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Abstracts and Biosketches for Oral Presentations

Title: *Development of 24-Hour Behavioral Phenotypes for Cancer Prevention*

Caitlin Bailey [KATE-lin BALE-y], **MS, PhD**, Health Behaviors Research Branch, BRP

Co-authors: Adriana Morales Miranda, PhD, MPH and Evelynne Fulda, MSc and Tongwu Zhang, PhD and Joshua Denny, MD, MS and Aiden Doherty, PhD and Anya Topiwala, DPhil and Dana Wolff-Hughes, PhD

Mentor: Dana Wolff-Hughes, PhD, Health Behaviors Research Branch, BRP

Objective: Physical activity (PA) and sleep are temporally related health behaviors that occur dynamically across the 24-hour day. These behaviors have largely been studied in isolation despite both being implicated in cancer risk. We leveraged multi-sensor Fitbit data and unsupervised machine learning to identify latent 24-hour behavioral phenotypes, a potential digital biomarker of cancer risk, in a large U.S.-based cohort. **Methods:** Data from the All of Us Research Program (v8) were used. The sample consisted of 14,178 adults (mean age: 52y, 67% female) with valid Fitbit data during a 7-day baseline. Person-standardized hourly steps and sleep (% of daily totals) were structured as time-series feature vectors and input into a k-medoids clustering algorithm to derive discrete 24-hour behavioral phenotypes. Cross-sectional associations between phenotypes and survey/physical measures were explored using unadjusted ANOVA and chi-squared tests. **Results:** Three distinct phenotypes emerged: early (n=4,496; clock time of peak steps: 08:00), late (n=3,766; 17:00), intermediate (n=5,916; 11:00). Late phenotypes were characterized by a cancer-relevant risk profile: 14% currently used tobacco (vs. 9% early, 7% intermediate), 45% had obesity (vs. 35%, 34%), and 58% met PA guidelines (vs. 75%, 70%). Late phenotypes were also younger (median [IQR]: 46y [32, 62] vs. 58y [46, 68] early, 54y [39, 67] intermediate), less White (60% vs. 76%, 70%), less affluent (31% vs. 13%, 14% household income <\$35k/y), more likely to report poor/fair general health (26% vs. 12%, 12%), and higher perceived stress scores (16 [10, 22] vs. 12 [7, 18], 12 [7, 18]). (All p<0.001; standardized mean differences 0.1-0.4). **Conclusion:** A wearable-derived 24-hour behavioral phenotype characterized by later activity and sleep-wake timing clustered multiple modifiable cancer risk factors and poor health indicators. These findings support the utility of consumer wearables for population-level cancer risk stratification and highlight a high-priority target population for multiple-behavior change interventions.

Biosketch: Caitlin Bailey, MS, PhD, is a Cancer Prevention Fellow in the Health Behaviors Research Branch of the Behavioral Research Program. In this role, she works with Dr. Dana Wolff-Hughes on projects to advance cancer-related risk factor assessment through the use of novel technologies and data science approaches. She is especially interested in research leveraging digital health technologies to improve the assessment of sleep, circadian rhythm, and physical activity timing in cancer research. She received the 2026 NIH Fellows Award for Research Excellence (FARE) for her sleep measurement research. Dr. Bailey received her PhD in public health from The George Washington University and her MS in nutrition interventions from Tufts University. Her dissertation work, which was supported by an NIH F31 training grant, examined associations between the timing of physical activity and health outcomes in young adults. During her doctoral studies, she received two Research Excellence Awards from the Society of Behavioral Medicine, including the Karen Calfas Award for physical activity research. Prior to earning her



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PhD, Dr. Bailey was a Cancer Research Training Award (CRTA) fellow in DCCPS, where she worked with Dr. Linda Nebeling to support the activities of the Trans-NCI Obesity and Cancer Working Group.

Title: *Promoting critical openness and intellectual humility about multi-cancer detection (MCD) tests with informed decision-making*

Jackelyn Payne, PhD, MPH, Health Communication and Informatics Research Branch, BRP

Co-authors: Jacky Hua, PhD, MPH, Amanda Acevedo, PhD, Bill Klein, PhD, and Paul Han, MD, MA, MPH

Mentor: Irina Iles, PhD, MPH, Health Communication and Informatics Research Branch, BRP

Background: Shared decision-making (SDM) aims to improve patient knowledge of treatment options' benefits, harms, and uncertainties, and to ensure decisions align with patient values. An important but underexplored goal is helping patients remain receptive to new information and open to further deliberation — outcomes captured by intellectual humility (awareness of one's cognitive limitations) and critical openness (willingness to revise views based on new evidence). This study examined whether these outcomes are influenced by the type and extent of information communicated through SDM, using multi-cancer detection (MCD) testing — an emerging, widely disseminated screening technology with uncertain benefits and harms — as the use case. **Methods:** In an online experiment, 1,582 US adults were randomly assigned to view one of eight messages about MCD testing, representing different combinations of information about potential benefits, harms, and uncertainties. Participants then completed measures of intellectual humility and critical openness. ANOVA models compared participants receiving: (1) comprehensive information (all three types) vs. no information; (2) limited information (benefits-, harms-, or uncertainty-only) vs. no information; and (3) any-uncertainty vs. no-uncertainty information. **Results:** Intellectual humility was significantly higher in the comprehensive vs. no information group, and in the any-uncertainty vs. no-uncertainty group. However, no significant differences in intellectual humility were found between any limited information group and the no information group. Critical openness did not differ significantly across any of the groups. **Discussion:** Intellectual humility about MCD testing is increased by comprehensive information covering benefits, harms, and uncertainties, as well as by uncertainty-focused information alone. In contrast, information about these key aspects does not appear to affect critical openness. These findings highlight the value of further research into how different information types shape intellectual humility and critical openness within SDM, and how these constructs contribute to decision quality.

Biosketch: Jackie Payne, PhD, MPH, is a Cancer Prevention Fellow in the BRP Health Communication and Informatics Research Branch, where she conducts research aimed at understanding the psychological and interpersonal processes that influence medical decision-making. Before joining BRP, she received her PhD in Social and Health Psychology from Stony Brook University in 2023 and her MPH in Behavioral Sciences and Health Education from Emory University in 2016.

Title: *Kidney cancer method of detection and cancer care outcomes*

Matt Dunn, PhD, MPH, Clinical and Translational Epidemiology Branch, EGRP

Mentor: Andrea Burnett-Hartman, PhD, MPH, Clinical and Translational Epidemiology Branch, EGRP



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Background: Kidney cancer is rising in US adults and earlier detection may improve outcomes, but cancer method of detection (MOD) has not previously been reported for kidney cancer in a population-based U.S. study. **Methods:** We leveraged data from the 2019 SEER Patterns of Care (POC) kidney cancer study. POC sampled cases aged 20 and older from SEER with linkage to medical records, with oversampling by race and stage IV disease. In our analyses, tumors detected due to evaluation of symptoms are categorized as symptomatically detected; tumors identified from imaging for an issue not related to possible kidney cancer symptoms are categorized as incidentally detected. We assessed the association between MOD and five binary outcomes (receipt of surgery, targeted therapy use, hormone therapy use, treatment delay (>90 days from diagnosis to treatment initiation), and case fatality) by computing risk differences (RDs) and 95% CIs using marginal standardization from logistic regression and bootstrapped CIs. Models were adjusted for age, race, sex, tumor stage, and comorbidity score, and stratified by smoking status. **Results:** There were 1,724 patients with symptom-detected kidney cancer, and 540 with incidentally detected cancer. Patients with symptom-detected cancer were more likely to have stage III/IV tumors (48.5% vs 25.7%) than those who were incidentally detected. In stratified models, current/former smokers with incidentally detected cancer had greater frequency of surgery (87.7% vs 70.3%) and lower frequency of targeted therapy (9.3% vs 21.9%), hormone therapy (11.6% vs 28.0%), and case-fatality (18.7% vs 35.8%). In fully adjusted models, incidental detection was modestly associated with receipt of surgery (RD = 5.5%, 95% CI: 0.6, 10.7) and lower case fatality (RD= -6.0%, 95% CI: -12.3, 0.6), although statistical significance was borderline. **Conclusions:** Patients with incidentally detected kidney cancer had lower risk of late-stage tumors and cancer death compared to symptom-detected kidney cancer, especially among those with a history of smoking. These results suggest potential benefit from kidney cancer screening for high-risk groups in the U.S., but further research is needed to assess the clinical validity and utility of screening for kidney cancer in high-risk groups.

Biosketch: Matthew Dunn, PhD, MPH, is a Cancer Prevention fellow in the Epidemiology and Genomics Research Program's (EGRP) Clinical and Translational Epidemiology Branch (CTEB). In this role, Matt investigates how healthcare access and care delivery shape cancer outcomes. His main projects include studies of geographic patterns of access and cancer outcomes, the impact of screening and early detection, and understanding quality of life in cancer survivorship. Dr. Andrea Burnett-Hartman is his primary mentor. Prior to joining EGRP, Matt worked as a pre-doctoral researcher with the UNC Lineberger Comprehensive Cancer Center. At UNC, his research focused on understanding the interplay of healthcare access and tumor biology on breast cancer outcomes, including his dissertation which identified individual-, neighborhood-, and health system-level factors associated with delays in breast cancer care. Before that he obtained his MPH at the University of Michigan, and one of his proudest accomplishments from this time was leading research to inform a successful proposal for adding a diabetes prevention program as a covered benefit under Michigan Medicaid. Matt's overall career mission is to use epidemiological and health services research methods to improve access and quality of cancer care.

Title: *Return of Health Risk Information and Ethical Considerations: A Qualitative Analysis of US Adults Enrolled in a Cancer Prevention Study*

Melina N. Joseph, BS, Health Communication and Informatics Research Branch, BRP



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Co-authors: Jackelyn B. Payne, PhD, MPH and Paul K.J. Han, MD, MA, MPH

Mentors: Irina A. Iles, PhD, MPH, Health Communication and Informatics Research Branch, BRP; and Charlisse Caga-anan, JD, MA, Genomic Epidemiology Branch, EGRP

Background: Returning health-related information to participants is important for engagement in longitudinal health research, but little is known about preferences for information or best practices for ethically returning information. The present research is a preliminary qualitative analysis exploring preferences for returning health information, psychosocial effects of receiving risk information, and ethical considerations. **Methods:** The CONNECT for Cancer Prevention study is a prospective cohort study examining the long-term health outcomes of adults throughout the United States. At this time, recruitment is ongoing, with the study aiming to enroll over 200,000 adults with no personal history of invasive cancer. A sample of participants from the CONNECT study (n=31) completed in-depth semi-structured interviews in 2025 and were each compensated \$25. All interviews were conducted by one researcher and audio recorded. Three researchers are currently conducting thematic analysis of interview transcripts. **Results:** Mean age of participants was 53.5 years (range=33-72); 74.2% were White and 58.1% were female. Initial findings suggest that preferences for information are shaped by perceptions of susceptibility, controllability, and beliefs about uncertainty. Participants generally desired return of information but appeared to value personalized health information over population-level information. Participants cited various reasons for valuing the return of results, including its expected benefit and use for future planning. Participants also held diverse views on whether and under what circumstances health risk information should be returned in observational studies. **Discussion:** Preliminary findings indicate that participants value return of health-related information for multiple reasons and that these preferences may be influenced by various psychosocial factors. Participants also expressed differing views regarding potential ethical concerns of returning information in observational studies. Ongoing analysis will further clarify these themes and their implications for observational research.

Biosketch: Melina Joseph, BS, is an iCURE Scholar in the Health Communication and Informatics Research Branch of the Behavioral Research Program. Melina received her BS in Psychology from Yale University, where she also studied comparative literature. After graduation, she spent a year teaching English in Central Asia on a Fulbright fellowship.

Title: *Alcohol or Marijuana Use Associated with Recent Sunburn in Specific Behavioral and Social Contexts Among US Adults*

Keegan T. Peterson [KEE-gən PEE-ter-sən], PhD, MPH, Health Behaviors Research Branch, BRP

Co-authors: David Berrigan PhD, MPH and Joseph T. Ciccolo, PhD and Richard P. Moser, PhD and Frank M. Perna, EdD, PhD

Mentor: Frank M. Perna, EdD, PhD, Health Behaviors Research Branch, BRP

Background: Sunburn is the primary modifiable risk factor for skin cancer and is associated with behaviors like physical activity and sunbathing; however, it is unclear how alcohol and marijuana use may relate to risk of sunburn in specific behavioral and social contexts. We sought to 1) estimate the



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odds of reporting an alcohol- or marijuana-involved sunburn occurrence by the context of an individual's most recent sunburn and 2) determine if alcohol-involved sunburns were associated with general alcohol consumption. **Methods:** We analyzed pooled data from the Health Information National Trends Survey 6 (n=6252) and 7 (n=7278). Participants reported general alcohol and marijuana use, and number of sunburns experienced (≤ 12 months). Sunburned respondents reported the context of their most recent sunburn and if alcohol (HINTS 6/7) or marijuana (HINTS 7) was used during any sunburn occurrence. Weighted logistic regressions estimated the odds ratios (OR) and 95% confidence intervals of reporting an alcohol- or marijuana-involved sunburn occurrence by the context of the respondent's most recent sunburn. Linear regressions examined the association between reporting an alcohol-involved sunburn and average drinks/week. **Results:** Among sunburned respondents (n=4019), 21% reported drinking alcohol and 6% reported marijuana use. Respondents were more likely to report an alcohol-involved sunburn if their most recent sunburn occurred while sunbathing (OR=2.87 [2.13, 3.86]), swimming (OR=2.71 [1.98, 3.70]), or watching a sporting event (OR=2.26 [1.63, 3.13]). Marijuana-involved sunburns were not associated with any context. Respondents who reported an alcohol-involved sunburn consumed approximately 6 additional drinks/week compared to those who did not report any alcohol-involved sunburns ($\beta=6.34$, $P<0.001$). **Conclusion:** Alcohol use may increase sunburn odds in select contexts. Alcohol use during sunburn also represents a potential behavioral phenotype for elevated general alcohol consumption. Practices that promote sun-protective behaviors alongside policies addressing alcohol consumption in high-risk contexts may reduce sunburn frequency and subsequent skin cancer risk.

Biosketch: Keegan T. Peterson, PhD, MPH, is a Cancer Prevention Fellow in the Behavioral Research Program, Health Behaviors Research Branch. Keegan's current scientific interests include health promotion across the cancer control continuum, specifically exploring how health-related lifestyle behaviors (e.g., UV exposure, physical activity, diet, substance use), social contexts, and environmental factors are associated with cancer risk, treatment outcomes, and survivorship. Keegan earned his PhD in Kinesiology from Penn State where his dissertation examined the effect of physical activity and other health-related behaviors on mental and physical health outcomes among underserved populations. He also earned a Master of Public Health degree in Community and Behavioral Health from Penn State College of Medicine. Prior to graduate school he received a B.S. in Biobehavioral Health from Penn State.

Title: *Eroding or Protecting Science: Evaluating Strategies to Communicate Conflicting Evidence about Alcohol and Cancer Risk*

Emma Jesch [EM-mah JESH], PhD, MPH, Health Communication and Informatics Research Branch, BRP

Co-authors: Irina Iles, PhD, MPH; William Klein, PhD; Paul Han, MD, MA, MPH

Mentor: Irina Iles, PhD, MPH, Health Communication and Informatics Research Branch, BRP

Abstract: Exposure to conflicting health information—are eggs good for you, or not?—can trigger ambivalence and cynicism toward the scientific enterprise. It is unclear, however, how different communication strategies—such as normalizing uncertainty in the scientific process—may accentuate or mitigate these negative effects. The current study aims to explore this question within the novel context



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of alcohol and cancer risk. **Methods:** We conducted a pre-registered online experiment with U.S. adults ($n=2,071$), leveraging a $2 \times 3 \times 2 + 1$ between-subjects factorial design. Each participant read a two-sided story about alcohol and cancer risk; these stories varied across three manipulated message factors: (1) disclosing possible conflicts-of-interest (*absent* vs. present), (2) explaining scientific decisions (*absent* vs. brief explanation vs. detailed explanation), and (3) normalizing uncertainty (*absent* vs. present). After message exposure, participants reported affective and cognitive reactions. Data were analyzed with a series of three-way ANCOVA models, controlling for age, sex, and prior awareness of the alcohol-cancer link. **Results:** Significant main effects emerged for each message factor. Those who read a story that disclosed possible conflicts-of-interest reported significantly lower trust in each institute ($p < .001$) and more negative perceptions of science ($p < .05$). Those who read a story that explained scientific decisions (brief or detailed) also reported significantly lower trust, but only towards one institute: the *Northbridge Institute*, which stated that there was not enough evidence to link moderate drinking to multiple cancers ($p < .001$). Conversely, those who read a story that normalized uncertainty reported significantly higher trust in each institute ($p < .05$). **Discussion:** Findings suggest that these message strategies—often used when reporting on conflicting research findings—have distinct and disparate effects. Future work should further test strategies that maintain public trust amid complex or incongruent health information.

Biosketch: Emma Jesch, PhD, MPH, is a Cancer Prevention Fellow (CPF) in the Health Communication and Informatics Research Branch in the Behavioral Research Program. Her research focuses on health and science communication related to cancer prevention, particularly in the context of conflicting information or uncertainty. Dr. Jesch received her PhD in communication from the Annenberg School for Communication at the University of Pennsylvania in 2023, and her MPH in quantitative methods at the Harvard T.H. Chan School of Public Health in 2024. Prior to graduate school, she was a research associate at Cornell University, where she facilitated data collection aboard a mobile eye-tracking lab. She also received her BS in communication from Cornell in 2016.

Title: *Human papilloma virus (HPV) vaccination uptake among Hispanic/Latine populations and associations with their social network composition and sociocultural values*

Sara Ann Flores [sAIR-uh flo-Dess], PhD, Health Systems and Interventions Research Branch, HDRP

Co-authors: Julian Martinez, PhD, MPH and Yennifer Garzon, BS and Amanda M. Acevedo, PhD

Mentors: Sallie J. Weaver, PhD, MHS, Health Systems and Interventions Research Branch, HDRP; and Rachelle Brick, PhD, MSPH, OTR/L, Health Systems and Interventions Research Branch, HDRP

Abstract: HPV vaccine uptake is suboptimal among Hispanic/Latine populations. Cultural values like *simpatía* (positive interactions, conflict avoidance) and *familism* (family over self) are associated with HPV vaccine acceptance and intention, but their relationship with uptake is less established. Because healthcare decisions are embedded in social contexts, cultural values endorsed by one's network may also matter. This research examines whether individual and network-level cultural values are associated with HPV vaccine uptake among Hispanic/Latine adults. **METHODS:** Hispanic/Latine adults living in the US, fluent in English, with a healthcare visit in the past 12 months were recruited via Prolific. Participants reported their HPV vaccination uptake, cultural values (*simpatía*, *familism*), demographics, and



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egocentric networks (perceived alter endorsement of each cultural value) in two Qualtrics surveys. Hierarchical logistic regression tested whether network-level values were associated with uptake beyond individual values. **RESULTS:** Among the analytic sample ($n = 282$; ages 18-46; 62.5% vaccinated, 37.5% unvaccinated), each additional year of age was significantly associated with lower odds of vaccination uptake ($OR = 0.96$, 95% CI $[0.92, 0.99]$, $p = .022$). Neither individual nor perceived network-level cultural values were associated with uptake, and network-level values did not explain additional variance in uptake ($LR\chi^2(2) = 1.12$, $p = .572$). When stratified by sex, both age ($OR = 0.91$, 95% CI $[0.87, 0.96]$, $p = .001$) and *simpatía* ($OR = 0.35$, 95% CI $[0.13, 0.97]$, $p = .044$) were negatively associated with uptake among women; neither was significant among men. **CONCLUSION:** Age was significantly associated with HPV vaccination uptake, which may reflect generational differences in vaccine eligibility and access. Cultural values were not associated with uptake overall, but greater endorsement of *simpatía* was significantly associated with lower HPV vaccine uptake odds among Hispanic/Latine women, highlighting it as a target for future research and culturally responsive patient-provider communication with this subgroup.

Biosketch: Sara Flores, PhD, is a Cancer Prevention Fellow in the Health Systems and Interventions Research Branch of HDRP, where her work focuses on advancing systems-informed approaches to cancer survivorship care continuity and coordination. She currently serves as Co-PI on a Collaborative Research Award for Fellows in Training (CRAFT)-funded project, with Drs. Julian Martinez and Amanda Acevedo of BRP, examining social network activation after healthcare experiences among Hispanic/Latine individuals. Dr. Flores also collaborates closely with the Office of Healthcare Delivery and Collaborative Engagement in the Center for Cancer Research—leveraging her training in systems thinking, social network analysis, and human-centered design to improve adolescent and young adult access to clinical trials.

Sara earned a Bachelor of Science in Health from the University of Houston in May 2020 and is a former trainee of the University of Texas MD Anderson Cancer Center's Department of Behavioral Science. In 2025, Dr. Flores earned her PhD in Health Education from the Texas A&M University School of Public Health. Her dissertation examined how young adult breast cancer survivors navigate social systems after completing active treatment, specifically how they navigate healthcare fragmentation while balancing their ongoing support needs with evolving relationship dynamics.

Title: *Dietary carbon footprint and the risk of colorectal cancer in the NIH-AARP Diet and Health Study*

Amelia Willits-Smith [Ah-MEE-lee-ah], MS, PhD, Health Behaviors Research Branch, BRP

Mentors: Kirsten Herrick, PhD, MSc, Program Director, Health Behaviors Research Branch, BRP and Jill Reedy, PhD, MPH, RD, Health Behaviors Research Branch, BRP

Objectives: There is growing interest in the potential health and sustainability co-benefits of dietary patterns, but few dietary assessments include measures of foods' environmental impact and little is known about these interrelationships for colorectal cancer (CRC). This study examines the relationship of diet carbon footprint (CF) – a measure of the emissions released in producing food for a diet – with diet



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quality and CRC risk in a large US cohort of older adults. **Methods:** We linked data from the NIH-AARP Diet & Health Study's 124-item food frequency questionnaire (FFQ) to DataFRIENDS to estimate diet CF (kg CO₂-equivalents per 2000 kcal). Participants with no cancer history who had FFQ and sociodemographic data (n=276,940 males & 188,496 females) were followed from baseline (1995-1996, at ages ≥ 50 years) through 2018. CRC cases were identified through probabilistic linkage to state cancer registries. Sex-stratified multivariable Cox proportional hazards models were used to estimate CRC risk for higher- compared to lower-CF diets, adjusting for energy, age, race or ethnicity, education, body mass index, physical activity, and smoking. Healthy Eating Index-2020 (HEI) component and total scores were computed to assess the relationship between diet CF and diet quality. **Results:** In fully adjusted models, the risk of CRC was higher among consumers of higher-CF compared to lower-CF diets. Compared to those in CF quintile 5, CRC risks were 9% lower in quintile 3 (male HR: 0.91 [0.85, 0.97]; female HR: 0.91 [0.83, 0.99]) and 8-12% lower in quintile 2 (male HR: 0.92 [0.86, 0.98]; female HR: 0.88 [0.80, 0.96]). Higher diet CF was also associated with lower total HEI (inversely correlated for males: $r=-.219$, $p<0.001$; females: $r=-.107$, $p<0.001$). Seven HEI component scores differed between higher-CF and lower-CF diets. The largest differences were in Saturated Fat and Fatty Acid Ratio scores, with less optimal scores in CF quintile 5, reflecting higher intake of saturated fat. **Conclusions:** Older Americans who reported a higher diet CF also had poorer diet quality and an increased risk of CRC. Foods higher in saturated fats often have higher carbon footprints, which might be driving these results, suggesting potential health and sustainability co-benefits of reducing them.

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

Title: *A Short Form of the eHealth Literacy Questionnaire (eHLQ-SF) for Practical and Comprehensive Assessment of Digital Health Literacy*

Maria A. Rincon, PhD, MPH, Office of the Director, BRP

Mentor: Roxanne E. Jensen, PhD, Outcomes Research Branch, HDRP

Background: Due to the growing importance of Internet resources in all aspects of life, digital literacy is recognized as an emerging social determinant of health. In healthcare, particularly among high need patients, like those with cancer, accessing and utilizing digital health technology can represent a significant advantage. This study assesses the validity of a short-form version of the eHealth Literacy Questionnaire (eHLQ) in a sample of cancer survivors. The aim of this study is to determine whether a



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short form of the eHLQ can adequately measure eHealth literacy and reduce respondent burden in a patient sample. **Methods:** Data from cancer survivors recruited through Prolific (n=375) was used to calculate the minimum number of items needed to be retained from the original eHLQ to calculate eHealth literacy scores. Principal Component Analysis (PCA) was employed to determine factor retention. The final instrument (eHLQ-SF) includes 14 items across three domains, with higher scores representing greater eHealth literacy (1-4). Of the original sample, 143 respondents were reassessed a year later using the eHLQ-SF, to determine test reliability and score stability over time. **Results:** Pearson Chi-square tests found statistically significant increases in mean scores across the three domains between 2025 and 2026 ($p < .001$). Cronbach's alpha values (domain 1 $\alpha = 0.73$; domain 2 $\alpha = 0.74$; domain 3 $\alpha = 0.75$) and intraclass correlation scores (domain 1 = 0.73; domain 2 = 0.74; domain 3 = 0.76) showed acceptable reliability. The subsample of respondents who completed the 2026 survey were not statistically different from the main sample by sex, race, ethnicity or age. **Conclusion:** Our findings show the eHLQ-SF is a reliable assessment of eHealth literacy, while decreasing respondent burden. Future work will focus on testing of this measure in non-patient populations to examine if the eHLQ-SF is generalizable and useful in broader research contexts.

Biosketch: Maria Rincon, PhD, MPH, is a Cancer Research Training Award Fellow (CRTA) in the Office of the Associate Director of the Behavioral Research Program. Under the mentorship of Dr. Richard Moser, Maria's work focuses on assessments and methods, particularly involving the Health Information National Trends Survey (HINTS), and HINTS-related resources, including the HINTS Data Linkage Project (HDLP). Maria earned her PhD in Social and Behavioral Sciences from Temple University. For her dissertation, Maria assessed the eHealth Literacy Questionnaire (eHLQ) in a low-income, urban minority population of cancer patients in Philadelphia, PA. Prior to her doctoral studies, Maria completed a 2-year internship in health communications in the Outcomes Research Branch with DCCPS's Healthcare Delivery Research Program. Maria received a Master of Public Health in epidemiology from the Yale School of Public Health. Maria's research interests focus on perceptions and outcomes in cancer, eHealth literacy, and leveraging use of digital health technology to enhance care experiences throughout the cancer experience.

Title: *Estimating Trends in Energy Intake from Nova Groups in the U.S. Youth and Adults Using the NCI Method*

Jacquelyn Bedsaul-Fryer, PhD, MPH, Health Behaviors Research Branch, BRP

Co-authors: Kevin W. Dodd, PhD and Euridice Martinez-Steele, PhD and Edwina Wambogo, PhD, MPH, RD

Mentor: Kirsten A. Herrick, PhD, MSc, Health Behaviors Research Branch, BRP

Objectives: Ultra-processed food (UPF) consumption may increase the risk of diet-related chronic diseases; thus, monitoring UPF intake over time remains essential. Adjusting for error in self-report estimates of dietary intake is needed to evaluate UPF exposure. We aimed to quantify the relative contribution (% of total kilocalories) of Nova groups—minimally processed food (MPF), processed culinary ingredients (PCI), processed food (PF), and UPF—to U.S. dietary intake and to assess trends over time. **Methods:** We estimated average contributions of each Nova group relative to total energy



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consumed in the U.S. population ages >2 years from ten cycles of the National Health and Nutrition Examination Survey (NHANES) 2001–2002 to August 2021–August 2023 using the National Cancer Institute method (NCI) applied to reliable 24-hour dietary recalls. Mean contributions were calculated for each cycle, adjusted for age, sex, poverty-to-income ratio, race/ethnicity, and mode of interview for dietary data collection. Polynomial (up to cubic) smoothing curves were fit to the cycle means (y) to characterize curvature in the trends over time on a by-year scale (x), using the Akaike Information Criterion (AIC) to choose the best fitting curves. **Results:** UPF energy contribution in the overall population exceeded that of other Nova groups, showing a quadratic trend ($y = -0.03(x-\mu)^2 - 0.06x + 56.7$; AIC -2.7; centering value $\mu = 12.2 = \text{mean}(x)$) over time. MPF energy contribution showed a cubic trend ($y = 0.001(x-\mu)^3 + 0.01(x-\mu)^2 - 0.27x + 33.0$; AIC -8.1). Relative to UPF and MPF, PCI and PF contributed less to total energy intake, showing cubic ($y = -0.001(x-\mu)^3 + 0.02(x-\mu)^2 + 0.25x + 2.4$; AIC -15.8) and quadratic ($y = 0.01(x-\mu)^2 + 0.07x + 8.0$; AIC -23.5) trends, respectively. Among youth, UPF contribution showed a quadratic trend for males ($y = -0.03(x-\mu)^2 - 0.08x + 61.9$; AIC 6.1) and a cubic trend for females ($y = 0.002(x-\mu)^3 - 0.03(x-\mu)^2 - 0.27x + 64.0$; AIC 6.5). In adults, UPF contribution showed quadratic trends (male: $y = -0.03(x-\mu)^2 - 0.05x + 54.6$; AIC -2.8; female: $y = -0.03(x-\mu)^2 - 0.06x + 55.5$; AIC 1.2). **Conclusions:** Ten cycles of NHANES dietary intake data reveal UPFs contribute the most to total energy intake compared to other Nova groups. Curvature in smoothed trends typically suggests UPF consumption in kilocalories has declined in more recent cycles.

Biosketch: Jacquelyn Bedsaul-Fryer, PhD, MPH, is a Cancer Prevention fellow in the Health Behaviors Research Branch, Behavioral Research Program. Dr. Bedsaul-Fryer has a secondary appointment in the Division of Cancer Epidemiology and Genetics, in the Infections and Immunoepidemiology Branch. Jacquelyn is interested in the integrated assessment of infections, immunity, diet, nutritional status, and host genetic factors to identify risk factors for cancer and targets for prevention.

In 2024, Dr. Bedsaul-Fryer earned her MPH from Johns Hopkins Bloomberg School of Public Health with a focus in human nutrition, epidemiology, and statistics. She earned her PhD in immunology from the Johns Hopkins University School of Medicine in 2022. Her work identified the mechanistic basis for a class of primary immunodeficiency disorders called CADINS that lead to frequent infections and autoimmune syndromes in children that manifest in an autosomal dominant manner.

Dr. Bedsaul-Fryer became interested in how modifiable risk factors like nutrition affect immunity, leading her to intern at not-for-profit foundation, Sight and Life, as a nutritional immunologist. There, she explored public health nutrition and collaborated towards reducing all forms of malnutrition in low-resource settings. Dr. Bedsaul-Fryer looks forward to bridging her interdisciplinary interests and experience in nutrition, infection, and immunity to prevent cancer.

Title: *Does Area-Level Context Moderate Associations Between Patient Sociodemographic Characteristics and Perceived Patient Care Communication (PCC)?*

Denine Crittendon [Deh-neen Krit-ten-dun], **PhD, MPH**, Healthcare Assessment Research Branch, HDRP
Co-authors: Amy Davidoff, PhD and Richard Moser, PhD



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Mentors: Amy Davidoff, PhD, Healthcare Assessment Research Branch, HDRP; and Richard Moser, PhD, BRP

Background: Primary care provider (PCP) availability and neighborhood socio-demographics may contribute to patient perceptions and ratings of their PCC experiences. **Objective:** We analyzed data from the 2022 Health Information National Trends Survey Data Linkage Project joined with Area Health Resource File (2021–2022) and American Community Survey (2018–2022) measures to examine associations of individual-level race-ethnicity and chronic condition characteristics; county-level PCP availability; and census-tract level racial, ethnic, and poverty compositions with low PCC scores (continuous) and low PCC Likert ratings about 3 provider behaviors: Spent Enough Time, Feelings Addressed and Help with Uncertainty, adjusting for covariates; and examined the moderating effect of PCP availability interacted with race-ethnicity and chronic conditions. **Results:** PCP availability, race-ethnicity, chronic conditions, and census-tract level attributes had no conclusive associations. However, relative to where their populations were minimal, living in census tract areas with moderate Black/African American populations (4.2% - 15.4%) increased the predicted probability of reporting low PCC ratings for Spent Enough Time by .07 percentage points on average ($p = .02$). Living in areas with high Hispanic ($\geq 22.4\%$) populations increased the probability of low PCC ratings for Help with Uncertainty by .08 percentage points on average ($p = .01$). In interaction models, living in low PCP availability areas (60–79 per 100,000) and reporting 2+ chronic conditions increased the predicted probability of reporting both low PCC scores, and low PCC ratings for Feelings Addressed. Decreased probabilities of reporting low PCC scores were also associated with PCP availability, race-ethnicity, and chronic conditions in main effect and interaction models. **Conclusion:** Individual and area-level attributes had some direct and indirect associations with low PCC scores and ratings. These findings highlight the importance of identifying community contexts and area-level healthcare resources where patients live, as they live, and how they may be considered among interventions targeted towards communication-related care quality disparities.

Biosketch: Denine Crittendon, PhD, MPH is an iCURE scholar and Cancer Research Training Award (CRTA) fellow and began her fellowship in the Healthcare Assessment Research Branch (HARB). She mainly worked on complex survey data analysis, survey development, and investigated healthcare delivery factors and area-level influences that impact quality of care. Dr. Crittendon received her BA in Sociology from Temple University and earned an MPH and PhD in Population Health Sciences from Thomas Jefferson University in Philadelphia, Pennsylvania. Her doctoral research employed group concept mapping techniques to visually and mathematically map the conceptual space of factors operationalized in healthcare delivery structures and processes that contribute to care quality disparities in an underserved population using early-stage non-small cell lung cancer as a case study.

Title: *Social Burden and Breast and Cervical Cancer Prevention Behaviors Among Asian American Women: An Analysis of the Behavioral Risk Factor Surveillance System*

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Co-authors: Jacqueline Hua, MPH, PhD and Amanda Acevedo, PhD

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Background: In the U.S., the burden of breast cancer (BC) is growing among Asian Americans (AsAs), especially among young women. AsAs also experience disparities in cervical cancer (CC), with some Asian ethnic groups experiencing late-stage CC diagnoses. Current trends in low BC and CC screening, and human papillomavirus (HPV) vaccination rates highlight a gap in prevention and screening. Factors associated with BC and CC prevention behavior are multifaceted and unique among AsA women.

Methods: We examined the associations between social determinants of health and health-related social needs (SDOH/HRSN) with BC and CC prevention behaviors among AsAs. The 2022-2024 Behavioral Risk Factor Surveillance System was used to examine the BC and CC screening utilization and adherence rates, and HPV vaccine uptake among AsA women. A cumulative score of twelve SDOH/HRSN items were used to examine the association with screening adherence and HPV vaccine uptake. **Results:** Adherence to BC (71%) and CC screenings (44%), and HPV vaccination uptake (44%) were suboptimal compared to the Healthy People 2030 goals. Increases in social burden scores were negatively associated with BC and CC screening adherence ($p < .001$) but were not associated with HPV vaccination uptake ($p = 0.74$). Lack of personal health care provider (HCP), cost as a barrier to seeing an HCP, and more than one year since a checkup were negatively associated with BC and CC screening adherence. Housing insecurity and lack of health insurance were also associated with BC screening adherence, while life dissatisfaction and lack of social and emotional support were associated with CC screening adherence. No social factors were associated with HPV vaccine uptake. **Conclusions:** The findings suggest a need for increased efforts to strengthen BC and CC prevention measures among AsA women. Barriers in healthcare access and utilization emphasize the importance of community-based and policy efforts to reduce the burden of BC and CC among AsAs.

Biosketch: Min Jeong (Jaime) Jeon, PhD, MPH, MSN, RN, APRN, CPNP-PC is a Cancer Prevention postdoctoral fellow in the Basic Biobehavioral and Psychological Science Branch of BRP. She works with Dr. Amanda Acevedo on projects related to psychosocial and behavioral factors associated with cancer prevention behavior and is conducting a scoping review of capacity building efforts for community-based participatory intervention research for cancer prevention and control. Dr. Jeon earned a PhD in Nursing from the George Washington University School of Nursing. Her dissertation focused on developing theory-based educational text messages to improve human papillomavirus awareness, knowledge, and vaccination intention among Korean American young adults. She earned an MPH from the Johns Hopkins University Bloomberg School of Public Health as part of the Cancer Prevention Fellowship, and an MSN in Pediatric Primary Care Nurse Practitioner from the Johns Hopkins University School of Nursing.

Title: *Adherence to recommendations after genomic secondary findings: Examining the roles of information avoidance and derogation*

Jacqueline Hua [Jack-Lin Who-uh], PhD, MPH, Basic Biobehavioral and Psychological Sciences Branch, BRP;

Co-authors: Rachel Clubine Horowitz, MPH, Amanda M. Acevedo, PhD, William M.P. Klein, PhD, Richard P. Moser, PhD, Leslie Biesecker, MD, and Julie Sapp ScM, CGC



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Mentors: Amanda M. Acevedo, PhD, Basic Biobehavioral and Psychological Sciences Branch, BRP; and William M.P. Klein, PhD, Rutgers University.

Background: The tendency to reject, deny, question (i.e., derogate) or entirely avoid health information can have negative implications for adherence to treatment recommendations. One important context to assess the combined effects of derogation and avoidance on adherence is exome/genome sequencing. Patients who receive secondary findings (SF), such as genetic variants linked to an elevated risk for certain cancers, are recommended to consult a specialist to discuss these results. Failure to follow up may delay diagnosis and treatment, which could lead to adverse health outcomes. **Objective:** The present study examined a main effect for health information avoidance and whether derogation of SF moderated the association between information avoidance and adherence to recommendations among patients who received SF from genetic testing. **Methods:** We conducted an analysis of cross-sectional survey data from the Genomic Services Research Program Study. Using the Hayes PROCESS macro, we tested a moderated logistic regression model predicting adherence to recommendations to see a specialist with tendency to avoid health information as the independent variable and derogation of SF as the moderator. Covariates included age, sex, education, income, survey follow-up time, and type of SF. **Results:** There were no significant main or interacting effects of health information avoidance and SF derogation on adherence to recommendations. Older age (OR=.97, 95% CI=.95-.99), male sex (OR=.49, 95% CI=.26-.93), and having non-cancer and non-cardiac types of SF (OR=.33, 95% CI=.13-.83) were associated with lowered odds of adherence. Higher income (OR=1.28, 95% CI=1.05-1.56) was associated with greater odds of adherence. **Discussion:** Further research is needed to assess the potential roles of health information avoidance and derogation in adherence to recommendations following genetic testing. Providers should consider putting forth additional efforts to promote follow-up visits among male, low-income, and older patients as well as patients who receive non-cancer and non-cardiac SF.

Biosketch: Jacqueline (Jacky) Hua, MPH, PhD is a Cancer Prevention Fellow in the Basic Biobehavioral and Psychological Sciences Branch in the Behavioral Research Program. Dr. Hua's research focuses on the intersection of social and health psychology. Specifically, she is interested in how psychological and social factors, such as cultural values, self-affirmation, and identity influence cancer-related decision making and health behaviors. Her most recent projects examined predictors of uptake of novel cancer screening technologies, including HPV self-sampling and Multi-Cancer Early Detection Tests. Before joining the NCI, Dr. Hua earned a PhD in psychological sciences with a concentration in health psychology from the University of California, Merced. Her dissertation proposed and tested a theoretical model informed by research in health psychology and behavioral economics to predict decisions to avoid health information. As part of the Cancer Prevention Fellowship, she also earned a Master of Public Health degree in epidemiology from the University of California, Berkeley where she conducted a systematic review of interventions to improve cervical cancer screening among Vietnamese populations.