associated with usual sleep duration or WHIIRS in AAs. Conclusions. For NHWs, there was an association with sleep duration and for AAs there was an association with sleep quality. Our findings among AAs are based on a small sample. We found indications for both AA and NHW postmenopausal women that sleep, a partially modifiable health behavior, is associated with more favorable tumor characteristics.	Maternal race and child sex disparities associated with childhood lymphoma in Texas, 1995-2011 Peckham EC; Scheurer ME; Danysh HE; Brown AL; Lubega J; and Lupo PL In the United States, lymphoma represents approximately one-third of all malignancies in those less than 20 years of age. As most cases are of unknown etiology, the identification of risk factors for the prevention of childhood lymphoma is critical. Maternal and birth characteristics are often evaluated in studies of childhood cancer to determine the role of inborn variation on disease risk. Thus we sought to evaluate the role of maternal and birth characteristics on the risk of childhood lymphoma. Methods: Cases (n=374) were obtained from the Texas Cancer Registry (TCR) and limited to children born in Texas during or after 1995 and diagnosed with a lymphoma between 1995-2011. Diagnostic information came from the TCR, and case birth characteristic data was obtained from linked Texas birth certificates provided by the Center for Health Statistics. A randomly selected group of 10 controls for each case with subsequent birth characteristic data available was obtained from linked birth certificates. Multinomial logistic regression was used to generate relative-risk ratios (aRRR) and 95% confidence intervals (CI), adjusted for relevant covariates, to evaluate the association between several maternal and birth characteristics and lymphoma risk (overall and by subtype). Results: Most maternal and birth characteristics were not associated with risk of childhood lymphoma. However, two factors were associated with lymphoma risk overall and by subtype: maternal race/ethnicity and infant sex. When compared to non-Hispanic white mothers, Hispanic mothers were more likely to have offspring that developed: 1) any lymphoma (aRRR: 1.09; 95% CI: 0.85-1.40) and 2) non-Hodgkin excluding Burkitt lymphoma (aRRR: 1.42; 95% CI: 0.96-2.11). The reverse was seen for non-Hispanic black mothers. There was also a disparity in risk by infant sex. Specifically, female children were at a decreased risk of developing all lymphomas (aRRR: 0.59; 95% CI: 0.47-0.74); Hodgkin lymphoma (aRRR: 0.65; 95% CI: 0.46-0.92); and Burkitt lymphoma (aRRR: 0.18; 95% CI: 0.10-0.33) when compared to male children. Conclusion: In this relatively large population-based study of these factors on the risk of childhood lymphoma, we found little evidence that maternal and birth characteristics were associated with disease risk.

41-T	42-T
Neighborhood disorder, interpersonal discrimination and cancer-related risk factors: California Behavioral Risk Factor Surveillance System, 2013 Plascak JJ, Barrington WE, Beresford SAA Numerous studies have documented the adverse effects of the social environment (e.g., neighborhood socioeconomic deprivation, racial-ethnic segregation) on cancer-related risk factors, yet few studies have tested potential social mechanisms. The objective of this study was to determine whether measures of interpersonal racial-ethnic discrimination and neighborhood disorder are associated with obesity, aerobic physical activity (PA) recommendations, alcohol consumption and current tobacco smoking among women. Methods: Data were from the 2013 California Behavioral Risk Factor Surveillance System. In addition to self-reported age, race, ethnicity, marital status, education, income and survey language, women were asked about experiences with racial-ethnic discrimination and elements of their neighborhood PA environment (i.e., perceived crime, perceived traffic safety, and perceived aesthetics. Obesity (BMI≥30 kg/m2), aerobic PA recommendations (≥150 min/week), more-than-moderate alcohol consumption (>1 beverage/day) and current tobacco smoking were calculated, respectively, from self-reported height and weight; PA type, duration and frequency; alcohol use frequency; and tobacco smoking history. Survey-weighted logistic regression models of each cancer-related risk factor was built to investigate the simultaneous effects of racial-ethnic discrimination and neighborhood disorder while controlling for potential confounders. Interactions between race-ethnicity and racial-ethnic discrimination were tested. Results: After control for potential confounders, women experiencing racial-ethnic discrimination, perceiving their neighborhood as less safe from crime, less safe from traffic, or less aesthetically pleasant had a higher prevalence of current tobacco use and more-than-moderate alcohol use. Discrimination and neighborhood disorder were not associated with obesity or PA. Race-ethnicity did not interact with racial-ethnic discrimination to effect any cancer-related risk factor. Conclusions: Neighborhood disorder and racial-ethnic discrimination may be important contributors to cancer disparities and partially explain associations between the social environment and tobacco or more-than-moderate alcohol use.	Health-Related Quality Of Life in Rural and Urban Cancer Survivors and Adults without Cancer: Results from the 2010 National Health Interview Survey Nightingale CL, Case DL, Palmer NR, Lingyi L, Weaver KE Rural cancer survivors comprise 21% of US survivors and experience greater cancer mortality and poorer health post-cancer, but less is known about rural-urban health-related quality of life (HRQOL) differences among survivors. This study compares HRQOL in rural versus urban survivors and adults without cancer. Methods: Analyses were conducted using 2010 National Health Interview Survey data. Rurality was classified using rural-urban continuum county codes. HRQOL was measured using PROMIS Global 10 Summary Scores, including physical health, mental health, and social roles. Weighted multivariable linear regression models compared physical and mental health in rural (n=358) and urban (n=1464) survivors, and adults without cancer (rural n=3872; urban n=21443), adjusting for age, sex, race/ethnicity, marital status, education, and non-cancer comorbidities. Logistic regression models assessed odds of reporting poor/fair social roles by rural-urban status stratified by age (18 –64 vs 65+). Results: Physical health differed significantly by cancer history and rurality (p<.0001). Rural survivors had the poorest physical health (least square means [LSM]=46.9, standard error=0.55), followed by urban survivors (LSM=48.5, 0.29), and adults without cancer (rural LSM=52.6, 0.20; urban LSM=53.3, 0.08). Although significant (p<.0001), differences in mental health were smaller (rural survivor LSM=51.2, 0.51; urban survivor LSM=52.2, 0.31; rural without cancer LSM=53.5, 0.19; urban without cancer LSM=54.0, 0.08). Rural survivors were more likely than urban survivors to report poor/fair social roles, but only in the 65+ age group (OR=1.46, CI=1.01-2.11). Discussion: Cancer survivors experience worse physical and mental health than adults without cancer, with slightly worse physical health among rural survivors. Future exploration of multilevel factors contributing to rural-urban cancer health disparities is needed.

43-T	44
Racial/ethnic differences in endometrioid endometrial cancer treatment types among women identified through the National Cancer Database Beckmeyer-Borowko AB, Peterson CE, Brewer KC, Otoo MA, Davis FG, Hoskins KF, Joslin CE Past research suggests that Non-Hispanic blacks (NHB) are less likely to receive recommended treatment when diagnosed with endometrioid endometrial cancer (EEC) than non- Hispanic whites (NHW); however little is known about the pattern of treatment among other racial and ethnic groups. Adequate treatment following cancer diagnosis increases survival time and therefore is essential for all women regardless of their race or ethnicity. This study examined whether racial and ethnic differences in treatment are present in U.S. women (NHW, NHB, Hispanics, non-Hispanic Asians (NHA), non-Hispanic Pacific Islanders/Hawaiians (NHPI), non-Hispanic American Indians/Aleutians or Eskimos (NHAI/AN) and non-Hispanics others (NHO). METHODS: EEC cases from the National Cancer Database were analyzed to evaluate treatment differences in receipt of overall surgery, chemotherapy and radiation therapy. All outcome variables were dichotomized as no receipt versus receipt of treatment (no versus yes). Chi-Square test was used to examine racial/ethnic differences in demographic, clinical, institutional variables and treatment (surgery, chemotherapy and radiation therapy). Multivariable logistic regressions were fit to estimate the adjusted odds ratio (OR) and 95% confidence intervals (95% CI) between race/ ethnicity and treatment outcomes. RESULTS: A total of 456,238 women were diagnosed with EEC between 1998 and 2012. Of these, 75.5% were NHW, 8.7% were NHB, 12.6% were Hispanic, 2.0% were NHA, 0.2% were NHPI, 0.3% were NHAI/AN and 0.8% were NHO. Adjusting for covariates, NHB (OR=1.74; 95%CI 1.65-1.83), Hispanics (OR=1.11; 95%CI 1.06-1.16), NHPI (OR=1.54; 95%CI 1.16-2.05), NHAI/AN (OR=1.65; 95%CI 1.25-2.16) and NHO (OR=1.25; 95%CI 1.07-1.47) were more likely not to receive surgery compared to NHW. NHPI (OR=1.41; 95%CI 1.08-1.84) and NHO (OR=1.24; 95%CI 1.05-1.46) were more likely not to receive chemotherapy and NHO (OR=1.26; 95%CI 1.14-1.39) and NHB (OR=1.10; 95%CI 1.06-1.14) were more likely not to receive radiation therapy when compared to NHW. CONCLUSIONS: Results identify racial/ethnic differences across different treatment types following diagnosis with EEC. These patterns persist after adjustment for demographic, clinical and institutional variables. The largest racial/ethnic differences are seen in failure to receive adequate surgery.	Mammography Adherence in African American Women: Results of a Randomized Controlled Trial Gathirua-Mwangi WG, Monahan PO, Stump T, Rawl SM, Skinner CS and Champion VL Breast cancer is the second leading cause of cancer mortality among women in the developed world. Mammography screening is especially important for African Americans because they experience a greater mortality (OR=1.38) than Caucasians despite having a lower incidence of breast cancer. Purpose. The purpose of this study was to compare the effects of two interventions with usual care on mammography adherence among African American women. Additionally, we sought to determine if intervention effectiveness vary by household income. Methods. A subsample of African American women (n=244) aged 41-65 years who had not had a mammogram in the last 15 months and no history of breast cancer were randomly assigned to receive: 1) mailed interactive DVD, 2) computer-tailored telephone counseling, or 3) usual care. The development of tailored interventions was framed by the Health Belief and Transtheoretical Models (TTM) previously associated with promoting mammography use. The messages contained in both the DVD and phone counseling were tailored on: 1) perceived and actual risk; 2) perceived benefits, 3) barriers, 4) self-efficacy; and 5) knowledge. Data were collected on the phone by trained interviewers at three time points: baseline (T1), 4 weeks [intervention groups only] (T2), and six months (T3). Mammography adherence (the outcome variable) was computed as a combined score using both medical records and six-month self-report data. Women were classified as being adherent if either self-report or medical records indicated they had a mammogram between baseline and six months. Binary logistic regression analysis adjusted for various demographic and other theoretical variables was used to test the effect of the intervention on mammography adherence. Results. Logistic regression testing intervention efficacy in increasing mammography adherence while adjusting for baseline demographic characteristics showed neither the DVD (OR=1.64; 95% CI 0.80-3.39) nor Telephone (OR = 1.24; 95% C.I. 0.61-2.50) intervention was more efficacious when compared to usual care. However, the DVD intervention was 5 times more effective than usual care for promoting mammography screening at 6 months follow-up among women who earned less than $30,000 (OR= 5.3). Compared to usual care, neither the DVD nor phone produced significant effects for women with household incomes >$30,000. Conclusion. Use of a mailed DVD for low-income African American women may be an effective way to increase mammography adherence. (ClinicalTrials.gov no. NCT00287040)

45	46
Impact of individual and neighborhood factors on disparities in prostate cancer **survival** DeRouen MC, Schupp C, Koo J, Yang J, Shariff-Marco S, Ingles S, Cockburn M, John EM, Gomez SL We addressed the hypothesis that individual-level factors act jointly with social and built environment factors to influence prostate cancer survival and that these effects contribute to the unexplained racial/ethnic and socioeconomic (SES) disparities in prostate cancer survival. Methods: We analyzed multi-level data, combining (1) individual-level data from the California Collaborative Prostate Cancer Study, a population-based study of non-Hispanic White, Hispanic and African American prostate cancer cases (N=1,800) diagnosed from 1999-2003, with (2) data on neighborhood SES (nSES) and social and built environment factors (e.g., population density, housing, businesses, and segregation or ethnic enclave status) from the California Neighborhoods Data System, and (3) data on survival and tumor characteristics from the California Cancer Registry. Multivariable, stage-stratified Cox proportional hazards regression frailty models with cluster adjustments for census block groups were used to assess the relative effects of individual- and neighborhood-level SES on racial/ethnic disparities in survival after prostate cancer diagnosis. We also examined the extent to which individual-level and social and built environment factors explain associations of nSES with overall survival. Results: We found that differences in nSES accounted for disparities in overall survival between African American and non-Hispanic White men with prostate cancer. Individual-level education, an indicator of SES, only partially accounted for this disparity. Only a small portion of the association of nSES with survival was explained by behavioral, hospital, and restaurant and food environment characteristics. Among Hispanics, overall survival was longer among foreign-born compared to US-born cases, and among those who resided in low enclave, compared to high enclave, neighborhoods. Conclusions: Our analyses illustrate the use of both individual- and neighborhood-level factors in analyzing survival for a population-based sample of cases and demonstrate the importance of individual and neighborhood SES in prostate cancer survival. Additional research is needed to identify the factors and mechanisms underlying the robust association between SES and survival after prostate cancer diagnosis.	Impact of individual and neighborhood factors on disparities in prostate cancer **incidence** DeRouen MC, Schupp C, Yang J, Koo J, Shariff-Marco S, Ingles S, Cockburn M, John EM, Gomez SL After decades of research, few prostate cancer risk factors have been identified, and the reasons behind racial/ethnic and socioeconomic (SES) disparities in prostate cancer incidence remain unclear. We addressed the hypothesis that individual-level factors act jointly with neighborhood-level social and built environment factors to influence prostate cancer risk and that these effects contribute to SES disparities in prostate cancer incidence. Methods: We used multi-level data, combining individual-level data (including education and known prostate cancer risk factors) for prostate cancer cases (N=775) and controls (N=542) from the San Francisco Bay Area Prostate Cancer Study, a population-based case-control study, with contextual-level data on neighborhood SES and specific social and built environment factors from the California Neighborhoods Data System. Multivariable logistic regression modeling was used to compute adjusted odds ratios separately for localized stage and advanced stage prostate cancer while controlling for neighborhood clustering. Results: We found a more than two-fold increased risk of both localized and advanced prostate cancer associated with increasing levels of neighborhood SES. For localized disease, this association was largely explained by known prostate cancer risk factors as well as certain neighborhood characteristics; specifically population density, crowding, and residential mobility. Neighborhoods that have higher per capita residents, more crowded households (household occupants), and less population mobility were associated with lower prostate cancer risk. For advanced disease, the association with neighborhood SES was not explained by any available individual or neighborhood factors. We did not have adequate numbers of subjects to stratify these analyses by race/ethnicity. Conclusions: Our analyses demonstrate the importance of specific neighborhood social and built environment factors in prostate cancer risk. Additional research aimed at understanding the individual- and neighborhood-level factors and mechanisms underpinning these associations may help inform future interventions to ameliorate disparities among specific populations.

47-T	48-T
Evaluating the Association between Area-level Socioeconomic Status Measures and Colorectal Cancer Screening Adherence Shen Q, Lu J, Jones RM, Wheeler DC, Matsuyama RK, Cohen SA This study evaluated the association between the measures of area-level socioeconomic status (SES) and colorectal cancer screening (CRCS) adherence. Methods: Linked data from the 2012-2013 Washington Behavioral Risk Factor Surveillance System and American Community Survey were used. A total of 12,711 eligible respondents aged 50-75 with CRCS and residential zip code information were included in the study. The exposure was ZIP Code-level SES (i.e., 19 single and five composite measures), categorized into quintiles (Q1: least deprived – Q5: most deprived ZIP Codes). The outcomes were the prevalence of stool test, colonoscopy, and overall CRCS adherence, according to the national guidelines. Multilevel regression models were used to assess the association between the areal-level SES and CRCS adherence, controlling for individual-level covariates. Odds ratios (ORs) and associated 95% confidence intervals (CIs) were reported. Results: Of the SES measures, percentage of people living below the poverty line had a significant positive association with stool test adherence (Q4 vs. Q1: crude OR=1.33, 95% CI: 1.01-1.75; adjusted OR=1.43, 95% CI: 1.08-1.88). Area-level deprivation was negatively associated with colonoscopy adherence in the crude models. Income measures such as per capital income (Q5 vs. Q1: OR=0.50, 95% CI: 0.41-0.61), education measures such as percentage of people with college education or above (Q5 vs: Q1: OR=0.53, 95% CI: 0.43- 0.65), and composite measures such as SES summary score (Q5 vs: Q1: OR=0.51, 95% CI: 0.42-0.61) showed strong associations with the colonoscopy adherence. However, the observed significant associations with colonoscopy adherence disappeared when adjusting for individual-level covariates. Results for the outcome of overall CRCS adherence were similar to colonoscopy adherence. Conclusion: The associations between area-level SES and CRCS adherence vary by the types of CRCS tests and the SES measures used. Our study results suggest that several SES measures at the ZIP Code level are useful for describing social inequalities in different CRCS adherence outcomes	Changing trends in practice settings for colonoscopy in SC: implications for colorectal cancer prevention Josey MJ, Eberth JM It has been reported that freestanding Ambulatory Surgery Centers (ASCs) have seen substantial growth over the last two decades compared to hospital facilities, and a major category of ambulatory visits is endoscopic procedures such as colorectal cancer screening. Thus, the growth of ASCs is of great importance to colorectal cancer prevention. Methods We used the SC Ambulatory Surgery Discharge database (2001-2010), restricted to individuals between the ages of 50 to 75 who had a colonoscopy recorded (N=604,423). Residence was measured at the county level using the Rural-Urban Commuting Area Codes. We produced descriptive studies for the utilization of colonoscopy over the study period, overall, by area of residence, patient characteristics, and type of facility. Spatial accessibility to colonoscopy facilities by area of residence was also assessed. Results Over the study period, 58% of the SC population between the ages of 50 to 75 underwent at least one colonoscopy procedure (63% urban vs. 45% rural). The number of hospitals providing colonoscopy in SC has remained fairly constant, with only a 3% increase; while, the number of ASCs increased by 127%. Rural county growth of ASCs exceeded that of urban counties (133% vs 125%). Commercial/private insurance and Medicare had a 143% and 147% increase in the number of payments to ASCs, respectively. Conclusion Over time, patients of all study ages, both male and female, utilized ASCs increasingly over hospitals. With this phenomenon, Medicare and commercial/private insurance paid out more to ASCs than hospitals from 2001- 2010. While there has been growth in facilities performing colonoscopies, there is still room for expansion, as some counties (particularly rural) have a limited number of facilities. Further improving access to ASCs may be one solution to increasing colorectal cancer screening utilization among persons aged 50 to 75 in SC.

49	50
Bioavailable Insulin-Like Growth Factor-I as Mediator of Racial Disparity in Obesity-Relevant Breast and Colorectal Cancer Risk among Postmenopausal Women Jung SY, Crandall C, Barrington W, Lane D, Chen C, Wactawski-Wende J Bioavailable insulin-like growth factor (IGF)-I interacts with obesity and exogenous estrogen in a racial disparity in obesity-related cancer risk, yet their interconnected pathways are not fully characterized. We investigated whether circulating bioavailable IGF-I acted as a mediator of the racial disparity in obesity-related breast and colorectal (CR) cancers and how obesity and estrogen use regulate this relationship. Methods: A total of 2,425 white and 164 African American (AA) postmenopausal women from the Womens Health Initiative Observational Study were followed from October 1, 1993 through August 29, 2014. To assess bioactive IGF-I as a mediator of race–cancer relationship, we used the Baron-Kenny method and quantitative estimation of the mediation effect. Results: Compared with white women, AA women had higher IGF-I levels; their higher risk of CR cancer, after accounting for IGF-I, was no longer significant. IGF-I was associated with breast and CR cancers even after controlling for race. Among viscerally obese (waist/hip ratio >0.85) and overall non-obese women (body mass index <30), IGF-I was a strong mediator, reducing the racial disparity in both cancers by 30% and 60%, respectively. In estrogen-only users and nonusers, IGF-I explained the racial disparity in CR cancer only modestly. Conclusions: Bioavailable IGF-I is potentially important in racial disparities in obesity- related breast and CR cancer risk between postmenopausal AA and white women. Body fat distribution and estrogen use may be part of the interconnected hormonal pathways related to racial difference in IGF-I levels and obesity-related cancer risk.	Moving towards Transdisciplinary Outcomes: A Cross-Initiative Perspective Hohl SD, Noble H, Thompson B In this study, we explored and compared challenges, successes, and progress towards transdisciplinary outcomes of two National Institute of Health (NIH)-funded center grant initiatives: Transdisciplinary Research on Energetics and Cancer (TREC) and the Centers for Population Health and Health Disparities (CPHHD). We conducted one-on-one semi-structured interviews with 53 investigators, trainees, and staff from TREC and CPHHD programs and funding program staff from the NIH. Interview questions were designed to explore 1) transdisciplinary outcomes within TREC and CPHHD and 2) investigator-perceived impacts of transdisciplinary collaboration on investigators, research centers, and the scientific community. Investigators from both TREC and CPHHD described nine broad outcomes unique to transdisciplinary research: transdisciplinary authorship, new transdisciplinary grants, disciplinarily-integrated research methods and statistical designs, consortium building, new multi-level intervention models, policy changes, awareness and dissemination, translation, and training. The infrastructural support of a central Coordination Center and ongoing funds for one-year pilot projects in TREC facilitated both cross-center consortium building as well as cross- center intellectual exchange and partnership. The requirement of CPHHD grantees to implement a community intervention provided a means for investigators to extend their academic consortium building by engaging communities. Investigators of all levels across TREC and CPHHD described new discoveries and career advancement that they in part attributed to their participation in a multi-site, transdisciplinary initiative. In this study, we built on previous research that has explored the processes and facilitators of transdisciplinary team science by identifying outcomes of this type of work. As such, our results elucidate the value of investing in transdisciplinary center grant initiatives to foster innovation that can solve more complex public health problems. Additionally, our findings could help garner the appropriate academic institutional and departmental support for transdisciplinary research conduct, in effect, more efficiently and effectively generating public health impact.

51-T	52
Platelet-to-Lymphocyte Ratio, Race, and Overall Survival in Patients with Colorectal Cancer Ba AT, Wallace K, Li Z, Rachidi S Colorectal Cancer (CRC) is the third most common malignancy in the US and the third leading cause of cancer death. African Americans (AA) compared to European Americans (EA) have a higher CRC mortality rate and a lower survival for reasons not entirely understood. Previous studies have shown that higher serum platelet levels and a higher platelet to lymphocyte ratio (PLR) at diagnosis are associated with a higher risk of death while higher lymphocyte levels are associated with a lower risk of death. However, no studies have examined the impact of these parameters on survival by race. The objective of this study is to assess whether a higher platelet count, lower lymphocyte count, or their ratio PLR has a similar effect in AA and EA. We hypothesize that AA compared to EA will present with a higher PLR at diagnosis and this will correlate with the differences observed in survival by race. We used data from 566 pathologically confirmed colorectal adenocarcinoma cases diagnosed from June 30 2000 to June 30 2012 at the Medical University of South Carolina. Median platelet, lymphocyte counts, and their ratio (PLR) were investigated as predictors of survival by fitting Cox proportional hazards (CPH) regression models to generate Hazard Ratios (HR) and 95% confidence intervals (CI), while adjusting for age, and sex. Contrary to our hypothesis, AA and EA had a similar median PLR at diagnosis. However, AA with a PLR>170 (median) compared to those < 170 had a significantly higher risk of death HR 1.51 (95%CI 1.02-2.21). EA with a PLR>170 had a non-significantly higher risk of death compared to those less than the median: HR 1.30 (95% CI 0.94-1.8). As expected, the higher median lymphocyte count in EA was associated with a lower risk of death HR 0.78 (0.56-1.08). However, this association was not found in AA (HR 1.0 (95% CI 0.68-1.46)). Elevated median platelet count was associated with a higher risk of death in both AA and EA patients. Future research will be needed to clarify the role of race, lymphocyte count and the risk of death. Overall, our results suggest that a higher PLR ratio is a marker of a higher risk of death in both AA and EA and may have a greater impact in AA patients.	Longitudinal associations between social support and physical activity among overweight and obese Appalachian adults Mama SK, Lengerich EJ, Cromo MA, Baltic RD, Young GS, Dignan MB, Paskett ED The purpose of this study was to examine the association between changes in social support (SS) and changes in physical activity (PA) among overweight/obese Appalachian adults who participated in a longitudinal energy balance study. Method: Walk by Faith (WbF) recruited men and women (with a BMI ≥25 kg/m2) from 13 churches in five Appalachian states. WbF was a 12-month intervention and aimed to increase PA and improve dietary habits at the organizational (church level and individual (church member) level. Intervention activities included church walks and competitions, educational sessions, an interactive website to track progress, and tailored feedback. Participants completed anthropometric measures, the International Physical Activity Questionnaire (IPAQ; walking, moderate, and total PA), and the UCLA Social Support Inventory for PA (relative/friend and church support) at baseline and 12-months. Adjusted ANCOVA models were used to examine changes in PA and SS from baseline to 12-months and the association between changes in SS and PA. Results: Participants (N=162) were in their 50s (M age=56.5 years, SD=12.1), obese (M BMI=32.9 kg/m2, SD=6.2), and mostly non-Hispanic women (98.8% and 75.3%, respectively) and 45.7% had completed college. At baseline, participants were active and reported 1257.6 minutes of total PA per week, including 412.1 min/week of walking and 737.1 min/week of moderate-intensity PA. Participants reported increases in walking (Δ=299 MET-min/week or 90.6 min/week, p<.001) but not moderate or total PA and increases in SS from a relative/friend (Δ=1.4, p=.024) and the church (Δ=1.7, p=.001), after adjusting for gender, age, education and BMI. After adjusting for covariates, a 5- unit increase in SS from a relative/friend was significantly associated with a 13.9% increase in walking (p=.036). There were no other significant associations between changes in SS and PA. Conclusions: Increased SS from a relative/friend was associated with increased walking at 12-months. Appalachian adults may benefit from PA interventions that focus on increasing SS from family and friends. Future interventions should include relatives and friends of Appalachian adults to support them to be more active and less sedentary and to do PA with them.

53	54
Benefit of high vitamin D intake for prostate cancer prevention among African Americans Batai K, Murphy AB, Shah E, Ahaghotu C, Kittles RA Prostate cancer (PCa) incidence and mortality rates are disproportionately higher among African Americans (AAs) than other racial/ethnic groups in the U.S. Difference in prevalence of vitamin D deficiency across racial/ethnic groups may partially account for PCa health disparities. Vitamin D through an interaction with the vitamin D receptor (VDR) gene inhibits growth and induces apoptosis. Among AAs who live in low UV radiation environment, high vitamin D intake may be beneficial for PCa prevention. Here we investigated if vitamin D intake is associated with PCa and if vitamin D intake modifies the association between VDR polymorphisms and PCa. Samples and Methods: A total of 1,657 individuals from Chicago, IL and Washington, D.C. were included from a case-control study aiming to understand the relationship between vitamin D and PCa. Vitamin D intake was evaluated using the Block calcium and vitamin D screener. Seven polymorphisms in and around the VDR gene were genotyped. We performed unconditional logistic regression analyses adjusting for relevant variables. Results: In the pooled data set, high vitamin D intake was associated with reduced risk of aggressive PCa. In AAs, we observed very strong inverse association between total vitamin D intake and PCa, but not in European Americans (EAs). In analysis stratifying participants based on their BMI, we observed a strong inverse association between vitamin D intake and PCa among men with low BMI (<27.8), but not among men with high BMI (≥27.8). In EAs, TaqI (rs73136) and BsmI (rs1544410) minor alleles revealed a protective effect against PCa, while in AAs, BsmI AA genotype showed increased odds of high grade PCa compared to the GG genotype. We also observed a statistically significant interaction between vitamin D intake and VDR gene variants. The TaqI C allele increased odds of PCa in AAs with low vitamin D intake, not among AAs with high vitamin D intake (P for interaction = 0.01). Conclusion: We demonstrated that high vitamin D intake was inversely associated with PCa and vitamin D intake modified associations between VDR polymorphisms and PCa. The findings from this study may help develop better PCa prevention and management strategies, especially in high risk populations, such as AAs.	Effects of systematic referral to free genetic counseling in high risk women with and without a college degree. Knerr S, Andersen MR, Drescher CW, Resta R, Hager C, Shaw C, Watabayashi K, Urban N Systematically identifying and referring high risk women to genetic counseling may help address disparities in genetic services utilization by standardizing the referral process. We examined the effect of systematic referral to free genetic counseling on testing-related cognitions and genetic services utilization and tested for effect-modification by education level. Methods: Secondary analysis of a randomized controlled trial conducted in Seattle, WA. Women at high risk of carrying a deleterious BRCA 1 or BRCA 2 mutation were identified through electronic medical records and mailed questionnaires and randomized to either referral to free genetic counseling (n=228) or standard clinical care (n=230). Testing-related cognitions (cancer relative risk perceptions, genetic testing awareness, and test candidacy judgments) and genetic services utilization (counseling and testing) were self-reported at baseline and follow-up. The impact of systematic referral on changes in testing-related cognitions and uptake of counseling and testing, overall and by education level, was assessed using predictive margins generated from logistic regression models Results: Women referred to free genetic counseling had greater increases in genetic testing awareness than women receiving standard care—the proportion reporting to have read or heard at least a bit about genetic testing went from 47% at baseline (95% CI: 40%, 53%) to 69% at follow- up (95% CI: 63%, 75%) in the intervention arm (p≤0.001), but did not change in the control arm. Cancer relative risk perceptions and test candidacy judgements did not change in either arm during the study. Compared to standard care, women in the referral arm were more likely to participate in counseling (7% [95% CI: 4%, 11%] vs. 85% [95% CI: 81%, 90%]; p≤0.001) and to undergo testing (9% [95% CI: 5%, 12%] vs. 33% [95% CI: 26%, 39%]; p≤0.001). There was no evidence of differential intervention effects by education level. Conclusion: Systematically identifying and referring women to free genetic counseling increased utilization of genetic services, regardless of education level. Clinical implementation of systematic referral approaches may lead to more equitable genetic services delivery and improve cancer- related outcomes for high risk women.

55	56-T
Describing dietary adherence in African American Breast Cancer Survivors using the Alternative Healthy Eating Index (AHEI) Springfield SE, Odoms-Young A, Tussing-Humphreys L, Stolley MR. Dietary adherence, particularly as defined by the Alternative Healthy Eating Index (AHEI), reduces risk of chronic disease and may also impact cancer survivorship. African American (AA) women have the shortest breast cancer survival rates of any other racial or ethnic group. Additionally, AA women with breast cancer are more likely to die from comorbid conditions such as diabetes or heart disease; conditions impacted by weight status and dietary quality. Virtually no studies have examined dietary quality in AA Breast Cancer Survivors (AABCS). Objective We aim to describe dietary adherence in AABCS using the AHEI-2010 calculated from a validated food-frequency questionnaire. Methods: A secondary analysis will be conducted using baseline data including anthropometrics, demographics, and dietary intake from a randomized weight management study with 216 AABCS. Dietary intake was measured using the Block (121-items) 2005 Food Frequency Questionnaires. Dietary quality was examined based on AHEI-2010 score. AHEI provides a total score (range: 0–110; higher scores indicate better quality and adherence), as well as scores for 11 dietary components including vegetables (0-10), fruit (0-10), whole grain (0-10), sugar sweetened beverages and fruit juice (0-10), nuts and legumes (0-10), red processed meat (0-10), trans-fat (0-10), fatty fish acids (0-10), polyunsaturated fat (oils), sodium (0-10), and alcoholic drinks (0-10). Results The mean AHEI-2010 total score was 56.95 (sd ±: 10.91). Scores ranged from 24.96 to 85.80. The majority of women had better adherence to trans fats (8.1), polyunsaturated fats (8.4), and vegetable (6.1) consumption recommendations. In contrast, adherence to alcoholic drinks (4.7), fatty fish acids (4.5), fruit (4.2), sugary drink (2.7), and whole grains (2.2) consumption reflected lower adherence. Conclusion: AABCS's overall eating patterns reflect sub-optimal adherence, particularly related to fruit, whole grains, sugary beverages, fatty fish acids, and alcoholic drink consumption. However, better adherence was noted for vegetables and polyunsaturated/trans fats consumption. Understanding the dietary patterns of AABCS can inform the development of dietary interventions to improve overall health in this underserved population.	Disparities in Breast Reconstruction Surgery: Systematic Review and Meta-Analysis Khushalani JS Breast reconstruction provides psycho-social and quality of life benefits for breast cancer patients after mastectomy. The Women's Health and Cancer Rights Act mandated insurance coverage of breast reconstruction in 1999 to improve access. Yet, race, income, type of insurance and region hinder access to breast reconstruction. No systematic review has examined racial and other disparities in breast reconstruction and their trends over time. Objectives: To review literature and identify disparities in access to breast reconstruction, to determine the magnitude of these disparities and to assess trends in these disparities over time. Methods: Systematic review and random-effects meta-analysis was conducted for 36 relevant articles published between 1999 to 2015 which were obtained through PubMed and manual searches of reference lists. Findings: Patient-level factors such as race, insurance, region of residence, rurality and employment; area-level factors such as average education, median income, number of plastic surgeons in the region and provider-level factors such as teaching status of hospital, whether hospital is a designated cancer center, volume of breast surgeries, number of beds, hospital region and rurality are associated with access to breast reconstruction despite controlling for age and clinical characteristics. Meta-analyses showed that African American patients were 38% less likely than non-Hispanic whites, Medicaid patients were 75% less likely than Privately insured patients and patients being treated in non-teaching hospitals were 48% less likely than those treated in teaching hospitals to receive breast reconstruction surgery. Time trends revealed that rate of breast reconstruction increased over time (8.10% between 1988 to 1995 and 34.86% between 2005 and 2007 using SEER data) but there was no reduction in disparities related to race, income, insurance and provider facility characteristics over the three periods assessed i.e. before 2000, between 2000-2005 and after 2005. Implications: Despite policy effort, significant disparities persist in access to breast reconstruction and these have not reduced over time.

57-T	58
The Impact of Medical Tourism on Colorectal Cancer Screening among Korean Americans Ko LK, Yoon J, Inadomi J, Coperland W, Taylor V. The purpose was to characterize individuals who engage in medical tourism and examine its relationship with colorectal cancer (CRC) screening. Methods: This cross sectional study was conducted in Washington State with Korean Americans (KAs) ages 50 and 75. The survey was administered in-person from August 2013 to October 2013. Outcome variable was up-to-date with CRC screening, defined as having an annual Fecal Occult Blood Test or colonoscopy every 10 years. Predictor variables were socio-demographics, medical tourism, access to healthcare, worries about medical care costs, health status, and immigration status. Summary of results: Mean age was 61 years old (+7.2). Many were women (64%), married (74%), had college education (51%) and uninsured (56%). One third (31%) had traveled to South Korea (SK) to receive medical care within the past five years. Those receiving care in SK were mostly uninsured (72%) and women (63%). In the bivariate analysis, age, insurance status, and medical tourism were significantly related to CRC screening. Older individuals were more likely to be up-to-date with CRC screening than younger individuals (63% vs. 60%; p=0.012). Insured (Private or Public) were also more likely to be up-to-date with CRC screening than non-insured (Private: 70%; Public: 61%; Uninsured: 50%; p=0.05). Additionally, individuals who traveled more frequently to SK to receive care were more likely to be up-to-date with CRC screening than those who traveled less (0.91+0.51 vs. 1.14+2.18; p<0.001). In multivariate analysis, medical tourism and insurance status remained significant. Individuals who received medical care in SK had 3.32 (95% CI: 1.98-6.16) greater odds of being up-to-date with CRC screening than those who did not. Insured individuals had 2.7 (95% CI: 1.15-6.59) greater odds of being up-to-date with CRC screening than uninsured. Statement of conclusions: Many uninsured KAs travel to SK to screen for CRC as medical care became affordable for foreigners after the passage of the foreign patient legislation law in 2009. Receiving CRC screening in a foreign country can potentially impact patients' cancer care in the US as timing and continuity are critical for preventive care, treatment, and follow-up.	Chemotherapy Use in Patients with Triple Negative Breast Cancer Sheppard VB, Cavalli L, Dash C, Dilwari A, Ding S, Makambi K TNBC accounts for 10-17% of all breast cancers and are defined by the lack of expression of receptors for estrogen (ER), progesterone (PR) and human epidermal growth factor (HER2). Women with TNBC have an increased likelihood of distant recurrence and death compared to women with other breast cancer subtypes. Chemotherapy is recommended for women with TNBC. The purpose of this study was to describe characteristics of women with TNBC and to examine chemotherapy use. Methods: Women with primary invasive, non-metastatic breast cancer were recruited via hospitals (in Washington, DC and Detroit) and community outreach. Data were collected via telephone surveys (e.g., treatment attitudes) and medical records (e.g., tumor characteristics). Chi-square tests were used to access the association between receipt of chemotherapy and categorical variables (e.g., race) while t-tests were used for continuous variables. Logistic regression models evaluated associations between receipt of chemotherapy and selected risk factors, adjusting for covariates. Results: Of the sample (N=359) 58% were black and 42% were white. Ages ranged from 25 to 89 (m=54.8; SD=11.7). The prevalence of TNBC was 16%. TNBC patients were more likely to be black vs. white (68% vs. 32%; p< .05), have higher stage disease, larger tumors, and more comorbid conditions (p< .05). Among women diagnosed with TNBC, 60% had chemotherapy; 46% had Anthracycline regimens. Most (59%) received chemotherapy in < 4 weeks; 17% between 4-12 weeks and 24% > 12 weeks. In univariate analysis, chemotherapy use was higher in blacks vs whites (48.3% vs. 11.7%; p=. 01) and in women without (vs yes) healthcare discrimination (35% vs 25%; p=. 04). Chemotherapy use was higher in younger women (p=. 04). In the multivariate analysis, age (OR: .93; CI: 0.87,0.99) and stage were associated with chemotherapy use. The relative odds of receiving chemotherapy in women with stage III (vs. stage I) was 3.7 (CI: 1.4,10). While 13% of women had at least one delayed dose, 61% completed treatment. Conclusions. A substantial number of women failed to receive chemotherapy as clinically indicated. Race differences diminished in adjusted models but age differences remained. Suboptimal treatment in women with TNBC may contribute to some of the adverse outcomes in this group.

59-T	60-T
Predictors of Venous Thromboembolism in Hospitalized Patients with Metastatic Cancer: Findings from the Nationwide Inpatient Sample Mohammed KA, Geneus CJ, Armbrecht ES, Burroughs TE Venous thromboembolism (VTE) is associated with significant morbidity and mortality in cancer patients. The incidence of VTE is higher in certain cancers and significantly worse in metastatic cancer. This study aimed to examine the effect of patients' sociodemographic and hospital level factors on VTE in hospitalized patients with metastatic cancer. METHODS: Using data from the Nationwide Inpatient Sample 2012, we identified patients (n=128,081) with a diagnosis of metastatic cancer who had VTE as one of the top three discharge diagnosis using the International Classification of Diseases, ninth edition, Codes. Weighted multivariable hierarchical logistic regression models were used to account for hospital level and patient level variation in the outcome. RESULTS: The prevalence of VTE in our sample was 5.8%. After controlling for the effect of primary site of cancer, chemotherapy, surgery, BMI and other co-morbidities, sociodemographic risk factors for VTE were significant: Compared to patients ≤ 45 years, older age patients had higher odds of VTE [(aOR = 1.18, 95% CI = 1.06 – 1.32) in those aged 45 – 64 years, and (aOR = 1.12, 95% CI = 1.02 – 1.23) in those aged ≥ 65]. Compared to White patients, Black patients had higher odds of VTE (aOR = 1.21, 95% CI = 1.13 – 1.30), while Asian patients had lower odds of VTE (aOR = 0.58, 95% CI = 0.48 – 0.71). In addition, increasing Elixhauser co- morbidity score (aOR = 1.04 per 1 unit increase, 95% CI = 1.03 -1.06) was associated with VTE. Moreover, patients with metastatic cancer admitted to hospitals in Northeast (aOR = 1.25, 95% CI = 1.15–1.37), Midwest (aOR = 1.08, 95% CI = 1.00 – 1.18), and South (aOR = 1.11, 95% CI = 1.03–1.21) had higher odds of VTE compared to their peers in hospitals located in West. No significant association between patient's health insurance, hospital teaching status, and occurrence of VTE were noted. CONCLUSION: This study highlights significant age, racial and geographic disparities in the development of VTE in metastatic cancer patients. These findings can help with stratification of cancer patients according to their VTE risk; those at high risk may benefit from prophylactic anticoagulation, an area for future researchers to investigate.	Association of ERG-PTEN expression with PSA velocity and its role in preventive prostate cancer progression Algotar AM, Cress AE, Nagle RB, Sokoloff MH, Behnejad R, Hsu CH, Stratton SP Although ERG and PTEN expression have shown to have a role in prostate carcinogenesis, its association with important clinical markers such as PSA velocity (rate of prostate specific antigen (PSA) change over time) is currently unknown. This novel pilot study presents the results of the above association with the aim of understanding its clinical utility towards preventing prostate cancer progression. Methods: Data for this study was obtained from men enrolled in a phase 2 clinical trial conducted to investigate the effect of selenium supplementation on prostate cancer progression. All men in this trial were diagnosed with prostate cancer and opted for watchful waiting as their treatment modality. Biopsy tissue collected at randomization was stained for ERG and PTEN using immunohistochemistry techniques. PSA was measured at baseline and at each follow-up visit (every three months). PSA velocity was calculated using mixed effects regression models and the study group was divided into three tertiles based on PSA velocity. Results: ERG and PTEN expression is independently associated with lower PSA velocity (p = 0.02 and 0.037 respectively). Joint effect of ERG and PTEN expression on PSA velocity was analyzed using logistic regression. As compared to the wild type (ERG- /PTEN+), ERG-/PTEN- and ERG+/PTEN- subjects demonstrated association with high PSA velocity (Odds ratios (95% confidence intervals): 4.05 (0.68, 24.1) and 1.71 (0.12, 23.1) respectively). These models were adjusted for age, race and Gleason score. Conclusion: This is the first study to report on an association between ERG-PTEN expression and PSA velocity. Results of this study are counterintuitive to the current understanding of ERG-PTEN mechanism in prostate carcinogenesis indicating presence of yet undiscovered molecular pathways. Further research is needed to delineate these pathways and determine clinical utility of ERG and PTEN expression towards risk stratification and to develop strategies for preventing prostate cancer progression.

61-T	62
Metabolomic Profiles of Current Cigarette Smokers Hsu P, Lan RS, Brasky TM, Marian C, Cheema AK, Ressom HW, Loffredo CA, Pickworth W, Shields PG Smoking-related biomarkers for lung cancer and other diseases are needed to enhance early detection and to provide a science base for tobacco product regulation. An untargeted metabolomics approach by UPLC-Q-TOF/MS (957 assays) was used in a novel experimental design where 105 current smokers smoked 2 cigarettes one hour apart. Blood was collected immediately before and after each cigarette. Thirty-one metabolites were shown to be affected by cigarette smoking, uniquely including menthol- glucuronide, the reduction of glutamate, oleamide, and 13 glycerophospholipids. This first time identification of a menthol metabolite in smokers' blood serves as proof-of-principle for using metabolomics to identify new tobacco-exposure biomarkers, and also provides new opportunities in studying menthol-containing tobacco products. Gender and race differences also were observed. Network analysis revealed 18 molecules involved in cancer, notably inhibition of cAMP. These novel tobacco-related biomarkers provide new insights to the effects of smoking that may enhance prevention and regulatory strategies.	Associations among tissue vitamin D metabolites and breast cancer risk factors in women undergoing reduction mammoplasty Lan SL, Llanos AA, Brasky TM, Dumitrescu RG, Marian C, Makambi KH, Kallakury BVS, Freudenheim JL, Shields PG Vitamin D, the precursor to the potent steroid hormone 1,25(OH)2D, is mainly obtained through sunlight exposure, diet and supplements. Some basic science and preclinical studies indicate that vitamin D promotes differentiation and apoptosis; inhibits the proliferation and inflammation and therefore decreases the risk of developing cancer. However, most of these studies were done in cell culture and epidemiology studies utilized blood vitamin D assays. This study validates methods for measuring 25(OH)D and 1,25(OH)2D in breast tissues and investigates the relationship between tissue vitamin D , plasma vitamin D and breast cancer risk factors. Methods: To validate the assay, 44 tissue samples from 11 women with no history of breast cancer undergoing reduction mammoplasty were used to investigate the levels of vitamin D across the breast by enzyme immunoassay. Tissue and plasma 25(OH)D and 1,25(OH)2D levels were then determined in 124 subjects who have available epidemiological data. Correlations between tissue vitamin D metabolites with blood vitamin D metabolites, participants' characteristics (e.g., age, race and BMI), and other hormone and receptor levels were analyzed. Results: The average coefficient of variation of 25(OH)D and 1,25(OH)2D among 4 breast sections were 14.81% and 19.13%, respectively. For the entire study set, tissue 25(OH)D levels ranged between 53.24-209.36 nmol/Kg and tissue 1,25(OH)2D range was 2.48-41.91 pmol/Kg. We observed positive correlations between tissue and plasma levels of 25(OH)D ($r=0.55$, $p<0.0001$) and 1,25(OH)2D ($r=0.58$, $p<0.0001$). After adjustment for BMI and age, tissue 1,25(OH)2D was positively correlated with plasma adiponectin to leptin ratio ($r=0.18$, $p=0.047$), and inversely correlated with tissue IGF to IGFBP3 ratio ($r=-0.30$, $p=0.025$). None of these associations were found when comparing these factors with plasma level vitamin D metabolites. Conclusions: Our data indicate that although plasma and tissue vitamin D metabolites correlate with each other, studying the target organ, namely the breast, provides greater insight into mechanistic carcinogenic relationships and how hormone levels in tissues modulate the microenvironment of the normal breast that may be related to breast cancer risk.

63	64-T
Genome-wide tissue-based microRNA signature in healthy women predicting breast cancer risk Taslim C, Weng DY, Brasky T, Dumitrescu RG, Huang K, Kallakury BVS, Krishnan S, Llanos AA, Marian C, Schneider SS, Spear SL, Troester MA, Freudenheim JL, Geyer S, Shields PG Small non-coding microRNAs (miRNAs) play important roles in both normal breast development and breast carcinogenesis. The goal of this study is to identify miRNAs in normal breast tissues which are related to breast cancer risk. Materials and Methods: We used a high-throughput digital counting of miRNAs without amplification (Nanostring®) to examine miRNA expression in 161 reduction mammoplasty (RM) tissues from two independent studies. A multivariate model was used to identify miRNAs associated with breast cancer risk (based upon Gail risk scores) in a training study (n=90) then the model was validated in a replication study (n=71). Risk-related microRNAs were then evaluated in serum for associations with real breast cancer cases using publically available prospective cohort (Sister Study, n=410). Results: We identified a 41-miRNA signature in healthy women distinguishing high risk from low risk women with a prediction accuracy of 82% (95% CI = 80% to 87%) in the training study. Predictive accuracy was 69% (95% CI = 65% to 73%) in the replication study. 34 of 41 serum miRNAs that mapped to public data predicted women who developed breast cancer within 18 months after blood draw from those who remained cancer free with accuracy of 59% (95% CI = 57% to 61%). We have also shown that these accuracies were significantly higher than random chance ($P < 0.0001$). IPA canonical pathway analysis revealed that the risk-related microRNAs targets were significantly enriched for HER-2 signaling in breast cancer, and estrogen-dependent breast cancer signaling, and other important cancer pathways such as molecular mechanisms of cancer, PI3K/AKT signaling, PTEN signaling, and TGF-beta signaling. Conclusion: Our results indicate that miRNA profiling from breast tissue of healthy patients may identify clinically useful predictors of breast cancer risk and these miRNAs may also work as non-invasive biomarker for early breast cancer prediction.	Interval Colorectal Cancer After Colonoscopy: Tumor Characteristics, Demographics, and Polyp History Burnett-Hartman AN, Newcomb PA, Inadomi JM, Upton MP, Grady WM Colonoscopy screening every 10 years is associated with decreased colorectal cancer (CRC) risk, but colonoscopy does not prevent all cases of CRC. The objective of this study was to describe the tumor characteristics, demographics, and polyp history of CRC cases occurring 6 months to 10 years after a colonoscopy. Methods: The University of Washington Medical Center (UWMC) uses a comprehensive electronic medical records (EMR) system to track patient demographics and health- related information, including diagnoses and procedures for all patients. We used procedure codes to identify a cohort of patients receiving colonoscopies at UWMC from 2003-2013. Natural language processing of text in the diagnosis section of the pathology report was used to characterize the type of polyps present at each colonoscopy procedure. These records were then linked to the Puget Sound Surveillance, Epidemiology, and End Results Cancer Registry (SEER) to identify incident CRCs within this cohort. Those with prior CRC or inflammatory bowel disease according to the EMR were excluded. Interval CRCs were defined as cancers occurring 6 months to 10 years after a colonoscopy. We compared demographics and tumor characteristics from SEER between cases with and without interval CRC using chi-square tests. Results: Among 23,460 patients receiving colonoscopy, 239 incident CRCs were identified; 42 of these were interval CRCs. Patients with interval CRC were more likely to be Non-Hispanic White (91% vs. 76%, p=0.03) and ¡Ý70 years old (44% vs.16%, p<0.01) than those with non-interval CRC. Interval CRCs were also more likely to be right-sided (57% vs. 29%, p<0.01) and to have mucinous histology (12% vs. 4%, p=0.05). Stage, grade, and sex distribution were similar between interval and non-interval CRC cases. Among those with interval CRCs, 33% had prior serrated polyps, and 46% had prior conventional adenomas. Conclusions: Interval CRCs were more likely to occur in the right colon, and most patients with interval cancers had prior polyps. Understanding the natural history of interval cancers and their precursors may help to identify which patients are at highest risk for developing interval cancers and ultimately improve the effectiveness of CRC screening.

65	66-T
Current patterns of colorectal cancer screening in an insured population Wernli K Very little is known about the time to next colorectal test among U.S. age-eligible adults participating in colorectal cancer screening. Our objective was to describe the patterns of colorectal cancer testing among insured men and women aged 50 years and older from first observed screening test to subsequent colorectal cancer test. Methods: We identified men and women had at least one colorectal cancer screening test on or after age 50 years between 2002-2013 and who were enrolled in Group Health for at least one year prior to their test. Group Health is an integrated health care system in Washington State, and promotes evidence-based guidelines with a reminder system to increase colorectal cancer screening uptake. We identified the first occurrence of a stool- based test (either gFOBT or FIT), endoscopy procedure (flexible sigmoidoscopy or screening colonoscopy), or other test (CT colonography or barium enema). We calculated time to subsequent colorectal cancer test for all index screening tests, and described the most common testing patterns. Results: A total of 143,496 adults received an index screening test during 2002-2013, and nearly two-thirds (63%) of index tests were stool-based. Among individuals who received a stool-based index test, the most common subsequent colorectal cancer test was another stool test (39%) or colonoscopy (6%); however, the majority of individuals with an index test had no observed subsequent colorectal cancer test (47%). Among persons with at least two tests, the median time from index stool test to subsequent colorectal cancer test was 2.0 years for stool test (interquartile range (IQR) 1.3-3.0 years), 2.1 years for colonoscopy (IQR 1.2 to 3.7 years), 1.0 year to a flexible sigmoidoscopy, and 2.2 years to flexible sigmoidoscopy plus stool test (IQR1.6 to 3.1 years), and (IQR 0.6 to 1.6 years). Conclusions: We found that within an integrated delivery system stool tests are the most common colorectal cancer tests received. Further studies with longer follow-up should evaluate the screening patterns of adult populations within other clinical systems and insurance types to confirm the patterns of colorectal cancer screening observed for optimal colorectal cancer screening participation.	Electronic health information sharing preferences among family members: Implications for cancer risk assessment Cohn WF, Sturz V, Guterbock, T In the era of electronic medical records it is technically feasible to develop systems to share health information electronically among blood relatives. This sharing would allow for more accurate and complete health information among families. While this is especially important in assessing cancer risk there is concern that families will not want to share although little is known about the preferences for this type of sharing. This study seeks to describe health information sharing preferences of adults in Central Virginia. Methods: As part of the Jefferson Area Community Survey (JACS), a random digit dial survey of landline and cell phone numbers reached 1,008 individuals. Questions assessed how willing and likely individuals are to share health information electronically with relatives by type of health information, how much control over the sharing and frequency. Overall frequencies are reported for each question with subgroup analysis by race, gender, marital status, age, education and income. Results: A total of 998 (53.1% female and 46.9% male) responded to the survey. The majority of respondents reported a perceived usefulness in sharing medical information electronically (79.9%). If the condition was potentially heritable (i.e. colorectal cancer), 79.8% were willing to share compared to 56.1% willing to share routine test results (i.e. cholesterol screening) and 52.4% psychological/emotional problems. Most respondents (73%) were very or somewhat likely to share medical information electronically as long as they had control over which individual relative was included in the sharing. Subgroup analysis showed significant differences by marital status, age, education and income (p-value = <.001, 0.037, and 0.006). Conclusions: Many people are willing to share health information electronically among their relatives. By allowing for certain controls of the type and amount of information as well as who it is shared with, it will be possible to use this strategy to help build more accurate and complete cancer family histories. It will be important to build systems that allow for this type of control for individuals and families.

67-T	68-T
Distress and sources of distress among cancer patients attending their first chemotherapy session at an urban cancer center. Jørstad-Stein EC, Collias D, & Stolley MR This exploratory study aims to describe and compare the distress levels and associated problem areas between urban African American (AA), Hispanic (H), and Non-Hispanic white (NHW) cancer patients. It also describes and compares specific sources of distress embedded within each problem area between and within racial/ethnic patient groups by distress severity (i.e., low severity=0-3, high severity=4-10). Methods: Seventy-seven (34 AA, 17 H, 26 NHW) urban cancer patients completed the Distress Thermometer and associated problem list (practical, family, emotional, spiritual, physical) at the time of their first chemotherapy.Distress severity groups were defined as low severity (0-3) and high severity (4-10) scores on the Distress Thermometer. Data were analyzed with chi-square, t-test, ANOVA, and correlational analyses. Results: Mean distress for AAs was 3.84 (SD=3.42, range=0-10), for Hs was 3.41 (SD=3.28, range=0-9), and for NHWs was 3.04 (SD=2.29, range=0-7). No significant differences in distress levels or overall number of problems were found between groups. However, sources of distress within problem areas varied between groups. Within the Physical problem area, more AAs reported pain and indigestion compared to the NHWs and Hs. Additionally, AAs and Hs reported problems with constipation and eating. Sources of distress within problem areas also varied Within groups by distress severity. AAs with high distress reported significantly higher frequency of problems related to depression, loss of interest, insurance, and getting around. Hs with high distress reported significantly higher frequency of problems related to worry and insurance. NHWs with high distress reported significantly higher frequency of problems related to sadness, worry, pain, and memory. Discussion: Differences within problem areas related to distress were observed between and within groups in this diverse sample of cancer patients. Results highlight the importance of looking beyond distress scores and examining sources of distress when considering needed support. Longitudinal studies with larger samples should seek to examine differences across racial/ethnic groups and among those with high distress.	Relationship between Energy Balance and Sarcopenic Obesity in Prostate Cancer Survivors on Androgen Deprivation Therapy Kiwata JL, Dorff TB, Schroeder ET, Dieli-Conwright CM For prostate cancer survivors (PCS) on androgen deprivation therapy (ADT), sarcopenic obesity, or the loss of lean body mass (LBM) and gain of fat mass, is a common adverse effect. Energy balance deficits achieved through diet and physical activity have been associated with fat mass loss in the general population, but it is unclear if both LBM and fat mass are related to energy balance in PCS on ADT. Methods: Twenty PCS (65.7 ± 9.0 yr) on currently prescribed ADT for at least 3 months were recruited from the USC Norris Comprehensive Cancer Center as part of a larger ongoing exercise trial. Caloric intake was determined from a 3 day dietary recall using guidelines from a registered dietician, self-reported physical activity (PA) was assessed through the International Physical Activity Questionnaire and resting energy expenditure (REE) was estimated through the Harris-Benedict equation. Energy balance was calculated as the difference between caloric intake and total energy expenditure (TEE), where TEE = PA + REE. Total LBM, fat mass, and body fat % were measured by dual energy x-ray absorptiometry. Relationships were analyzed using Pearson correlation tests with a statistical significance of $p<0.05$. Results: The majority of PCS (77%) reported moderate-to-vigorous PA, and completed 1225.2 ± 1913.7 MET- min/wk (mean ± SD) of vigorous PA and 1036.5±1214.3 MET-min/wk of moderate PA. On average, 1643.0 ± 291 kcal were consumed daily, with 20.0±5.3% kcal from protein, 47.4±12.1% from carbohydrate and 32.2±7.7% from fat. Daily energy balance was -704.1±851.6 kcal. There was a strong negative correlation between LBM and energy balance ($r=-0.70$, $p<.01$), a strong correlation between LBM and TEE ($r=0.72$, $p<.01$), but no correlation between LBM and caloric intake ($p>.05$). Neither fat mass nor body fat % were correlated with caloric intake or expenditure. Conclusion: Among this limited sample of PCS on ADT, our findings indicate that a more negative energy balance and greater TEE are related to higher LBM, suggesting that PA, rather than caloric intake, may influence attenuation of sarcopenia. As no relationship was observed between fat mass and energy balance, future work is needed to ascertain the factors contributing to adiposity changes in PCS on ADT.

69-T	70
Oral health and HPV-associated head and neck squamous cell carcinoma Mazul AL, Taylor JM, Divaris K, Weissler M, Brennan P, Anantharaman D, Abedi-Ardekani B, Tommasino M, Gheit T, Olshan AF, Zevallos JP Poor oral health has been associated with increased risk of head and neck squamous cell carcinoma, especially oropharyngeal squamous cell carcinoma (OPSCC), yet few studies have examined whether this association is modified by HPV status. We used interview and tumor HPV status data from the Carolina Head and Neck Cancer Epidemiology (CHANCE) study, a large population-based case-control study, to estimate the association between oral health indicators (routine dental exams, measures of dental disease including tooth mobility and tooth loss) and smoking with HPV-positive (n = 102) and HPV-negative (n = 145) OPSCC and 1396 controls. HPV tumor status was determined by HPV-16 or 18 DNA detection by PCR and by evaluation of p16INK4a expression by immunohistochemistry. Tumors that are HPV-positive and p16-positive are classified as HPV-positive; otherwise it is classified as HPV-negative. Unconditional multinomial logistic regression was used to estimate odds ratios (OR) for all oral health variables and smoking simultaneously adjusted for alcohol, education, insurance status, and matching factors race, sex and age. Routine dental exams were associated with decreased risk of both HPV-negative [OR=0.62; 95% confidence interval (CI): 0.36, 1.08] and HPV-positive OPSCC (OR=0.61; 95% CI: 0.34, 1.08). Tooth mobility (a proxy for periodontal disease) increased the risk of HPV-negative (OR=1.46; 95% CI: 0.87, 2.44) more than HPV-positive OPSCC (OR=1.25; 95% CI: 0.80, 1.95). Greater than or equal to 10 pack-years was strongly associated with increased risk of HPV-negative OPSCC (OR=4.65; 95% CI: 2.37, 9.12) and suggestively associated with HPV-positive OPSCC (OR=1.46; 95% CI: 0.94, 2.27). Similar results were noted when all head and neck cases were included. Poor oral health, likely due to its associated inflammatory burden and smoking are strongly associated with HPV-negative and to lesser extent with HPV-positive OPSCC.	Demographic, Medical, and Environmental Correlates of Sedentary Behavior in Kidney Cancer Survivors Trinh L, Larsen K, Faulkner GE, Plotnikoff RC, Rhodes RE, North S, Courneya KS Sedentary behavior (SED) has adverse health effects for cancer risk and development that are distinct from beneficial effects of moderate-to-vigorous intensity physical activity (PA). Correlates of SED may be distinct from those of PA. It appears that no study to date has evaluated correlates of SED that takes into account the environment across kidney cancer survivors (KCS) or in any cancer survivor group. Purpose: To examine the associations between demographic, medical, and environmental correlates of total sedentary time and time spent sitting on a non-work day (NWD) in KCS. Methods: All 1,985 KCS diagnosed between 1996 and 2010 identified through a Canadian provincial Registry were mailed a survey that consisted of demographic, medical, the modified Domain-Specific Sitting Time Questionnaire and the Godin Leisure Time Exercise Questionnaire measures via self-report. Perceived and built environmental variables included both self-report and objective measures using Geographic Information Systems (GIS), respectively. Results: Completed surveys were received from 347 KCS with Mage = 62.7±10.6 years, 63.7% male, 83.6% having localized kidney cancer. Multinomial logistic regression analyses were conducted to assess correlates for SED. Compared with sitting <6 h/day (reference group), sitting 6-9 h/day was significantly associated with having drug therapy (OR=2.78, p=.03) and being a smoker (OR=3.05, p=.01), while sitting >9h/day was significantly associated with being unmarried (OR=2.86, p=.01), employed (OR=3.54, p=.00), obese (OR=4.93, p=.00), a regular drinker (OR=4.80, p=.01), and perceiving less crime in the neighborhood (OR=1.92, p=.01). Compared with NWD sitting <6 h/day, NWD sitting 6-9h/day was significantly associated with being younger (OR=2.48, p=.00), obese (OR=2.09, p=.04), and a regular drinker (OR=3.42, p=.03), while NWD sitting >9h/day was significantly associated with being unmarried (OR=2.44, p=.02) and obese (OR=2.63, p=.04). Conclusions: Demographic and medical variables were the main correlates of SED in KCS, while the built environment had no association with SED. Key intervention targets should consider high-risk groups and treatment-related factors. Future research should examine SED in the workplace and home environment.

71-T	72
Factors Associated with Adherence to Activity Monitor-Based Physical Activity Intervention in Older Adults Swartz MC, Lewis ZH, Swartz MD, Martinez E, Lyons EJ Wearable activity monitors are a promising tool for increasing physical activity (PA) among older adults, for whom regular PA may help maintain independent living ability and reduce risks of developing some cancers. However, factors that may promote adherence to use of activity monitor are not well understood. We thus examined adherence to activity monitor use and identified factors that may be associated with weekly adherence to a 12-week activity monitor-based PA intervention in older adults. Methods: We conducted a secondary analysis using data from 35 participants (older adults aged 55-79) who completed the intervention. Weekly adherence was defined as the participant wearing Jawbone Up24 for ≥ 5 days and completing the weekly phone call to review previous week's step goal. Variables of interest included: age, gender, race/ethnicity, body mass index (BMI), giving "likes", receiving "likes", previous week's step average, meeting the previous week's goal, and self-talk. Self-talk was quantified by the number comments participants gave themselves on the Up mobile application. Associations of variables to adherence were examined by generalized linear mixed models. Results: Participants (62± 5.7 years, 58% Non-Hispanic White, 84% female, and BMI 30.5±3.46 kg/m2) showed an adherence rate at week 1 of 86%, decreasing to 74% by week 12. Meeting the previous week's goal (β=1.23, SE=0.34, p<0.001) and self-talk (β=0.018, Se=0.01, p=0.03) were significantly associated with adherence. Age, gender, race/ethnicity, BMI, giving "likes", receiving "likes", and previous week's step average were not significantly associated with adherence. Conclusions: Our results suggest that meeting the previous week's goal and self-talk improve adherence to an activity monitor-based PA intervention among older adults. Future interventions may consider setting smaller achievable goals and promoting self-talk on the activity monitor applications to encourage long-term PA adherence in older adults.	Non-steroidal anti-inflammatory drugs and endometrial cancer mortality in the NRG Oncology/Gynecologic Oncology Group 210 trial Brasky TM, Felix AS, Cohn DE, McMeekin DS, Mutch D, Walker JL, Creasman WT, Ali S, Moore RG, Downs LS, Ioffe OB, Park KJ, Brinton LA Recent data suggest that the use of non-steroidal anti-inflammatory drugs (NSAIDs) may be associated with reductions in endometrial cancer (EC) risk, yet no study has examined whether their use is related to prognosis among EC patients. METHODS: EC patients were 4,609 participants of the NRG Oncology/Gynecology Oncology Group 210 trial who completed a pre-surgical questionnaire that assessed history of regular NSAID use (i.e., ≥1 day/week for ≥1 year) and EC risk factors. Stage, grade, and histology data were derived from clinical reports and central review. Vital status and causes of death were obtained from medical records and cancer registries. The Fine-Gray model estimated subhazard ratios (HRs) and 95% confidence intervals (CIs) for associations between pre-diagnostic NSAID use and EC mortality in the presence of competing risks and adjusted for stage and personal characteristics (e.g., age, body mass). Models were stratified by EC type and histology (Type I, n=3,392: low- and high-grade endometrioid; Type II, n=1,217: serous, clear-cell, carcinosarcomas). RESULTS: 582 EC deaths occurred over a median 5 years of follow-up. Among women with Type I tumors, NSAID use versus non-use was associated with a 66% (95% CI: 21%-130%) increased risk of EC mortality. The association strengthened with increased duration among former (≥10 years: HR 2.23, 95% CI: 1.19-4.18; P trend=0.01) but not current users at diagnosis. A similar increased risk among former long-term users was seen for Type II tumors (HR 1.92, 95% CI: 1.20-3.08; P trend=0.02). Associations were similar when individual NSAID classes (i.e., aspirin, non-aspirin, COX-2 inhibitors) were considered. Stratification by tumor histology showed positive associations between NSAID use and EC mortality among low- and high-grade endometrioid carcinomas, and carcinosarcomas. The latter association explained the increased EC mortality observed among Type II EC cases. CONCLUSIONS: In contrast to studies of EC risk, our results suggest that use of NSAIDs may increase the risk of EC mortality, especially in patients diagnosed with endometrioid tumors. Barring a clear biologic mechanism by which NSAIDs would increase the risk of EC mortality, our findings necessitate caution in their interpretation.

73-T	74-T
Dietary Intakes among Heavy vs. Light Smokers from the Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study Cohort Virk-Baker MK, Weinstein S, Parascandola M, Albanes D Smokers tend to consume lower fiber, fruit, vegetables, and fish and higher alcohol and caffeine as compared to non-smokers. Less is known about dietary differences between light vs. heavy smokers. The purpose of this study was to evaluate dietary intake by the level of smoking. Methods: We evaluated dietary intake among light vs. heavy smokers in Finnish male smokers, aged 50 - 69 years, in the Alpha-Tocopherol, Beta-Carotene Cancer Prevention (ATBC) Study. In addition to detailed dietary data, baseline serum levels of alpha-tocopherol and beta-carotene were measured. Out of 27,111 participants, 17,300 (63.8%) reported smoking ≥ 20 cigarettes/day and were classified as heavy-smokers, and 9,811 (36.2%) reported smoking < 20 cigarettes/day and were classified as light-smokers. Results: Baseline mean serum alpha-tocopherol (11.86 ± 0.03 vs. 12.13 ± 0.04 mg/l; p < 0.00001) and beta- carotene (201.90 ± 1.38 vs. 233.48 ± 1.93 ug/l; p < 0.00001) were significantly lower among heavy-smokers. Intakes of cereal (212.13 ± 0.67 vs. 221.78 ± 0.84 g/day; p < 0.00001), vegetables (110.91 ± 0.54 vs. 118.29 ± 0.71 g/day; p < 0.00001), fruits (209.91 ± 1.48 vs. 232.44 ± 1.98 g/day; p < 0.00001), and total dietary fiber (18.44 ± 19.29 g/day; p < 0.00001) were significantly lower among heavy-smokers as compared to light-smokers. However, intakes of red meat (73.14 ± 0.27 vs. 68.04 ± 0.32 g/day; p <0.00001), processed meat (78.10 ± 0.47 vs. 69.44 ± 0.54 g/day; p < 0.00001), total meat (203.52 ± 0.66 vs. 188.70 ± 0.79 g/day; p < 0.00001), dairy products (737.23 ± 3.06 vs. 719.42 ± 3.74 g/day; p < 0.0001), coffee (640.56 ± 2.80 vs. 549.23 ± 3.13 g/day; p < 0.00001), and alcohol (20.55 ± 0.18 vs. 13.50 g/day; p < 0.00001) were significantly higher among heavy-smokers as compared to light- smokers. Conclusions: Our data supports that dietary intake vary significantly by the level of smoking and that heavy- smokers have poorer intakes as compared to light-smokers. The observed differences in dietary intake in this study have important implications for cancer prevention and control efforts, suggesting a need to incorporate dietary components into tobacco cessation interventions.	Characteristics Associated with meeting Physical Activity Guidelines in Breast Cancer Survivors during Early, Post-Treatment Lucas AR, Levine B, Avis NE. Growing evidence suggests that engaging in at least 150 minutes/week of moderate to vigorous physical activity (MVPA) may help improve quality of life and reduce declines in health status among breast cancer survivors (BCS). In a longitudinal study of BCS, we aimed to identify: 1) the percentage of BCS meeting the MVPA guidelines for cancer survivors, and 2) characteristics of women who meet the guidelines, compared to those who do not. Methods: BCS who were 6-14 months post diagnosis (N=512) completed two surveys, 12 months apart. All survivors were post adjuvant treatment. We calculated total MVPA from questions on the frequency and intensity of leisure-time walking and moderate and vigorous exercise. Women were grouped into three categories based on their MVPA at both time points: 1) did not meet guidelines at either time point, 2) increased MVPA to meet guidelines by second time point, and 3) surpassed guidelines at both time points. We then used chi square tests and ANOVAS to examine sociodemographic, treatment, and psychosocial characteristics of women in these three different groups. Results: The sample was predominately white (91.4%), well-educated (63.5% ¡Ý4 yrs. college), and slightly overweight (BMI=25.9¡À5.6kg/m2), with a mean age of 55.7¡À12.4 years. 52% of women did not meet the MVPA guidelines at either time, 17% increased their MVPA to meet the guidelines by the second time point, and 31% met the guidelines at both times. Compared to survivors who met the guidelines at one or both times, survivors who did not meet the guidelines at either time were significantly more likely to be older and less educated, to have less social support, to have had higher BMI, more comorbidities, pain, fatigue, illness intrusiveness, and depression. We found no differences by group in time since diagnosis, cancer stage, race, or surgery type. Conclusions: Many BCS do not reach recommended levels of MVPA in the early post-treatment period (~2yrs). Modifiable factors such as improving social support and/or reducing pain, fatigue, illness intrusiveness, and depression may help breast cancer survivors increase physical activity to meet the guidelines. Supported by NCI Grant 5R25 CA122061

75-T	76
Overweight and obesity diminish excess risk of weight gain in non-Hispanic Black postmenopausal women relative to non-Hispanic Whites Ford, CN; Chang, S; Frazier-Wood, AC; Vitolins, MZ In postmenopausal women, overweight/obesity increases the risk of weight gain. Non-Hispanic Black (NHB) women have greater rates of overweight and obesity, and are at greater risk of weight gain than non-Hispanic White (NHW) postmenopausal women. It is unclear, however, whether greater risk of weight gain in NHB women is due to a higher prevalence of overweight/obesity alone, or the interaction between weight status and race/ethnicity. Purpose: To determine whether and how race/ethnicity interacts with overweight/obese weight status to influence risk of weight gain in NHB postmenopausal women. Methods: Data were included for 93,676 postmenopausal women from the Women's Health Initiative Observational Study (WHI OS). Discrete-time hazards models were used to compare risk of a ≥10% increase in weight from baseline (primary outcome) by race/ethnicity (NHB; NHW) overall, and by strata of race/ethnicity and baseline weight status from body mass index (BMI) (normal weight: 18.5-24.9 kg/m2; overweight: 25.0- 29.9 kg/m2; obese class I: 30.0-34.9 kg/m2; obese class II: 35.0-39.9 kg/m2; or obese class III: ≥40.0 kg/m2). Hazard ratios comparing each combination of race/ethnicity and weight status to a common referent (normal weight, NHW) were then used to evaluate the interaction of NHB race/ethnicity and weight status on the additive and multiplicative scales. Results: Overall, NHB women were 1.42 (95% CI: 1.35, 1.50) times more likely to gain weight than NHWs. Within strata of baseline weight status, the relative excess in risk attributable to NHB race/ethnicity (vs. NHW) was highest among those who were normal weight at baseline and decreased with increasing level of baseline weight status. Conclusion: Although NHB women had a higher risk of weight gain than NHWs overall and by weight status, racial/ethnic differences in risk decreased with increasing level of baseline weight status. These findings suggests that, while NHB race/ethnicity increases the risk of weight gain in postmenopausal women (vs. NHW), there appears to be diminishing contribution of NHB race/ethnicity on weight gain with increasing baseline weight status.	Abstract withdrawn

77	78
The Use of Tamoxifen and Raloxifene among Older Women with Ductal Carcinoma in Situ Zhao H, Hei N, Wu Y, Chan W, Cameron C, Chang S, Chavez M, Giordano S Each year about 22000 new cases of breast carcinoma in situ will be diagnosed in women aged 65 years and older in the US. About 80% of them are ductal carcinoma (DCIS). National Comprehensive Cancer Network's guideline for DCIS recommends using tamoxifen or raloxifene for estrogen receptor-positive (ER+) tumors to reduce risk for developing invasive breast cancer. No information is available on the initiation of use for these two drugs after DCIS diagnosis among older women. Methods: We selected a population-based cohort using Surveillance, Epidemiology, and End Results (SEER) and Texas Cancer Registry (TCR) data linked with Medicare claims to evaluate the use of these drugs within a year of diagnosis among women age 66+ years diagnosed 2007-2011, and evaluated the compliance rate over time. Statistical analysis methods included t-test, Chi-square test, and multiple logistic regression. Results: We identified 5322 women aged 66 years or older with DCIS and fully covered by Medicare Part A and B for 12 months prior and post diagnosis, and covered by Part D for 6 months prior and 12 months after diagnosis. The median age was 73 years. Overall, we found that less than a third of eligible women had initiated use (n=1497, 28.1%) . Of women who initiated use, only 45.9% were using the drug at 5 years. Initial use was highest for women with breast¬ conserving surgery (BCS) with radiation therapy compared to those with BCS alone, or those with mastec¬tomy, bilateral mastectomy, or without surgery (37.3%, 22.9 %, 19.7%, 5.6 %, and 11.7%, respectively). Use was significantly higher among those with ER+ tumors (33.7%) than ER- tumors (8.2%). In multivariable analysis, use decreased as age increased: compared with those ≤70 years, odds ratio (OR) for age ≤ 75 = 0.90 and 95% Confidence Interval (CI) = 0.77, 1.06; for age ≤80, OR = 0.65, 95% CI = 0.54, 0.78; and age >80 years, OR=0.48, 95% CI = 0.39, 0.60. In addition, use was significantly associated with patients' geographic location, education, and year of diagnosis. Conclusions: We found low rates of tamoxifen and raloxifen use among older women with DCIS. Future studies should evaluate quality of life among older women who received such treatment and determine reasons for low rates of use. vez M, Giordano S	Breast cancer chemoprevention in an integrated healthcare setting Nichols HB, Stürmer T, Roh JM, Lee JX, Visvanathan K, Anderson C, Lee VS, Kushi LH National guidelines encourage clinicians to counsel women at high risk for breast cancer about pharmacologic risk reduction using published risk-benefit index tables developed at the NCI. Women and providers must weigh benefits for breast cancer risk reduction, and in postmenopausal women, bone health, against an increased risk of uterine cancer, stroke, deep vein thrombosis and cataract. We assessed risk-benefit profiles and adherence to breast cancer chemoprevention among 90 women ages 35-69 y in the Kaiser Permanente Northern California healthcare system. Chemoprevention was validated as the primary indication for therapy using chart review. Breast cancer risk scores were calculated with the Breast Cancer Risk Assessment Tool (BCRAT) if not recorded in the chart. The published risk-benefit index was applied for women using tamoxifen or raloxifene (N=77). Pharmacy records were used to calculate the proportion of days covered (PDC) within the first year and during the recommended 5-years of therapy to assess adherence. Tamoxifen (74%), raloxifene (11%), and exemestane (13%) were used for breast cancer chemoprevention. Most women (60%) initiated therapy at ages 45-54 y and 37% were premenopausal. More than 85% had a previous benign breast biopsy. Approximately 40% had a first-degree family history of breast cancer; 17% had a family member diagnosed with breast cancer before age 50 y and 8% had a known personal or family member mutation in BRCA. Breast cancer chemoprevention was most often (80%) prescribed by a medical oncologist. A projected breast cancer risk score was recorded in 62% of women's charts, frequently using the Gail/BCRAT model. Among tamoxifen and raloxifene users, the risk-benefit index identified 23% of women as having insufficient evidence that the benefits of breast cancer chemoprevention would outweigh the risks; 10% had moderate evidence; and 67% had strong evidence. Among all agents, adherence decreased from an average 75% PDC at 1 year to 67% at 5 years. Evaluating whether breast cancer chemoprevention options are used as directed among women who are most likely to benefit provides valuable context for future prevention guidelines and decision-making tools. Our findings indicate a need for a risk-benefit index for exemestane.

79	80-T
Oxidative stress and premenopausal breast cancer Nichols HB, Anderson C, White AJ, Milne GL, Sandler DP Oxidative stress reflects an excess of reactive oxidative species which interact with DNA, lipids, and protein. Higher levels of oxidative stress are associated with older age, smoking, obesity, and postmenopausal breast cancer risk. Oxidative stress and premenopausal breast cancer risk has not been well studied. A F2-Isoprostane metabolite (F2IsoP-M) has emerged as the gold standard biomarker of oxidative stress; it does not auto-oxidize and is insensitive to renal function. We evaluated F2IsoP-M levels and breast cancer risk in the prospective NIEHS Sister Study cohort of 50,884 women using a nested case-control design (N=452 cases, 898 controls). Eligible women were ages 35-54, premenopausal, and completed detailed questionnaires. Urinary F2IsoP-M levels (ng/mgCr) at enrollment were measured by gas chromatography/negative ion chemical ionization mass spectrometry and natural log-transformed. Multivariable conditional logistic regression was used to calculate odds ratios (OR) and 95% confidence intervals (CI) to account for matching on age and enrollment year. Mean age at enrollment was 46.8 years. Among controls, higher income, education, physical activity level, consumption of fruits and vegetables, never smoking, and lower body mass index (BMI) were associated with lower F2IsoP-M levels—consistent with previous reports. After adjustment for these and other factors, the OR for breast cancer comparing F2IsoP-M >90th percentile (≥1.29 ng/mgCr) to< 25th percentile (0.53 ng/mgCr) was 0.65 (CI: 0.39, 1.08); the OR for continuous lnF2IsoP-M was 0.77 (CI: 0.57, 1.04). The inverse association was more apparent when women were also premenopausal at diagnosis (N=349 cases, continuous OR=0.67; CI: 0.48, 0.93); or diagnosed before age 46 (N=83 cases, OR=0.25; CI: 0.11, 0.59); and persisted in strata restricted to BMI 18.5-24.9 kg/m2 (N=136 cases; OR=0.57, 0.29, 1.15). There were relatively few ER negative cases (N=65), but patterns appeared similar to ER positive disease. These results suggest that higher oxidative stress levels in premenopausal women are inversely related to breast cancer risk, even after accounting for body mass index. Like obesity, oxidative stress may act through, or reflect, distinct carcinogenic pathways in younger women compared to older women.	Early Life Growth and Benign Breast Disease Goldberg M, Cohn BA, Michels KB and Terry MB Body size in adolescence has been inversely associated with risk of both breast cancer and benign breast disease (BBD), an established breast cancer risk factor, even though body size postmenopausally as well adult weight gain is consistently positively associated with breast cancer risk. We used data from U.S. birth cohorts (n=1,121) with infant and childhood growth data through age 7 and BBD in adulthood. We examined the risk of BBD using logistic regression with generalized estimating equations. We compared findings from the overall cohort to analyses conducted in a subset of 286 sibling sets using conditional logistic regression. Overall, 197 women (17.6%) reported that a physician had ever diagnosed them with BBD (average age at diagnosis = 30.8). Similar to previous studies, we observed an inverse relationship between body mass index (BMI) in the 20s and BBD (Odds Ratio (OR) 0.95, 95% Confidence Interval (CI) 0.92-0.99 per BMI unit). This inverse association with BMI and BBD extended to as early as BMI at age 7 (OR 0.92, 95% CI 0.84-1.0 per BMI unit). Percentile change in weight or height, measured continuously, during three time periods (birth to 4 months, 4 to 12 months, and 1 to 4 years) were not associated with BBD. However, major changes in growth patterns of infant and childhood growth were associated with risk of BBD. For example, rapid weight gain, defined as an increase in least two major CDC percentiles (e.g., 5, 10, 25, 50, 75, 95) from 0-4 months and 4-12 months was associated with increased risk of BBD, as compared to children with stable weight gain (OR 1.74, 95% CI 1.08-2.80 for 0-4 months and OR 2.00, 95% CI 0.99 – 4.03, respectively). These associations were independent of birth size and adult BMI, and observed also within siblings (OR 2.43, 95% CI 0.80-7.33 for rapid weight gain from 0-4 months), suggesting that the positive association between rapid infant weight gain and BBD is not explained by family-level confounders. Our results suggest that the inverse association between adolescent body size and BBD may be restricted to those girls that are born big and stay stable in terms of growth trajectories, and provide evidence that rapid weight gain in infancy may influence BBD via a different pathway than body size later in life.

81-T	82-T
Influence of Health Behavior on Mortality in Women Diagnosed with Ductal Carcinoma In Situ Veal CT, Hart V, Hampton JM, Trentham-Dietz A, Gangnon R, Newcomb PA, Sprague BL Women diagnosed with Ductal Carcinoma In Situ (DCIS) of the breast represent a growing cancer survivor population. The breast cancer specific survival rate for DCIS is high. Like the general population, DCIS patients are at greater risk of dying from cardiovascular disease and other causes than from breast cancer. To our knowledge, no studies have examined how specific health behaviors are associated with mortality outcomes in women with a DCIS diagnosis. We examined the association of specific health-related behaviors (smoking frequency, physical activity, alcohol consumption and body mass index) with mortality among 1,925 women with incident DCIS from the population-based Wisconsin In Situ Cohort. Behaviors were self-reported through biennial questionnaires beginning in 2003 and continuing through 2012. At the baseline interview (a median of 1.3 years after diagnosis), 15.0% of DCIS cases were smokers, 75.7% reported spending less than 5 hours per week participating in strenuous physical activity, 12.1% consumed seven or more drinks of alcohol per week, and 49.1% were overweight or obese. Over a mean of 6.7 years of follow-up, 196 deaths were reported, including 27 (13.8%) due to cardiovascular disease, 22 (11.2%) due to breast cancer, and the remaining 147 (75%) due to other causes. Cox proportional hazards regression with time-varying health behavior variables was used to estimate hazard ratios for all-cause mortality after DCIS. In age-adjusted analyses, smokers had a significantly greater risk of death (HR 3.28, 95% CI 1.53-7.07) than non-smoking women. There was an 11% decrease in the mortality rate for every one hour increase in physical activity per week (95% CI: 0.78-1.01). Body mass index and alcohol consumption were not strongly associated with mortality in age adjusted analysis ($p>0.20$). Planned analyses will examine cause- specific mortality and adjust for additional covariates including comorbidity status. The results inform our understanding of the relative importance of adopting or maintaining healthy behaviors, in addition to breast cancer treatment and surveillance, following an early stage breast cancer diagnosis.	Dietary energy intake early in life alters gut microbiota Xu J, Galley JD, Bailey MT, Thomas-Ahner JM, Clinton SK, Olivo-Marston SE Transiently altered gut microbiota (GM) by short-term diet interventions may be restored by previous diet intervention. However, it is unclear to what extent the impact of dietary history has on GM over a long- term diet intervention. Here we compared the colonic microbiota in C57Bl6 female mice with 3 diet interventions (control, energy restricted, and high fat) over two phases of life (1: 3-21 weeks of age and 2: 22-60 weeks of age). GM structures were significantly different by colonic site, regardless of diet intervention. Moreover, GM structure was significantly altered by diet, with a higher proportion of Firmicutes and lower proportion of Bacteroidetes in mice on energy restricted diet in phase 2, compared to those on high-fat diet, regardless of colonic site and phase 1 diet. We further observed a substantial effect from phase 1 diet on GM that mice on energy restriction diet had higher proportion of Bacteriodetes than those on high-fat diet in phase 1, regardless of the phase 2 diet. This data suggests that early life dietary patterns have a sustained impact on the GM composition, even with a change in diet during a later phase of life.

83	84
A dietary chemoprevention randomized-controlled trial with navy beans and rice bran for enhanced intestinal health in colorectal cancer survivors Borresen EC, Brown DG, Sheflin A, Harbison G, Taylor L, Fairbanks A, O'Malia J, Bazan M, Rao S, Bailey SM, Wdowik M, Weir TL, Brown RJ, & Ryan EP Navy beans (NB) and rice bran (RB) are nutrient and phytochemical-rich foods with compelling evidence for inhibition of carcinogenesis and reduced risk for developing colorectal cancer (CRC), yet consumption of these foods remains low. The purpose of this study was to determine feasibility of increasing NB or RB consumption in individuals with a history of CRC to understand effects on the stool microbiome, stool metabolome and overall chemoprevention. A total of twenty-nine CRC survivors completed the pilot randomized-controlled, single blinded, 4-week dietary intervention trial. They consumed study-provided foods that included either cooked NB powder (35g/day), heat-stabilized RB (30g/day), or neither (control). Blood, stool, urine, and saliva samples were collected at baseline, 2-week, and 4-week time points. Participants recorded three-day food logs and completed gastrointestinal health questionnaires. Compliance to the intervention was high across groups (≥85%). Participants achieved levels of NB or RB consumption that have been shown to be chemopreventive in animal studies. Total dietary fiber intake increased significantly in NB and RB groups over the four weeks and compared to control ($p \leq 0.01$). Serum inflammatory markers remained in normal ranges and correlations between telomere length and age, HDL-cholesterol, and serum amyloid A were observed over time. Initial analyses of the gut microbiome and metabolome further reveal modulations in participants consuming NB or RB, some of which may have utility as dietary biomarkers of intake. This study established feasibility of increasing NB or RB consumption in CRC survivors, resulting in higher fiber intake and associated healthy profiles. Our pilot findings suggest a suite of chemoprevention biomarkers associated with uptake and excretion of increased NB and RB consumption that merit evaluation for synergistic effects and for influencing dietary recommendations for primary and secondary CRC prevention.	Metabolic Phenotypes and Survival After Colorectal Cancer Cespedes EM, Weltzein E, Kroenke CH, Kwan ML, Meyerhardt J, Caan B Evidence is inconsistent that obesity increases mortality among colorectal cancer (CRC) patients. We examine whether metabolic dysregulation may help explain the obesity-mortality relationship. Methods: We studied 1056 CRC patients diagnosed from 2006-11 at Kaiser Permanente Northern California. We assessed body mass index (BMI) at diagnosis; visceral adiposity by computed tomography at diagnosis (in lieu of waist circumference); and 4 additional metabolic syndrome (MetS) components from <24mo pre- to <1mo post-diagnosis. MetS was defined as having >3 of 5 components: fasting glucose >100mg/dL or diabetes; blood pressure ≥130/≥85mmHg or hypertension; HDL cholesterol <40/<50mg/dL (men/women) or statin use; triglycerides ≥150mg/dL; and visceral adiposity (top sex-specific quartile). We classified participants into 4 metabolic phenotypes according to obesity (BMI< v. >30 kg/m2) and MetS (yes v. no) and examined associations of each phenotype with overall and CRC-specific survival using Cox regression models adjusted for age at diagnosis, sex, race/ethnicity, stage, chemotherapy, radiation, cancer site, and tertile of muscle and subcutaneous fat. Results: Over a median follow-up of 6 years, 230 patients died, 135 from CRC. Patients were 50% female and 65% non-Hispanic white; 32, 31, and 38%, had stages 1, 2, and 3, respectively; and 29% had rectal cancer. Mean (SD) age at diagnosis was 64 (10) years. Compared to patients without obesity or MetS (n=445), hazard ratios (HR) and 95% confidence intervals (CI) with overall death were 2.33 (1.50, 3.63) for obesity with MetS (n=253); 1.24 (0.90, 1.73) for MetS only, without obesity (n=284), and 1.36 (0.70, 2.63) for obesity only, without MetS (n=74). Obesity with MetS was also associated with CRC death, HR (95%CI): 2.46 (1.38, 4.36). Conclusions: CRC patients with obesity and MetS have elevated overall and CRC mortality, while obesity or MetS alone do not significantly increase risk. However, few obese patients are metabolically "healthy," and MetS may be on the causal pathway between obesity and mortality after CRC.

85-T	86-T
Associations between Adherence to the World Cancer Research Fund/American Institute for Cancer Research Cancer Prevention Recommendations and Biomarkers of Inflammation and Insulinemia Tabung FK, Smith-Warner SA, Willett WC, Giovannucci EL In 2007 the World Cancer Research Fund and the American Institute for Cancer Research (WCRF/AICR) issued recommendations for cancer prevention. Higher adherence to these recommendations has been associated with lower cancer risk but the underlying biological mechanisms have not been elucidated. We investigated associations between adherence scores and plasma markers of inflammation and insulin response, with the hypothesis that people with higher adherence scores have a more favorable biomarker profile. Methods: We utilized 3 waves of cumulatively averaged dietary and lifestyle data from 1984 to 1990 among 10,980 chronic disease-free women in the Nurses' Health Study. A score ranging from 0 to 6 was constructed based on 6 WCRF/AICR recommendations on weight management, physical activity, foods and drinks that promote weight gain, plant foods, animal foods and alcoholic drinks. Higher scores indicated greater adherence to the recommendations. The following plasma markers were assessed on blood samples donated in 1989-90: C-reactive protein (CRP), interleukin-6 (IL6), tumor necrosis factor alpha receptor 2 (TNFαR2) and adiponectin for inflammation; C-peptide for hyperinsulinemia; and the ratio of triglycerides/high density lipoprotein-cholesterol (TG/HDL) for insulin resistance. We estimated least-squares means (95% CI) for each biomarker in categories of the WCRF/AICR score using multivariable-adjusted linear regression models. Results: Greater adherence to the WCRF/AICR recommendations was associated with lower plasma CRP, IL6, TNFαR2, C-peptide, TG/HDL ratio and higher adiponectin concentrations after adjustment for multiple potential confounders (p trend <0.0001 for all). The percent change in biomarker concentrations between the lowest (≤2) and highest adherence categories (>5 recommendations) were: CRP, 71.9%; IL6, 37.9%; TNFαR2, 9.1%, adiponectin, 33.7%; C-peptide, 43.6% and TG/HDL ratio, 27.4%. Conclusion: Adherence to the WCRF/AICR cancer prevention recommendations is associated with a favorable profile of inflammatory and insulinemic markers. Our findings provide insights on the biological mechanisms underlying associations between these recommendations and cancer risk.	Wiser after Ovarian Cancer Exercise Pilot Study Zhang X, McClean D, Schmitz KH Physical activity has influence on the same molecular pathways associated with ovarian cancer progression and survival. We are interested in developing a phase 3 clinical trail of the effect of physical activity on molecular pathways that influence ovarian cancer progression. This pilot study aims to assure the feasibility of recruiting and safely completing the exercise intervention in ovarian cancer patients. Intervention: Stage III/IV epithelial ovarian cancer patients (n=10) were recruited through physician referral, mailing letters and flyers left in the waiting room at the Jordan Center for Gynecologic Cancer at Penn Medicine. All participants were asked to complete 26 weeks high dose exercise (225 min/week), as this will be proposed for the full protocol. Multiple supports were provided, including Leslie Sansome walking DVDs, stretching handout, self-reported logs and a Fitbit to all participants. Exercise counselling was provided by an exercise trainer in person weekly for the first 6 weeks, and monthly to 26 weeks. Participants were also called weekly to check in on logistical challenges, adherence, review behavioral support, and review symptoms. Results: 10 ovarian cancer patients were recruited within 6 days, 5 from 75 mailed letters, 3 from flyers in the waiting room, and 2 from physician referral. There were 11 additional eligible participants on the waiting list. Eight participants completed the study. Three of 10 participants lost the Fitbit and 5 of them had replacements due to malfunction. Compared to the baseline, steps increased by 1593 per day (P =0.048), moderate intensity physical activity increased by 15 mins per day (P=0.05). Conclusion: Recruitment of patients with stage III-IV ovarian cancer into an exercise program is feasible. Participants were able to significantly improve their physical activity over the 26 weeks intervention.

87	88-T
Mortality outcomes associated with intake of fast food items (FFIs) and sugar-sweetened drinks (SSDs) among adults in the Vitamins and Lifestyle (VITAL) study Barrington WE, White E Cancer prevention guidelines have cautioned against intake of fast food items (FFIs) and sugar-sweetened drinks (SSDs) to reduce obesity-related outcomes, yet few studies have evaluated associations of FFIs and SSDs with total and cancer- specific mortality. The Vitamins and Lifestyle (VITAL) study enrolled 69,582 men and women in 2000-2002 Baseline intake of FFIs and SSDs was quantified using a semi-quantitative food frequency questionnaire. Deaths (N = 4,187) were obtained through the Washington State death records through 2008, excluding deaths in the first year of follow-up. Cox models were used to estimated hazard ratios (HRs) and 95% Confidence Intervals (CIs). Intake of FFIs (HR = 1.16; 95% CI: 1.04, 1.29; P < 0.01) and SSDs (HR=1.20; 95% CI: 1.10, 1.32; P<0.0001) was associated with total mortality in multivariable -adjusted models. Associations for intake of FFIs (P =0.002) and SSDs (P =0.02) were strongest for cancer deaths among those with no history of cancer at baseline. In conclusion, intake of FFIs and SSDs has a detrimental effect on total and cancer-specific mortality risk. These findings may inform efforts to galvanize policy and regulatory action targeting the fast food and soft drink industries as well as inform public health dietary recommendations.	Dietary inflammatory index and risk of colorectal adenoma recurrence: A pooled analysis. Sardo Molmenti CL, Steck SE, Hibler EA, Shivappa N, Yang J, Greenlee H, Wirth M, Neugut AI, Jacobs ET, Hébert JR. To investigate the association between the dietary inflammatory index (DII) and colorectal adenoma recurrence in adults with a history of colorectal adenomas. Methods: Analysis included 1730 men and women, 40 to 80 years of age with ≥1 colorectal adenoma(s) removed during colonoscopic evaluation within a 6-month period prior to registration in the Wheat Bran Fiber (WBF) and Ursodeoxycholic Acid (UDCA) phase III clinical trials, and for whom dietary and colorectal adenoma recurrence data were available. Recurrent adenomas were defined as any colorectal adenoma identified upon colonoscopic examination at least 6 months post-randomization. The DII score was calculated from the baseline 113-item Arizona Food Frequency questionnaire, which reports usual food consumption over the prior 12-month period. Higher DII scores represent more pro-inflammatory diets, while lower scores represent anti-inflammatory diets. Logistic regression modeling was used to estimate odds ratios (ORs) while controlling for confounding factors. Results: No statistically significant associations were found between DII and odds of total colorectal adenoma recurrence [ORs (95% CIs)=0.91 (0.71, 1.17) and 0.93 (0.72, 1.20) for participants in the second and third tertiles, respectively, compared to those in the lowest tertile (Ptrend=0.58)]. A statistically significant trend was identified between DII and adenoma recurrence among participants in the low WBF trial arm (Ptrend=0.03). The odds of adenoma recurrence was 1.94 (95% CI 0.83, 4.55) and 2.60 (95% CI 1.11, 6.09) for participants in the second and third tertiles, respectively, compared to those in the lowest tertile. No associations were found for recurrent colorectal adenoma characteristics including adenoma multiplicity, advanced recurrent adenomas, large size, villous histology, or proximally or distally located adenomas. Conclusions: Consuming a more pro-inflammatory diet at baseline was not associated with overall colorectal adenoma recurrence among a population of older individuals in Southern Arizona enrolled in adenoma prevention trials. There was a suggestion of a positive association among participants in the control arm of the WBF trial arm. Further investigation in additional study populations is warranted.

89-T

Weight loss via chronic or intermittent calorie restriction, but not a low-fat control diet, reverses the enhancing effects of obesity on mammary tumor growth

Bowers LW, Rossi EL, Shamsunder M, Hursting SD

Obesity negatively impacts breast cancer prognosis in both pre- and postmenopausal women, but the reversibility of these pro-cancer effects via weight loss has not been well established. We utilized a mouse model of chronic obesity and pre-menopausal basal-like breast cancer to examine how obesity reversal via four different dietary interventions affects tumor progression. Methods: C57BL/6 mice were fed a low-fat control (Con) or high-fat diet-induced obesity (DIO) regimen. After 15 weeks, Con mice continued on the same diet, maintaining a normal weight throughout study, while DIO mice were randomized to remain on DIO diet (Obese) or begin one of four weight loss regimens: low-fat control (formerly obese, FOb), high-carb 30% calorie- restricted (HCCR), low-carb 30% CR (LCCR), or intermittent energy restriction (IER). IER mice received a 14% CR diet 5 days/week and a 70% CR diet on 2 non-consecutive days/week. Mice were orthotopically injected with E0771 mouse mammary tumor cells at week 25. Results: At study endpoint, Obese mice had a higher average body weight and fat percentage versus all other diet groups, while these phenotypic measures were statistically equivalent in Con and FOb mice, but significantly lower in the 3 CR groups. Both tumor volume and weight at sacrifice were significantly greater in the Obese mice relative to Con mice and all CR mice, but not FOb mice, despite their weight loss to Con levels. In contrast, tumors in the HCCR and IER, but not LCCR, mice were significantly smaller than Con. Serum insulin and leptin levels were statistically equivalent in Con, FOb, HCCR, LCCR, and IER, but serum insulin-like growth factor 1 remained significantly elevated in FOb mice, with levels statistically equivalent to Obese mice. Conclusions: These results suggest that severe weight loss (as achieved by various forms of calorie restriction), but not weight normalization (as achieved by a low-fat control diet), can reverse the mammary tumor growth promoting effects of chronic obesity. Through increased understanding of the energy responsive mechanisms underlying the anticancer effects of calorie restriction in obese mice, we hope to identify new intervention targets and strategies to reduce the obesity-associated breast cancer burden.

90

Why do studies show different associations between prenatal smoke exposure and age at menarche?

Houghton LC, Cohn B, Michels K, Terry MB

Prenatal smoke exposure may increase a woman's lifetime risk of developing breast cancer. Several studies have examined the association between prenatal smoke exposure and earlier age at menarche, a risk factor for breast cancer, and have found conflicting results. For example, two studies within the National Collaborative Perinatal Project (NCPP) found that daughters with prenatal smoke exposure had a later age at menarche. In contrast, a study conducted within the Child Health and Developments Study (CHDS) found the opposite association. These differences are intriguing as prenatal smoke exposure was measured prospectively and at a time when little stigma was attached to smoking in pregnancy, and thus cannot be explained by reporting differences in exposure. Using data from the Early Determinants of Mammographic Density (EDMD) cohort which interviewed adult daughters from the Boston site of the NCPP and the California site of the CHDS, we examined the association between prenatal smoke exposure and recalled age at menarche (in years) using general estimating equation linear regression models. We did not observe any association between prenatal smoke and age at menarche in the overall EDMD[β=-0.03; 95%CI:-0.35 to 0.19), but there was an interaction by birth cohort within EDMD (p for interaction=0.001). Prenatal smoke exposure was inversely associated with age at menarche in the NCPP (β= -0.4; 95%CI:-0.7 to -0.1), but the association was positive in the CHDS (β= 0.4; 95%CI: 0.1 to 0.7). Categorizing menarche as <12 v. ≥12 years did not explain these cohort specific differences, and thus differences with previously published findings are unlikely to be driven by outcome categorization. Within the EDMD, the CHDS has an overall higher family income than the NCPP site (p<0.001). When stratifying by levels of family income, we no longer observed differences by cohort in the upper strata of women who were homogenous on income (6-7K and 7-8K). Our findings suggest that some of the heterogeneity in the association between prenatal smoke and age at menarche may be explained by socioeconomic differences in the families that participate in the separate follow-up studies of these birth cohorts.

91-T	92-T
Reversal of Obesity-Associated Alterations in Inflammation and Mammary Tumor Growth by Sulindac Supplementation: Underlying Mechanisms Khatib SA, Rossi EL, Bowers LW, Dannenberg AJ, Hursting SD The metabolic dysregulation associated with obesity is correlated with increased inflammation and cancer growth. We previously showed that inflammation and basal-like mammary growth are increased in chronically obese mice and persist following weight normalization. Purpose: We tested the hypothesis that Sulindac, a nonsteroidal anti-inflammatory drug (NSAID) known to inhibit production of inflammatory prostaglandins via a cyclooxygenase-2 dependent pathway, can reduce chronic obesity-related inflammation and/or basal-like tumor growth. We also tested if Sulindac could complement weight loss in obese mice to more effectively reduce inflammation and/or tumor growth. Methods: Mice were administered a control diet (10 kcal % fat) or diet-induced obesity regimen (DIO, 60 kcal % fat) with or without Sulindac (160 ppm) supplementation. After 15 weeks, DIO mice either continued on DIO diet or were switched to the low fat control diet to induce gradual weight loss, resulting in Formerly Obese (FOb) mice. Sulindac supplementation remained constant throughout study. Twelve weeks after initiating weight loss in the FOb groups, all mice were orthopically injected with E0771 cells, a model of basal-like breast cancer. Five mice/group were killed 4 weeks later, while 12 mice/group were continued in a survival study; these mice were killed when tumor size reached 1.2 cm in diameter. Results: In a 4 week tumor growth study, mean tumor weight in mice administered DIO+Sulindac was significantly decreased relative to mice receiving nonsupplemented DIO diet. Sulindac had no effect on tumor growth in control or Fob mice after 4 weeks of treatment. In a separate survival study, Sulindac significantly increased tumor latency in DIO and FOb groups (but not controls) in comparison to their nonsupplemented counterparts. Conclusions: Sulindac supplementation significantly reduced final tumor weight in DIO mice and increased tumor latency in both DIO and FOb mice. Ongoing analyses of serum and tissue markers of inflammation, as well as global gene expression, will determine whether the ability of Sulindac to offset the procancer effects of obesity are mediated through its anti-inflammatory activity.	Racial differences in genome-wide methylation profiling and gene expression in breast tissues from healthy women Song M-A, Brasky TM, Marian C, Weng D, Taslim C, Dumitrescu RG, Llanos AA, Freudenheim JL, Shields PG Breast cancer is more common in European Americans (EAs) than in African Americans (AAs) but mortality from breast cancer is higher among AAs. While there are racial differences in DNA methylation and gene expression in breast tumors, little is known whether such racial differences exist in breast tissues of healthy women. Genome- wide DNA methylation and gene expression profiling was performed in histologically normal breast tissues of healthy women. Linear regression models were used to identify differentially-methylated CpG sites (CpGs) between EAs (n=61) and AAs (n=22). Correlations for methylation and expression were assessed. Biological functions of the differentially-methylated genes were assigned using the Ingenuity Pathway Analysis. Among 485 differentially-methylated CpGs by race, 203 were hypermethylated in EAs, and 282 were hypermethylated in AAs. Promoter-related differentially-methylated CpGs were more frequently hypermethylated in EAs (52%) than AAs (27%) while gene body and intergenic CpGs were more frequently hypermethylated in AAs. The differentially- methylated CpGs were enriched for cancer- associated genes with roles in cell death and survival, cellular development, and cell-to-cell signaling. In a separate analysis for correlation in EAs and AAs, different patterns of correlation were found between EAs and AAs. The correlated genes showed different biological networks between EAs and AAs; networks were connected by Ubiquitin C. To our knowledge, this is the first comprehensive genome- wide study to identify differences in methylation and gene expression between EAs and AAs in breast tissues from healthy women. These findings may provide further insights regarding the contribution of epigenetic differences to racial disparities in breast cancer.

93	94
Body size and risk of luminal, HER2-overexpresing, and triple negative breast cancer Cook LS, Chen L, Tang MC, Porter PL, Hill DA, Wiggins CL, Li CI Triple negative (TN, tumors that do not express estrogen receptor (ER), progesterone receptor (PR), or human epidermal growth factor receptor 2 (HER2)) and HER2-overexpressing (H2E, tumors that are ER-/HER2+) tumors are two particularly aggressive molecular subtypes of breast cancer. There is a lack of knowledge on the etiologies of these cancers and in particular how anthropometric factors are related to risk. Objective: To characterize the relationships between anthropometric factors and risk of TN and H2E cancers relative to luminal A breast cancer. Design: We conducted a population-based case-case study consisting of 2,692 women 20 to 69 years of age with a first diagnosis of invasive breast cancer while living in the Seattle, Washington or Albuquerque, New Mexico areas between 2004 and 2012. Setting: Cancer registries serving Seattle-Puget Sound, Washington and New Mexico. Participants: Four case groups defined based on joint ER/PR/HER2 status were included: TN (n=1,294), H2E (n=489), luminal A (ER+/HER2-, n=778), and luminal B (ER+/HER2+, n=131). The primary source of anthropometric data was medical records. Main outcomes and measures: Odds ratio (ORs) and associated 95% confidence intervals (CIs) comparing luminal B, TN and H2E cases with luminal A patients. Results: Obese premenopausal women (body mass index (BMI) ≥30 kg/m2) had an 82% (95% CI: 1.32-2.51) increased risk of TN breast cancer compared to normal weight women (BMI<25 kg/m2), and those in the highest weight quartile had a 79% (95% CI: 1.23-2.64) increased risk of TN disease compared to those in the lowest quartile. In contrast, among post-menopausal women obesity was associated with reduced risks of both TN (OR= 0.74, 95% CI: 0.54-1.00) and H2E (OR= 0.47, 95% CI: 0.32-0.69) cancers. Conclusion and relevance: This large population-based study adds to evidence that obesity has divergent impacts on risk of aggressive subtypes of breast cancer in premenopausal vs. post-menopausal women. The higher incidence rates of TN cancers observed among younger African American and Hispanic women may be due in part to this relationship.	Stage of endometrial cancer and distance to surgery in Hispanics and non-Hispanic whites Cook LS, Nelson HE, Cockburn M, Escobedo LA, Muller CY, Wiggins CL We used a Surveillance, Epidemiology and End Results (SEER)-Medicare linked database to investigate the association between higher stage (vs. lower stage) endometrial cancer related to distance to surgical care as an indicator of a geographic barrier in Hispanic white (HW) and non-Hispanic white (NHW) women in New Mexico (NM) and California (CA). Methods: We identified 2538 NHW and 258 HW women who were >66 years of age diagnosed with first primary, invasive endometrial cancer. Distance to surgery was determined as the shortest distance from the road nearest the centroid of the patient's census tract to the location of surgical treatment. Unconditional logistic regression was used to estimate adjusted odds ratios (ORs) and 95% confidence intervals (CIs) for late stage disease (vs. early stage) associated with ethnicity and distance to surgery. Results: In adjusted models, there was a suggestion that HWs (OR = 1.3, 95%CI=1.0, 1.8) and those in the highest quartile of surgery travel distance (OR = 1.2, 95%CI=1.0, 1.5) were modestly more likely to be diagnosed with regional/distant disease than NHWs and those who traveled shorter distances, respectively. However, only HWs who drove the furthest to surgery were more likely to be diagnosed with regional/distant disease (OR = 2.5, 95%CI=1.5, 4.1), but not the NHWs who drove the furthest to surgery (OR = 1.1, 95%CI=0.9, 1.4) (interaction p-value <0.01). Conclusion: Our results suggest that by elucidating and addressing the reasons behind higher stage disease in older HWs that drive the farthest distances to surgery, we can shift the distribution of stage to early stage endometrial cancer thus improving survival in these women.

95-T	96
Gene-environment interactions between polymorphisms of stem cell and microRNA-related genes and tobacco smoke exposure in lung cancer risk Kim CH, Jin ZY, Zhou JY, Han RQ, Zhang XF, Liu AM, Su M, Sun Z, Li L, Mu L, Wu M, Zhao JK, Zhang ZF The aim of this study was to examine the associations between polymorphisms of stem cell and microRNA-related genes and lung cancer risk and their interactions with tobacco smoking in a Chinese population. The study sample consisted of 1,799 lung cancer cases and 6,650 controls from the Jiangsu Four Cancers Study, conducted between 2003 and 2010 in Jiangsu Province of China. Epidemiologic data and blood samples were collected during in-person interviews. We used unconditional logistic regression to estimate adjusted odds ratios (ORs) and 95% confidence intervals (CIs) for the associations between lung cancer risk and 19 stem cell polymorphisms and 23 microRNA-related polymorphisms by tobacco smoking status, and tested for their interactions with smoking status. Genetic variants of NOTCH4, HEY1, OCT4, RAN, and GEMIN4 were associated with lung cancer risk. Ever smokers with the homozygous variant genotype of rs520692 of NOTCH4 had a higher risk of lung cancer compared with those with the wild type allele (OR=2.35; 95% CI: 1.19-4.64). The variant allele of rs1046472 of HEY1 was associated with an increased risk of lung cancer in ever smokers (OR= l.23; 95% CI: 1.01-1.51) and showed interaction with smoking status (P for interaction=0.018). On the other hand, the variant allele of rs14035 of RAN was associated with a decreased risk of lung cancer in ever smokers (OR=0.72; 95% CI: 0.58-0.90). In never smokers, the variant allele of rs13409 of OCT4 was positively associated with lung cancer risk (OR=1.54; 95% CI: 1.08-2.21). The variant allele of rs7813 of GEMIN4 was associated with an increased risk of lung cancer in both ever and never smokers (OR=1.28; 95% CI: 1.08-1.51). These results indicate that polymorphisms of stem cell genes NOTCH4, HEY1, and OCT4 and those of microRNA-related genes RAN and GEMIN4 may be associated with lung cancer risk, and the association of HEY1 and lung cancer risk may be modified by exposure to tobacco smoke.	A web resource for exploring ‘omics and clinical data from healthy breast tissues Kuang X, Marian C, Taslim C, Song MA, Weng D, Freudenheim JL, Brasky T, Huang K, Coombes K, Peter SG Integrating ‘omics, epidemiology and clinical data from healthy patients and their biologic samples is important for identifying the determinants of early carcinogenesis. In a cross- sectional study of 249 women with no history of cancer and who underwent reduction mammoplasty, whole transcriptome (i.e., gene expression) and epigenome (i.e., methylation and microRNA) data were collected from dissected breast tissues. An extensive epidemiologic questionnaire ascertained data on breast cancer risk factors. Subjects with benign lesions considered at risk for future cancer were excluded. In order to manage, analyze, and share these data efficiently, we organized the data into a relational database to support a series of web-based tools for analyzing and visualizing the multidimensional data in an intuitive graphical user interface (GUI). The current platform improves upon existing web resources that integrate ‘omics and clinical data by including novel features that allow for greater flexibility of bioinformatics analyses. It also focuses on the ‘omics as an outcome, rather, e.g., what epidemiology risk factor or particular gene is associated with downstream effects across the ‘omics. Such features include: 1) a plot function that can visualize up to 4 dimension data chosen by a user from the 3 types of genetic profiles and more than 100 clinical and biomedical variables; 2) a differentiation visualization tool based on the ‘omics data of 2 groups of samples; and 3) miRNA target gene network generated by the correlations between gene expression and miRNA expression of our patient samples and validated miRNA target gene database. The GUI facilitates the discovery of research scientists by reducing complex biological and clinical data into easily understandable views. Even without the expertise of computational biology, researchers can integrate and analyze the high dimensional data that they are interested conveniently on our user-friendly designed platform.

97-T	98
Vitamin D and Breast Cancer Tumor Grade Irfan H, Li L, Thompson CL	Genome-wide DNA Methylation Analysis in Normal Breast Tissues of Obese Women and integration with Gene Expression Weng DY, Song MA, Marian C, Krishnan S, Llanos AA, Brasky TM, Shields PG
Low serum vitamin D levels have been associated with poorer recurrence-free survival among breast cancer patients. However, the association of vitamin D with other clinical correlates of breast cancer, such as tumor grade and size, has been less studied. We reviewed medical records from 871 invasive breast cancer patients diagnosed from 2004 to 2014 for tumor grade and serum 25-hyrdoxy vitamin D levels. Serum vitamin D levels within 1 year of diagnosis were available on 409 of these patients. Mean vitamin D levels revealed a trend of lower 25-hydroxy vitamin D levels being associated with increasing tumor grade. Mean vitamin D levels for patients with tumor grade 1, 2 and 3 were 32.0 (SD 11.0), 30.1 (SD 13.3) and 26.0 (SD 12.0), respectively (p for trend=0.0064). We also found that grade 3 breast tumor had the highest percentage of patients deficient (<=20 ng/ml) in 25- hydroxy vitamin D (32%) compared to grade 2 (21%) and grade 1 (8%) tumors. The percentage of patients who met the adequate (30 ng/ml or more) serum vitamin D threshold was also found to be the lowest in grade 3 tumors (36%), compared to patients with grade 2 (47%) or grade 1 (54%) tumors (p=0.025). Vitamin D levels were also slightly negatively correlated with tumor size, although statistical significance was not quite reached (r=-0.134, p=0.051). Vitamin D levels did not correlate with ER, PR or HER2 status (all p>0.05). In multivariate analyses, Vitamin D levels remained statistically significantly associated with tumor grade (p=0.0077). This research is the first to our knowledge to report on the association of serum vitamin D with tumor grade among newly diagnosed breast cancer patients.	Obesity has recently been proposed and demonstrated to be a potential risk factor for a diverse number of diseases including hypertension, type 2 diabetics and cancer. It is important to understand the interaction between obese and diseases and the underlying molecular mechanisms. Here, we performed whole gene transcriptome profiling using Affymetrix Human Transcriptome Array and genome-wide DNA methylation profiling using Illumina Infinium HumanMethylation 450 platform on 114 normal breast tissues from reduction mammoplasty patients who had no history of cancer. After adjusting for confounding by age and race, 12,212 CpG dinucleotides were altered the levels of methylation correlated with body weight index (BMI) (10,809 positive correlation, 1,403 negative correlation, FDR<0.05). Among them were 2,880 BMI-associated hypermethylated CpG dinucleotides at promoter regions (-1.5 kb from transcription start site) and 294 BMI-associated hypomethylated CpG dinucleotides at promoter regions. By integrating DNA methylation and mRNA expression data, we identified 448 genes were correlated with gene expression level (FDR<0.05). Of these, 256 genes had higher methylation status showing concurrent down-regulation in obese women, and 45 genes had lower methylation status showing concurrent up- regulation in obese women. Gene ontology enrichment analysis indicated that these genes are involved in cancer, inflammatory disease, reproductive system disease, and cellular development. Significantly increased plasma concentrations of c-reactive protein (CRP), IL-6, and IL-8 were observed in overweight (25≤BMI<30), and obese (BMI≥30) women, which indicated that obesity is associated with inflammatory response in normal human breast tissues. This study provides evidence that obesity epigenetically deregulates genes potentially involved in disease development and progression.

99-T	100
Differences in host phenotypic and histopathological tumor features between familial and population-based cutaneous melanoma Taylor NJ, Begg C, Berwick M, Bishop DT, Elder DE, Goldstein AM, Mitra N, Newton-Bishop J, Thomas N, GEM Study Group, GenoMEL Consortium, Kanetsky PA Although highly penetrant genetic loci may account for a considerable proportion of familial melanoma risk, they do not explain the majority of multiple-case families. We hypothesized that familial melanomas may be recognizable to clinicians by a distinct pattern of host phenotypic and tumor characteristics, allowing for improved identification of melanoma kindreds and conveyance of heightened risk awareness to unaffected relatives. Here, we describe host phenotypic and histopathological invasive tumor features of familial melanoma case participants from the GenoMEL consortium and compare them to those observed in a large series of population-based melanoma cases. Histopathological and phenotypic data were available for 2,409 and 2,174 verified familial cases respectively, while data on population-based invasive melanoma cases were available for 3,052 participants of the GEM study. Statistically significant differences between familial and population-based cases were noted for several host phenotypic and histopathological tumor factors after adjustment for relevant covariates and Bonferroni correction. Familial cases were younger at diagnosis ($p<0.0001$), more likely to demonstrate superficially spreading melanomas ($p<0.0001$) while exhibiting thicker lesions ($p<0.0001$), and showed a higher proportion of melanomas with ulceration ($p<0.0001$) and mitoses ($p<0.0001$). Familial cases were also distinguished from by sun-sensitive phenotypic characteristics commonly associated with melanoma risk and showed a preponderance of nevi ($p<0.0001$) compared to population-based cases. Considered together, these features may identify members of melanoma kindreds in lieu of or in conjunction with genetic data.	Inherited Alteration of TGF Beta Signaling Components in Appalachian Cervical Cancers Weghorst, CM, Knobloch, TJ, Cohn, DE, DeGraffinreid, CR, Lu, B, Peng, J, Hade, EM, Schiano, MA, Calhoun, BC, McBee, W, Lesnock, J, Gallion, H, Pollock, J, Ruffin, MT, Paskett ED Invasive cancer of the uterine cervix (ICC) is a leading cause of cancer death in women worldwide and rates are especially high among women from Appalachia. In addition to lifestyle, social-behavioral, and HPV infections, hereditary predispositions may mediate overall cervical cancer risk. Polymorphic alleles within the Transforming Growth Factor Beta (TGFB) signaling cascade, an important regulator of epithelial cell growth, have been implicated in modifying cancer susceptibility. The contributions of these factors within a gene-environment model have not been well characterized in Appalachian ICC patients. Hypothesis: High-risk genomic variants of TGFB signaling pathway components will be overrepresented in Appalachian women diagnosed with ICC compared to their healthy Appalachian counterparts. Methods: A case-control study was conducted with 163 women diagnosed with ICC and 842 women with normal Pap tests from Appalachia. Genomic variance analysis of 9 SNPs and a polymorphic repeat variant of several TGFB signaling components was conducted on blood DNA. Potential correlating behavioral and environmental factors were collected using a comprehensive, self-administered questionnaire completed at the time of enrollment and analyzed by multivariate logistic regression. Results: Adjusting for age, a significant 3.1-fold increase in the odds of cervical cancer was estimated withTP53 rs1042522 G/G dominant model compared to C/C-C/G genotypes in never- smokers ($p=0.030$, OR = 3.1, 95% CI: 1.1,8.5), but not ever-smokers, with a marked interaction of smoking by genotype ($p=0.02$). Conversely, a 60% decrease in the odds of cervical cancer was estimated in the TGFB1 rs1800469 A/A-G/G group compared to the A/G genotype in never smokers ($p=0.003$, OR = 0.40, 95% CI: 0.22,0.73), but not in ever-smokers. No somatic missense mutations were identified in TGFBR1 and TGFBR2 coding sequences from 25 representative tumor DNAs. Conclusions: Genetic susceptibility may contribute to the overall cervical cancer risk associated with the Appalachian population, especially among non-smokers. Inclusion of additional demographic and social-behavioral features, as well as other genetic events, may further define this evolving cervical cancer risk model.

101	102
Telomere Length and Neighborhood Circumstances: Evaluating Biological Response to Unfavorable Exposures Lynch SM, Mitra N, Ravichandran K, Spangler E, Zhou W, Paskett ED, Gehlert S, DeGraffinreid C, Dubowitz T, Riethman H, Branas CC, Peek MK, Rebbeck TR Multilevel frameworks suggest neighborhood circumstances influence biology; however, this relationship is not well studied. Telomere length(TL) shortening has been associated with individual-level and neighborhood-level exposures and disease, and may provide insights into how underlying biologic mechanisms link neighborhood with biology. In an effort to support joint neighborhood-biology investigations, we examined associations between neighborhood and TL under a newly- proposed socio-biologic framework, neighborhood cancerization. This framework parallels existing social theories and extends the biologic concept of field cancerization to describe how individuals within areas exposed to common unfavorable circumstances can experience biological consequences related to disease. Blood TL was measured in 1,488 individuals from 127 census tracts in three U.S. regions using terminal restriction fragment assays. Multilevel linear models (modeled about the mean) and quantile regression models (studies associations at extremes of the TL distribution) were adjusted for individual-level race, education, perceived stress, depression. Neighborhood exposures included population density, urban/residential crowding, residential stability/mobility, socioeconomic status (SES). Neighborhood was not associated with TL in multilevel linear models. Quantile regression revealed significant inverse associations between population density and urban crowding at the 5th(population density, p-value=0.03;urban crowding p- value=0.002), 50th(both p-values<0.001), 75th percentiles(both p-values<0.001) of the TL distribution. TL was significantly related to residential stability at the upper tail (95th percentile-p-value=0.006). Neighborhood exposures can exert disease-related biological effects, thus supporting neighborhood cancerization. Findings also support the use of nonlinear statistical methods in TL research, and provide a foundation for multidisciplinary collaboration in future investigations.	Informing Women and Their Physicians about ACS Guidelines for Adjunct Screening Breast MRI Improves Adherence: A Cohort Study Brinton JT, Barke LD, Freivogel ME, Talley TC, Lexin MD, Drew AL, Beam RB, Glueck DH The American Cancer Society (ACS) recommends that women at elevated lifetime risk for breast cancer be screened with adjunct breast MRI to mammography, yet compliance remains low. This study compares the rates of breast MRI screening for two different methods of communicating the ACS guidelines. Materials and Methods: The retrospective IRB-approved cohort study was conducted at Invision Sally Jobe Breast Centers (ISJBC). ISJBC provided Gail model risk assessment to all women presenting for screening mammography. Over two years, ISJBC used two different methods to inform women at elevated lifetime risk (N = 561, mean age = 52 yrs) and their physicians about the ACS recommendations. During Window A, information was sent to referring physicians as a part of the dictated imaging report, while later, in Window B, the information was sent to referring physicians as well as to the women themselves in a letter. Analyses were stratified by screening frequency. One-time screeners presented in only Window A or Window B. Repeat screeners came both in Window A and Window B. Results: Breast MRI screening rates were significantly higher in Window B than in Window A (one-time screeners, N = 459, 9.8% vs. 14.4%, p = 0.0467; repeat screeners, N = 102, 0% vs. 6.9%, p = 0.0156). Conclusion: Although an observational study cannot assess causality, direct communication of the ACS recommendations to women and to their referring physicians was associated with an increased rate of screening breast MRI completion at the same clinic at which the women underwent mammography.

103-T	104-T
Metabolic Syndrome and Cancer Staging in Overweight/Obese Latina Breast Cancer Survivors Dieli-Conwright CM, Spicer D, Tripathy D, Mortimer JE This observational study was designed to assess whether metabolic syndrome (MetS) is associated with cancer stage in overweight and obese Latina breast cancer survivors (LBCS). MetS is associated with increased risk of cardiovascular diseases, type 2 diabetes, and breast cancer recurrence, and is defined by increased waist circumference (WC), elevated blood glucose (BG), high triglycerides (TG), low high-density lipoprotein cholesterol (HDL-C), and elevated blood pressure (BP). MetS is more prevalent in Latinas when compared to Caucasians and non-Latina African Americans, increasing the need to examine MetS as it pertains to breast cancer stage. Methods. LBCS (BMI≥25 kg/m2) with early stage (I-III) breast cancers were recruited from the USC Lee Breast Clinic and Los Angeles County Hospitals to participate in a larger ongoing exercise trial and had undergone adjuvant cytotoxic chemotherapy within 6 months prior to study enrollment. MetS components were tested during a single visit. The following clinical diagnostic criteria for MetS were used: a) WC ≥80 cm (32 inches); b) TRI ≥150 mg/dL or on drug treatment for elevated TRI; c) Reduced HDL-C <40 mg/dL; d) Elevated BP ≥130/85 mm Hg or on antihypertensive drug treatment; e) Elevated fasting BG ≥100 mg/dL or on drug treatment for elevated glucose). Each participant was assigned a MetS score of 1-5 based on the number of criteria they met, where a score of ≥3 out of the 5 components of MetS was used to diagnose MetS. Cancer stage (I-III) was obtained from medical records. Chi-square analysis was used to examine the association between MetS and cancer stage. Results. Forty-eight LBCS were included in our analysis with a mean age of 54.2±12.1 years. MetS was diagnosed in 65% (31/48) of the participants with an average MetS score of 4.0±1.0. Frequency of stage for LBCS with MetS was: 8.7% with Stage 1; 28.3% with Stage 2; 63% with Stage 3. MetS was significantly associated with cancer stage in overweight and obese LBCS ($p<0.05$; $r=0.91$). Conclusions. Overweight and obese LBCS with MetS present with more advanced disease, which is known to impact prognosis. Interventional studies to attenuate MetS, such as diet and exercise trials, are warranted in this population.	Changes in Health-Related Quality of Life in Cancer Survivors Following 26-Weeks of Aerobic and Resistance Training Tarleton HP, Ricci J, Kuroyama I Cancer survivors can experience depression, treatment-related fatigue, and poor motivation to be physically active. The IMPAACT Study examined the effect of combined aerobic and resistance training (CART) on health-related quality of life (HRQOL). Cancer survivors (n=33) enrolled in a nine-month CART program administered in a group setting yet with individually assigned exercise goals. Participants used iPads to complete the National Institutes of Health's PROMIS survey with measurement of fear and anxiety, fatigue, pain interference, physical function, and satisfaction with social roles. A blood specimen was collected at baseline, midpoint, and post intervention to measure serum concentrations of cortisol and c-reactive protein (CRP). Participants that completed the intervention were also mailed an SF-36 survey. After 26 weeks of CART, social role satisfaction had the greatest improvement in percent change (7.9 ± 14.9%), followed by fear/anxiety (2.3 ± 14%), fatigue (2.1 ± 14.5%) and physical function (1.5 ± 9.6%). There was a decline in pain interference (-1.3 ± 15.7%), suggesting that domain is the most resilient to change. There was a mean decrease in percent change of cortisol (-5.9 ± 31.5%) with a less significant percent change in CRP (-5.5 ± 57.2%). Participants that reported higher comorbidity at baseline appeared to experience the greatest improvements in fatigue ($r = 0.555$, $p = 0.005$), anxiety/fear ($r = 0.547$, $p = 0.005$), and social role satisfaction ($r = 0.611$, $p = 0.002$). Participants within two years of treatment completion experienced greater improvements in psychosocial wellbeing. Participants' scores for the SF-36 were consistent with NIH PROMIS scores. After a two-month washout period, participants reported on the SF-36 that their health was "much better than a year ago". In summary, group-based CART supports improvements in HRQOL and decreases biomarkers of stress and inflammation. Improvements in psychosocial domains also appear to persist beyond training and may improve the long-term cancer survivorship experience. These findings suggest that oncologists and exercise physiologists encourage their patients to begin a tailored CART program as soon as possible following the cessation of cancer treatment.

105-T

Decreased Prevalence of Metabolic Syndrome and Improvements in Body Composition in Cancer Survivors Following 26-Weeks of Aerobic and Resistance Training

Tarleton HP, Johnson R, Korte JR, Ricci J, Kuroyama I

Cancer survivors have a higher risk of type-2 diabetes and cardiovascular disease due to treatment-related effects and fatigue-related reductions in exercise. The IMPAACT Study examined the effect of combined aerobic and resistance training (CART) on prevalence of metabolic syndrome as an indicator of cardio-metabolic risk. Cancer survivors (n=33) enrolled in a 9-month CART program. Health and exercise history, medications, anthropometry, and a blood specimen were collected at baseline, midpoint, and post intervention. At baseline, 52% of participants had metabolic syndrome, with greater prevalence existing among survivors that completed treatment within the past 2 years (33%) as compared to those with 2+ years of time since last treatment (18%). The most noteworthy risk factor for metabolic syndrome at baseline was waist circumference, with the average for female participants at 100cm (SD16), well above the recommended 88cm. Session attendance averaged 64% (SD 17%) for 26-weeks of CART. Post-intervention, participants began to return to “normal” with regard to at least one risk factor and, subsequently, the prevalence of metabolic syndrome decreased to 26%. However, the prevalence of metabolic syndrome among Caucasian and Asian participants decreased by 80% while no decrease was observed among African-American and Hispanic participants. A 76% decrease was observed for participants that were within 2 years of their last treatment, while the decrease among other survivors was 19%. For individual risk factors, decreasing trends in triglycerides and fasting blood glucose and an increasing trend in high-density lipoprotein were suggested as participation increased. The average decrease in waist circumference was 7.55cm (SD 7.16) and decreases in adiponectin ($r = 0.209$), insulin ($r = 0.333$), and triglycerides ($r = 0.329$) were suggested with decreases in waist circumference. An increase in leptin ($r = 0.446$) was suggested with decreasing waist circumference. These findings suggest that CART may be most beneficial to the cardio-metabolic health of cancer survivors that have most recently completed treatment. These results also highlight the need to further examine the potential health disparities in metabolic risk among African-American and Hispanic cancer survivors.

106-T

The relationship between cancer survivors’ socioeconomic status and reports of follow-up care discussions with providers

DiMartino LD, Mayer DK, Birken SA

To examine the relationship between cancer survivors’ socioeconomic status (SES) and reports of follow-up care discussions with their providers after cancer treatment completion. Methods: Using the 2011 Medical Expenditure Panel Survey and Experiences with Cancer Survivorship Supplement, we used a binary logit model with sample weights to examine multivariable associations between 1,307 cancer survivors’ SES (i.e., income, education, insurance, financial hardship) and probability of reporting a follow-up care discussion with providers (yes/no), controlling for clinical and demographic characteristics. Results: Overall, 86% of cancer survivors ever reported discussing regular follow-up care and monitoring after completing treatment for their cancer with their provider. Results from the multivariable model indicated survivors with incomes ≤200% Federal Poverty Level (FPL) had a 7% lower probability of reporting a discussion than survivors with incomes> 400% FPL ($p<.05$). Survivors with .05). Conclusions: This study found that socioeconomically disadvantaged cancer survivors are at risk for not having follow-up care discussions with their providers. The association between financial hardship and reporting a follow-up care discussion was unexpected and could be an indication that, to prevent problems that contribute to more financial hardship, providers may initiate discussions with survivors whom they perceive to be unable to meet healthcare expenses; survivors who are unable to meet healthcare expenses may also initiate these discussions to avoid more financial hardship. Future research should assess mechanisms underlying the relationships between indicators of survivors’ SES and reporting follow-up care discussions with providers. Implementation of survivorship care plans and its associated discussion may also help to improve the provision of survivorship services for this vulnerable population.

107	108
Early Stage Lung Cancer Survivors' Challenges during the Transition to Post-treatment Follow-up Care Weaver KE, Johnson AK, Nightingale C, Beech B, Prevette K, Canzona M, Lechner S The population of early stage lung cancer (ESLC) survivors is expected to grow dramatically with the implementation of screening, but survivorship needs during the early post-treatment period have not been well characterized. We conducted qualitative interviews with ESLC survivors to identify survivorship needs and inform care planning. Methods: We recruited participants >21 years of age, with AJCC stage I & II small cell or non-small cell lung cancer, who had completed treatment 2-24 months prior. Semi- structured interviews lasted approximately 45 minutes and were recorded and transcribed. Questions focused on perceived health status and needs, communication with treatment team, and psychological concerns. A coding guide following principles of thematic analysis was developed; transcripts were double coded and discrepancies were discussed to reach consensus. Results: We interviewed 15 ESLC survivors (60% male; 80% non-Hispanic white, 20% African-American; 40% rural residing; 33% current smokers) to reach saturation. Most were Stage I (n=11) and received radiation (n= 11) and/or surgery (n=6). While most survivors report positive communication and a high level of satisfaction with post- treatment follow-up care, three themes emerged regarding challenges encountered during the follow-up period: need for coordination, continuing negative sequelae, and fear of recurrence. Care coordination demands were often high in the face of medical complexity and follow-up care involving multiple providers ("You have all these doctors and you just get aggravated sometimes.") Although several ESLC survivors reported feeling relatively well, fatigue (n=8), pain (n=9), anxiety (n=9), and breathing (n=6) concerns were commonly mentioned. Several survivors also reported fear of recurrence or feelings of anxiety related to follow-up scans ("When it's time to come back again, you get that low again.") Conclusions: While ESLC survivors were generally satisfied with the post-treatment care they received, our results suggest several potential targets for enhancements. Comprehensive survivorship care planning, including written care plans, is likely to be well received by this patient group.	Predictors of vasomotor symptoms among breast cancer survivors Reeves KW, Pennel M, Foraker R, Crandall C, Stefanick M, Paskett ED Vasomotor symptoms (VMS), including hot flashes and night sweats, are a common side effect of breast cancer treatment and may negatively affect quality of life, treatment adherence, and later cardiovascular and bone health. Besides treatment modality, factors that may predict VMS among breast cancer survivors have not been investigated. We estimated odds ratios and 95% confidence intervals (OR, 95% CI) for predictors of VMS among 3,134 breast cancer survivors enrolled in the Life and Longevity after Cancer Study (LILAC), an ancillary study of the Women's Health Initiative (WHI). Pre-diagnostic demographic and medical history data were obtained from the WHI; data on treatments and VMS following diagnosis were derived from the LILAC questionnaire an average of 8.9 (SD 4.7) years post-diagnosis. VMS following breast cancer diagnosis were reported by 681 (21.7%) of participants. In a multivariable logistic regression model, risk of VMS after diagnosis was positively associated with chemotherapy (2.2, 1.5-3.3 versus no chemotherapy or adjuvant hormone therapy [aHT]), aHT (3.0, 2.3-4.0 versus no chemotherapy or aHT), postmenopausal hormone therapy use at WHI baseline (2.2, 1.7-2.8), VMS at WHI baseline (2.3, 1.8-3.0), oophorectomy (1.4, 1.1-1.7), and antidepressant use (1.5, 1.1-2.2). VMS after diagnosis were less likely among younger women (0.97, 0.96-0.99 per 1 year increase), women younger at menopause (0.97, 0.96-0.99, per 1 year increase), diabetics (0.4, 0.2-0.8), and women treated for hypercholesterolemia (0.7, 0.5-1.0). Women with three or more metabolic syndrome factors had substantially lower risk of VMS after diagnosis (0.6, 0.3-0.9). Identification of factors that predispose women to VMS following a breast cancer diagnosis may help allow clinicians to recognize a subset of women who are most likely to experience such side effects of treatment.

109-T

Second Malignancy Risk among Fusion-Positive and Fusion-Negative Index Sarcomas Survivors

Brown AL, Lupo PJ, Hettmer S

Sarcomas are a heterogeneous group of malignancies that can be grouped into two main categories based on somatic mutational profiles: 1) fusion-positive (F+) sarcomas with specific chromosomal translocations, and 2) fusion-negative (F-) sarcomas that do not carry such translocations. There is evidence that cancer-predisposing germline mutations confer susceptibility to F- sarcomas, but not F+ sarcomas. Because of this, we hypothesized that survivors of F- sarcomas were more likely develop second malignant neoplasms (SMNs) compared to those with F+ sarcomas. Methods: Sarcomas diagnosed among children and young adults (age 0-39 years) and reported in the Surveillance, Epidemiology and End Results 1992-2012 database were classified as suspected F+ (e.g., Ewing sarcoma, alveolar rhabdomyosarcoma) or F- (e.g., osteosarcoma, non-alveolar rhabdomyosarcoma). Standardized incidence ratios (SIR) for developing SMNs were evaluated in 4,822 survivors of F+ and 3,963 survivors of F- sarcomas. To evaluate differences based on sarcoma fusion status, Cox proportional hazards models were used to generate adjusted hazard ratios (aHR) and 95% confidence intervals (CI) controlling for relevant demographic and clinical variables. Results: SMN risk was nearly twofold greater among F+ sarcoma survivors (SIR=1.86; 95% CI:1.48-2.30) and almost threefold greater among F- sarcoma survivors (SIR=2.89; 95% CI:2.30-3.59) compared to the reference population. Compared to F+ sarcomas, the rate of any SMN was 38% greater among F- sarcoma survivors (aHR=1.38; 95% CI:1.01-1.89) despite poorer survival (5-year survival 72.0% vs. 79.3% after F- and F+ sarcoma, $p<0.001$). The increased risk among F- sarcoma survivors was most notable for solid tumor SMNs (aHR=1.50; 95% CI:1.03-2.18). SMN types diagnosed were similar for F+ and F- sarcomas, including myeloid disease in 19-22%. Conclusions: Findings highlight the increased SMN risk experienced by sarcoma survivors and reveal higher SMN rates in F- sarcoma survivors than in F+ sarcomas. We propose that sarcoma-predisposing germline mutations may contribute subsequent SMN risk in individuals with F- sarcomas, but not F+ sarcomas. This may inform tailored second malignancy surveillance among sarcoma survivors based on germline mutational profiles.

110

Examining Relationships between Age Category at Diagnosis and Health-Related Quality of Life Outcomes in Prostate Cancer Survivors

Kurian CJ, Leader AE, Zeigler-Johnson CM

The study sought to examine the significance of age category at diagnosis in relation to health-related quality of life scales among Dutch survivors of prostate cancer, while controlling for socioeconomic status and Gleason score. Methods: A population of 652 individuals from the Patient Reported Outcomes Following Initial Treatment and Long-Term Evaluation of Survivorship (PROFILES) database were surveyed according to the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC-QLQ-C30) scales. Age category at diagnosis was the main independent variable. Socioeconomic status and Gleason score were controlled for in the analysis. Dependent variables were the EORTC-QLQ-C30 scales, divided into positive and negative outcomes. The positive measures of health-related quality of life included global health, physical functioning, role functioning, emotional functioning, cognitive functioning, and social functioning. Negative outcomes included fatigue, nausea, pain, dyspnea, insomnia, appetite, constipation, and diarrhea. Results: Individuals with a younger age at diagnosis, higher socioeconomic status, and lower Gleason score upon diagnosis reported the highest health-related quality of life. Positive outcomes in physical functioning and emotional health were observed in men with higher SES classes. Men diagnosed at a younger age showed an increase in global health, physical functioning, and role functioning, along with a decrease in fatigue, abnormalities in appetite, and constipation. In particular, compared to individuals aged over 70 at diagnosis, those diagnosed between the ages of 61-70 had significantly higher scores in regards to global health, physical functioning, role functioning, and cognitive functioning and significantly lower scores in fatigue, appetite, and constipation. Conclusions: Results suggest a possible reevaluation of screening recommendations to acknowledge patient age as a factor contributing to health-related quality of life outcomes for prostate cancer survivors.

111	112-T
Care Transitions in Pediatric Cancer Survivorship: A Qualitative Analysis of Provider Perspectives Wertman EA, Mouw MS To understand care transition challenges unique to childhood cancer survivors and factors affecting transition decisions. Methods: We interviewed 19 long-term follow-up care (LTF) providers, including MDs, advanced practice RNs, social workers, and psychologists from 11 institutions in the eastern US. Interviews were 25-75 minutes, with open-ended items about care transitions and working with primary care providers (PCPs). We used content and thematic analyses, comparing transition approaches across providers and institutions. Results: Ideally decisions about whether and when to move from cancer treatment team to survivorship providers, pediatric to adult settings, specialty to primary care, and cancer centers to communities were tailored to childhood cancer survivors' individual health risks and developmental needs. In addition to patient-level considerations, provider and institutional issues also influenced how LTF was managed. Overall few pediatric-trained providers actively co-managed patients with PCPs. Many expressed a wish to keep survivors under their own care, as adult care culture was less nurturing and harder for patients and families to navigate. Providers valued meaningful relationships with families and knowing their stories. Some perceived PCPs as unable to care for complex patients. These issues made providers less willing to transition even low-risk patients back to PCPs; some kept patients indefinitely, which they acknowledged was not ideal. At the institutional level, geography, clinic volume, and staff capacity affected transition decisions. Providers usually had to communicate with PCPs outside their healthcare systems by phone or fax rather than EHRs, time-consuming methods that offered no systematic way for providers to know if their recommendations were then followed. In a number of cases, creative staffing, program redesign, and patient education strategies facilitated transitions. Conclusions: Childhood cancer survivors' care transitions are uniquely complex, and the interplay of patient, provider, and institutional factors complicates LTF planning. Providers' insights suggest a need to further develop a shared-care model that maintains therapeutic relationships and facilitates inter-provider communication.	Improving Childhood Cancer Survivors' Social Well-Being: Multidisciplinary Providers' Perspectives Mouw MS, Wertman EA To learn how long-term follow-up care (LTF) providers address childhood cancer survivors' social well-being, and understand "social" aspects of psychosocial care. Methods: We conducted in-depth interviews with providers who care for pediatric and/or adult survivors of childhood cancer in pediatric oncology and/or specialized LTF programs at 12 centers in the eastern US. Providers (n=21) were from multiple disciplines (9 MDs, 2 advanced-practice RNs, 6 social workers, 2 psychologists, 2 education specialists). Interviews were 25-75 minutes, and included open-ended questions about survivors' quality of life (QoL), patients'/families' needs, and collaboration with agencies outside healthcare. We used grounded theory techniques to analyze their detailed practice descriptions. Results: All interviewees emphasized survivorship care's central goal is good QoL overall, not just good physical health, and indeed the majority of childhood cancer survivors achieve excellent QoL. For survivors with ongoing isolation, school or work issues, or financial difficulties, providers stressed the need to understand family context, and relied on multidisciplinary teamwork to provide highly individualized care. Social care consisted of connecting patients to resources, navigating, giving social/emotional support, and advocacy in: outpatient healthcare, finances and insurance, education and work, life skills and peer interactions. Providers aimed to empower patients/families to self-manage these areas in the long-term, although tension between providing help and promoting independence was challenging. Other challenges were distance from services, the relative scarcity of resources for adults as compared to children, and limited programmatic options to affect work outcomes and help develop independent living skills. There were striking differences in how institutions staffed LTF and in how formally they approached psychosocial assessment. Few used Patient Reported Outcomes Measures to assess or to track outcomes. Conclusions: To attend to childhood cancer survivors' social well-being, providers rely on multidisciplinary teams and a chronic, rather than acute, care model. These considerations are key in designing, evaluating long-term follow-up and social intervention programs.

113	114-T
Optimizing a weight control intervention for BRCA+ breast cancer survivors Cox MG, Srinivasan S, Schembre S, Strong L, Li L, Basen-Engquist K Studies have shown that increased physical activity is associated with a reduction of all cause and breast cancer specific mortality in breast cancer survivors, and is associated with better quality of life. Using the multi-phase optimization strategy, a 16-week weight control intervention targeting physical activity and diet was evaluated in a sample of BRCA+ breast and ovarian cancer survivors and their family members. Components consisted of email vs. telephone counseling, text messaging vs. no text messaging, and social network vs. no social network and high vs. low self-monitoring (provided through Fitbit). Preliminary data from 12 survivors, and 6 family members at 8 weeks in the intervention, suggest that this intervention is feasible and well tolerated by participants. 90-95% and 85-100% of participants indicated that they agreed or strongly agreed that the intervention and Fitbit, respectively helped them to improve their diet, physical activity, and weight. ANOVA main effects from the preliminary data of this study suggest several positive outcomes. Specifically, significant main effects were found for change in fat intake favoring the telephone group (p = .024) and the high self-monitoring group (p = .015) and main effects approaching significance for change in fruit and vegetable intake favoring the text message group (p = .072) and the main effects for change in physical activity favoring the telephone group (p = .073) and the high self-monitoring group (p = .096). Although there are no main effects yet for weight loss, on average, participants across all conditions have lost 3.5lbs (p = .006). Adherence to intervention procedures for this pilot study is exceptionally high. However, the number of participants replying to posts on the social network ranged from 0-2, and participant compliance with self-monitoring across all weeks ranged from 15-35%. Despite the low compliance, 70-100% of participants said that the self-monitoring component helped them to be physical activity or maintain their diet goals	Risk of Hospitalization among Survivors of Childhood Acute Lymphoblastic Leukemia Ou, JY; Smits-Seeman, RR; Kaul, S; Sweeney, C; Kirchhoff AC We investigate the risk of hospitalization among a cohort of childhood Acute Lymphoblastic Leukemia (ALL) survivors in comparison to their siblings and a non-cancer sex and age matched group. Methods We identified 154 ALL survivors living in Utah who were diagnosed between 1998 and 2007, and received care at a large pediatric hospital. We matched survivors to Utah residents by sex and birth year, and included survivors' siblings as a separate comparison group. Follow-up for survivors and residents began five years from diagnosis. Follow-up for siblings began when they became the same age as their survivor at the time of cohort entry. Participants were followed until emigration from Utah or death. We obtained all inpatient hospital discharges from 2003 and 2012 in Utah from the Utah Population Database. Zero-sum Poisson regression models calculated adjusted rates and rate ratios for all hospitalizations. We also conducted a survival analysis to examine risk factors (e.g., sex, ethnicity) for hospitalization among survivors. Results Participants had a median follow-up time of 4 years. On average, survivors had more hospitalizations (13 per 100 survivors) than Utah residents (6 per 100) or siblings (9 per 100). We found no differences by sex, ethnicity, and urban versus rural area of residence between survivors and the comparison groups. In multivariable models, hospitalization rates per 100 person years were higher in survivors (3.28) than either comparison group (Residents=2.43, Siblings=1.92 respectively). Female survivors were twice as likely to be hospitalized as female Utah residents (Relative Risk (RR) =2.61, 95% CI=1.29-5.28; or siblings (RR= 2.42, 95% CI=1.15–5.05). Survivors living in urban areas were at higher risk for hospitalization than urban Utah residents (RR=2.38, 95% CI=1.27–4.46) or urban siblings (RR=2.74, 95% CI=1.35–5.55). No demographic risk factors were associated with hospitalizations among survivors. Conclusions Childhood cancer survivors are at higher risk for hospitalizations than both the general population and siblings. Meeting the health-related needs of this population should be a priority.

115-T	116-T
Gardening Intervention Decreases Sleep Medication Dependence in Senior Adult Cancer Survivors Cases MG, Frugé AD, Locher JL, Smith KP, Glover T, Cohen HJ, Cantor A, De Los Santos JF, Demark-Wahnefried W Adequate sleep, both in quality and quantity, is necessary for physical and mental health. Up to half of cancer survivors experience sleep-related problems, putting them at an increased risk for diminished quality of life. Due to increased fatigue and decreased sleep quality, many survivors are prescribed and become dependent on sleep medication, which is not as effective as natural sleep and can be costly. Gardening interventions have the potential to improve sleep due to increased physical activity and time outdoors, as well as the possibility of enhancing relaxation and decreasing anxiety. Methods: Sleep quality and medication use (PSQI) and vitality (SF-36) were measured at baseline and 12-month follow-up in 46 early-stage cancer survivors aged 60+ years enrolled in the Harvest for Health gardening intervention randomized controlled trial (RCT). In this RCT, participants were randomized to a home vegetable gardening intervention immediately (n=24) or wait-listed for one year (n=22). Those in the immediate intervention group were mentored by an Alabama Cooperative Extension Master Gardener and received gardening supplies, plants, and seeds to support three vegetable gardens (spring, summer, and fall). Paired t-tests were used to compare between-group differences. Results: No between-group differences in sleep quality or vitality were observed, though a significant decrease was seen in sleep medication use among the immediate intervention arm, while the wait-listed group remained consistent from baseline to 12-month follow-up (t=2.01, p=.001). Conclusions: Gardening interventions, particularly those that support vegetable gardening, show promise in decreasing dependence on sleep medications while maintaining energy levels. This type of intervention can potentially decrease cancer survivor dependence on sleep medications, thus reducing side effects such as gastrointestinal and cognitive disturbances, and dizziness, as well as added financial burden. Funding: NIH NCI R25 CA047888, R21 CA182508	Pre- and post-diagnostic non-steroidal anti-inflammatory drug use and colorectal cancer survival in Seattle Colon Cancer Family Registry Hua X, Adams SV, Phipps AI, Cohen SA, Burnett-Hartman A, Hardikar S, Newcomb PA Non-steroidal anti-inflammatory drugs (NSAIDs) are widely used in the general population and regular NSAID use is associated with improved survival among colorectal cancer (CRC) patients. We examined the association of NSAID use prior to and after diagnosis in relation to CRC-specific and overall survival. Methods: Study subjects were incident, invasive CRC cases from the population-based Seattle Colon Cancer Family Registry. Eligible cases were 20-74 years of age, diagnosed from 1997 to 2008, and identified from the Puget Sound Surveillance, Epidemiology and End Results (SEER) Registry. NSAID use two years prior to the interview date ("pre-diagnosis period") was collected by telephone interview at study enrollment shortly after diagnosis. A follow-up questionnaire was administered approximately five years after the cases' CRC diagnosis ("post-diagnosis period"). Regular NSAID use was defined as having taken aspirin or ibuprofen at least twice per week for more than a month. Follow-up for survival and cause of death was completed through linkage to the National Death Index. Cox proportional hazard regression was used to estimate hazard ratios (HR) and 95% confidence intervals (CI) for associations of pre- and post-diagnostic NSAID use, and initiation, continuation and discontinuation of NSAIDs between pre- and post-diagnostic periods with survival after CRC diagnosis. Results: Regular NSAID use after diagnosis was associated with a 31% more favorable overall survival (HR=0.69, 95% CI: 0.54-0.89) and 52% better CRC-specific survival (HR=0.48, 95% CI: 0.29-0.80). Among people who survived five years after diagnosis, both overall and CRC-specific survival were better for patients who initiated NSAID use post-diagnosis compared to never users, with HRs (95% CI) of 0.70 (0.51-0.95) and 0.43 (0.23-0.82), respectively. HR estimates were stronger for CRC-specific survival among those with non-advanced (local and regional) CRC (HR=0.38, 95% CI: 0.18-0.77). Conclusion: Our results suggest that among long-term CRC survivors, regular use of NSAID after CRC diagnosis, including when initiated after diagnosis, is significantly associated with longer CRC-specific survival. This association is pronounced for patients with non-advanced CRC.

117	118-T
Weight change after colorectal cancer diagnosis is associated with long-term survival Kocarnik JM, Hua X, Robinson J, Adams SV, Phipps A, Newcomb PA Previous studies have suggested that weight gain between young adulthood and colorectal cancer diagnosis is associated with poorer prognosis. The impact of weight change after cancer diagnosis on long-term survival, however, has not been adequately evaluated. We investigated whether weight change in the five-year period following colorectal cancer diagnosis is associated with long-term survival. Study participants were incident, invasive CRC cases from the population-based Seattle Colon Cancer Family Registry, which were identified from the Puget Sound Surveillance, Epidemiology and End Results (SEER) Registry between 1997 and 2008. Study enrollment occurred within two years of diagnosis via telephone interview, during which participants were asked to report their height and weight two years prior. A follow-up questionnaire was administered approximately 5 years after diagnosis. 1,078 participants provided their height and weight at these two time points. Follow-up for survival outcomes was completed through linkage to the National Death Index. Cox regression was used to estimate the association between change in weight (kg) and overall or CRC-specific survival, with survival time beginning at the time of the 5-year follow-up survey. Models were adjusted for age at diagnosis, sex, smoking history (ever/never smoker), cancer stage at diagnosis (I-IV), time between diagnosis and baseline survey, and BMI category at diagnosis (underweight, normal, overweight, obese). Over a median 6.5 years of follow-up (maximum 12.4 years) after the five-year post-diagnostic survey, 243 participants died (69 from CRC). At the five-year follow-up, 579 participants had lost weight (median -6 kg), 133 had maintained their weight, and 385 had gained weight (median 5 kg). Gaining weight (per 5 kg) after CRC diagnosis was associated with poorer overall (Hazard Ratio (HR): 1.10, 95% Confidence Interval (95% CI): 1.03 – 1.18) and CRC-specific survival (HR: 1.19, 95% CI: 1.05 – 1.34). Weight gain in the five to seven year period after CRC diagnosis was significantly associated with a 10% decrease in subsequent survival time per 5kg gain in weight. These findings support the importance of maintaining a healthy body weight following a CRC diagnosis.	Exercise self-regulation in cancer survivors: A qualitative study Tsai E; Robertson MC; Basen-Engquist K Despite the benefits of exercise, many cancer survivors do not adhere to clinically recommended levels; this study seeks to understand factors of self-regulation that contribute to success or failure to engage in exercise. Methods: Participants were recruited from MD Anderson Cancer Center for 2 separate focus groups, responding to open-ended prompts on exercise habits and self-regulation based on Social Cognitive Theory, Self-Determination Theory, and Self-Regulation Theory. Sessions were transcribed and coded independently by 2 coders using construct based codes determined a priori. Content analysis was conducted to identify emergent themes. Coding discrepancies were resolved by a separate panel of behavioral scientists. Results: Participants (n=35) were older (63.7 years±10.8), female (69%), white (71%), and breast cancer (60%) survivors, with 41% not meeting activity guidelines. Themes that emerged included exercise goal development, selection, and attainment, exercise planning, and self-reward. For the iterative goal cycle in regulation, survivors tended to develop and select values-based general exercise goals rather than specific action-based measurable goals. Success in goal attainment emerged as an important predictor of future goal performance; completing a current goal facilitated subsequent goal attainment while failure to meet a goal hindered future goal completion. Survivors tended not have deliberate implementation intentions for scheduling exercise, and exercise was done if expedient in the context of normal daily activities. Food consumption emerged as a major mechanism for self-reward when goals were met, while self-punishment was not employed after goal failure. Conclusion: Understanding factors of self-regulation in survivors for exercise is a critical step in developing effective interventions. Given that interventions can be focused on goals centered on guidelines or are researcher determined, and goals developed by survivors organically are structured differently, an optimal approach may be to allow autonomous value based goal development with researcher input. Interventions should also help develop strategies for future goals if the current goals aren't met, and explore endorsing exercise as a regularly scheduled activity.


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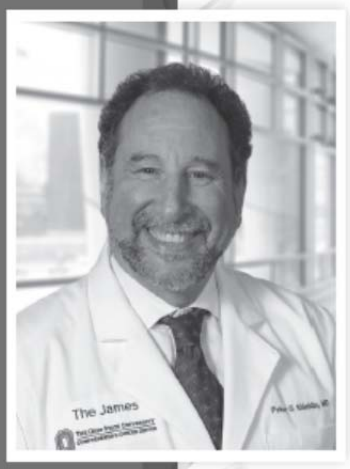

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Interested candidates should send a copy of their curriculum vitae and references along with a supplemental narrative statement to address the qualifications (2-3 pages) to:

Health Disparities Research Chair Search Committee
Attention: Jennifer Anderson
Office of the Provost and EVP
The University of Texas MD Anderson Cancer Center
1515 Holcombe Blvd – Unit 1492
Houston, TX 77030
Email: jaanders@mdanderson.org

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mdanderson.org/about-md-anderson/careers/faculty-careers-at-md-anderson/faculty-leadership-positions.html

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Application deadline is April 15, 2016!!!

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- Assume leadership roles in both academic and industry settings
- Establish national reputations as leaders in a given area of expertise

Who should apply?

- Individuals with an advanced clinical degree (e.g. MD, DO, MBBS)
- Individuals enrolled in dual clinical-research degree programs, such as CWRU's MD-PhD and DMD-PhD programs
- Individuals with an existing Master's degree in a health-related field (e.g., MS, MSN, MPH)
- Individuals with other scientific or clinical backgrounds are evaluated on a case-by-case basis

The Center for Clinical Investigation at Case Western Reserve University (CWRU) is accepting applications for the PhD in Clinical Translational Science program.

The program will train and graduate clinical-translational scientists to meet the need for a transformed clinical and translational enterprise. Students in the program will be rigorously trained in the theory and practice of clinical translational science in order to make significant clinical discoveries and to move these discoveries across the translational continuum.

Please, visit our website http://casemed.case.edu/CRSP for further details and application information.

CONTACT:
Angela Bowling, MA
Education Administrator
Iris S. & Bert Wolstein Research Building
2103 Cornell Rd., Room 6133
Cleveland, OH 44106-7291

Phone: 216-368-2601
Fax: 216-368-0207
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For further information, contact:
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Margaret Spitz, MD
Baylor College
of Medicine
One Baylor Plaza
Houston, TX 77030

OR BY EMAIL TO
spitz@bcm.edu