DCCPS FELLOWS SYMPOSIUM 2024

DCCPS Fellows Symposium 2024
Abstracts and Biosketches for Fellows Poster Session

Title: *Examination of Participant Engagement and Cancer Genome Sequencing (PE-CGS) Epidemiology Data: Overall Trends and Survey Design*

Madison Behm, MPH, Genomic Epidemiology Branch, Epidemiology and Genomics Research Program
Co-authors: Leah Mechanic, PhD, MPH; and Kaitlin Kirkpatrick Heimke, MPH; and Elizabeth Gillanders, PhD; and Rachel Hanisch, PhD, MPH; and Kelly Filipski, PhD, MPH; and Sarah Kalia, PhD, SM, ScM
Mentor(s): Leah Mechanic, PhD, MPH, Program Director, Genomic Epidemiology Branch (GEB), Epidemiology and Genomics Research Program (EGRP); and Danielle Daee, PhD, Program Director, Genomic Epidemiology Branch (GEB), Epidemiology and Genomics Research Program (EGRP)

Background: The National Cancer Institute (NCI) launched the Participant Engagement and Cancer Genome Sequencing (PE-CGS) Network as part of the Cancer Moonshot Initiative. The goals of the network are to promote direct participant engagement and support cancer genome sequencing programs. Importantly, many cancer genomics studies lack adequate epidemiological data which is needed for interpretation of genetic findings. To examine the progress of the network, NCI is monitoring progress in the collection of network epidemiology data as part of an ongoing evaluation plan. **Methods:** Number of participants consented, tumors collected and sequenced, and surveys completed as well as self-identified race/ethnicity information from four different data reports, provided to NCI by each research center were analyzed. Research Performance Progress Reports (RPPRs) and a catalogue capturing each center's common data elements were used to examine survey design. **Results:** As of February 2024, a total of 1,267 participants were consented, 1,024 completed baseline surveys, 559 tumors were collected, and 275 tumors were sequenced. In comparison to the first data report collected in March 2023, there are twice as many participants consented and surveys completed, and almost six times as many tumors sequenced in February 2024. Of participants consented into the network, 12% self-identified as Hispanic or Latino and 55% self-identified as non-Hispanic White. Survey content included questions about demographics, engagement, medical history, health behavior, and social determinants of health. **Conclusion:** Analysis showed similar self-identified race/ethnicity distribution between number of surveys completed compared to number of participants consented. Overall, the PE-CGS network is obtaining epidemiology survey data from most of consented participants and there is a substantial increase in the number of consented participants, tumors collected and sequenced, and surveys completed from the start of collecting network data in March 2023 to February 2024. These findings will further inform the PE-CGS evaluation plan in examining progress of the network.

Biosketch: Madison Behm, MPH, is a Cancer Research Training Award (CRTA) Fellow in the Epidemiology and Genomics Research Program's (EGRP) Genomic Epidemiology Branch (GEB). In this role, she will be working on various portfolio analysis projects within the Branch, creating a data sharing award for the Division of Cancer Control and Population Sciences, and supporting the coordination for the NCI team for the NCI's Participant Engagement and Cancer Genome Sequencing (PE-CGS) network. Ms. Behm received her MPH degree in global public health epidemiology and disease control from The George Washington University (GWU). Her master's thesis outlined key considerations in the design of an appropriate game-based application to improve adherence to HIV treatment among adolescents.

Title: *Survey Landscape Study: Sleep, Cognition, and Cancer*

Molly Frauenholz, BS, Health Behaviors Research Branch, BRP
Co-authors: Kara L. Hall, PhD, Theories Initiative in the Health Behaviors Research Branch (HBRB), and Todd Horowitz, PhD, Basic Biobehavioral Psychological Sciences (BBPS), Behavioral Research Program (BRP), and Caroline Crown, BS, and Sara Son, BS, and Christine Nguyen, MPH, and Kiersten Straley, BS
Mentors: Kara L. Hall, PhD, Program Director, Health Behaviors Research Branch, Behavioral Research Program (BRP); Todd Horowitz, PhD, Program Director, Basic Biobehavioral Psychological Sciences (BBPS), Behavioral Research Program (BRP);, and Susan Czajkowski, PhD, Branch Chief, Health Behaviors Research Branch (HBRB), Behavioral Research Program (BRP)

Background/Significance: Both sleep and cognition are often disrupted by cancer and its treatments, reducing quality of life for cancer survivors. However, the relationship between sleep and cognition remains poorly understood, especially in the cancer context. Our goal is to facilitate population-level research on sleep, cognition, and their interaction, particularly relating to cancer. This study aimed to identify nationally representative Federal surveys and characterize items that assess individual-level perspectives, experiences, and behaviors about sleep, cognition, and cancer diagnosis. **Methods:** Inclusion criteria for surveys: 1) Federal surveys with self-reported individual-level items, 2) publicly accessible data, 3) nationally representative of the US population, 4) administered between 2013-2023. Eligible surveys were searched for sleep, cognition, and cancer diagnosis items using relevant keywords. Items were coded based on related constructs, themes, and key features. **Results:** A total of 299 surveys were screened, yielding 26 eligible surveys. Sixty-nine percent (n=18) included both sleep and cognition items, 27% (n=7) included only cognition items, and no surveys included only sleep items. More than 1/3 of these (38%; n=10) also included cancer diagnosis items. In this presentation we will provide an overview of the survey characteristics, such as respondent type, special modules, and years administered. We will highlight key constructs associated with cognition (e.g., attention, decision making), sleep (e.g., sleep duration, sleep quality), and cancer diagnosis, as well as other key features (e.g., behavioral & mental health, caregiving, treatment) of the 343 items identified. **Conclusion:** These

findings will inform researchers about existing data related to sleep and cognition in order to facilitate research to enhance assessments of sleep and cognition and highlight opportunities for cancer-specific analyses. This will allow us to leverage the substantial investments made each year by the Federal Government in fielding nationally representative surveys to advance our understanding of sleep and cognition in cancer survivors.

Biosketch: Molly Frauenholz, BS, is a Cancer Research Training Award (CRTA) Fellow in the Health Behaviors Research Branch (HBRB) of the Behavioral Research Program (BRP). Ms. Frauenholz earned a Bachelor of Science in Community Health with a minor in Global Poverty as a student with high honors from the University of Maryland at College Park in May 2023. Her interests include researching health disparities, improving quality of life among cancer survivors, and mental health.

Title: *"Whenever I See These Videos, I Get a Mini-Boost of Motivation": Understanding When and How Short-Form Videos Change Young Adults' Health-Related Attitudes and Behavior*

Kathryn Heley, PhD, MPH, Cancer Prevention Fellow, Health Communication and Informatics Research Branch, Behavioral Research Program
Co-authors: Chloe Huelsnitz, PhD, MPH, Behavioral Research Program and Jennifer M. Bowers, PhD, MPH, Basic Biobehavioral and Psychological Sciences Branch and Rebecca Ferrer, PhD, Basic Biobehavioral and Psychological Sciences Branch (BBPSB), and William M. Klein, PhD, Behavioral Research Program (BRP)
Mentor: Dr. Robin Vanderpool, DrPH, Branch Chief, Health Communication and Informatics Research Branch (HCIRB), Behavioral Research Program (BRP)

Background: Over half of Americans aged 18-24 report using social media applications featuring short-form videos (e.g., TikTok, Instagram Reels; hereafter: *short video apps [SVA]*). While health-related videos are common on SVAs, little is known about how this health content affects thinking and behavior. **Objective:** This national study surveyed young adults (YAs) aged 18-24 who use SVAs (n=287) about the influence of SVA health content on their attitudes and behavior, including the perceived influence on thinking and behavior, the types of changes reported, and the health contexts where video-related changes occur. **Methods:** Respondents rated their agreement (1=strongly agree, 5=strongly disagree) with four statements assessing the perceived influence of SVA health content and attendant health belief and behavior changes. Respondents also described examples of SVA health content changing their thinking/behavior. Responses were double coded for the health topic(s) described and the type of impact (e.g., behavior change) reported. **Results:** 30% reported that their beliefs would never be influenced by health content on SVAs. 36% reported that they would never change their health behaviors after seeing health content on SVAs. More than half reported that health content on SVAs had

changed their health beliefs (59%) and behaviors (59%). A range of impacts were described, including increased knowledge, awareness, and curiosity; changed existing beliefs; increased motivation; and changed behavior. Respondents described multiple health contexts where SVAs exerted an influence, including skin and skincare; weight management; exercise and physical activity; oral hygiene and dental care; COVID-19; and mental health. **Conclusion:** These findings show that health-related videos on SVAs are perceived to be impactful and that most YAs report having their health beliefs or behaviors influenced by platform content. The impact of health-related videos is wide – from increased awareness through sustained behavior change – as are the health contexts where videos exert influence. These findings suggest that SVAs may be a promising mechanism for changing YAs' health beliefs and behaviors.

Biosketch: Katie Heley, PhD, MPH, is a Cancer Prevention Fellow in the Health Communication and Informatics Research Branch (HCIRB), mentored by Dr. Robin Vanderpool. She studies the intersection of health and communication, using mixed methods to understand and influence attitudes, behavior, policy support and stigma around chronic, non-communicable diseases and their related behaviors. Her work focuses on health, visual, and policy communication; media and health; message effects, marketing, persuasion, and strategic communication around health behaviors; health-related stigma; and public health ethics. While at NCI, she has led studies and published on visual misinformation, policy-related communication, health misinformation mitigation, and the relationship between visual media and health behaviors. She has also co-led a series of programmatic activities and publications around cancer stigma including a large international workshop (The National Cancer Institute's Global Cancer Stigma Research Workshop) and a special issue of the Journal of the National Cancer Institute Monographs *(Global Cancer Stigma: Research, Practice, and Priorities).* Dr. Heley received her PhD and MPH from the Johns Hopkins Bloomberg School of Public Health and, as part of her doctoral training, also studied at the University of Pennsylvania's Annenberg School for Communication. Prior to her graduate studies, she graduated Phi Beta Kappa from Cornell University.

Title: *The Challenges of Capturing Minority Populations in Cancer Surveillance Data*
Natalie Joe, PhD, MPH, Office of the Associate Director, Surveillance Research Program & Office of the Director
Co-authors: Mandi Yu, PhD, Statistical Research & Applications Branch (SRAB)
Mentors: Kathy Cronin, PhD, MPH, Deputy Associate Director, Surveillance Research Program and Shobha Srinivasan, PhD, Senior Advisor for Health Disparities, Office of the Director

Overview: A key contribution to the field of cancer prevention and control is to understand the effects of racial categorization when reporting cancer incidence rates for the American Indian and Alaskan

Native (AIAN) population. **Background**: As of 2020, the diverse AIAN population was estimated to be a total of 9.7 million individuals. This community suffers from chronic racial misclassification in medical and research databases which has led to underestimations of cancer incidence and mortality. Previous efforts have been made to utilize Indian Health Service (IHS) records and geographic location of PRCDA regions to refine analytic datasets to reduce misclassification. Regardless, these updated methodologies still do not encapsulate all AIAN communities and more work is needed to update race and ethnicity demographic data collection. One such effort occurred within the 2020 Census categorization of race and ethnicity by the US Office of Management and Budget. **Methods**: Using the SEER data from 22 registries, this study will produce all-cancer incidence rates for the AIAN population categorized by bridged-race, in-combination-race, and alone-race for 2020–2021. The analyses will be conducted using SEER*Stat. **Results**: Preliminary analyses are underway. **Discussion**: Overall, the presentation will highlight the methodological impact of racial and ethnic categorizations of the AIAN population cancer incidence rates in the most recent data in SEER.

Biosketch: Natalie Joe (Diné/Navajo), PhD, MPH, is a Cancer Prevention Fellow in the Surveillance Research Program and Office of the Director in the Division of Cancer Control and Population Sciences. She is mentored by Drs. Kathy Cronin and Shobha Srinivasan. Natalie's current scientific interests include working with US Indigenous populations to promote health equity in cancer prevention programs, cancer epidemiology, cancer surveillance data, and tribal public health policy. She is also interested in Indigenous data sovereignty and research governance. Her past research has focused on studying the efficacy of mebendazole in triple negative breast cancer, which was supported by a Predoctoral Ford Foundation Fellowship. Natalie completed her PhD in Cellular and Molecular Medicine at Johns Hopkins University School of Medicine, where she was inducted into the Edward A. Bouchet Honor Society (2022). She also earned her MPH from Johns Hopkins Bloomberg School of Public Health with a concentration in Biostatistics and Epidemiology. Natalie grew up on the Navajo Nation and graduated from Fort Lewis College with BS degrees in Cellular and Molecular Biology and Biochemistry.

Title: *Evaluating a Social Media Growth Plan for the DCCPS LinkedIn Showcase Page*

Andrew Kunszt, BA, Office of the Associate Director, Epidemiology and Genomics Research Program (EGRP)
Co-authors: Christie Kaefer, MBA, Epidemiology and Genomics Research Program and Katie Kortokrax, MEd, Epidemiology and Genomics Research Program
Mentors: Christie Kaefer, MBA, Lead Writer/Editor, Office of the Associate Director, EGRP; and Katie Kortokrax, MEd, Public Affairs Specialist, Office of the Associate Director, EGRP

Background: To share information with the cancer control and population science research community about new funding opportunities, resources and tools, upcoming scientific events, and more, the

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Division of Cancer Control and Population Sciences (DCCPS) launched a LinkedIn Showcase page in June 2023. Our goals were to enhance awareness of DCCPS's role within NCI by creating engaging content and growing the number of followers. **Methods:** Beginning in July 2023, DCCPS LinkedIn administrators met every 2 months to discuss strategies to meet our goals. We reviewed and analyzed data from LinkedIn that we then analyzed using the Office of Communications and Public Liaison's engagement formula which combined likes, comments, video views, reposts, post clicks. We applied social media growth methods such as posting more video content compared to static images, tagging staff and other researchers in posts (e.g., webinar speakers, contacts for funding opportunities, etc.), and asking DCCPS staff to invite members of their networks to follow the Showcase page. **Results:** Over the past year, video content averaged 166.70 engagements per post compared to an average of 10.86 engagements per post with static images. For April and May, posts with tagged individuals averaged 38.75 engagements per post compared to 11.375 engagements per post for non-tagged content. During the first 4 months following the page's launch, we observed an average of 1.935 new followers per day. After certain staff invited members of their networks to follow the page, we saw an increase of 8.565 followers per day, on average. As of June 6, 2024, DCCPS had 2,419 followers and an average of 25.41 engagements per post for the first year. Other NCI division, office, and center Showcase pages have follower counts ranging from 1,638 to 16,504 followers. **Conclusion:** Overall, our goals for the first year have been generally met. As we move into the second year, we plan to review our posting strategy and will explore collaborative opportunities with other NCI accounts administrators to learn from their successful tactics for social media growth and engagement.

Biosketch: Andrew Kunszt, BA, is a Cancer Research Training Award (CRTA) Fellow in the Epidemiology and Genomics Research Program (EGRP) in the Office of the Associate Director. In this capacity, he assists with development and dissemination of information related to EGRP's scientific priorities, initiatives, resources, and events. Before joining EGRP, Mr. Kunszt was a communications contractor for AstraZeneca, where he supported the Oncology Regulatory Science Strategy and Excellence office in designing communications materials, including videos, presentations, e-learning tutorials, and newsletters. He received his Bachelor of Arts degree in communications studies at the University of Maryland College Park.

Title: *Research Gaps in Environmental Justice and Cancer: A Landscape Analysis of the Literature*
Lauryn Perpall, MPH, Environmental Epidemiology Branch, Epidemiology and Genomics Research Program (EGRP)
Co-authors: Behnoosh Momin, DrPH, MS, MPH, Epidemiology and Genomics Research Program (EGRP)
Mentors: Tram Kim Lam, PhD, MPH, Branch Chief, Environmental Epidemiology Branch, EGRP

Introduction: In April 2023, President Biden signed Executive Order (EO) 14096 titled, "Revitalizing Our Nation's Commitment to Environmental Justice for All," calling for the need to advance environmental

justice (EJ). Communities with EJ concerns experience disproportionate environmental burdens that arise from causes including pollution, toxic exposures, cumulative exposures, racism, and structural barriers. As a result, NCI has been leading several activities related to EJ including the development of a landscape analysis. **Methods:** In Phase 1, we utilized the PubMed database with the search terms: "Environmental Epidemiology and Environmental Justice and Cancer". There were 137 studies that resulted. After a screening process including development of inclusion/exclusion criteria, 15 studies were included after full-text review. The Environmental Justice Index (EJI) indicators were used to categorize and assess the studies. The EJI serves as a valuable tool for integrating social determinants of health (SDoH), providing insights into the mechanisms driving disparities and guiding targeted interventions to promote EJ and mitigate cancer risks. Therefore, phase two of the analysis expands the scope to include a broader range of search terms to integrate SDoH, community interventions, racism, and climate change. This resulted in 453 relevant studies. Following a similar screening process, 151 studies were included after full-text review. **Results:** Phase one of the review resulted in studies that explored the association between air pollution and several cancer types. Phase two of the review resulted in studies that highlighted the important role of SDoH when discussing EJ. **Conclusion:** This review underscores the importance of addressing SDoH in understanding cancer disparities and EJ issues. It highlights gaps, including the need for intersectional approaches, exploration of long-term effects of environmental exposures (EEs), and translation of findings into prevention strategies. Future efforts should focus on identifying interventions and addressing gaps to mitigate EEs and reduce cancer risk.

Biosketch: Lauryn Perpall, MPH, is a Cancer Research Training Award (CRTA) Fellow in the Environmental Epidemiology Branch of the Epidemiology and Genomics Research Program (EGRP). In her current role, she is writing a manuscript about oral hygiene practices and their association with Upper Aerodigestive Tract Cancers. Additionally, she is writing a manuscript for a landscape analysis conducted to identify research gaps in the field of environmental justice and cancer. The analysis emphasizes the need for equitable health outcomes and brought awareness to the impact of the social determinants of health. Before joining EGRP, Lauryn gained valuable experience as a student intern at the Center for Community Engagement, Environmental Justice and Health (CEEJH). While at CEEJH, she focused on the relationship between environmental justice and public health, furthering her commitment to addressing health disparities. Lauryn also worked as a dental assistant in a private practice, where she honed her skills and deepened her understanding of oral health's critical role in overall well-being. Lauryn's diverse background in public health has equipped her with a unique perspective on the intersection of environmental factors and health. Her work continues to be driven by a passion for advancing health equity and improving outcomes for underserved communities.

Title: *Effects of Prenatal Chemical Exposures on Early Menarche: A Scoping Review of Prospective Studies*

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Melanie Sandquist, MPH, Environmental Epidemiology Branch, Epidemiology and Genomics Research Program (EGRP)
Co-authors: Somdat Mahabir, PhD, MPH, Senior Scientist and Program Director, Environmental Epidemiology Branch, Epidemiology and Genomics Research Program (EGRP)
Mentor: Somdat Mahabir, PhD, MPH, Epidemiology and Genomics Research Program

Background: Age at menarche is an important risk factor for health and disease, including breast cancer. While emerging evidence indicates that prenatal exposures to certain chemicals in the environment result in increased risk of age at early menarche (AEM), much remains unknown. Because prenatal chemical exposures are an important public health concern, potentially modifiable, and offer opportunities for disease prevention, we conducted a scoping review to assess the associations and AEM. **Objectives:** This scoping review aims to explore human evidence from prospective epidemiology studies on the associations between prenatal chemical exposures and menarcheal timing. **Methods:** Searches conducted in PubMed, SCOPUS and Embase returned 149 papers. Based on established exclusion/inclusion criteria, we included twenty-two prospective studies in our analysis. We assessed several chemical categories, such as agricultural chemicals, metals, phthalates, phenols, biphenyls, per-polyfluoroalkyl (PFAS) substances, medications, and tobacco smoke in relation to AEM. Relevant information was then extracted from each study, tabulated, and synthesized. **Results:** Our scoping review found that prenatal exposures to atrazine, phytoestrogens, triclosan, 2,4-dichlorophenol, contraceptives, PFAS/PFOA, PCB chemicals, and tobacco smoke were associated with early menarche. These results are based on ancillary studies of parent prospective cohorts. **Discussion:** We found emerging evidence that certain chemicals to which girls were exposed to prenatally may have predisposed them to increased risk for AEM. There is a need for well-defined studies to investigate the links between exposure to chemicals and AEM.

Biosketch: Melanie Sandquist, MPH, is a Cancer Training Award Fellow (CRTA) in the Epidemiology and Genomics Research Program, Environmental Epidemiology Branch. She works with her mentor, Somdat Mahabir, on a variety of research initiatives, including management of the new Cohorts for Environmental Exposures and Cancer Risk (CEECR) and the recent NOSI for Administrative Supplements for Contemporary Modifiable Exposures and Cancer Across the Life Course and Cancer Control Continuum. Her research focus lies in the carcinogenicity of environmental exposures, particularly exposures that occur in Childhood/Early Life and affect cancer risk across the life course. One exposure of particular interest is microplastics and their associated chemicals. Before her fellowship with EEB, Melanie completed her MPH in Epidemiology with the Michael Milken Institute School of Public Health at George Washington University. For her culminating experience research project, she analyzed the efficacy of Family-Centered Advanced Care Planning for Teens with Cancer (FACE-TC) on the congruency of decision-making between teens with cancer and their parents in the FACE-TC randomized control trial.

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Title: *Relationship Between Food-Related Greenhouse Gas Emissions and Diet Quality in a Large US Cohort*

Amelia Willits-Smith, MS, PhD, Risk Factor Assessment Branch, Epidemiology and Genomics Research Program (EGRP)

Mentor(s): Kirsten Herrick, PhD, MSc, Program Director, Risk Factor Assessment Branch, EGRP and Jill Reedy, PhD, MPH, RD, Branch Chief, Risk Factor Assessment Branch, EGRP

Background: Climate change mitigation is an urgent public health issue. Food systems account for one third of global greenhouse gas emissions (GHGE), and animal-based foods are the highest emitters. Cross-sectional evidence indicates that diets lower in animal-based foods and higher in plant-based foods, and diets that meet dietary recommendations, have potential health and climate co-benefits. However, little longitudinal evidence exists for the relationship between dietary GHGE and cancer or other health outcomes, and none of this is in the US. **Purpose:** Calculate food-related GHGE from diets reported in a large US cohort, and examine its relationship to diet quality (stage 1) and to mortality outcomes (all-cause, cancer, and cardiovascular disease; stage 2). **Methods:** The NIH-AARP Diet and Health Study includes 566,398 baseline participants ≥50 years of age from six states and two cities. The data collected included dietary intake measured using a 124-item food frequency questionnaire (FFQ). Using this intake data, we will calculate diet quality (measured using the Healthy Eating Index [HEI]) and food-related emissions (kg CO_2-equivalents) for all participants. Food-related GHGE will be linked to FFQ reports using the database of Food Recall Impacts on the Environment for Nutrition and Dietary Studies (dataFRIENDS). Foods from reported intakes that are missing GHGE values will be assigned the GHGE from a similar proxy food. **Results:** Stage 1 results will describe the distribution of food-related GHGE in the baseline NIH-AARP sample. We will examine food-related GHGE by age, sex, race and ethnicity, education, BMI, smoking, physical activity, and diabetes, as well as the relationship between food-related GHGE and HEI. **Discussion:** Project results will address an important literature gap regarding the potential cancer prevention and climate co-benefits of dietary intake. The linkage of food-related GHGE with the NIH-AARP FFQ will also enable future research on healthy and sustainable diets.

Biosketch: Amelia Willits-Smith, MS, PhD, is a Cancer Research Training Award (CRTA) Fellow in the Epidemiology and Genomics Research Program (EGRP), Risk Factor Assessment Branch, where she works on diet assessment tools, measurement of diet sustainability, and the intersection of climate change, food systems, and health. She earned her PhD in public health (with a nutrition focus) from Tulane University and her MS in community nutrition from Cornell University. Her dissertation and previous postdoctoral work were on a project summarizing and linking food-related life cycle assessment studies to US National Health and Nutrition Examination Survey (NHANES) dietary data. The resulting database of Food Impacts on the Environment for Linking to Diet (dataFIELD) has been used to examine the

distributions and correlates of food-related greenhouse gas emissions, cumulative energy demand, and water use from self-selected US diets. This work also included examination of potential climate and health co-benefits from reducing consumption of red meat and replacing it with other animal- or plant-based protein sources.