DCCPS FELLOWS SYMPOSIUM 2025

Abstracts and Biosketches for Fellows Poster Session

Title: *Trends in Relative Contributions of Nova Groups to Total Energy and Mass Consumed in the U.S. Population, Ages 2 Years and Older: NHANES 2005-2006 to 2021-2023*
Jacquelyn Bedsaul-Fryer, PhD, MPH, Risk Factor Assessment Branch, EGRP
Co-authors: Lisa Kahle, Edwina Wambogo, Euridice Martinez-Steele, Kirsten A. Herrick
Mentor: Kirsten Herrick, PhD, MSc, Risk Factor Assessment Branch, EGRP

Background: Dietary intake is often described in kilocalories (kcals). Using grams to measure dietary exposures can capture less energy dense products that may contribute to chronic disease outcomes. **Objective:** To identify trends in the relative dietary contribution of Nova groups—minimally processed (MPF), processed culinary ingredients (PCI), processed (PF), and ultra-processed foods (UPF)—to total intake in kcals and grams as dietary exposures in the U.S. population. **Methods:** Trends in estimated contributions of Nova groups as population proportions to total energy and grams consumed was calculated from reliable day one 24-hour recalls in NHANES 2005-2006 to 2021-2023, ages two years and older. Dietary sample weights were applied and analyses were conducted for overall intake and stratified by foods and beverages using SAS-callable SUDAAN. **Results:** The contribution of PCI and PF to total energy in overall dietary intake were low (each <10%) with little variation over time. The contributions of MPF (~30%) and UPF (~55%) to total energy intake were also relatively stable. By grams, contributions of PCI and PF were low (each <10%) with little variation over time. MPFs accounted for a slightly increasing contribution from 60% of total grams in 2005-2006 to 67% in 2021-2023 (P<0.01), while UPFs accounted for a slightly decreasing contribution from 34% to 27% (p<0.01), respectively. MPF (~30%) and UPF (~55%) foods' only contributions to total energy were similar to overall intake, while their contributions to total grams differed from overall intake (MPF~40%, UPF~50%), both metrics remaining relatively constant. Beverages' contribution to energy intake of MPF (~40%) and UPF (~50%) differed from the overall intake, while total grams of MPF increased from 65% to 75% (p< 0.01) and UPF decreased from ~30% to ~20% (p<0.01). **Conclusions:** Stratifying beverages and foods can improve the interpretation of relative contributions and consumption trends of intake by Nova groups.

Biosketch: Jacquelyn Bedsaul-Fryer, PhD, MPH, is a Cancer Prevention fellow in the Epidemiology and Genomics Research Program's (EGRP) Risk Factor Assessment Branch (RFAB). In this role, she works with Dr. Kirsten Herrick on methodological approaches for studying trends in dietary intake. She also holds a secondary appointment in the Infections and Immunoepidemiology Branch of the Division of Cancer Epidemiology and Genetics, where she works with Dr. Sam Mbulaiteye. Her research interests center on the assessment of diet, nutritional status, and immunity as targets for cancer prevention. She earned her PhD in immunology from the Johns Hopkins University School of Medicine in 2022. During her PhD training, Dr. Bedsaul-Fryer developed an interest in how modifiable risk factors influence immune responses to infections and cancer. This interest led her to pursue a nutritional immunology internship at Sight and Life, a global not-for-profit foundation. There, she worked at the intersection of public health nutrition and immunity, leading initiatives aimed at reducing all forms of malnutrition in

low-resource settings. In 2024, Dr. Bedsaul-Fryer earned her MPH from Johns Hopkins Bloomberg School of Public Health with a focus in human nutrition and epidemiology. Dr. Bedsaul-Fryer is passionate about integrating her interdisciplinary expertise to advance cancer prevention.

Title*: Exploring the Dissemination of Cancer Registry Data by the Caribbean Region in Grey Literature – Component of a Scoping Review*

Madison Behm, MPH, Genomic Epidemiology Branch, EGRP
Co-authors: Rachel Hanisch, PhD, MPH; Adriana Morales Miranda, PhD, MPH
Mentor: Danielle Daee, PhD, Genomic Epidemiology Branch, EGRP

Background: Population-based cancer registries (CR) generate essential cancer statistics for Caribbean countries. In addition to peer-reviewed publications, data from CRs is disseminated through grey literature, or outside of traditional publishing platforms (e.g., newsletters, data summaries, press documents/reports). Examining the data reported by Caribbean CRs in grey literature can help identify impact, reach, and gaps regarding the communication of this information. The grey literature search coupled with the scoping review will produce a robust review of the current state of CR data usage in the Caribbean. **Methods:** The search included publicly available documents from national health departments/ministry of health departments and CR websites, and official paper copies of CR reports. Digital documents had to be in English, Spanish, or French, published between 2019–2024, and include CR data and interpretation from at least one Caribbean country or territory. Paper reports were official publications from Caribbean CRs – each CR was asked to provide information on key characteristics of these reports. Each document/report was reviewed, data was extracted, and the presence of a cancer incidence report was recorded as yes/no. **Results:** A total of 85 documents/reports met the inclusion criteria. Caribbean CR data from 1970-2024 were reported in grey literature. Digital Caribbean CR documents were identified from 11 (33%) countries/territories, and paper reports from the last 5 years were reported from 7 (21%) countries/territories. Additionally, 10 (30%) countries/territories had at least one cancer incidence report available from the past 5 years. **Conclusion:** Fewer than half of Caribbean countries were represented in the dissemination of Caribbean CR data through grey literature. There is a clear need to strengthen support for population-based CRs in generating high-quality statistics from collected data to the general public and other audiences. Dissemination of these statistics is necessary for regional cancer control and surveillance activities.

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 has worked on various portfolio analysis projects within the Branch, helped establish a data sharing award for the Division of Cancer Control and Population Sciences, and supports 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. 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, Physical Activity and Cancer*
Presenter: Molly Frauenholz, BS, Health Behaviors Research Branch, BRP
Co-authors: Kara L. Hall, PhD; Todd Horowitz, PhD; Frank Perna, PhD; Caroline Crown, BS; Busra Kosar; Neha Mupparapu; Sara Son, BS; Ella Rosenthal, BS; Ashley Unkenholz, BS; Kiersten Straley, BS
Mentor: Kara L. Hall, PhD**,** Health Behaviors Research Branch, BRP

Background: Sleep, cognition, and physical activity (PA) are critical components of health that are often disrupted by cancer and its treatment, which can negatively impact survivors' quality of life. While national surveys collect data on these domains, the availability and scope of relevant items, especially regarding their intersection with cancer, are not well documented. This study aimed to identify nationally representative federal surveys and characterize items assessing individual-level experiences with sleep, cognition, PA, and cancer. **Methods:** Inclusion criteria: (1) federal, publicly accessible, nationally representative; (2) individual-level questions; (3) at least one administration between 2013-2023; and (4) items on sleep and/or cognition in at least one administration. These surveys were then searched for cancer- and PA-related items. A thematic analysis approach was used to characterize these items. **Results:** Two hundred surveys were screened and 25 were eligible. Over 11 years, 24 surveys included cognition items (n=151), 18 included sleep (n=160); of these 21 included PA (n=193), and 11 included cancer (n=96). On average per year: 88 cognition items, 77 physical activity (PA) items, 77 sleep items, and 36 cancer items were administered. Nine surveys (36%) had at least one year that included all four domains and 14 surveys (56%) with at least three domains. The most frequently co-occurring domains were cognition and PA, accounting for 59% of all two-domain combinations across 54 total co-administrations. Across domains, the most frequently assessed construct within each was memory (45% of cognition items), insomnia (24% of sleep items), physical function (22% of PA items), and diagnosis (24% of cancer items). This poster will provide additional findings, such as patterns of co-occurring domains and constructs over time. **Conclusion:** The patterns identified in this study help illuminate opportunities for researchers to examine relationships between domains and advance cancer-related research by leveraging existing federal surveys. These findings also highlight content gaps to inform future development of survey items.

Biosketch: Molly Frauenholz, BS, is a Cancer Research Training Award (CRTA) Fellow in the Health Behaviors Research Branch (HBRB) of the Behavioral Research Program. 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. She looks forward to starting her MHS degree in Health, Behavior and Society at Johns Hopkins University in the fall. Her interests include

researching health disparities, improving quality of life among cancer survivors, and the intersection of sleep and cognition.

Title: *Advancing Cancer Surveillance Data for American Indian and Alaska Native Populations*
Presenter: Natalie Joe, PhD, MPH, Office of the Director, SRP
Co-authors: Mandi Yu, PhD; James (Todd) Gibson, BA; Steve Scoppa, BA; Shobha Srinivasan, PhD; Kathy Cronin, PhD, MPH
Mentors: Kathy Cronin, PhD, MPH, Office of the Associate Director, SRP and Shobha Srinivasan, PhD, Office of the Director, DCCPS

Overview: To effectively assess the ongoing cancer burden among American Indian and Alaska Native (AIAN) communities, it is essential to maintain cancer surveillance data that employs up-to-date methodologies to accurately reflect the AIAN population. **Background:** The U.S. AIAN population is extremely heterogenous and encompasses 9.7 million individuals across 574 federally recognized tribal nations (2020 Census). The AIAN community suffers from chronic racial misclassification in medical and research databases which has led to underestimations of cancer incidence and mortality. Previous methodologies to reduce misclassification have included: (1) annual linkages of incidence data with Indian Health Service (IHS) records, (2) restricting analysis to IHS Purchased/Referred Care Delivery Areas (PRCDA) counties, and (3) restricting the population to the non-Hispanic (NH) ethnicity. However, these methodologies are still imperfect, and more work is needed to accurately capture the AIAN population within cancer surveillance data. Surveillance data reporting will soon implement the updated 1997 U.S. Office of Management and Budget (OMB) racial and ethnic classifications, though the specific impact on the AIAN population remains unclear. **Methods:** Using the SEER registries data for 2020-2021, this study produced all-cancer incidence rates for the AIAN population categorized by the historically used *bridged-race*, the SRP specific *in-combination-race*, and the 1997 OMB classification of *alone-race*. **Results:** Through initial analyses split across five regions of the U.S. – based on IHS six regions, excluding Alaska – contribute differentially to the total populations as well as cancer cases in the incidence data. Lastly, there is a differential impact of implementing the new *alone-race* category that specifically affects the AIAN communities and not NHW communities living in the same counties. **Discussion:** Overall, this study will begin to highlight the methodological impact of implementing the 1997 OMB racial and ethnic classifications on AIAN cancer incidence rates in the most recent SEER data.

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. Natalie's current scientific interests include working with U.S. Indigenous populations to improve access to and outcomes in cancer prevention programs, cancer epidemiology, cancer surveillance data, and tribal public health policy. She is also passionate about upholding 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. 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 the Impact of Changes to the DCCPS Fellowship Opportunities Page
Presenter: Andrew Kunszt, BA, Office of the Associate Director, EGRP
Co-authors: Audrey Wellons, MPH; Richard P. Moser, PhD
Mentors: Christie Kaefer, MBA, Office of the Associate Director, EGRP and Katie Kortokrax, MEd, Office of the Associate Director, EGRP

Background: To improve outreach to and engagement with prospective trainees, the Division of Cancer Control and Population Sciences (DCCPS) updated its fellowship opportunities web page with revised content and personal storytelling elements. Feedback from interviews with the fellowship program team indicated a desire for more engaging content and a redesign of the page including showcasing fellows and highlighting program benefits. Based on this input, a short testimonial video featuring past fellows was produced to highlight their personal experiences and the professional value of the program. The fellowship opportunities page was updated to include the testimonial video, photos, expanded written content, and an emphasis on opportunities within the division and other areas of NIH and NCI.
Methods: To evaluate changes made to the training page, nine participants completed two sessions using the RealEye eye-tracking platform, during which they explored “before” and “after” versions of the web page and completed a post-task survey, including evaluating the video. Heatmaps and survey responses were analyzed to assess the new content. Findings identified which sections users engaged with most based on visual attention and click behavior. **Results:** Average total fixations on the updated page decreased by 17.2%. Post-task survey responses indicated improvements in questions related to motivation to apply, content quality, and usability. Results from the eye-tracking heatmaps showed that the average fixation time decreased as users scrolled down the page. Post-survey open-ended responses about the testimonial video were positive and indicated it resonated with users. **Discussion:** While the sample size limits the ability to generalize to the larger fellowship group, results showed mixed but positive indicators of improvement in the updated webpage. These findings can be used to further improve user engagement by refining the page layout. Next steps include using Adobe Analytics to monitor large-scale user behavior based on changes to the site.

Biosketch: Andrew Kunszt, BA, is a Cancer Research Training Award (CRTA) Fellow in the Office of the Associate Director in the Epidemiology and Genomics Research Program (EGRP). In this capacity, he assists with EGRP’s development and dissemination of information, particularly graphic design, videography, and social media projects. 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: *The Relationship between Experiencing Extreme Weather Events and General Health Status among U.S. Adults: Results from the NCI's Health Information National Trends Survey, 2024*
Presenter: Abigail Muro, BS, Health Communication and Informatics Research Branch, BRP
Co-author: Heather D'Angelo, MHS, PhD
Mentor: Heather D'Angelo, MHS, PhD, Health Communication and Informatics Research Branch, BRP

Introduction: Extreme weather events, such as severe storms, droughts, floods, heat waves, and cold snaps are increasing in frequency and intensity, and many of the consequences are detrimental to human health. **Objectives:** This study examines the relationship between reporting being affected by an extreme weather event in the past 12 months in their neighborhood and self-reported general health status. **Methods:** We analyzed data from the seventh iteration of the National Cancer Institute's Health Information National Trends Survey (HINTS 7), a cross-sectional, nationally representative survey of U.S. adults administered between March and September 2024 (n=6,124). Using SAS 9.4, we calculated descriptive statistics and performed a weighted multivariable linear regression analysis to examine the relationship between self-reported level of exposure to extreme weather events (not at all, some/a little, a lot) and general health status (poor (1) to excellent (5)). The model was adjusted for sex, age group, race and ethnicity, education level, metropolitan status, census region, smoking status, and health conditions (any vs. none). **Results**: In this nationally representative sample of U.S. adults, 8.5% reported they had experienced "a lot" of extreme weather events in their neighborhood over the past 12 months (95% CI [7.1, 9.9]), 62.8% had experienced "some" or "a little" (95% CI [60.5, 62.1]), and 28.7% reported not experiencing an extreme weather event in the past 12 months (95% CI [26.7, 30.6]). In the adjusted linear regression model, exposure to extreme weather events was negatively correlated with self-reported general health status. Self-reported general health status was lower for respondents that indicated they had experienced a lot (β=-0.24, p=0.002) and some/a little (β=-0.18, p<0.001) of extreme weather events over the past 12 months, when compared to those that experienced none. **Conclusion:** Experiencing extreme weather events was associated with worse general health status among U.S. adults compared with those who reported not being exposed to extreme weather events. These findings suggest that there are opportunities to improve human health through extreme weather adaptation and preparedness efforts and expanding research into the specific ways in which extreme weather can harm health.

Biosketch: Abigail Muro, BS, is a Cancer Research Training Award (CRTA) fellow in the BRP Health Communication and Informatics Research Branch (HCIRB). Her latest projects range from topics about extreme weather and health to tobacco cessation messaging to the potential impacts of Artificial Intelligence (AI) on perceptions of cancer patients, palliative care, and hospice care. Ms. Muro's research interests include environmental health and epidemiology of chronic disease. She earned a Bachelor of

Science degree in Community Health from the University of Maryland at College Park. During her final semester, she interned with HCIRB where she enjoyed working on projects related to environment-related federal survey items and communication about extreme weather events.

Title: *Care Coordination and Care Quality Among Adults With and Without Cancer in the US: HINTS 7 Survey Analysis*

Presenter: Eduardo J. Santiago-Rodríguez, PhD, MPH, Office of Cancer Survivorship and Health Communication and Informatics Research Branch, BRP
Co-authors: Michelle Doose, PhD, MPH; Emily S. Tonorezos, MD, MPH; Michelle A. Mollica, PhD, MPH, RN, OCN
Mentor: Michelle Doose, PhD, MPH, Office of Cancer Survivorship and Health Communication and Informatics Research Branch, BRP

Background: Care coordination is a critical component of high-quality care. However, it is unclear if the relationship between primary care coordination and health care quality differs for individuals with and without a cancer history. We examined whether optimal care coordination was associated with a higher rating of health care quality and whether these associations varied by cancer history. **Methods:** Data from the Health Information National Trends Survey 7 were analyzed to assess how respondents rated health care quality (excellent/very good vs. good/fair/poor) and care coordination (optimal: always/usually vs. suboptimal: sometimes/never) in the past 12 months. Multivariable logistic regression models estimated odds ratios (ORs) and 95% confidence intervals (CIs) overall and by cancer history. Analyses were weighted to account for the complex sampling design and survey nonresponse. **Results:** Among 5,963 eligible respondents, 1,012 were cancer survivors. In adjusted analyses, respondents reporting optimal care coordination had significantly greater odds of reporting higher health care quality for all measures: care coordination from primary care office (OR=2.61, 95% CI= 1.98-3.45), primary care office informed of care from other providers (OR=3.56, 95% CI= 2.77-4.57), and streamlined test or procedure (OR=2.32, 95% CI= 1.51-3.55). Similar associations were observed in analyses stratified by cancer history, except for streamlined test or procedure among cancer survivors (no association). **Conclusion:** Primary care coordination was associated with higher health care quality irrespective of a personal history of cancer. Future efforts should focus on strengthening care coordination strategies and exploring other factors that play a role in coordination.

Biosketch: Eduardo J. Santiago-Rodríguez, PhD, MPH, is a Cancer Prevention Fellow in the NCI Office of Cancer Survivorship and the Behavioral Research Program, Health Communication and Informatics Research Branch. Dr. Santiago-Rodríguez's work primarily focuses on factors that impact the delivery of cancer care. He is also interested in evaluating interventions aimed at improving cancer-related outcomes. Dr. Santiago-Rodríguez completed a PhD in Epidemiology and Translational Science at the

University of California, San Francisco (UCSF). During his time at UCSF, Dr. Santiago-Rodríguez also contributed to several research projects and activities supported by the San Francisco Cancer Initiative and NCI at the Helen Diller Family Comprehensive Cancer Center and the Greater Bay Area Cancer Registry. While completing his dissertation, Dr. Santiago-Rodríguez returned to his native Puerto Rico and joined the University of Puerto Rico Cancer Center. There he worked as a data analyst on projects related to HPV-associated malignancies, as well as the impact of natural disasters and the Covid-19 pandemic on cancer diagnosis. Prior to pursuing his doctoral degree, Eduardo obtained a BS in Human Biology and an MPH in Epidemiology from the University of Puerto Rico.

Title: *Food-Related Greenhouse Gas Emissions, Diet Quality, and Colorectal Cancer Incidence in a Large US Cohort*

Presenter: Amelia Willits-Smith, MS, PhD, Risk Factor Assessment Branch, EGRP
Mentors: Kirsten Herrick, PhD, MSc, Risk Factor Assessment Branch, EGRP and Jill Reedy, PhD, MPH, **RD,** Risk Factor Assessment Branch, EGRP

Background: 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. **Objective:** To examine the association of food-related greenhouse gas emissions (carbon footprint) with diet quality and colorectal cancer incidence. **Methods:** The NIH-AARP Diet and Health Study includes 566,398 baseline participants ≥50 years of age from six states and two cities. Dietary intake was measured using a 124-item food frequency questionnaire (FFQ). Food-related GHGE was linked to FFQ reports using the database of Food Recall Impacts on the Environment for Nutrition and Dietary Studies (dataFRIENDS). We calculated diet quality (measured using the Healthy Eating Index [HEI]) and food-related emissions (kg CO_2-equivalents) for all participants. We will use Cox proportional hazards regression to estimate hazard ratios for colorectal cancer for diets with different levels of food-related GHGE. **Results:** Results will describe the distribution of food-related GHGE in the baseline NIH-AARP sample and its relationship to diet quality and to intakes of different food groups, including red and processed meat. We will examine the risk of colorectal cancer for diets with higher versus lower food-related GHGE adjusting for age, sex, race and ethnicity, education, BMI, smoking, and physical activity. **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.

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Biosketch: Amelia Willits-Smith, MS, PhD, is a Cancer Research Training Award (CRTA) fellow in the 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.