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Hilton Denver City Center

Conference Abstracts

50 Years of Impact: Empowering Communities Through Cancer Prevention Research

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Relative Risks of HPV-Related Second Cancers Among Adult Cancer Survivors by Race and Ethnicity

Cho AJ, Vo JB, Morton LM, Wang Y, Ho STY, Tao J, Roy S, Poudel PG, Shiels MS, Kreimer AR, Shing JZ

Purpose: Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States, and prevalence varies by race and ethnicity. Research on whether these disparities are extended to second HPV-related cancer development among cancer survivors who experience increased treatment-related adverse effects and immunosuppression is limited.

Methods: Using 2000-2022 U.S. Surveillance, Epidemiology and End Results 17 registries data, we calculated standardized incidence ratios (SIRs) for second HPV-related cancers (cervical carcinoma, and vulvar, vaginal, anal, oropharyngeal, and penile squamous cell carcinoma) among all cancer survivors aged 20-89 years compared to race-and ethnicity-matched general populations. Analyses were stratified by index cancer site and race and ethnicity [Hispanic, American Indian/Alaska Native (AIAN), Asian American or Pacific Islander (AAPI), Black, and White].

Results: During 2000-2022, 14,558 total HPV-related second cancers occurred among 7,067,251 adult cancer survivors. Among women with uterine cancer, Black women had the highest second cervical carcinoma risk (n=46, SIR=2.6, 95%CI=1.9-3.5) compared with other races and ethnicities. Among women with index cervical carcinoma, second vaginal cancer risk was elevated for most races and ethnicities, especially for AAPI women (n=23; SIR=101.5, 95%CI=64.3-152.3). For most races and ethnicities, men with Kaposi sarcoma had elevated second anal cancer risk, especially for Hispanic men (n=11; SIR=71.5, 95%CI=35.7-127.9). Among men with diffuse large B-cell lymphoma, second anal cancer risk was highest for Black (n=13, SIR=20.0, 95%CI=10.6-34.1) and Hispanic (n=11, SIR=17.9, 95%CI=8.9-32.0) men. Second oropharyngeal cancer risk was most elevated among patients with other first head and neck cancers, especially for AAPI patients with oral cavity and pharynx cancers (n=65, SIR=23.7,95%CI=18.3-30.1) and larynx cancers (n=12, SIR=21.2, 95%CI=10.9-37.0).

Conclusions: Second HPV-related cancer risk varied by race and ethnicity for several index cancers. Patterns likely reflect differences in treatment impact and prevalence of HPV and HIV by race and ethnicity.

Recent Trends in Anal Cancer Mortality Rates and Major Causes of Death in the United States, 2001-2022

Garg A, Damgacioglu H, Sigel K, Chiao EY, Montealegre J, Meissner EG, Lazenby G, Sterba K, Sonawane K, Deshmukh AA

Purpose: Incidence of squamous cell carcinoma of the anus (SCCA) in the U.S. has been increasing by ~2% annually, with a particularly steep rise (>5% per year) among individuals aged ≥60 years. It remains unclear whether this increasing incidence is accompanied by a rise in mortality. This study evaluated contemporary trends in SCCA mortality rates and examined causes of death among patients with SCCA.

Methods: Using data from the National Center for Health Statistics and SEER-17 Standardized Mortality Ratios (SMRs) database, we evaluated trends in observed and incidence-based mortality rates for anal cancer, as well as SMRs for causes of death among patients with SCCA. Cancer cases were identified using ICD-O-3 topography and histology codes specific to squamous cell carcinoma. Analyses were conducted using SEER*Stat and Joinpoint Regression Program.

Results: Overall, anal cancer mortality rates increased sharply in recent years among both men (4.1%/year, 2001-2021) and women (5.6%/year, 2014-2022). Age-stratified analyses revealed significant increases among adults aged ≥40 years; most pronounced increases were among those aged 40-59 years (5.8%/year, 2018-2022) and 60-79 years (6.2%/year, 2014-2022). Among male SCCA patients, 25% of deaths were attributable to SCCA, 33% to other malignancies, 11% to infectious diseases (including HIV), and 31% to other non-cancer causes. Among female patients, 28% of deaths were due to SCCA, 36% to other malignancies, 35% to other non-cancer causes, and 1% to infectious diseases. Notably, the mortality rate from infectious diseases among males with SCCA was nearly 37 times higher than in the general population (SMR: 37.3), whereas in females, it was three times higher (SMR: 3.4).

Conclusion: Anal cancer mortality has risen sharply, especially among adults aged ≥60. Infectious disease - related deaths - particularly among men - are markedly elevated, highlighting the ongoing impact of HIV and associated comorbidities. These findings underscore the need for improved targeted preventive strategies, early detection, and comprehensive management to address both cancer- and non-cancer-related mortality in SCCA patients.

Health-Related Social Needs and HPV Self-Collection Among Women Under-screened for Cervical Cancer: A Secondary Analysis of the My Body My Test-3 Randomized Clinical Trial

Ganguly AP, Pretsch PK, Brewer NT, Mansfield LN, Spees LP, Hudgens MG, Sanusi B, Barclay L, Wheeler SB, Smith JS.

Purpose: To explore whether the effect of human papillomavirus (HPV) self-collection intervention varies by health-related social needs (HRSNs) among women under-screened for cervical cancer.

Methods: We conducted a secondary analysis of a randomized clinical trial that found an HPV self-collection intervention doubled cervical cancer screening uptake. Trial participants were 665 low-income women in North Carolina overdue for screening. Participants in the intervention arm received a mailed HPV self-collection kit and scheduling assistance for in-clinic cervical cancer screening, and the control arm received scheduling assistance alone. The primary trial outcome was cervical cancer screening uptake within 6 months, defined as a negative HPV test result from a self-collected sample or attending in-clinic screening. Analyses examined the interaction of trial arm and each HRSN on screening uptake with the Wald test; for significant interactions, we examined the intervention effect on cervical cancer screening uptake using risk ratios (RR).

Results: HRSNs were worry about cost of follow-up (87% of participants), worry about cost of screening (76%), receipt of social assistance (49%), difficulty with work leave for screening (36%), >30 minutes of travel for appointments (32%), worry about wages lost for screening (31%), lack of personal vehicle (30%), and childcare/caregiving barriers to screening (16%). The HPV self-collection intervention was more effective at increasing cervical cancer screening uptake among women with childcare/caregiving barriers to screening (interaction p=0.02). Among those with childcare/caregiving barriers, screening uptake was 80% in the intervention arm and 23% in the control arm (RR 3.4 [95% CI 1.8-6.7]). Among those without childcare/caregiving barriers, screening uptake was 78% vs. 52% (RR 1.5 [95% CI1.3-1.8]). For the other 7 measures, HRSN did not interact with trial arm, though the intervention effect was positive for participants with and without each HRSN.

Conclusions: HPV self-collection was effective in all HRSN strata, particularly among women reporting childcare or caregiving barriers to screening. HRSN remain an important contextual factor to inform future HPV self-collection interventions among under-screened women.

Addressing Low HPV Vaccine Uptake among Childhood Cancer Survivors: Evaluation of a Multicomponent Intervention in Pediatric Oncology Clinics

Shay LA, Teixeira RA, Embry L, Murphy CC, Grimes A

Background: Childhood cancer survivors (CCS) experience increased risk for subsequent HPV-related cancers, yet this population has low rates of HPV vaccination. Rather than returning to primary or pediatric care after completing cancer treatment, many CCS continue follow-up care in oncology clinics, which typically do not offer the HPV vaccine.

Methods: We developed and implemented a multicomponent HPV vaccine intervention across five pediatric oncology clinics in Texas from 2019 to 2022. The intervention included annual provider and staff education and assistance to ensure on-site vaccine availability. This analysis assessed (1) HPV vaccine initiation and completion rates at baseline and across the four-year project and (2) patient-level predictors of HPV vaccine uptake by project end.

Results: A total of 1,113 vaccine-eligible CCS had at least one visit at an oncology clinic during the project period. HPV vaccine initiation (≥ 1 dose) increased from 31.8% (95% CI: 29.1%, 34.5%) at baseline to 74.8% (72.2%, 77.3%) at project end. Completion of the 3-dose HPV vaccine series rose from 14.5% (12.4%, 16.5%) to 46.8% (43.9%, 49.7%), with series completion ongoing at project end. Hispanic and female patients had the highest rates of HPV initiation and completion.

Conclusions: Our study provides strong evidence that CCS are substantially under-vaccinated for HPV , yet uptake increased markedly when HPV vaccines were offered in oncology clinics. These findings highlight the effectiveness of integrating vaccine delivery and provider education into survivorship care and underscore the importance of making HPV vaccines available in pediatric oncology settings.

Omic-Scale Per- and Polyfluoroalkyl Substances (PFAS) Exposure and Breast Cancer Incidence: Findings from a Nationwide U.S. Cohort

Chang C, Pullella K, Young AS, Keil AP, Jones DP, Hu X, Walker DI, White AJ

Purpose: Although certain legacy PFAS have been associated with breast cancer risk, <1% of nearly 15,000 PFAS compounds have been studied with limited consideration of emerging or replacement PFAS. We evaluated PFAS on an omics-scale, considering both individual PFAS and PFAS mixtures, in relation to incident breast cancer.

Methods: In a case-cohort sample (1,988 breast cancer cases, 2,321 subcohort participants) from the Sister Study, baseline blood samples (2003-2009) were analyzed by untargeted liquid chromatography-high-resolution mass spectrometry. Features were extracted (XCMS, xMSanalyzer) and annotated (xMSannotator) using the EPA CompTox PFAS Master List. Breast cancer was self-reported and confirmed via medical record. Exposome-wide association analyses used Cox models with multiple comparison correction (20% false discovery rate). Network analysis was used to identify PFAS mixtures, and quantile-based g-computation was used to estimate the joint effects of the PFAS within each mixture on incident breast cancer. Models adjusted for age, race, and education, accounting for case-cohort design and sampling weights.

Results: Participants had a median age of 55.6 years and were mostly non-Hispanic White with relatively high socioeconomic status. A total of 2,418 potential PFAS features were detected. No individual PFAS was significantly associated with incident breast cancer after multiple comparison correction. One feature annotated as 1,1,1,2,2,3,3,4,4-nonafluoro hexadecane showed a suggestive positive association (HR=1.20, 95%CI=1.01–1.43, p<0.01, q=0.48). Network analysis identified nine PFAS mixtures, each comprising at least 10 correlated PFAS. Mixture 4, consisting of 19 potential PFAS, was positively associated with estrogen receptor (ER) and progesterone receptor (PR) negative tumors (HR=1.46, 95%CI=1.01–2.11). Mixture 2, containing 89 PFAS, was associated with ER+ and/or PR+ tumors, although the CIs were wide (HR=1.93, 95%CI=0.89–4.18).

Conclusion: We observed associations between novel PFAS mixtures and breast cancer, with heterogeneous effects across tumor receptor subtypes. This is the first population-based study to evaluate PFAS at this scale, suggesting that emerging PFAS mixtures may contribute to breast cancer risk.

Extreme weather event exposure and perceptions of harm from air pollution among U.S. adults: Results from the 2024 NCI Health Information National Trends Survey (HINTS)

D'Angelo H, Canton I

Purpose: To examine whether being affected by extreme weather (EW) is associated with greater perception of health risks from air pollution.

Methods: Data were from NCI's HINTS 7 (2024, n=6,482 US adults). National estimates of indoor (IAP) and outdoor (OAP) air pollution harm perceptions (any vs. no harm) were obtained. Weighted logistic regression models examined associations between being affected by EW in the past 12 months (not at all, some/a little, a lot) and IAP and OAP harm perceptions. Models were adjusted for cancer history, believing everything causes cancer (yes/no), lung disease history, age, sex, race, ethnicity, education, income, metro status and US region.

Results: Two thirds of US adults (66.7%, 95% CI 64.3%, 69.2%) perceive IAP as harmful to health; among adults affected by any EW, 73.8% perceived IAP as harmful (95% CI 71.1%,76.3%). Almost 80% of US adults perceived OAP as harmful (78.3% 95% CI [76.3%, 80.1%]); among adults affected by any EW, 85.5% (95%CI 83.5%,87.2%) perceived OAP as harmful. In adjusted models, being affected by EW some/a little (vs. not at all) was associated with 2.6 times greater odds (95% CI: 2.1, 3.3) of perceiving IAP as harmful, and being affected "a lot" was associated with 5.5 times greater odds (95% CI: 3.7, 8.0). Similar results were found for OAP, with those affected by EW some/a little (AOR 3.5(95%CI: 2.8, 4.5)) and a lot of (AOR 7.6 (95%CI: 4.6,12.3)) having greater odds of perceiving OAP as harmful, compared to not being affected by EW. Living in a metro area, being diagnosed with a lung disease and believing that "everything causes cancer" each were associated with significantly greater odds of perceiving both IAP and OAP harm.

Conclusions: Air pollution exposure has been linked to poor health outcomes, including increased cancer risk. Public perception of risk from air pollution (a strong predictor of being exposed to air pollution), is important for understanding who is exposed, and how to promote protective behaviors. US adults who have experienced extreme weather events report perceiving both IAP and OAP as harmful to their health. Those experiencing EW may be especially vulnerable to the health effects of air pollution and in need of interventions to increase protective behaviors.

Impacts of Hurricane-Related Flooding on Time to Initial Cancer Directed Treatment in North Carolina

Pak J, Jackson BE, Ranapurwala S, Hino M, Engel LS, Reeder-Hayes KE, Evans-Strong JL, Lund JL

Purpose: To evaluate the association between exposure to Hurricanes Matthew (2016) and Florence (2018) and time to initial cancer-directed treatment among individuals diagnosed with breast, colorectal, or lung cancer in North Carolina.

Methods: We conducted a quasi-experimental observational study using a controlled interrupted time series design with autoregressive integrated moving average models.

Data were drawn from the North Carolina Central Cancer Registry and included 59,406 patients diagnosed with breast (n=28,070), colorectal (n=12,943), or lung cancer (n=18,393) between November 2015 and August 2019 who initiated treatment within 12 months of diagnosis. Hurricane exposure was defined using (1) presidential disaster declarations at the county level (FEMA) and (2) modeled flood extent data (FLDEX) at the county and ZIP code levels. The primary outcome was monthly median time to initial cancer-directed treatment, including surgery, chemotherapy, immunotherapy, hormone therapy, or radiation. Immediate (level change) and sustained (trend change) effects were estimated overall and stratified by cancer type and demographic subgroups.

Results: No significant immediate or sustained changes in median time to treatment were observed overall using the county-level FEMA exposure definition. Stratified analyses suggested the effects of hurricane exposures on median time to treatment were elevated in rural residents, younger adults, females, and non-Hispanic Black colorectal cancer patients. However, using ZIP code-level FLDEX data, we found that colorectal cancer patients in high-flood exposure ZIP codes (>0.5% flooded) experienced significant immediate median delays of 10.97 days (95% CI: 2.1, 19.9) in treatment initiation in the month following hurricane landfall.

Conclusion: The use of granular, modeled flood extent data revealed delays in treatment initiation among colorectal patients living in areas with greater flooding impacts, particularly those from rural or historically marginalized groups. These findings highlight the importance of using more precise hazard data in evaluating the health effects of hurricanes and prioritizing disaster preparedness strategies that address population vulnerability.

Drinking Water Contaminants in Community Water Systems and Risk of Breast Cancer in the California Teachers Study Cohort

Lydia Marcus Post, Maya Spaur, Laura E. Beane Freeman, Jared A. Fisher, Alexander P. Keil, Emma S. Spielfogel, Komal Bangia, James V. Lacey, Jr., Mary H. Ward, Gretchen Gierach, Rena R. Jones

Purpose: Many drinking water contaminants are known or suspected carcinogens and some are endocrine disrupting, but few epidemiologic studies have evaluated their associations with breast cancer risk. We sought to investigate these relationships in a US-based cohort.

Methods: We assessed long-term average (1990-2005) concentrations of individual and total trihalomethanes (TTHMs), nitrate, arsenic, and uranium in community water systems that served enrollment addresses in the California Teachers Study, a cohort of female educators enrolled 1995-1996 with follow-up through 2020. Our analytic sample (N=68,055) was cancer-free at enrollment and lived >10 years at their address. We used Cox models to estimate hazard ratios and 95% confidence intervals (HRs [CIs]) across categories (quartiles/90th percentile) for associations with breast cancer overall (N=6,749), by disease extent (in situ [19%] or invasive tumors [81%]) and estrogen receptor (ER) status (ER+ 73%, ER- 12%). We adjusted for age, body mass index, first degree family history of breast cancer, and neighborhood socioeconomic status. We evaluated a mixture effect via quantile-based g-computation.

Results: Higher average TTHM levels were positively associated with breast cancer risk overall (HR>90vs<25th=1.08 [0.99-1.18], ptrend<0.01) and with invasive (HR=1.06 [0.96-1.18], ptrend=0.01) and ER+ (HR=1.13 [1.02, 1.25], ptrend<0.01) tumors, but we found no clear relationship with in situ (HR=1.13 [0.93-1.37], ptrend=0.13) or ER- (HR=1.05 [0.82-1.36], ptrend=0.87) tumors. Among THMs, bromoform was associated with overall breast cancer, invasive, and ER+ tumors (ptrend<0.05), and chloroform with ER+ tumors (ptrend=0.01). We found no relationships with arsenic, nitrate, or uranium. An interquartile range increase in the contaminant mixture was associated with invasive (HR=1.10 [1.00-1.21]) and ER+ (HR=1.07 [0.97-1.19]) tumors; TTHM was the main contributor. We saw no associations for in situ (HR=0.91 [0.74-1.11]) or ER- (HR=0.95 [0.74-1.22]) disease.

Conclusions: We found that THMs were associated with increased breast cancer risk, with potential differences by disease extent and ER status. Further investigation into these exposures as potentially modifiable risk factors for breast cancer is warranted.

A Socio-ecological Analysis of Factors Influencing the Perceived Value of Multicancer Early Detection Testing in the United States

Wang C, Komsany A, Pinheiro LC, Phillips E

Purpose: Multi-Cancer Early Detection (MCED) tests represent a novel advancement in cancer diagnostics, detecting multiple cancer types through a single blood draw.

While MCED technologies show clinical promise, their adoption relies on public acceptance. This study aims to identify factors shaping public receptivity to MCED testing to support equitable implementation.

Methods: Using a socio-ecological framework, we analyzed nationally representative data from the 2024 Health Information National Trends Survey to examine predictors of perceived MCED value across proximal, intermediate and distal levels. Survey-weighted logistic regression estimated adjusted odds ratios (aOR) with 95% confidence intervals (CI).

Results: A total of 7,208 adults were included; 73.6% rated MCED testing as moderately/highly valuable. Adults aged 45+ years had over twice the odds of valuing MCED testing versus those aged 18-34 years (aOR = 2.45, 95% CI = 1.75-3.43). Hispanic (aOR = 2.07, 95% CI = 1.38-3.09) and Non-Hispanic Black respondents (aOR = 1.80, 95% CI = 1.17-2.76) reported greater receptivity than Non-Hispanic Whites. Higher annual household income (aOR = 1.28, 95% CI = 1.00-1.64), health care system trust (aOR = 1.55, 95% CI = 1.16-2.09), health care discrimination (aOR = 1.59, 95% CI = 1.04-2.43) and longer wait times (aOR = 1.37, 95% CI = 1.01-1.87) were associated with higher perceived value. Individuals involved in health care decisions were less likely to value MCED (aOR = 0.72, 95% CI = 0.53-0.98) those who were not involved.

Conclusions: Public receptivity to MCED testing appears to be influenced by sociodemographic, psychosocial and structural factors. Greater receptivity among individuals who self-identify as Black/Hispanic individuals and those reporting health care discrimination may reflect "protective vigilance" in response to systemic barriers. These findings highlight opportunities to design targeted interventions that promote equitable MCED uptake through trust-building and follow-up across diverse populations.

Mediation of Body Adiposity and Renal Cell Carcinoma Risk by Inflammatory, Metabolic, and Sex Hormonal Biomarkers

Deng Z, Li M, Jung M, L'Esperance K, Moore J, Rehkopf D, Lu Y, Baiocchi M, Chung BI, Langston ME

Purpose: Excess adiposity is a major risk factor for renal cell carcinoma (RCC), but the biological pathways driving this association remain poorly understood. This study estimates the extent to which metabolic, inflammatory, and sex hormonal pathways mediate the association between excess adiposity and RCC risk.

Methods: This cohort study included 243,035 females and 210,180 males from the UK Biobank. Potential mediators of the body mass index (BMI) and RCC relationship included biomarkers representing three pathways: systemic inflammation [C-reactive protein (CRP), systemic inflammation response index (SIRI)], metabolic dysregulation [glucagon-like peptide-1 (GLP-1), high-density lipoprotein (HDL), low-density lipoprotein (LDL), triglyceride], and sex hormonal dysregulation [sex hormone-binding globulin (SHBG), testosterone, estradiol]. Cox proportional hazards models with causal mediation method quantified the hazard ratios (HR) with 95% confidence intervals for the total effect for BMI and RCC risk, the natural direct effect, the natural indirect effect (HR_NIE), and the proportion mediated through each biomarker, each pathway, and all pathways. We also evaluated alternative adiposity measures including waist circumference, body fat percentage, trunk fat percentage.

Results: We observed 406 and 710 RCCs in females and males during a median follow-up of 13.6 years. A one-interquartile range increase in BMI (5.75 kg/m2) was associated with an HR of 1.31 (1.17-1.48) and 1.35 (1.20-1.50) in females and males, respectively. Of these total effects, 46.81% in females [HR_NIE =1.12 (1.02-1.24)] and 27.74% in males [HR_NIE=1.08 (1.01-1.14)] operated through all three pathways. Inflammatory, metabolic, and hormonal pathway each mediated 31.25%, 26.47%, and 21.46% of the total effect in females, and 17.96%, 8.93%, and 8.78% in males. CRP, HDL, and SHBG each mediated >10% of the total effect in both sexes, while triglycerides did so only among females. Other adiposity measures yielded similar results.

Conclusions: Inflammatory, metabolic, and sex hormonal pathways explain a large proportion of the association between body adiposity and RCC risk. Future studies are warranted to identify molecular targets for RCC prevention.

Cascading Payment Barriers Across the Precision Oncology Continuum: From Treatment to Prevention and Implications for Multi-Cancer Detection Tests

Mrig, EH

Purpose: To characterize how insurance coverage barriers create cascading disparities across precision oncology applications and identify predictable patterns affecting multi-cancer detection (MCD) test implementation.

Methods: We used convergent mixed methods to examine payment pathway barriers in precision oncology, covering treatment and prevention. Quantitative analysis utilized natural language processing of electronic health records (EHR) to identify payment pathways (insurance reimbursement, financial assistance, self-pay) for molecular diagnostic testing. It also assessed associations with patient factors like age, socioeconomic status, race/ethnicity, insurance, and clinical setting (N=10,291). Semi-structured interviews were conducted with patients (N=74), clinicians (N=10), and staff (N=10) across academic and safety-net settings to explore institutional resources affecting payment access. Data analysis used modified grounded theory to uncover mechanisms linking coverage barriers to disparities.

Results: Analysis showed consistent cascade patterns across contexts. Barriers included guideline multiplicity, causing unpredictable coverage, coding mismatches leading to denials, burdensome appeals, and delayed specialist referrals. EHR revealed disparities in initial test access and financial assistance, indicating safety net mechanisms may perpetuate rather than remedy inequities. Institutional resources varied greatly; academic centers employed more prior authorization coordinators and navigators. Despite support, cascade delays persisted, often lasting weeks to years, disproportionately affecting safety-net patients and those with public insurance.

Conclusions: Payment barriers create predictable cascading effects across the precision oncology continuum. MCD implementation will likely face similar challenges, with early cascade points triggering downstream access disparities. Critically, disparities extend beyond initial coverage to financial assistance access, indicating insufficient safety net approaches. Interventions targeting specific cascade stages, particularly early institutional coverage navigation support, may prevent disparity amplification as MCD testing is adopted.

Associations of Steroid Hormone Metabolites and Mammographic Breast Density

Pourali G, Matthew KA, Jeon MS, Luo C, Patti GJ, Luo J, Toriola ATT

Purpose: To investigate associations of steroid hormone metabolites with volumetric mammographic breast density (MBD) among premenopausal women.

Methods: We included 700 premenopausal women undergoing screening mammography. Fifty-four steroid hormone metabolites were quantified (Metabolon®), and volumetric percent density (VPD), dense volume (DV), and non-dense volume (NDV) were assessed using Volpara. Multivariable linear regression was used to estimate adjusted means of VPD, DV, and NDV across metabolite tertiles and on a continuous scale, adjusting for age, body fat percentage, age at menarche, race, alcohol use, family history of breast cancer, oral contraceptive use, body shape at age 10, and parity/age at first birth. Significance was defined at false discovery rate (FDR) pâ‰¤0.05.

Results: One corticosteroid metabolite (cortolone glucuronide) and four androgenic steroid metabolites, androstenediol (3ß,17ß) monosulfate (2), androstenediol (3ß,17ß) disulfate (1), 5ÎffI-androstan-3ÎffI,17ß-diol monosulfate (2), and 5ÎffI-androstan-3ÎffI,17ß-diol disulfate, were inversely associated with VPD.

For instance, VPD decreased across tertiles of cortolone glucuronide: 8.9%, 8.3%, and 7.3% (p-trend=7.6×10^{-5}; FDR p=0.01).. One progestin metabolite, 5ÎffI-pregnan-3ß,20ÎffI-diol monosulfate (2), showed marginal positive association with VPD (p-trend=4.6×10^{-3}; FDR p=0.06). Pregnenolone metabolites were not associated with VPD. Two corticosteroid metabolites, tetrahydrocortisol glucuronide and cortolone glucuronide, were positively associated with NDV. NDV increased across tertiles of cortolone glucuronide: 744.3, 829.0, and 931.8 cm^3 744.3, 829.0, and 931.8 cm^3 (p-trend=4.6×10^{-6}; FDR p=7.5×10^{-4}). No metabolites were associated with DV.

Conclusion: Cortolone glucuronide and four androgenic steroid metabolites were inversely associated with VPD, identifying novel metabolite targets for potential interventions to reduce MBD in premenopausal women.

Trends in the Contributions of Ultra-processed Foods and Beverages to Total Energy Intake in the U.S. Population, 2 Years and Older: NHANES 2001-2002 through August 2021-August 2023

Bedsaul-Fryer JR, Wambogo E, Martinez-Steele E, Herrick KA

Purpose: Ultra-processed foods (UPFs), one of four groups in the Nova classification system used to describe the processing level of foods and beverages, have increasingly been linked to cancer. We aimed to evaluate trends in the relative contribution of UPFs to total dietary intake and stratified by foods and beverages in the U.S. population.

Methods: The estimated contribution of Nova groups to total energy intake was calculated from satisfactory 24-hour dietary recalls in NHANES, 2001-2002 to August 2021-August 2023 among those aged 2 years and older. Analyses were conducted for overall intake and stratified by foods and beverages using the NCI method to estimate usual intake distributions, adjusting for the mode of interview, age, sex, race/ethnicity, and poverty-to-income ratio. Linear trends for Nova groups were considered significant at p=0.0004 to account for 10 survey cycles, 3 dietary intake strata, and 4 Nova group comparisons. Dietary sample weights were used to obtain nationally representative estimates.

Results: Across all survey cycles, UPFs contributed an average of 55% of the population's total energy intake, while minimally processed foods, processed culinary ingredients, and processed foods contributed 31%, 5%, and 9%, respectively, to total energy intake. The contributions of UPF to total energy intake slightly decreased over time (trend: -0.11% [95% CI: -0.16, -0.05%], p=0.0003). No significant linear trend was observed for the contribution of UPF to total energy intake of food over this period (trend: -0.03% [95% CI: -0.09, 0.27%], p=0.298). The contribution of UPFs to total energy intake of beverages slightly decreased over time (trend: -0.41% [95% CI: -0.51, -0.32%], p=4.00e-15).

Conclusions: U.S. American diet is predominated by UPFs as compared to other Nova groups over the last two decades. The percent contribution of UPFs from beverages to total energy intake decreased significantly by approximately 4% from 2001–2002 to August 2021–August 2023, while the contribution of UPFs from foods remained relatively constant over this period. NCI method and stratification by foods and beverages is useful for quantifying UPF exposure changes needed for future diet-cancer analyses and dietary prevention interventions.

The Impact of SB793 on Adult Cigarette, E-cigarette and Marijuana Use: A Causal Inference Approach (2017-2023)

Peters B, Yang S, Bauldry SG

Purpose: California banned the sale of flavored tobacco products after SB793 was signed into law in 2022. Several localities already had flavor restrictions in place before the passage of SB 793. This study aims to examine the impact of SB 793 on adult product (cigarette, e-cigarette or marijuana) use and whether the effect differed across localities with an existing flavored tobacco restriction or not.

Methods: We used data from the California Health Interview Survey (CHIS) from 2017 (2017-2022: pre-policy) to 2023 (post-policy). Outcome measures included current use of cigarettes, e-cigarettes, and marijuana. All models controlled for age, race/ethnicity, and education. Using a doubly difference-in-difference model, we tested the impact of SB 793 on adult product use across localities with and without an existing flavored tobacco restriction. Four separate models were estimated for cigarette use, e-cigarette use, marijuana use, and any substance use (cigarette, e-cigarette, or marijuana = 1; none = 0), respectively.

Results: All the models estimated a decrease in use after adjusting for covariates but only the substance and cigarette use models were statistically significant. Exposure to both a local policy and the state law was associated with a reduction of 1.5 to 1.8 percentage points (e.g., dripw: −0.015, 95% CI: −0.026 to −0.005) in the cigarette model and a reduction of 2.2 to 3.5 percentage points (e.g., dripw: −0.022, 95% CI: −0.052 to −0.008) in the substance use model relative to exposure to only the state law.

Conclusion: When paired with a comparable state law, local flavor restrictions significantly impacted adult cigarettes and overall substance use.

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Care Engagement for Cancer Survivors: The Role of Insurance Type and Instability

Mobley EM, Garvan G, Crisp AC, Puri R, Guo Y, Mailhot RB, Fisher C, Westlake R, Gilman M, Anton S, Braithwaite D, Parker AS

Purpose: Cancer survivors face persistent barriers accessing care, yet the role of insurance coverage and instability remains poorly understood. This study examined how insurance type and instability (or change in coverage over time) influenced care engagement along the cancer survivorship care continuum among survivors in the OneFlorida+ Clinical Research Network, part of the PCORnet Research Data Network.

Methods: We identified 521,547 survivors with at least two encounters on two different days with a cancer ICD-10 code from 2012-2023, using encounter-level electronic health record data. Missing data were addressed using multivariate imputation by chained equations. We applied multivariable negative binomial and zero-inflated negative binomial models to estimate associations between insurance characteristics and care engagement, specifically, 1) any outpatient non-acute visit, 2) any cancer-related visit with any provider, 3) a cancer-related visit with a cancer provider, and 4) a survivorship visit. Independent variables included insurance type and instability, age, sex, ethnicity, and cancer site.

Results: Insurance type and instability emerged as strong predictors of survivorship care engagement. Survivors who were uninsured were less likely to have an outpatient visit (RR 0.84; 95%CI 0.84, 0.85), but more likely to have a cancer-related visit with any provider (RR 1.40; 1.36, 1.44) and a cancer provider (OR 2.10; 2.04, 2.16), as well as a survivorship visit (OR 2.52; 2.37, 2.68) compared to survivors with private insurance. Survivors experiencing insurance instability were less likely to have a cancer-related visit with any provider (RR 0.87; 0.87, 0.88) and a cancer provider (OR 0.51; 0.50, 0.52), as well as a survivorship visit (OR 0.49; 0.47, 0.51) compared with those with stable coverage.

Conclusions: Insurance coverage and continuity are critical, and often overlooked, determinants of survivorship care engagement. The findings highlight an urgent need for multi-level interventions that promote insurance stability and empower survivors to maintain consistent access to follow-up and survivorship services. Addressing insurance gaps may represent one of the most actionable strategies to advance continuous cancer survivorship care across health systems.

Are Disruptions in Medicaid Coverage Linked to Advanced Stage Diagnosis of Common Cancers?

Pal Choudhury P, Zhao J, Wang S, Jemal A, Han X, Islami F, Yabroff KR

Purpose: We aimed to investigate whether disruptions in Medicaid coverage are associated with advanced stage diagnosis of disease for four common cancers.

Methods: Using the recent Surveillance, Epidemiology and End Results (SEER) linked Medicaid database (189,580 patients aged 18-64 years, diagnosed with cancers of breast, prostate, colorectum, or lung between 2015-2019), we conducted separate multinomial regression analyses adjusted for race/ethnicity, sex, age and year of diagnosis, state of residence, rural/urban region, subtypes (breast cancer) and tumor location (colorectal cancer) to investigate whether Medicaid coverage disruptions are associated with advanced stage diagnosis (regional or distant vs. localized). Medicaid enrollment patterns included continuous enrollment (12 months preceding diagnosis) and discontinuous enrollment with cumulative coverage <6 months and 6-12 months.

Results: Overall, 43.9%, 30.4% and 25.7% of the 189,580 patients had localized, regional and distant stage cancer, respectively; and 25.3%, 8.6% and 66.1% were continuously enrolled, discontinuously enrolled with 6-12 months coverage and discontinuously enrolled with <6 months coverage, respectively. Compared to patients with continuous coverage, both the patients with discontinuous 6-12 months and <6 months coverage were more likely to be diagnosed with advanced stage disease for colorectal [regional vs. localized OR(95%CI): 1.10(1.00,1.21) and 1.32(1.24,1.41); distant vs. localized: 1.10(0.99,1.22) and 1.56(1.46,1.67)], prostate [regional vs. localized: 1.07(0.94, 1.21) and 1.16(1.06,1.26); distant vs. localized: 1.14(0.99,1.33) and 1.45(1.32,1.60)] and lung [regional vs. localized: 1.09(0.97,1.22) and 1.25(1.17,1.35); distant vs. localized: 1.18(1.07,1.30) and 1.47(1.38,1.57)] cancers. For breast cancer, the association of coverage disruption and advanced stage disease were attenuated. The associations did not differ by race/ethnicity and trends of more continuous coverage with earlier stage disease were statistically significant for all cancers.

Conclusion: Medicaid coverage disruptions were associated with advanced stage cancer diagnosis.

Policies improving Medicaid coverage continuity may help reduce the disparity may help reduce the disparity.

Geospatial Exposome Map (geoexmap): A New Scalable Tool to Visualize Neighborhood-Level Health and Environmental Exposures for Cancer Center Catchment Area Analytics

Cortez M, Chao SLS, Nondin C, Lin J, Karasaki S, Donzella SM, VoPham T

Purpose: Community outreach and engagement (COE) is critical to facilitating the bi-directional relationship between National Cancer Institute-Designated Cancer Centers and the community, catalyzing activities to reduce cancer burden in the catchment area. Our objective was to develop the Geospatial Exposome Map (geoexmap), a geospatial tool supporting COE work through the visualization of neighborhood-level health and environmental data to better characterize and understand the catchment area population, health disparities, and underserved communities.

Methods: We used open-source software (R Shiny, leaflet) and publicly available geospatial data to create geoexmap for Washington State, the Fred Hutch Cancer Center catchment area. Geoexmap is accessible through a website. Dataset inclusion was guided by the exposome research paradigm and feedback from Fred Hutch Community Action Coalitions, epidemiologists, and clinicians.

Results: Geoexmap contains information from 43 datasets at the census tract (i.e., neighborhood) and county levels. Data included in geoexmap include factors in the domains of sociodemographics (e.g., disaggregated race and ethnicity); health outcomes (e.g., site-specific cancer incidence and mortality); prevention (e.g., colorectal cancer screening rates); healthcare access (e.g., Federally Qualified Health Centers); natural environment (e.g., climate change factors including wildfires); built environment (e.g., green space); and social environment (e.g., food insecurity). Geoexmap includes user-centered functionalities for mapping and customizable graphs and tables. To promote cancer prevention and control efforts, actionable tips are provided with links to evidence-based strategies for exposure mitigation of modifiable risk factors (e.g., access to free radon test kits).

Conclusions: Geoexmap is a new open-source geospatial tool to empower the Fred Hutch Office of COE in determining areas for targeted interventions, changemakers in advocacy and policy efforts, and communities in learning about their neighborhoods. Geoexmap was designed with reproducible and scalable methods that can be adopted by other cancer centers in their efforts to promote the health and well-being of the communities served in their catchment areas.

Leveraging Satellite Imagery and AI to Map Neighborhood Determinants of Cancer Prevalence and Screening

Jankowska MM, Yang J, Yang Z; Tribby CP, Erhunmwunsee L, Benmarhnia T, Thompson CA, Gel YR, Chen Y

Purpose: Cancer incidence and survival vary dramatically across neighborhoods, reflecting both environmental exposures and social determinants of health (SDOH). However, existing cancer surveillance systems lack timely, high-resolution measures of these contextual factors. This study evaluates the use of satellite imagery and large language model (LLM)-based multi-agent systems to extract neighborhood-level indicators at fine spatial and temporal scales that can enhance cancer epidemiology and equity research.

Methods: Publicly available Sentinel-2 satellite imagery was processed into ~450m— 450m tiles for Los Angeles and San Diego. Image features were encoded using a vision-language agent system trained to generate semantic descriptions of neighborhood form, green space, and infrastructure. These outputs were integrated with simplicial neural networks to learn multi-scale structural representations in a model dubbed Agent-SNN. Outputs were then used to predict tract-level adult cancer prevalence and mammography, cervical cancer, and colorectal cancer screening rate estimates from the CDC PLACES dataset at census tract levels. Model performance was compared against convolutional and graph neural network baselines using R^2, mean squared error (MSE), and mean absolute error (MAE).

Results: The Agent-SNN model improved model fit relative to baseline approaches for cancer prevalence prediction (Los Angeles: R^2 = 0.49 vs. 0.42 [CNN]; San Diego: R^2 = 0.29 vs. 0.25 [CNN]). Agent-SNN outputs had similarly good predictive fit for cancer screening rates, with up to R^2 = 0.54 for cervical cancer screening in Los Angeles. Spatial patterns of predicted prevalence and screening closely mirrored observed cancer and screening rates, suggesting that remotely sensed neighborhood features provide meaningful contextual information relevant to cancer risk.

Conclusions: Satellite imagery analyzed through Agent-SNN can yield high-resolution, interpretable metrics of neighborhood context that complement traditional SDOH datasets. These methods may enable cancer centers to better identify high-risk areas at sub zip code levels, monitor contextual inequities, and target prevention and navigation interventions in near-real time through a precision population oncology approach.

Implementing a Novel Area-Level Measure of Cancer-Related Healthcare Access In The United States

Dunn MR, Burnett-Hartman AN, Hyslop T, Troester MA

Purpose: To implement and validate a national area-level measure of cancer-related healthcare access in the United States for application inunderstanding and addressing geographic differences in cancer outcomes.

Methods: We used publicly available census tract-level data related tohealthcare access for 3 domains: affordability, accessibility, and utilization. Affordability characteristics included poverty, health insurance, and broadband coverage. For accessibility, we included straight-line distance from the population-weighted center ("centroid") of each census tract to the nearest emergency department and clinic, distance from centroid to the nearest NCI-designated comprehensive cancer center, and hospitals per capita.

At the county-level, we included hospitals with oncology services and primary care physicians. For utilization, we included use of primary care and mammography, as well as self-reported health. These variables were put into a latent class mixture model that identified groupings of census tracts.

Results: Census tracts (N=73,038) were differentiated based on accessibility and affordability; utilization variables (mammography and well-visits) were not associated with latent class membership. We selected a 3-class model, where each census tract was classified as either – low accessibility – (N=22,833) – high accessibility, low affordability – (N=36,284), or – high accessibility, high affordability – (N=13,961; higher income/insurance, and closer proximity to healthcare). By land area, most of the U.S. was classified as low accessibility. High accessibility, low affordability areas were mainly in urban areas, as well as other regions known to face high barriers to care (e.g., tribal lands, Appalachia, and the Rio Grande Valley).

Conclusions: Our novel measure of census tract-level cancer-related healthcare access suggests that accessibility and affordability drive distinct classifications of healthcare access between census tracts. In future work, we will calibrate and validate this measure using national cancer registry data to assess associations with key outcomes (overall cancer incidence, late-stage incidence, and cancer mortality) and explore area-level healthcare access in mediating known cancer outcome disparities, including by rurality.

Application of a Deep Learning Approach Using Google Street View Imagery to Improve Characterization of Neighborhood Deprivation for Cancer Research

Post LM, Remigio RV, Fisher JA, Hang Y, Bell JE, Nguyen Q, Jones RR

Purpose: Measures of neighborhood deprivation are often incorporated in epidemiologic analyses of cancer. However, in the U.S., these measures are typically derived from population demographics rather than built environment features, which may have different contextual implications in rural and non-rural settings.

Methods: We leveraged 164 million 2019 Google Street ViewÂ® images sampled 100m apart across all 50 U.S. states and used convolutional neural networks to define 11 indicators (presence/absence) of the built environment and prevalence in census tracts (sidewalks, crosswalks, ≥2 cars, utility wires, dilapidated buildings, chain link fence, street signs, streetlights, street greenery, single lane roads, non-single-family homes). Separately for rural and non-rural tracts, we used simple linear regression to evaluate associations between indicators and percent change in two tract-level deprivation metrics: the Yost and Gini indices.

Results: Indicator prevalence was similar in non-rural and rural areas, including street greenery (86 and 84%, respectively) and single lane roads (67 and 62%); the proportion of street signs (25 vs 12%), ≥2 cars (37 vs 14%), and utility wires (50 vs 41%) diverged the most. In non-rural areas, 10% increases in utility wires (6.5% [95%CI=6.40,6.64]) and chain link fences (5.9% [5.71,6.04]) were associated with greater deprivation per the Yost index, and an increase in street greenery was associated with a 5% [-5.06,-4.77] decrease. In rural tracts, single lane roads (1.8% [1.24,2.27]) and street greenery (0.99% [0.60,1.37]) were associated with small increases in the Yost index; dilapidated buildings (-1.05% [-1.50,-0.60]) and non-single-family homes (-0.88% [-1.20,-0.57]) were inversely associated. Results were qualitatively similar for the Gini index although magnitudes varied, likely reflecting differences in constructs captured by the two indices.

Conclusions: Our preliminary findings suggest that some built environment indicators align with widely used neighborhood deprivation measures, and that predictivity varies by rurality. We will discuss testing indices at smaller spatial scales and future application of this research to studies of cancer risk and survival.

Electra Paskett Travel Award Winner

Scalable Extraction of Cancer Progression Using Natural Language Processing

Cao A, Johonson KL, Kehl K, Caan BJ, Cespedes Feliciano EM

Purpose: Disease progression is an important outcome in cancer research but is documented only in unstructured text within electronic health records (EHRs), requiring labor-intensive manual review. We evaluated two shareable natural language processing (NLP) models for identifying progression from EHR notes in a community oncology setting.

Methods: We included 110 patients with advanced cancer (38 lung, 38 pancreatic, and 34 colorectal) from a prospective cohort at Kaiser Permanente Northern California. Eligible participants initiated systemic therapy between March 2023 and September 2024 and were followed until March 31, 2025 or death. Manual review identified the first progression event confirmed in oncologist notes. Two NLP models from Dana-Farber Cancer Institute (DFCI) were applied to radiology reports and oncologist notes. A progression event was defined when both models detected progression; the progression date was assigned as the later report. We compared NLP-derived progression (y/n) to manual review to assess sensitivity and specificity during follow up. We further evaluated the concordance between NLP and manual time-to-progression using generalized Kendall's tau, which accounts for right-censoring in survival data. We also assessed time-to-progression accuracy among true positives.

Results: Among 110 patients followed for a median of 15.8 months from diagnosis, 62 experienced progression. Using both NLP models, sensitivity ranged from 70-84% and specificity was 100% across cancer types. Accuracy was 87% for lung, 84% for pancreatic, and 91% for colorectal cancer. Kendall's tau were 0.85 (lung), 0.73 (pancreas), and 0.71 (colorectal), corresponding to C-indices of 0.92, 0.86 and 0.86, indicating strong agreement between NLP models and manual review across cancer types. Among 48 true positives, time-to-progression differences were 0 months for lung and colorectal, and 0.2 months for pancreatic cancer. Most discrepancies were due to equivocal phrasing or delayed documentation in oncologist notes.

Conclusions: The shareable DFCI NLP models accurately identified disease progression from imaging reports and oncologist notes. This scalable approach supports efficient outcome extraction and broader integration of AI tools in real-world research.

The EHRsupport Score, an Electronic Health Record-based Social Support Measure

Kroenke CH, Aoki RA, Liang J, Cronkite D, Jones SMW, Mogk, J, Kushi LH, Mammini L, Strayhorn-Carter S. Mosen D. Alexeeff S.

Background: Social support is important in breast cancer management. We developed a measure, EHRsupport, an electronic health record (EHR)-based measure of social support from data documented within Kaiser Permanente Northern California, an integrated health care system.

Methods: This study included 4,145 women from the Pathways Study diagnosed with invasive breast cancer from 2006-2013, and who had Medical Outcomes Study social support (MOS-SS) survey data and social support terms identified in the EHR. We used a split sample design to generate random training (N=2,059) and validation (N=2,086) datasets. We applied a natural language processing (NLP) algorithm in prior work to capture eleven NLP-based social support indicators around diagnosis–spouse/partner, children, (clinical) visit support, living situation (alone or with others), friend or other support, positive social support, negative (lack of) social support, death of a social tie, transportation issues, relationship conflict or stress, and social isolation–and an indicator from structured fields: emergency contact within state. We developed EHRsupport in the training dataset by fitting LASSO models to the MOS-SS score using social support indicators and interactions with age and stage. In the validation dataset, we evaluated the correlation between the EHRsupport and MOS-SS scores and compared associations of the scores with treatment and survival outcomes.

Results: The LASSO model selected all twelve social support variables and 8 interactions with age and/or stage into the score. EHRsupport was correlated with the MOS-SS in the validation dataset ($r=0.25$, $p<0.001$). Importantly, the lowest tertile of EHRsupport (representing low social support) was related to treatment delays (OR=1.44, 95% CI: 1.08-1.91), discontinuation of adjuvant endocrine therapy (HR=1.32, 95% CI: 1.05-1.65), and overall mortality (hazard ratio (HR)=1.29, 95% confidence interval (CI): 1.02-1.63) while the MOS-SS score was associated only with treatment delays. Neither was associated with recurrence or breast cancer-specific mortality.

Conclusions: EHRsupport was correlated with the MOS-SS score and was related to clinical outcomes in breast cancer patients supporting its use as a clinical tool and as a research measure.

Glucagon-Like Peptide-1 Receptor Agonists and 5- and 10-Year Survival and Recurrence in Breast Cancer

Tatum KL, Tetteh A, Stevenson A, Dahman B, Brian JC, Williford SE, Zhao H, Shen J, McGuire KP, Diala O, Hundley G, Fuemmeler BF

Purpose: To examine the associations of glucagon-like peptide-1 receptor agonists (GLP-1RA) use vs nonuse in an obesity cohort, BMI ≥30, and GLP-1RA use vs insulin or metformin and vs sodium-glucose cotransporter-2 inhibitors (SGLT2i), in a type 2 diabetes (T2D) cohort, with all-cause mortality (ACM) and recurrence-free survival (RFS) in Breast Cancer (BC).

Methods: Retrospective cohort study using TriNetX US Collaborative Network (>150 million EHRs). Included female patients (≥ 18 years) diagnosed with BC between April 1, 2006, and April 1, 2023. Exposure was defined as ≥ 2 GLP-1RA prescriptions within 6 months before or any time after diagnosis. The primary outcome was ACM and the secondary outcome was RFS, each assessed at 5- and 10-years. Propensity-score matching (PSM) and Kaplan–Meier estimates were conducted to estimate hazard ratios (HR).

Results: We identified 841,831 patients from 68 healthcare systems (mean [SD] age, 69.1[12.1] years). After 1:1 PSM, analytic samples were 1,610 (obesity: GLP-1RA vs nonuse), 2,323 (T2D: GLP-1RA vs insulin/metformin), and 4,052 (T2D: GLP-1RA vs SGLT2i). GLP-1RA use was associated with lower ACM among survivors with obesity at 5-years (HR, 0.35; 95% CI, 0.21–0.61; p< .001) and 10-years (HR, 0.35; 95% CI, 0.21–0.58; p< .001). In patients with T2D, GLP-1RA vs insulin/metformin showed markedly lower ACM at 5-years (HR, 0.10; 95% CI, 0.06–0.16; p<.001) and 10-years (HR, 0.09; 95% CI, 0.06–0.15; p<.001). GLP-1RA vs SGLT2i was not associated with ACM at 5-years (HR, 0.96; 95% CI, 0.81–1.15; p=.68), or at 10 years, (HR, 0.97; 95% CI, 0.82–1.14; p=.72). RFS findings were consistent: GLP-1RA use in survivors with obesity was associated with improved RFS at 5-years (HR, 0.39; 95% CI, 0.26–0.58; p<.001) and 10-years (HR, 0.44; 95% CI, 0.30–0.64; p<.001), and in patients with T2D, vs insulin/metformin. GLP-1RA vs SGLT2i was not significant.

Conclusions: GLP-1RA use was associated with significantly lower ACM and improved RFS vs nonuse, and vs insulin or metformin. Although results were mixed when comparing against SGLT2i, findings suggest a strong potential clinical benefit for GLP-1RA therapy for BC patients with obesity or related metabolic conditions; prospective studies are warranted.

Retrospective Analysis of the Association Between Sarcopenia and Fall Risk in Older Breast Cancer Patients Using Real World Data (TriNetX)

Ramadan R, Namoos A, Ramadan D, Liang A, Thomson N

Purpose: This study seeks to bridge the gap between existing knowledge on the impact of sarcopenia on overall health and its integration into oncological tools for predicting fall risk in breast cancer patients. To achieve this, we utilized real-world data from a large, multi-institutional health records network to evaluate the association between sarcopenia and fall incidence among older women with breast cancer. Specifically, we evaluated the risk of both first and repeated falls in patients with and without sarcopenia, while adjusting for demographic, clinical, and treatment-related factors. These findings aim to provide robust estimates that can inform survivorship care planning and guide strategies to preserve safety, independence, and quality of life in this vulnerable population.

Methods: We conducted a retrospective cohort study using the TriNetX platform, including women aged 60–89 years diagnosed with breast cancer between 2010 and 2024. Variables were identified using ICD-10 codes. Outcomes included first fall, repeated falls, time-to-fall, and fall frequency. Analyses included unadjusted comparisons, propensity score matching, and multivariable Cox regression adjusting for demographics, comorbidities, treatments, and prior falls.

Results: Among 884,123 patients (768 with sarcopenia, 883,355 without), crude fall rates were markedly higher in those with sarcopenia (first fall: 24% vs 2%; repeated falls: 13% vs <1%; p < 0.0001). Kaplan–Meier analyses showed an eightfold higher risk of first fall and fourteenfold higher risk of repeated falls. After propensity score matching, fall rates were nearly identical. In fully adjusted Cox models, sarcopenia remained a significant predictor of first fall (HR 1.93, 95% CI 1.61–2.31). Other independent predictors included older age, hypertension, diabetes, obesity, opioid use, and prior falls.

Conclusion: Sarcopenia is a strong crude marker of fall risk in older breast cancer survivors, but much of the excess risk reflects comorbidities. Incorporating sarcopenia screening with comorbidity management may enhance fall prevention in survivorship care.

Bridging Gaps to Impact Survivorship Care: Co-creation of a Prototype Primary Care Referral Process to Cancer Rehabilitation and Exercise Services

Dunston ER, Dafoe A, Dorsey B, Huebschmann AG

Cancer rehabilitation and exercise services (CaRES) improve physical function and survival. Yet, CaRES remain underutilized by survivors, despite availability of ≥2,000 CaRES nationwide. CaRES referrals originate primarily from oncologists and are limited. Primary care providers (PCPs) are an untapped referral source, particularly for older cancer survivors (≥65 years) who often have long-term PCP relationships.

Purpose: This study aimed to explore multi-level perspectives on primary care referrals to CaRES and to co-create a prototype referral process.

Methods: Individual semi-structured interviews were conducted with three groups: 1) older cancer survivors (≥65 years), 2) PCPs, and 3) CaRES directors. Semi-structured interview guides were developed with guidance from the Pragmatic Robust Implementation and Sustainability Model (PRISM), to understand factors that influence PCP referrals to CaRES. Iterative feedback on the prototype CaRES referral process was also ascertained. Interviews were recorded, transcribed, and deidentified. Transcripts were analyzed using rapid matrix analysis with domains mapped onto PRISM.

Results: PCP-initiated CaRES referrals were acceptable across survivors (n=4), PCPs (n=6), and CaRES directors (n=7). However, PCPs in this study were not aware of CaRES, â€œâ€¦you'd have to make sure that providers are aware of it… I wasn't aware of it, – (PCP-3). Two key needs for the referral process were: 1) initial PCP education about CaRES and 2) embedding the referral process into existing workflows. CaRES directors stated successful referral processes had been adapted to individual clinics â€œWe talk about and discuss what their referral process is internally, and how we can fit this referral with what's already going on in their workflow – (Director-11). Iterative feedback on the referral process resulted in a wireframe prototype of a CaRES referral clinical decision support tool.

Conclusions: An acceptable PCP-initiated CaRES referral process was co-created with survivors, PCPs and CaRES directors, but will require tailoring to individual clinic workflows. This study's blend of qualitative methods with iterative prototyping allowed for rapid refinement of the referral process. PCP-initiated CaRES referrals may expand the reach of CaRES.

Feasibility and Preliminary Efficacy on Body Composition of a 16-week, Higher-Protein Diet with Modest Caloric Restriction + Circuit-Style Resistance Training Program for Breast Cancer Prevention in Postmenopausal Women with Normal BMI and Excess Adiposity

Coletta AM, Parker N, Tullos E, Harrison C, Baum M, Rao S, Li Y, Dannenberg A, Basen-Engquist K

Purpose: To evaluate the feasibility of a 16-week diet & exercise intervention to decrease body fat in postmenopausal women with normal BMI but higher body fat, defined as trunk fat mass ≥9.4kg.

Methods: Postmenopausal women aged 50-69, with normal BMI were recruited for this parallel, randomized controlled trial. Participants were allocated 1:1 to a 16-week diet and exercise intervention or waitlist control. After obtaining informed consent, participants completed a whole-body DXA scan to confirm eligibility. Eligible participants were randomized with a minimization approach considering age(<60, ≥60), race/ethnicity, and body fat percentage(≤41.3%, >41.3%). The higher protein diet (~25% kcals protein) included 5-10% caloric restriction. The exercise intervention included twice-weekly, virtual circuit-style resistance training and unsupervised aerobic exercise. The trial was considered feasible if ≥40% of women screened were eligible, ≥75% of participants in the intervention arm were adherent, ≥80% completed the final study assessment. ANCOVA, adjusted for baseline value and minimization variables, evaluated between-group differences in body composition variables at 16 weeks. Exploratory models treated age and body fat percentage as continuous variables.

Results: Thirty-four participants completed the trial with a mean age of 57.7 years and 39.8% body fat. Participant characteristics were not different between groups at baseline. The trial exceeded feasibility targets for recruitment (48%), adherence (85%) and study completion (85%). At 16-weeks, the intervention group experienced a mean decrease in trunk fat mass of 0.57kg(95%CI -1.14, 0.01), whereas control exhibited an increase of 0.41kg(95%CI 0.02, 0.79). Compared with control, ANCOVA revealed the intervention group had lower trunk fat mass by 0.93kg(95%CI 0.20, 1.66), total fat mass by 1.37kg(95%CI 0.25,2.50) and %body fat by 1.67%(95%CI 0.41, 2.92). Exploratory analysis revealed similar findings favoring the

intervention. Significant differences were not observed between groups for changes in lean mass.

Conclusions: A higher-protein, modest caloric restriction diet + circuit-style resistance training is feasible and promising to reduce excess adiposity in this population at higher risk for breast cancer.

BENEFICIAL Dietary Intervention Impacts on Diet Quality and the Plasma Lipidome: Results of a Pilot Single-Blinded, Two-Arm, Randomized, Placebo-Controlled Trial in Adults with Stage 0/1 Colorectal Cancer

Hill EB, Pfluger B, Baxter BA, Pagani K, Smith HV, Rao S, Schwerdtfeger L, Leach HJ, Patel S, Ryan EP

Purpose: Altered lipid metabolism exacerbates colorectal cancer (CRC) risk. High quality diets rich in whole grains and legumes may contain bioactive components that could lower CRC risk through mitigation of adverse changes in lipid metabolism, suggesting potential for targeted dietary strategies for chemoprevention.

Methods: Adults at high risk for CRC (n=20) were randomized 1:1 to a 12-week dietary intervention of heat-stabilized rice bran (30g/day) plus cooked navy bean powder (30g/day) or a control fiber supplement of Fibersol-2® (10g/day). Three-day food records and fasted whole blood samples were collected at baseline, week 6, and week 12. Dietary intakes were assessed using the Automated Self-Administered 24-Hour Dietary Assessment Tool, and Healthy Eating Index (HEI) scores were calculated to determine diet quality. Whole blood lipids were assessed via the Piccolo Lipid Panel Plus, and quantitative targeted plasma lipidomics profiles were assessed using LC-MS. Linear mixed models were used to evaluate changes over time and differences between arms for dietary intakes and whole blood lipids, and ANOVA was used to evaluate fold change within arms for complex plasma lipids.

Results: Total HEI scores were higher in intervention compared to control at week 6 ($p=0.002$) and week 12 ($p=0.003$). In the intervention arm, HEI scores improved from 67.8±9.3 at baseline to 78.5±8.8 at week 6 ($p<0.001$) and 78.0±6.9 at week 12 ($p=0.001$). Intervention participants increased intakes of iron, zinc, magnesium, calcium, and vitamins B1 and B6 from baseline to weeks 6 and 12 (all $p<0.05$). Total fiber intake increased in both arms over this period (both $p<0.001$). Total and LDL cholesterol were reduced from baseline to week 12 in the intervention arm ($p=0.003$ and $p=0.044$, respectively). Total cholesterol esters (0.92-fold change, $p=0.043$), phosphatidylcholines (0.92-fold change, $p=0.032$), phosphatidylinositols (0.72-fold change, $p<0.001$), and ceramides (0.90-fold change, $p=0.036$) were reduced in the intervention arm from baseline to week 12.

Conclusion: Rice bran and navy beans may improve diet quality and provide benefits not conferred by isolated fiber supplements. These food products may be useful for targeted dietary intervention among individuals at risk for CRC.

A Multi-Site Electronic Health Record-Integrated Physical Activity Promotion Intervention (MyActivity) Improves Functional Performance in Breast and Endometrial Cancer Survivors

Phillips SM, Webb F, Solk P, Pincever J, Wang SD, Frey J, Wang L, Tevaarwerk AJ, Barber E, Sesto ME, Gradishar W, Spencer R, Gangnon R, Cadmus-Bertram L, Pickett KA

Purpose: This study examines the effects of MyActivity, a MVPA promotion intervention integrated into cancer care via the electronic health record (EHR) on functional performance in breast and endometrial cancer survivors.

Methods: All participants [n=322; Mage=57.3; 73% breast; 26% endometrial] received the minimal intervention (study website+Fitbit integrated into EHR). Intervention response was evaluated at 4, 8, 12, 16, and 20 weeks. Responders continued with the minimal intervention. Non-responders (met ≤80% of MVPA goal in past 4 weeks; n=116) were randomized for the remainder of the 24-week intervention to one of two augmentation conditions: online gym (GYM) or bi-weekly coaching calls (COACH). Participants completed functional performance tests [FPT; i.e. 6-Minute Walk Test (6 MWT); Short Physical Performance Battery (SPPB); 2-Minute Step Test (STEP), 8-foot-up-and-go (UPGO), and arm curl test (ARM) from Senior Fitness Test] via videoconference at baseline (T1), post-intervention (24-weeks; T2) and 48-weeks (T3). Mixed effects models examined effects of each intervention condition on FPT outcomes from T1 to T2 and T3.

Results: From T1 to T2, responders significantly ($ps<0.05$) improved on all outcomes except the UPGO; non-responders significantly improved on all but UPGO and ARM. Effects were maintained at T3 and effects on UPGO in responders and ARM in non-responders became significant. The difference in STEP was greater for COACH v. GYM (Mdiff=6.88;95% CI=0.72,13.05; $p<0.001$) at T2. Responders improved significantly more on STEP compared to non-responders (Mdiff=4.58;95% CI=0.33,8.83;$p=0.03$) at T3. No other differences were observed between responders and non-responders or between non-responders in COACH or GYM.

Conclusions: MyActivity is associated with improved functional performance over 48 weeks. COACH may be a more effective augmentation strategy than GYM. Future work should determine how to effectively implement and augment the highly scalable minimal Fitbit+EHR intervention across the cancer care continuum to maximize physical function and minimize disability.

ASPO Travel Award Winner

Subsequent Breast Cancer Risk after Benign Breast Biopsy in Racially Diverse Women

Koric A, Bennett DL, Boulos F, Colditz GA

Purpose: We evaluated the impact of histological subtypes of benign breast disease (BBD) on breast cancer risk in the post-mammography era.

Methods: A cohort of 8,915 women diagnosed with histologically-confirmed benign lesions between 2010 and 2023, were identified from the Joanne Knight Breast Health Center in St. Louis. Cox proportional hazards regression was used to estimate hazard ratios (HRs) and 95% confidence intervals (95%CI) for the risk of subsequent breast events at least six months after benign biopsy.

Results: Within a median follow-up of 6.5 years (6 to 180 months) 363 women developed breast cancer. 63.7% of women were White, 32.4% Black, and 3.9% Asian. The risk of breast cancer increased significantly across BBD subtypes. Specifically, when compared to women with nonproliferative disease, the risks were 1.80 for proliferative disease with atypia subtype (HR = 1.80, 95%CI 1.40, 2.30) and 3.12 for atypical hyperplasia (HR = 3.12, 95%CI, 2.23, 4.38), when adjusting for age. The risk estimates were attenuated but remained similar in the fully adjusted models. The risk of these subtypes was further modified by time since biopsy and menopause. The risk levels associated with BBD subtypes were similar in Black and White women; however, the impact of recent biopsy and premenopause was stronger in Black women with AH (p het = 0.033).

Conclusion: Breast cancer risk increased across BBD subtypes and was amplified by recent biopsy and premenopause – effects that seem more pronounced in Black women but warrant further confirmation, still indicating the value of diverse cohorts in refining risk stratification.

Characteristics, Patient Composition, and Quality-of-Care Measures of Hospitals Primarily Serving Colorectal Cancer Patients from High-Poverty Areas

Zheng X, Pisu M, Rundle A, Gao C, Chao S, Hu X, Milsom JW, Huckfeldt P, Mao J

Purpose: Our prior study found that colorectal cancer (CRC) patients treated at hospitals primarily serving high-poverty areas (HPAs, counties with ≥20% residents living under poverty level) had worse outcomes. We sought to assess characteristics, patient composition, and quality of care of these poverty-area serving (PAS) hospitals, defined as those with ≥50% patients from HPAs.

Methods: We identified hospitals providing surgical care to CRC patients during 2014-2019 from SEER-Medicare. We examined the association between hospital geographical, practice, and resource characteristics and being a PAS hospital using univariable logistic regression. We used classification and regression tree (CART) to profile typical, synergistic characteristics of PAS hospitals. We compared patient composition and risk-adjusted quality-of-care measures (in-hospital death, respiratory failure, bleeding, sepsis, and pulmonary embolism/deep venous thrombosis).

Results: We examined 170 (18%) PAS hospitals and 776 (82%) non-PAS hospitals. Hospitals that were in the South (vs. Northeast), in rural areas (vs. urban), and government-controlled or for-profit (vs. non-profit), and had no CRC surgery specialists (vs. yes), low staff-to-bed ratio (vs. highest tertile), no minimally invasive surgery capacity (vs. yes), low case volume (vs. highest tertile), and no official accreditation (vs. yes) were more likely to be PAS hospitals (all p≤0.01). The CART analysis found that a large proportion of rural South hospitals with a low staff-to-bed ratio (37/49, 76%) and a large proportion of government- owned hospitals with a medium or high staff-to-bed ratio (8/11, 73%) were PAS hospitals. PAS hospitals treated bigger proportions of Medicare-Medicaid dual-eligible patients (median: 28% vs. 16%) and non-White patients (16% vs. 9%) (p≤0.01),, and had worse risk-adjusted quality-of-care measures ((all p≤0.05) except for in-hospital mortality (p=0.1).

Conclusions: PAS hospitals lacked specialized physicians and advanced technology, provided care to vulnerable populations, and had worse quality-of-care measures. These findings stress the importance of devoting resources to PAS hospitals, particularly those in the rural South, to improve care and outcomes for CRC patients residing in HPAs.

Feasibility and Acceptability of a Hispanic Adapted and Culturally Relevant Exercising Together© Intervention

Skiba MB, Contreras J, Nelson MA, Recio-Boiles A, Garcia DO, Chilton FH, Segrin C, Badger TA, Winters-Stone KM

Purpose: To determine the feasibility and acceptability of HACER, a Hispanic adapted and culturally relevant Exercising Together© single-arm pilot intervention for Hispanic men with prostate cancer and their informal caregivers (an individual who provides unpaid support such as a spouse, family member, or friend).

Methods: HACER is a 12-week remote bilingual (English/Spanish) intervention with three times weekly partnered resistance training for Hispanic men with prostate cancer and their informal caregiver that was co-developed with stakeholder input. Primary outcomes of the intervention were feasibility and acceptability (as ≥60% accrual, ≥75% retention, ≥50% attendance, and ≥80% assessment completion). Secondary outcomes were measures of physical (physical function - short physical performance battery (SPPB), physical activity) and psychosocial (anxiety, depression, quality of life) health. Summary statistics were used for feasibility metrics; mean difference and effect sizes were calculated to determine intervention effects on physical and psychosocial health.

Results: All feasibility metrics were met. Participants (n=28) on average were aged 62.4 ±12.4 years, all dyads were co-habiting, and the majority (93%) were spouses or partners. Per eligibility criteria, all survivors were male and identified as Hispanic. Most caregivers identified as female (93%) and Hispanic (64%). Attendance averaged 62%. Retention was 79% with 95% assessment completion. Level of physical activity increased for both survivors and caregivers. Physical function measured by SPPB improved on average 0.7 points from pre- to post-intervention (95% CI: -2.1, 0.7; P = 0.30; d = -0.56) for survivors, nearing clinical significance. Caregivers had clinically significant improvement in depressive symptoms from pre- to post- intervention (mean Î" = 3.4; 95% CI: -4.6, 11.4; P = 0.38; d = 0.40).

Conclusions: HACER was feasible and acceptable and showed improvements in physical and psychosocial health among Hispanic men with prostate cancer and their caregiver. The intervention shows promise to be a scalable intervention that can improve health outcomes for Hispanic and other cancer survivors and their caregivers when they exercise together, warranting additional research.

Perceptions of Cancer Care Discrimination and Patient-Reported Breast Cancer Outcomes

Sheppard VB, Tariq F, Bastiach D, Phillips M, Namoos A, Taylor T, Sutton AL, Dahman B

Purpose: Understanding the prevalence and impact of race-based discrimination in cancer care is essential for improving outcomes, particularly among historically marginalized groups (HMG). Perceived discrimination may act as both a structural barrier and a social determinant of health, yet empirical data in oncology remain limited. This study aimed to: (1) identify factors associated with higher perceived discrimination, (2) assess contributors to racial disparities in discrimination, and (3) examine links between discrimination and health outcomes.

Methods: Data were pooled from two observational cohorts – the Women's Hormonal Initiation and Persistence Study (WHIP) and Narrowing Gaps in Adjuvant Therapy (GAP) – including women aged ≥21 years diagnosed with non-metastatic, invasive breast cancer. The primary outcome was patient-reported discrimination in cancer care. Standardized surveys captured sociodemographic, psychosocial factors, and care delivery experiences. Health outcomes were measured using validated instruments assessing obesity, treatment-related symptoms, and adherence; clinicopathological data were abstracted from medical records. Logistic regression and race-stratified multivariable models examined relationships between discrimination and race. Nonlinear Blinder-Oaxaca decomposition quantified racial differences and contributing factors.

Results: Among 930 participants (60% White, 40% Black), 46% reported at least one discriminatory experience. In adjusted models, Black women were 23 times more likely to report discrimination than White women. Care delivery factors explained 22.4% and patient-level variables 17.3% of racial disparities. Women reporting discrimination experienced greater symptom burden (ß=2.89, 95% CI: 0.08–5.71), were more likely to report ≥2 nonadherent behaviors (OR=2.36, 95% CI: 1.15–4.86), and had higher odds of obesity (OR=2.06, 95% CI: 1.25–3.39).

Conclusion: Black women were significantly more likely to experience discrimination in cancer care, partially attributable to care delivery factors. Because discrimination was associated with adverse treatment and health outcomes, targeted strategies are needed to address inequities and support survivors navigating cancer care.

Effectiveness and Costs Associated with a Community-Engaged HPV Self-Sampling Intervention to Increase Participation in Cervical Cancer Screening among Asian American Women

Fang CY, Shireman TI, Do PT, Lu W, Egleston BL, Zhu L, Tan Y, Ma GX

Purpose: Rates of clinic-based cervical cancer screening (i.e. Pap and/or human papillomavirus [HPV] testing) are suboptimal among Asian American women due in part to psychosocial (e.g., embarrassment) and access factors (e.g., lack of transportation), which have been difficult to address with traditional screening interventions. Self-collection of a cervicovaginal sample for HPV testing may offer a viable approach for overcoming these challenges.

Methods: A large-scale randomized trial was conducted to examine the effects of a community-engaged HPV self-sampling intervention, which enrolled 1,137 Vietnamese, Korean, and Chinese American women (ages 30-65 years) who were not up to date with recommended cervical cancer screening guidelines. Participants were randomized to receive either a community educational workshop on cervical cancer including referrals to sites with free or low-cost Pap test screening (control condition, n=585), or the same workshop plus an HPV self-sampling kit (intervention condition, n=552). The kit included an FDA-approved device (brush) for the self-collection of cervicovaginal samples, along with detailed instructions on how to collect a sample and return it to study staff. All materials were available in English, Korean, Vietnamese and Chinese languages.

Results: Participants were predominantly foreign-born (99.8%). More than 55% had a high school education or less, and 47% had never had a Pap test. At 6-months post-workshop, 87% of intervention participants had returned a self-collected sample for HPV testing, whereas only 30% of control participants had obtained a clinic-based Pap or HPV test. Among women who completed HPV self-sampling, nearly 10% tested positive for high-risk HPV (hrHPV). With respect to costs, program costs were $2.52 per participant higher in the intervention arm, but generated a 57% increase in screening completion.

Conclusion: This study demonstrates that offering self-collection of cervicovaginal samples for HPV testing can be a successful strategy for enhancing participation in cervical cancer screening among underscreened women and offers a pragmatic approach for increasing scalability across all populations living in under-resourced communities.

Political Views and Perceived Causes of Cancer among a Population-Based Sample: Implications for Health Communication

Moss JL, Veldheer S, Thompson CL, Calo WA

Purpose: Communication strategies about cancer prevention may depend on the public's perceptions about factors that cause cancer. However, beliefs about science and medicine are increasingly polarized across political views. We examined the relationship between political views and perceptions of cancer causes among a population-based sample of adults in Pennsylvania.

Methods: The Penn State Cancer Institute 2024 Community Cancer Needs Assessment surveyed a population-based sample of adults in Pennsylvania (n=1,050). The survey included items asking participants whether they thought each of 9 factors contributes to cancer in their community. Participants also reported their political views (conservative, moderate, or liberal). Analyses used chi-square and logistic regression analyses to examine differences in perceived cancer causes across political views.

Results: Overall, 34% of participants identified as conservative, 41% as moderate, and 25% as liberal. Conservative views were more common among participants who were non-Hispanic White ($p<.001$) and with less than a college degree ($p<.01$). Conservative participants were less likely than moderate or liberal participants to think that several factors contributed to cancer in their community: poor diet (33%, 34%, and 42%, respectively, $p=.05$), industrial exposures (43%, 51%, and 46%, $p=.08$), environmental factors (48%, 56%, and 57%, $p=.03$), and tobacco (71%, 78%, and 77%, $p=.07$). Perceptions of other cancer causes were similar across political views, including sun exposure (45-54%, $p=.14$) and genetics/family history (66-70%, $p=.50$). Alcohol use, lack of physical activity, and obesity were not commonly perceived as cancer causes, and these results did not differ by political views (all $p>.05$).

Conclusions: Among politically diverse adults, conservative participants were less likely than moderate or liberal participants to identify poor diet, industrial or environmental exposures, or tobacco as contributors to cancer in their community. Communication strategies to encourage cancer prevention related to these factors may need to be tailored to political group. In contrast, perceptions about sun exposure and genetics as causes of cancer were relatively high and similar across groups.

Data-Driven Partnerships to Expand Equitable Cancer Education and Screening in Rural Nebraska

Rachael Schmidt, Sai Paritala, JaNae Vinson, Joanna Rodriguez, Shinobu Watanabe-Galloway

Purpose: Rural communities across Nebraska face persistent cancer disparities contributing to delayed diagnoses and poorer outcomes. Colorectal and breast cancer screening rates remain lower in most rural counties, with elevated incidence and mortality for prostate, colorectal, and lung cancers. High rates of obesity, smoking, and long travel distances further exacerbate barriers. To address these gaps, the Fred & Pamela Buffett Cancer Center's Community Outreach and Engagement (COE) team developed a statewide strategy to expand cancer screening access and education through coordinated partnerships.

Methods: We used state cancer registry data, census indicators, and findings from a statewide cancer needs assessment survey to identify priorities based on higher incidence and mortality, low screening rates, sociodemographic characteristics, and distance to care. Building on these data, we developed a scalable model in collaboration with Nebraska Agricultural Extension, local health departments, Federally Qualified Health Centers, Native American tribes, and UNMC's satellite College of Nursing campuses. Community partners consult with COE to plan education and screening events, while COE provides staffing, logistics, navigation, and targeted guidance on cancer types. Nursing student volunteers support event delivery.

Results: In 2024, COE facilitated 21 community events, including 3 in rural counties, and provided 158 screenings and providing cancer education to 2,245 Nebraskans. By September 2025, the program grew to 37 events, providing more than 550 screenings and reaching over 6,000 individuals with education. More than 20 additional events are scheduled for the remainder of 2025, and by year's end, the program will have held 26 events in rural areas overall, with projections exceeding 1,000 cancer screenings.

Conclusions: This data-driven, partnership-based model illustrates how academic cancer centers can expand equitable education and screening in rural regions while advancing CCSG Community Outreach and Engagement goals.

Scale up of the Implementation Studio, a Capacity Building Implementation Strategy for Real World Implementation of Evidence-based Cancer Control Interventions.

Ko, LK, Vu, T, Masud, M, Zhu, Y, Thayer, E, and Davis, T.

Purpose: Implementation Studio ("Studio") is a capacity-building training and consultation program for community organizations (COs) to select, adapt, and implement evidence-based interventions (EBIs). Developed and initially tested with rural COs, the Studio's utility across varied geographic areas, populations, and cancer types remains unexplored. This study evaluated the Studio's impact on building the capacity of COs from diverse settings, populations, and cancer priorities.

Methods: We used pre/post, single arm design guided by a two-tiered evaluation framework. We recruited COs through our network of academic and community partners. From 40 interested COs, we selected four based on settings, populations and cancer priorities (colorectal [CRC] cancer, prostate, and lung screening and stress reduction for cancer survivors). Tier 1 evaluation assessed the Studio's impact on COs' knowledge and confidence in adapting and implementing EBIs. Tier 2 assessed the adapted EBIs' impact on community clients' knowledge and health outcomes (N=89). Data were analyzed using Wilcoxon signed-rank and McNemar tests.

Results: Nine individuals from four COs participated in the Studio. COs were in urban (n=3) and rural (n=1) settings. Three COs were social services, and one a community health center. 78% of individuals identified as non-Hispanic, 33% as White and 44% Black. Pre/post Studio participation: COs showed a significant increase on EBI knowledge (Median pre: 2.4/post: 4.9), and confidence to select, adapt, and implement EBIs: select EBI (pre: 2.2/post: 4.6), adapt EBI (pre: 2.0/post: 4.3), and implement EBI (pre: 2.0/post: 4.0). Three COs implemented their EBIs. Pre/post-EBI implementation: COs' clients reported increased knowledge of risk factors for CRC cancer ($p<0.05$), prostate cancer ($p<0.05$), and were more likely to discuss screening with providers for CRC ($p<0.05$) and prostate cancer ($p<0.05$). Clients who received the stress reduction EBI showed significant reduction in stress ($p<0.05$).

Conclusions: Implementation Studio can facilitate COs from diverse settings to select, adapt, and implement EBIs. An implementation strategy with training and consultation has the potential to build the capacity of diverse COs to implement EBIs across cancer continuum.

Characterizing Antibody Patterns to H. pylori Proteins as a Determinant of Gastric Cancer Risk in the US

Chen Q, Amin E, Butt J, Han K, Jeske R, Garman K, Akinyemiju T, Marchand LL, In H, Shrubsole M, Tinker L, Waterboer T, Hyslop T, Epplein M

Purpose: Although H. pylori is the primary cause of non-cardia gastric cancer (GC), only a small percentage of infected individuals will develop GC, thus we sought to characterize patterns of antibody response to H. pylori proteins as a determinant of subsequent GC risk in ethnically diverse US cohorts.

Methods: In a nested case-control study of 2,438 participants (819 cases and 1,619 matched controls) from four diverse cohorts (Multiethnic Cohort Study, Southern Community Cohort Study, Prostate, Lung, Colorectal, and Ovarian Screening Study, and Women's Health Initiative), we measured antibody responses against 15 H. pylori proteins from blood taken at baseline. Latent profile analysis was used to identify distinct response patterns, and the association between these patterns and risk of GC was assessed with conditional logistic regression. Subgroup analyses were conducted stratified by sex and time to diagnosis (<5 vs. ≥5 years).

Results: Seven distinct H. pylori response profiles were identified; the profile with uniformly low reactivity to all antigens served as the reference group in models. The other six profiles were all statistically associated with GC. Notably, the strongest association was observed for Profile 7, characterized by high reactivity to all antigens (OR=5.23 [3.66, 7.46]), and for Profile 6, which exhibited very high reactivity to SabB but high reactivity to only three other antigens: HopA, VacA, and CagA (OR=5.12 [3.41, 7.68]). Profile 3 (OR=3.40 [2.32, 4.98]), characterized by high reactivity to all except moderate to NapA, and Profile 5 (OR=3.50 [2.53, 4.83]), which had moderate reactivity to all antigens, showed comparable, lower associations. Subgroup analyses revealed that Profiles 7, 5, and 3 were replicated in males, while Profiles 6, 7, and 5 were replicated in females. By time-to-diagnosis, Profiles 7, 6, and 3 were replicated irrespective of time, while Profile 5 was only replicated for those diagnosed ≥ 5 years post-enrollment.

Conclusions: By quantifying antibody responses to H. pylori antigens, we identified six patterns associated with increasing GC risk in US population, confirming the significance of the established CagA and VacA virulence factors, and suggesting a role for the less well-known SabB and HopA proteins.

Ultra-Processed Food Intake and Risk of Renal Cell Carcinoma in the NIH-AARP Diet and Health Study

Burns KF, Purdue M, Hong HG, Loftfield E

Purpose: Renal cell carcinoma (RCC) incidence rates have increased over the past two decades, alongside increasing consumption of ultra-processed food (UPF) and increasing rates of obesity, an established RCC risk factor. However, the association between UPF and RCC, particularly the common clear cell (cc) subtype, which is most strongly associated with obesity, is unknown.

Methods: In the NIH-AARP Diet and Health Study cohort, 480,347 participants aged 50-71 years with no history of cancer were included. Dietary intake was self-reported using a validated food frequency questionnaire (FFQ). Compositive FFQ items were disaggregated into underlying food items and assigned a Nova classification, ranging from Nova 1 (minimally processed) to Nova 4 (ultra-processed). Multivariable Cox proportional hazards models estimated hazard ratios (HR) and confidence intervals (CI) for RCC and cc-RCC risk by quartiles of UPF. Associations were also evaluated within body mass index (BMI) strata. Using a sub-cohort (n=1902) with repeat 24-hour dietary recalls, regression calibration was conducted to evaluate the impact of measurement error, inherent to the FFQ, on HR estimates.

Results: During >20 years of follow-up, 3330 RCC cases and 1216 cc-RCC cases were diagnosed. Overall, the median (interquartile rage (IQR)) UPF intake was 293 (198-467) grams/day/1000 kcal, the median (IQR) age was 62.6 (57.71-66.58), and 59.6% were male. Higher UPF intake was associated with a higher risk of RCC [HR (95% CI)Q4 vs Q1=1.16 (1.05, 1.29), and cc-RCC [HR (95% CI)Q4 vs Q1=1.38 (1.17, 1.62). The associations remained, but were slightly attenuated, when adjusting for BMI. BMI status did not modify the association, with higher HR estimates for cc-RCC in the top quartile of intake across BMI strata. Regression calibration strengthened associations [RCC: HR (95% CI)Q4 vs Q1=1.18 (1.06, 1.32); cc-RCC: HR (95% CI)Q4 vs Q1=1.77 (1.47, 2.13).

Conclusions: UPF intake was positively associated with RCC and cc-RCC. HR estimates were not fully explained by BMI and were attenuated towards the null by FFQ measurement error. These results suggest that lower UPF diets may contribute to RCC prevention. Future studies are needed to identify potential mechanisms, beyond BMI, linking UPF to RCC development.

Enhancing Risk Assessment, Stratification, and Equity in Breast Cancer Control (ERASE BC Project): Validating an Image-based Risk Prediction Model

Bertrand KA, Hong WE, Lee Argov EJ, Karr AG, Poynton CB, Sandler D, Palmer JR, Terry MB, Wei Y, Tehranifar P

Purpose: We sought to validate the performance of a deep learning (DL) breast cancer risk prediction model based on mammographic images in data from understudied populations: participants in the Black Women's Health Study (BWHS) and the NIEHS Sister Study.

Methods: The BWHS and Sister Study are large, U.S. longitudinal cohorts of self-identified Black women (BWHS) and women with a sister diagnosed with breast cancer (Sister Study). Within each cohort, we collected digital screening mammograms for a subset of cases and controls without a history of cancer. We obtained 5717 mammograms from 1565 BWHS participants (median age, 55), including 304 who developed breast cancer within 5 years, and 4632 mammograms from 1083 Sister Study participants (median age, 49), including 221 who developed breast cancer within 5 years. We evaluated the performance of Mirai, an open-source DL model, in each cohort by calculating area under the curve (AUC) for 2- and 5-year risk. We also evaluated performance by estrogen receptor (ER) status.

Results: In the BWHS, the 2- and 5-year AUCs were 0.71 (95% CI: 0.67, 0.74) and 0.68 (0.66, 0.70), respectively. In the Sister Study, the corresponding AUCs were 0.61 (95% CI: 0.57, 0.64) and 0.58 (95% CI: 0.56, 0.61). Results were similar in analyses restricted to invasive breast cancer. For ER+ breast cancer, the 5-year AUCs were 0.69 (95% CI: 0.66, 0.71) in the BWHS and 0.59 (95% CI: 0.56, 0.62) in the Sister Study. For ER– breast cancer, the 5-year AUCs were 0.64 (95% CI: 0.60, 0.68) in the BWHS and 0.51 (95% CI: 0.44, 0.57) in the Sister Study.

Conclusions: Among Black women, Mirai performed better than traditional clinical breast cancer risk models, but worse than previously reported for non-Hispanic white populations (C-indexes up to 0.81). In the Sister Study, a cohort enriched for family history, AUCs were modest and similar to those achieved with traditional risk factor models. Mammographic DL models hold great promise as breast cancer risk assessment tools, but refinements may be necessary forracial minority populations or those with a strong family history of breast cancer. Efforts to develop models based on large samples from diverse populations are needed to ensure equitable access to personalized screening strategies

The Impact of Pregnancy, Childbirth, and Breastfeeding on the Risk of Premenopausal Breast Cancer by Subtype: A Premenopausal Breast Cancer Collaborative Group Study

O'Brien KM, Sweeney MR, House MG, Palmer JR, Visvanathan K, the PMBCCG, Sandler DP

Pregnancy, childbirth, and breastfeeding have been shown to be inversely associated with breast cancer risk, but associations with premenopausal breast cancer (PBC), are less established and may differ by subtype. Because breast cancer rates are increasing in young women and their tumors tend to be more aggressive and less treatable than those diagnosed in older women, it is important to better characterize the impact of pregnancy and birth-related factors on PBC. We harmonized data from 20 international prospective cohorts with data on premenopausal women (n=778,138). After implementing multiple imputation, we used Cox regression to calculate pooled hazard ratios (HRs) and 95% confidence intervals (CIs) to describe the associations between reproductive characteristics and incidence of PBC (n=12,723 cases). Overall, ever giving birth (HR=0.91, CI: 0.87-0.95), number of births (HR=0.93, CI: 0.91-0.95 per birth among parous women) and ever breastfeeding (HR=0.94, CI: 0.88-0.99) were inversely associated with PBC. Age at first birth was positively associated with PBC among parous women (HR=1.03, CI:1.02-1.03 per year older). However, the strength of some associations differed by estrogen-receptor (ER) status. Among parous women, ever (versus never) breastfeeding was inversely associated with ER-negative PBC (HR=0.85, CI:0.75-0.96), but not ER-positive PBC (HR=0.97, CI:0.91-1.04; p-for-heterogeneity=0.02), and age at first birth was positively associated with ER-positive PBC (HR=1.03, CI: 1.02-1.03), but not ER-negative PBC (HR=1.00, CI: 0.98-1.01; p-for-heterogeneity=0.001). We noted additional heterogeneity in HR estimates when progesterone receptor and human epidermal growth factor receptor-2 status were also considered. These results confirm previous findings from smaller studies of a reduced risk of breast cancer in women who have given birth, had a greater number of births, a younger age at the first birth, and have breastfed at least one child. Importantly, they also confirm previous reports of heterogeneity in the effects of parity and breastfeeding by estrogen receptor status and offer novel insights about the differential impact of these and other birth- and pregnancy-related factors on specific breast cancer subtypes.

Compliance by Indoor Tanning (IT) Facilities With Laws and Regulatory Policies Is Suboptimal: A Confederate Study

Heckman CJ, Mitarotondo A, Goldstein M, Janodia R, Gonzalez I, Berteletti J, Buller DB

Purpose: Because IT is a known cause of skin cancer, state laws and federal regulations restricting IT for minors have been implemented: 22 states and the District of Columbia (DC) ban minors under age 18 from IT, 22 states have other age and parental involvement restrictions, and 6 states have no restrictions on minor access to IT. We assessed IT facility law compliance, hypothesized to be insufficient and inconsistent.

Methods: Trained and supervised pseudo-patrons (PPs) called randomly selected IT facilities (i.e., IT salons, beauty salons/spas, gyms, apartment buildings) in 50 states and DC, posing as minors one year younger than the state's permitted age to indoor tan (e.g., age 17 in states banning IT under 18) or age 16 in states with no age restriction. Using a semi-structured script, PPs asked about scheduling an IT session, unlimited IT (contrary to Food and Drug Administration guidelines), risk of skin burns, and parental involvement requirements. Responses were coded, with discrepancies resolved by consensus, and summarized descriptively.

Results: 504 calls were completed to 206 IT salons, 111 gyms, 101 spas/beauty salons, and 86 apartment buildings. Overall, 55% of facilities would allow PPs to book an appointment or – walk in – for IT, despite being underage, compared to 32% in states with under-18 bans. In states with minor restrictions, IT salons were least likely (48%) to permit minor IT and gyms, most likely (56%). 26% of staff did not ask PPs their age, irrespective of law type. 44% of gyms/apartments did not require membership/tenancy to indoor tan. Most facilities (92%) offered unlimited IT packages or unlimited access to tanning beds when open. Only 52% of facility staff acknowledged that PPs' skin could be burned, when asked.

Conclusions: Though many states have laws restricting IT by minors, IT facilities are commonly non-compliant with age restrictions, suggesting inadequate law awareness and/or enforcement. Strategies must be identified to implement IT laws effectively and realize their benefits including preventing skin burns, skin cancer, and other health consequences. Ongoing analyses are evaluating compliance when scheduling appointments online and by additional law provisions, state demographics, and US region.

Utilization of a Digitalized Health Insurance Navigation Program for Survivors: A Report From the Childhood Cancer Survivor Study

Park EP, Kirchhoff AC, Kaddas H, Mitchell CO, Durieux N, Foor A, Troubh Z, Perez GK, Ards L, Alston S, Armstrong GT, Nolan VG, Leisenring WM, Vukadinovich C, Cooper CL

Purpose: The purpose of this study is to assess the digital literacy and utilization of a health insurance navigation program, in synchronous (live sessions) and asynchronous (video sessions) modalities, to assist long-term cancer survivors to better understand and utilize their health insurance.

Methods: We created a five-session health insurance navigation program (Health Insurance Navigation Tools; HINT) for long-term childhood cancer survivors who are insured. We report on baseline enrollment, digital literacy, and utilization of synchronous and asynchronous program modalities.

Results: From 5/23-9/25, 1830 CCSS survivors were invited to participate, and 573 were contacted and confirmed eligible (31.3%; 573/1830). 529 of eligibles were randomized (92.3%; 529/573): health insurance booklet only (n=58), asynchronous (n=234), and synchronous (n=237). Of the 529 survivors included in this analysis, 10 withdrew post-randomization. Of the 519 participants (60.7% female, Mean age=45.5 years (SD=9.4), 80.7% White, 8.2 years of age at diagnosis), 85.9% endorsed their ability to use applications/programs on a cell phone, computer, or another electronic device on their own. Utilization of the initial session was higher in the asynchronous group, with 90.8% opening the session compared to 67.2% completing the first session in the synchronous group. Follow-up session utilization varied by treatment group (synchronous and asynchronous groups respectively): Session 2 (64.2%, 84.2%), Session 3 (60.3%, 77.2%), Session 4 (59.9%, 69.8%), and Session 5 (58.6%, 65.9%). Utilization of the health insurance booklet was 77.6% for booklets only, 73.7% for synchronous, and 90.8% for asynchronous.

Conclusions: Overall digital literacy was high. Asynchronous delivery reflected higher rates of engagement, likely due to the inherent flexibility of video access. High utilization of a virtual health insurance booklet was observed for all participants. These findings support the feasibility of digital health insurance navigation interventions to improve health insurance literacy among long-term childhood cancer survivors.

Golden Anniversary Award Winner

Follow-up Colonoscopy Completion by Patient Navigation Intensity in a Large Federally Qualified Health Center: Results from the PRECISE Study

Gautom P, Rosales AG, Thompson JH, Rivelli JS, Schneider JL, Slaughter MT, Petrik AF, Coronado GD

Purpose: To describe follow-up colonoscopy completion by intensity of patient navigation in a randomized study (PRECISE) at a large federally qualified health center in Washington State.

Methods: PRECISE enrolled patients with an abnormal fecal test to receive usual care or a six-topic telephonic patient navigation program supporting colonoscopy completion. Eligible patients (ages 50-75, no metastatic cancer or life-limiting conditions) were enrolled from August 2019 to April 2022. Charts of 489 patients assigned to navigation were manually reviewed to classify navigation intensity as full (all six topics delivered), greater (four or five), light (one or two), or none (zero). Frequencies and percentages of colonoscopy completion, declination, ineligibility, and loss to follow-up were summarized by navigation group. Additionally, using 12 variables from the electronic health record, a risk prediction model estimated the baseline probability of colonoscopy completion and was assigned to each patient. The probability score was categorized into low, moderate, and high groups. Chi-square tests evaluated associations between the probability score and navigation level overall and across two periods: 1) August 2019-June 29, 2021 (end of COVID restrictions in Washington) and 2) June 30, 2021-April 2022.

Results: All patients (n=66, 100%) receiving full navigation completed a colonoscopy and were neither lost to follow-up nor declined. In comparison, the proportions of patients who completed a colonoscopy were lower in the greater, light, and no navigation groups: 76% (n=57/75), 39.5% (n=68/172), and 28% (n=50/176), respectively. Patients in the light and no navigation groups more frequently declined screening, were lost to follow-up, or unreachable compared to those in full or greater navigation. No significant associations were found between the probability score and navigation intensity (full study: p-value = 0.99, period 1: p-value = 0.57, period 2: p-value = 0.89).

Conclusion: These findings highlight the value of patient navigation programs in supporting colonoscopy completion, particularly in FQHCs where patients often face barriers to cancer screenings. Future efforts may explore tailored navigation intensity to optimize resources and improve screening rates.

Patterns and Trends in Medicaid Enrollment Timing and Tumor Stage at Diagnosis Among Colorectal Cancer Patients: SEER–Medicaid, 2016–2019

Benavidez GA, Demb J, Sedani AE

Purpose: Previous studies using older SEER-Medicaid (2006-2013) data have found Medicaid enrollment to be associated with tumor stage and survival for multiple cancers. This updated analysis examines that relationship among Medicaid insured colorectal cancer (CRC) patients using more recent data.

Methods: We used the most recent SEER-Medicaid linkage (2016–2019) including individuals under age 65 diagnosed with CRC. Patients were classified as pre- diagnosis enrolled (coverage within 12 months before diagnosis), post-diagnosis enrolled (coverage initiated within 12 months after diagnosis), or not enrolled. CRC stage at diagnosis was dichotomized as early (localized) or late (regional/distant). Mixed-effects logistic regression with a random intercept for SEER registry accounted for state-level policy variation; fixed effects included sex, age, race/ethnicity, marital status, rurality, socioeconomic quintile, and year of diagnosis. Separate models examined predictors of post-diagnosis enrollment.

Results: Among 55,613 CRC patients under age 65, approximately 30% were diagnosed with early-stage disease, and 70% were enrolled in Medicaid prior to diagnosis. In predictive models examining factors associated with post-diagnosis enrollment, Hispanic and non-Hispanic Asian patients had lower odds of enrolling after diagnosis (aOR = 0.66; 95% CI: 0.51–0.87), while no meaningful differences were observed by rurality or among non-Hispanic Black patients. Compared to California, patients residing in Georgia, Utah, Connecticut, and Iowa had higher odds of post-diagnosis enrollment. Enrollment rates declined steadily over the study period, with the lowest observed in 2019 (aOR = 0.24; 95% CI: 0.18–0.31In models assessing the relationship between enrollment timing and stage at diagnosis, there was no evidence of a difference in odds of late-stage disease between patients enrolled after their diagnosis versus those enrolled prior (aOR = 1.08; 95% CI: 0.93 ,1.26).

Conclusions: Post-diagnosis Medicaid enrollment was not associated with later-stage CRC diagnosis, contrasting prior findings. Declining post-diagnosis enrollment may reflect evolving policy or enrollment practices, yet persistent disparities in timing warrant continued investigation.

Reducing Rural Cancer Disparities in BRCA-Associated Family History Screening Through Adapted Public Health Programs

Ramirez Leon D, Marra A, Zhang A, Snyder C, Liu Y, Escoffery C, Walters C, Anderson S, Gabram S, Ballard D, Guan Y

Purpose: Limited access to specialized services contributes to cancer health disparities in genetic risk assessment, particularly in rural and under-resourced communities. This study aims to adapt and implement Georgia's statewide BRCA-associated family cancer history (FH) screening program to increase FH screening rates among diverse patient populations in rural public health clinics.

Methods: From June 2024–January 2025, we conducted a multilevel program adaptation with a stakeholder committee of cancer control leaders, public health champions, and patients. We identified gaps, prioritized adaptation components, and developed implementation strategies. In February 2025, we launched a multi-site clustered randomized controlled trial in six clinics in Georgia's Southwest Public Health District to evaluate the adapted program. Mixed-effects logistic regression was used to assess FH screening uptake between the trial arms.

Results: Fifteen adaptations were prioritized across individual (n=2), provider (n=1), clinic (n=7), organization (n=3), and community (n=2) levels. Most focused on implementation and scale-up (n=10), followed by contextual modifications (n=4) and communication content (n=1). Key adaptations included expanded outreach (e.g., posters, phone scripts, social media), streamlined workflows (e.g., simplified data entry, automated referrals), and integration of theory-based, risk-stratified communication materials. Between February–June 2025, among 2287 women aged ≥25 years seen across study clinics, 329 completed screening: 235 of 1350 in the intervention arm (17%) and 94 of 937 in the standard care arm (10%). Women in the intervention arm had 65% higher odds of completing screening compared to standard care (p=0.03) in the multivariable mixed-effect model. Race, poverty, and insurance status did not significantly influence screening uptake.

Conclusions: Strong partnerships between public health agencies, community organizations, and academic institutions were essential for successful adaptation. Preliminary results indicate promising potential for improving access to cancer genetic risk assessment in rural areas. Ongoing trial evaluation will provide further data into program impact and sustainability.

Closing the Gap After Digital Intervention Among Young Adults: Adaptive Motivational Interview with Targeted Micro-videos to Support HPV Vaccine Uptake

Xu, A. Y., Dawkins-Moultin, L., Pierce, J., Sharif, S., Lu, Q.

Purpose: HPV vaccination remains suboptimal among young adults, but many digital interventions yield modest effect to increase uptake, indicating need for additional boosters. Using an adaptive intervention principle, we piloted an enhanced motivational interview (MI) delivered after the parent intervention to elicit motivations and concerns and provide targeted information. We assessed whether this add-on component supports informed vaccination decisions among non-initiators.

Methods: In this single-arm pilot, non-initiators (age 18-26) at the 9-month follow-up of the parent trial were invited to a 60 minute Zoom MI. Guided by MI's engage–focusâ€ evoke–plan processes, the session included: (1) Status check: assess current knowledge and elicit motivations and barriers; (2) Targeted information: verbal clarification and four – 120-second, gender-tailored videos (peer, clinician, survivor, and multi-voice perspectives); and (3) Summary and choice: reflective summary, next steps, and email follow-up. The primary outcome was the immediate vaccination decision at session end (accept, consider, or decline). We also recorded participants' stated reasons for their decisions.

Results: Of 18 participants, 14 (77.8%) chose to initiate vaccination immediately (appointment scheduled or verbally committed); 3 (16.7%) decided to consider vaccination after additional deliberation; and 1 (5.6%) declined. Common reported barriers included limited HPV/HPV vaccine knowledge, perceived low infection risk (often due to current sexual inactivity), cost concerns, logistical hurdles (e.g., transportation) and competing priorities. Videos played during MI most often cited as helpful addressed cancer-prevention evidence and felt personally relatable.

Conclusion: As an adaptive intervention booster, MI with tailored videos may be feasible and promising for converting vaccine non-initiators who were resistant to the traditional self-guided interventions. The booster MI addresses motivational informational and logistical gaps, and increased immediate vaccination decisions in this pilot. Larger, controlled studies may test durability of effectiveness (dose initiation and series completion), and examine potential moderators (e.g., gender, campus type) to optimize effectiveness.

Balancing Harm with Motivation: A Mixed-Method Evaluation of Lung Cancer Screening Messaging

Hirsch EA, Vielma AG, Carter-Bawa L

Purpose: Perceived fear and stigma in lung cancer screening (LCS) messages may lead to avoidance of screening. This study examined message wording and imagery preferences to guide communication and intervention development.

Method: Mixed-method interviews were conducted with LCS-eligible individuals recruited from Facebook, secondary to a clinical trial that used social media to reach, engage, and educate about LCS. Participants evaluated 25 message combinations with differing wording and imagery using a seven-question guide assessing message clarity, appeal, areas for improvement, and rating of the wording/imagery on a scale of 0 (highly dislike) to 10 (highly like). Wording conveyed messages about lung health, early detection, education, and emotional appeals about family and hobbies. Imagery included healthy lungs, diseased lungs, shared decision making (SDM), family, and hobbies. Qualitative content coding was used to extract quantitative ratings and qualitative quotes about wording and imagery likes and dislikes.

Results: Interviews were conducted with 24 LCS-eligible individuals from 15 states. Participants were 54% male, 42% non-Hispanic White, 50% currently smoke, and were 52-74 years old. Average ratings ranged from 7.5-9.1 for wording and 6.1-8.4 for imagery across the 25 combinations. The top-rated wording (average rating >8.6) conveyed educational information (symptoms of lung cancer, LCS statistics) and emotional appeal about a diagnosis affecting loved ones, with participants expressing, "your family doesn't need to worry". Low-rated wording (<7.6) included brief lung health messages ("nothing really stands out") and loss-framed appeals about hobbies, seen as scare tactics. The highest rated imagery (>8.2) included photos with grandkids, described as impactful, and photos depicting a serious SDM visit ("lung cancer's serious"). Low rated imagery (<6.8) showed tumors, described as fear-inducing ("Don't like that picture. It would make me less willing to have [LCS]").

Conclusion: LCS-eligible individuals strongly preferred positive educational and emotional appeal messages and imagery. Loss-framing and tumor images were viewed as scare tactics. This information offers clear guidance for message design to encourage LCS participation.

Enhancing Follow-up for Abnormal Pap Smear for Cervical Cancer Screening Using a Scalable mHealth Intervention: Early Findings from the CHAT Hybrid Effectiveness-Implementation Study

Wen KY, Tagai E, Dayaratna S, Slamon R, Hernandez E, Torres C, Hemler J, Kohler K, Sullivan B, Tergas A, Hudson S, Miller S.

Purpose: Timely follow-up after an abnormal Pap smear is essential to prevent cervical cancer, yet diagnostic colposcopy no-show rates remain disproportionately high among underserved populations. The CHAT intervention adapts a validated counseling model into a scalable mHealth format, using automated, tailored text messages to assess patient-reported barriers, deliver motivational and educational content, and provide logistical support. A stepped-care approach offers telephone health coaching for patients who miss appointments.

Methods: A hybrid type 1 effectiveness-implementation study using a Sequential Multiple Assignment Randomized Trial (SMART) design is underway across three urban health systems serving low-income, racially diverse patients. Patients referred for colposcopy are randomized to usual care or the CHAT text messaging intervention. Those who do not attend are re-randomized to continue text messaging or receive telephone-based coaching. Implementation outcomes are evaluated using the EPIS framework through mixed methods.

Preliminary Results: As of June 2025, 74 participants have enrolled and been randomized (CHAT: n=43; Usual Care: n=31). Among CHAT participants, 60–70% engaged with at least one text message and up to 60% completed the barriers assessment, with a median response time under 3 hours. Among stepped-care-eligible participants, 80% were re-randomized, and follow-up is ongoing. Early adherence to colposcopy completion among those randomized to CHAT is approximately 90% compared to 80% in the control group, although these findings remain preliminary. Fourteen provider interviews highlighted fragmented workflows, short lead time between scheduling and appointments, and limited EHR integration as key challenges. Providers described the program as "non-disruptive," "scalable," and "aligned with care goals."

Conclusions: Early data indicate that CHAT is a promising, low-burden strategy to support follow-up after abnormal Pap smear results. Strong patient engagement, rapid response patterns, and favorable provider perspectives support the potential for broader dissemination. Workflow and system integration considerations will be important for long-term sustainability.

***T** denotes trainee submission.*

Sunday, April 12, 2026

Cancer Health Disparities

1-T

Social Disparities and Oropharyngeal Cancer Stage at Diagnosis in Virginia Commonwealth University Health System

Abosamak N, Namoos A, Gal T

Oral cancer survival rate is affected by its stage at presentation, with a 5-year relative survival rate of 86% for local and 40% for distant stages. Relative survival rates of White and Black patients are 70% and 52%, respectively, highlighting the greater impact on the Black community. Contributing factors to late presentation include mistrust, and less oral cancer knowledge and dental care access. This study measures the impact of several factors on oral cancer stage at diagnosis in the Virginia Commonwealth University Health system.

Methods: A retrospective cross-sectional study analyzed de-identified data from oral cancer patients in the VCU Health cancer registry diagnosed from 2014 to 2023. Multivariable logistic regression modeled odds of advanced diagnostic stage (early and late stages). Cox proportional hazards models evaluated overall survival. Predictors were anatomic site, race, smoking status, Social Deprivation Index (SDI), & insurance type.

Results: In multivariable logistic models, oral cavity site, hypopharynx site, Black race, current smoking, and insurance type were associated with odds of advanced stage: oral cavity (OR 2.21, 95% CI 1.56-3.12; p<0.00001), hypopharynx (OR 2.83, 95% CI 1.12-7.15; p=0.0196), Black race (OR 1.59, 95% CI 1.03-2.46; p=0.0346), current smoker (OR 1.73, 95% CI 1.15-2.62; p=0.0090). Compared with Medicaid, private insurance was associated with lower odds of advanced stage (OR 0.41, 95% CI 0.23-0.72; p=0.0016). Insurance type showed significant associations: compared with Medicaid, private insurance (HR 0.65, 95% CI 0.47-0.88; p=0.0061) and Medicare (HR 0.72, 95% CI 0.53-0.99; p=0.0429) had lower hazards. Survival showed a time-dependent insurance effect: private insurance had a higher hazard very early (30 days HR 1.23) but lower hazards later (365 days HR 0.74; 730 days HR 0.64).

Conclusions: Anatomic site, Black race, current smoking, and insurance type, particularly Medicaid, were associated with advanced diagnostic stage & differences in survival. These findings highlight the different outcomes experienced by Black Americans & the need of further studies investigating the mediating factors causing different outcomes by insurance status. We are in the process of requesting HPV status for inclusion in the model.

Travel Award Winner

2-T

Missed Opportunities for Lung Cancer Screening and Tobacco Treatment in Patients with Mental Illness

Abufarsakh B, Wang T, Williams LB, Dignan M, Okoli CTC

Purpose: Among patients with mental illnesses (PLMI) admitted to a state psychiatric hospital in Kentucky and aged between 50 and 80 years, the objectives of this study were to determine the proportions who are: 1) lung cancer screening (LCS) eligible based on the U.S. Preventive Services Task Force LCS criteria; 2) history of receiving tobacco treatment (TT) during hospitalization; and 3) examine predictors of LCS eligibility and receiving TT.

Methods: We anonymously abstracted electronic medical record data of patients who were admitted between Jan 2016 and Dec 2020. Collected information included demographic data, mental illnesses diagnoses, tobacco use history, and receipt of TT. Data were analyzed using R software. Logistic regression analyses were used to determine predictors of LCS eligibility and receipt of tobacco treatment.

Results: Of admitted PLMI (N = 2,233), 54.8% were current tobacco users, 36.0% were LCS-eligible. Of the tobacco users, 76.2% received TT. Significant predictors of receiving TT included younger age (ß = −0.071, p < 0.001), alcohol use (ß = 0.587, p < 0.001), and substance use disorder (ß = 0.447, p < 0.001). Individuals identifying as White were also more likely to receive tobacco treatment compared to other racial groups (ß = 0.520, p < 0.05). Similarly, significant predictors of LCS eligibility were younger age (ß = −0.0559, p < 0.001), alcohol use (ß = 0.367, p < 0.01), and substance use disorder (ß = 0.551, p < 0.001). Individuals identifying as White were more likely to meet LCS eligibility criteria than those from other racial groups (ß = 0.804, p< 0.001).

Conclusion: A high proportion of patients were LCS-eligible, with alcohol and substance use emerging as key predictors of both LCS eligibility and receiving TT. Despite high rates of tobacco use, TT among those eligible for screening remained suboptimal. These findings underscore the potential of mental health settings as opportunities for identifying LCS-

eligible PLMI and facilitating access to TT services. Targeted communication strategies and tailored interventions are needed to enhance LCS uptake and promote TT among this underserved population.

Dr. May Edward Chinn Travel Award Winner

3

Trends in Ovarian Cancer Mortality Among Premenopausal and Postmenopausal Women in the United States, 1975-2023

Adekanmbi V, Berenson A.B, Hsu C.D, Hoang TN, Sokale I, Uthman O.A, Guo F

Purpose: Ovarian cancer remains the leading cause of gynecological cancer-associated mortality in developed countries. Menopausal status is a known risk factor for ovarian cancer, and most cases occur after menopause. The aim of this study was to characterize current trends in the mortality from ovarian cancer between premenopausal and postmenopausal women to inform future targeted healthcare interventions and prevention programs in the United States (US).

Method: This population-level cross-sectional study analyzed data from the United States Cancer Statistics (USCS) database between 1975â^'2023, covering 98% of the US population, including the 50 states and the District of Columbia. We calculated age-standardized mortality rates (ASMR) per 100,000 population and used joinpoint regression to compute the average annual percentage change (APC) in ovarian cancer mortality with 95% confidence intervals (CI).

Results: Between 1975 and 2023, ovarian cancer ASMR continuously decreased from 5.6 to 1.9 per 100,000 population among premenopausal women. This decrease was consistent across all racial/ethnic groups (non-Hispanic White, non-Hispanic Black, and Others). The APC across this period for premenopausal women was -2.1 (95% CI: -2.2, -2.0). Among postmenopausal women, joinpoint regression detected significant decreases in ASMR from 36.0 per 100,000 population in 1992 to 33.6 per 100,000 in 2006 (APC: 0.3; 95% CI: -0.7, -0.0), and subsequently to 21.4 per 100,000 in 2023 (APC: -2.5; 95% CI: -2.7, -2.3). Stratified by race/ethnicity, ASMR in postmenopausal women began to significantly decrease in 1992 among non-Hispanic Blacks, in 2006 among non-Hispanic Whites, and in 2005 among other racial/ethnic groups.

Conclusion: The study revealed that the mortality rate from ovarian cancer in the US declined among premenopausal women from 1975 to 2023 but only declined significantly since the 1990s among postmenopausal women. The earlier significant and continuous decline seen in premenopausal women may be due to the long-term effects of widespread oral contraceptive use in this group, which started in the 1960s. These findings suggest that prevention and treatment of ovarian cancer over the last five decades have affected premenopausal and postmenopausal women differently

4-T

Exploring Physical Function and Angiogenic Potential in Breast Cancer Patients from the Discovery and Elimination of Cardio-Oncology Disparities Toward Equity Study

Alonso E, Beyer K, Beyer A, Phillips S, Do Couto N, Kriegel A, Durand M, Widlansky M, Kong A, Hoskins K, Stolley M

Purpose: Adverse cardiovascular events are the second-highest cause of non-cancer related mortality among breast cancer (BC) survivors. Black/African American (B/AA) survivors exhibit a higher incidence of cardiotoxicity directly and/or indirectly linked to treatment (Tx). The Discovery and Elimination of Cardio-Oncology Disparities Toward Equity study includes 3 projects examining how Tx impacts vascular function, the potential mitigating effects of exercise and how socioenvironmental (SE) factors moderate Tx and exercise effects. We examined baseline results for physical function (PHYSFx), angiogenic potential, and SE factors, highlighting significant differences between B/AA and Non-Hispanic White (NHW) women newly diagnosed with BC.

Method: Eligible patients must be female, 18+ years, recently diagnosed with BC, and identify as B/AA or NHW. Prior to Tx, PHYSFx is assessed by VO2 peak, 6-minute walk (6MW), 30-second chair stand (S2S), and handgrip strength (HG). Angiogenic potential, measuring microvascular endothelial function, is tested ex-vivo using participant fat biopsies collected during port placement.

Results: Recruitment is ongoing with 68 women (51 NHW, 17 B/AA) providing baseline data. PHYSFx results overall were in normal range 22.0 ml/min/kg for VO2 peak, 523 meters for 6MW, 16 for S2S, and 30.6kg for dominant HG. B/AA participants demonstrated significantly lower VO2 peak, S2S, and HG vs NHW counterparts (all p values <.05). The angiogenesis assays demonstrated a continuous increase in capillary sprouting with higher frequency and larger area for healthy controls. However, participants exhibited reduced angiogenic potential with fewer wells developing sprouts and smaller areas. Notably, B/AA participants had fewer rates of angiogenic potential as well as higher social vulnerability index rank (61 [26] vs 23 [23]), percent tree canopy (14 [6] vs 24 [10]), and perceived neighborhood cohesion (16 [3] vs 19 [3]) compared to NHW participants (all p values <.01).

Conclusion: Preliminary results suggest that B/AA women enter BC Tx with reduced PHYSFx and are more vulnerable to developing cardiotoxicity. SE factors likely contribute to this increased risk and highlight the value of interventions directed at reducing risk and changing systems.

5

Technology-Enabled Genetic Services in Primary Care: A Scoping Review

An J, Zhang J, Wang H

Purpose: Advances in genomic medicine have led to the identification of a growing number of genetic conditions, enabling more personalized care. Primary care is an important access point for the equitable and efficient delivery of genomic services. Amid workforce shortages and fragmented healthcare systems, digital technologies are increasingly used to support and coordinate genetic risk assessment, education, counseling, and testing. We aim to identify, map, and synthesize evidence on technology-enabled genetic services in primary care, and highlight research gaps.

Method: Following the PRISMA-ScR framework, we searched PubMed, CINAHL, and Scopus for English-language studies (2005–2025). Eligible experimental and non-experimental studies must report on technology-based genetic risk assessment, referrals, counseling, and/or testing in primary care settings. Data extracted include the study's aim, design, population, genetic conditions, clinical setting, outcomes, and/or intervention characteristics.

Results: The initial search yielded 2675 results after removing duplicates. Ten studies meet the inclusion criteria to date. Technology-enabled approaches were clustered as: 1) patient-facing tools (e.g., electronic family-history/risk assessment surveys, decision aids), 2) clinician support (e.g., electronic health record [EHR] reminders, clinical decision support systems, communication lines between primary-tertiary providers), and 3) service delivery models (e.g., point-of-care counseling/testing). EHR-based identification and patient-entered risk assessment were feasible for identifying patients eligible for genetic evaluation, though disparities persist, including limited family history data in EHR for racial minorities. Point-of-care counseling and testing were generally associated with higher uptake than traditional referral-based models.

Conclusion: Early findings suggest that technology-enabled strategies in primary may help meet rapidly growing demand for genetic services, but overall uptake of counseling and testing remains suboptimal due to multilevel barriers that prior interventions have not fully resolved. Future research is needed to identify effective technology-enabled interventions that streamline care workflows and reduce provider burden.

6-T

Population-based analysis of clinical trial enrollment and survival in metastatic lung cancer patients: Assessing real-world California Cancer Registry data.

Arizpe A, Nieva J, Pickering TA ,Liu L, and Farias AJ

Purpose: To examine whether enrollment in a therapeutic clinical trial (TCT) is associated with longer overall survival among a diverse cohort of lung cancer patients in Los Angeles County, given the mixed findings on this relationship.

Methods: We analyzed retrospective data from lung cancer patients diagnosed with distant disease from the California Cancer Registry/Los Angeles Cancer Surveillance Program between TCT enrollment was defined as cases enrolled on a protocol (e.g., ACS, NCI, VA, pharmaceutical, or in-house trial vs. None). Overall follow-up time in months was measured by using the date of diagnosis until 1) the month listed on the death certificate, or 2) the month last presumed alive. We adjusted for sociodemographic (e.g., age, race/ethnicity, SES, marital status), health system- (facility designated cancer center status, insurance status), and clinical-factors (Charlson comorbidity score, treatment modality). We used a multivariable accelerated failure time (AFT) model to assess this association.

Results: Less than 1% (0.81%; 257/31,905) of our cohort enrolled in a TCT protocol, and a higher proportion of those enrolled were Non-Hispanic White (NHW) (54.9% vs 46.5% - not enrolled), had zero comorbidities (40.5% vs 29.2%), and were Medicare insured (48.6% vs 46.9%). In the fully adjusted log-logistic AFT model, distant disease lung cancer patients enrolled in TCT had significantly longer survival time. Specifically, they had a time ratio of 2.07 (95% CI: 1.78–2.40), indicating that they survived twice as long as those not enrolled in clinical trials, after adjusting for covariates. All racial/ethnic groups enrolled in a TCT had longer survival than non-enrollees of the same race/ethnicity, with the greatest benefit among Black lung cancer patients (2.79; 95% CI: 1.54–4.79).

Conclusion: In our population-based study examining enrollment in TCT and overall survival among patients with later-stage lung cancer, our results suggest a beneficial effect of TCT enrollment on survival after accounting for multiple factors. These findings underscore the need to improve access to TCTs across all groups to maximize the generalizability and implementation of innovative treatments for diverse populations in the United States.

7

Utilization of Targeted Therapies Among a Racially Diverse Cohort of Breast Cancer Survivors

Adams SA, Ategbole M, Gonzalez J, May J, Bell N, Felder TM, Babatunde OA

Purpose: To examine the utilization of targeted therapies for breast cancer among a racially and socio-economically diverse cohort of survivors.

Methods: All breast cancer cases diagnosed between 2000–2018 among individuals under 65 years from the South Carolina (SC) State Cancer Registry were linked to administrative data from SC Medicaid and a state-sponsored private insurance plan (PEBA). To ensure complete capture of treatment, only those with a minimum of 3 years of continuous insurance plan eligibility were included for analysis (N= 6,581). Targeted therapy (TT) was determined based upon drug files using a comprehensive listing of targeted therapies FDA-approved for use in breast cancer treatment created by the study team. Descriptive statistics and logistic modeling were conducted using SAS v9.4 to examine the association between various demographic or tumor characteristics and TT utilization.

Results: In univariable models, those of black race, higher grade, and deceased were significantly more likely to utilize TT at least one time [Odds Ratios (ORs): 1.67, 3.21, 0.94, 2.06, respectively]. Conversely, those who participated in the state's National Breast and Cervical Cancer Early Detection Program (NBCCEDP), married, tumor receptor positive, and older age were significantly less likely to utilize targeted therapy (ORs: 0.79, 0.69, 0.06, 0.99, respectively). Upon multivariable adjustment, significantly increased odds of targeted therapy utilization were observed exclusively for age and decedent status, (ORs: 1.03, 2.74, respectively) while those participating in the NBCCEDP program, having a hormone receptor positive tumor, and married were significantly less likely to utilize TT (ORs: 0.04,0.35, 0.64, respectively).

Conclusions: Our findings highlight those populations (participating in the NBCCEDP and married) who may need further intervention or support in ensuring that they receive the full benefit of TT treatments. These results also provide compelling evidence to raise clinician awareness of groups at the greatest risk for under-utilization of treatments. Further research into possible effect modification by demographic or clinical factors as well as impact upon survival trajectories is warranted.

8

Perceptions of HPV Vaccination among Health Care Providers and Parents in an American Indian Community in North Carolina

Bell RA, Yarborough BA, Vielot NA

American Indian and Alaska Natives (AI/AN) have a higher incidence of some HPV-associated cancers than their non-Hispanic White (NHW) counterparts. Nationally, AI/ANs have HPV vaccination rates at or near those of NHWs, although these rates are well below the Healthy People 2030 goals. Further, data on AI/AN HPV vaccination rates do not consider factors contributing to access to care for non-federally recognized tribes who do not have access Indian Health Service care. The Lumbee tribe is the largest tribe in North Carolina (NC) and in the southeastern US but is not fully federally recognized. The Lumbee tribal homeland is located in Robeson County, a rural county with significant adverse health outcomes. The goal of this project was to identify perceptions of HPV vaccination in the Lumbee tribe. Focus groups were conducted with providers at two pediatric clinics in Robeson County that serve large numbers of Lumbee patients, and in-depth interviews were conducted with Lumbee parents with children who were age-eligible for HPV vaccination. Facilitation guides were developed for the focus groups and in-depth interviews, and qualitative data was collected through transcription of audio recordings. Major themes were identified using thematic and content analysis methods after review of the transcripts by the project team. Providers (n = 13) indicated that parental vaccine hesitancy stems from a change in attitudes towards vaccines due to the COVID pandemic and a decrease in trust of the government. Providers also indicated difficulties patients experienced trying to access the clinic and with scheduling appointments. Providers had success with vaccine administration when they relate the HPV vaccine with local health statistics and when they continue to follow up with their patients who initially decline the vaccine. Providers also noted that a state program provided vaccines for AI/ANs free of charge, which alleviated a financial barrier. Preliminary data from parents indicated a high level of trust of provider recommendation for vaccines, with the exception of the COVID vaccine. These data illuminate factors contributing HPV vaccination among a non-federally recognized AI/AN tribe. Further researcher is needed to more fully elucidate these issues.

9

Advancing Rural Cancer Control: A Portfolio Analysis of Research funded by the National Cancer Institute, 2016–2024

Gaysynsky A, Weaver S, Vanderpool R, Iles I, Kennedy A, Srinivasan S, Blake K

Purpose: Given well-documented rural-urban differences in cancer incidence, morbidity, and mortality, we conducted a portfolio analysis to characterize rural cancer control-focused grants funded by the National Cancer Institute (NCI) between fiscal years 2016 and 2024 and identify opportunities for future investment in rural research gaps.

Methods: iSearch, an NIH portfolio analysis tool, was used to identify rural-focused cancer control research grants funded by NCI. 128 grants were analyzed for key attributes, including grant characteristics (e.g., funding mechanism), cancer site, cancer control continuum phase, research topic, setting, and intervention delivery platform. SAS version 9.4 was used to calculate code frequencies.

Results: On average, 14 new grants focused on rural cancer control were awarded per year. Colorectal (n=36) and breast cancer (n=27) were the most frequently studied cancer sites for funded rural research. Prevention (n=43) and treatment (n=41) were the most frequently addressed phases of the cancer control continuum. Common research topics included quality of care (n=30), quality of life/mental health (n=26), and screening (n=25). Most grants utilized randomized control trials (n=78) and qualitative research methods (n=77). Projects were most frequently set in the home (n=68) or in healthcare settings (n=47). Interventions were most frequently delivered through interpersonal interaction, either in-person (n=40), over the phone (n=36), or through videoconferencing (n=27).

Conclusions: NCI has supported an array of rural cancer control studies since 2016; however, opportunities were identified to further address rural cancer disparities, including efforts focused on understudied topics (e.g., financial toxicity), cancer sites (e.g., cervical cancer), phases of the cancer control continuum (e.g., end-of-life), and settings (e.g., community-based organizations).

10-T

The Association between Historical Redlining and Contemporary Area Deprivation Index with Colorectal Cancer Outcomes among Kentucky Patients

Blakey M, Tsai MH, Howard S, Wolf-Horrell E, Tortola A, Burris J, Bhakta A, Williams BM, Moore JX

Purpose: Colorectal cancer (CRC) remains a leading cause of cancer mortality in Kentucky, where historical and contemporary neighborhood inequities may contribute to outcome disparities. Historical redlining was the legal practice of refusing home loans to "undesirable" populations. Limited evidence exists on how historical redlining and current neighborhood disadvantage, measured by the 2010 Area Deprivation Index (ADI), relate to CRC outcomes. While neighborhood disadvantage and redlining have been linked to outcomes in other cancers such as breast and prostate, their influence on CRC has been rarely examined, making this analysis novel. This study examined associations with late-stage diagnosis and CRC-specific mortality.

Methods: We conducted a retrospective cohort study using 2010–2022 Kentucky Cancer Registry data linked with census tract–level measures of historical redlining (1930s) and ADI (2010). Redlining captured the legacy of discriminatory housing practices, while higher ADI scores indicated greater socioeconomic disadvantage. Independent and joint associations of redlining and neighborhood disadvantage (high ADI) were examined for odds of late-stage CRC diagnosis using logistic regression and for CRC-specific mortality using Cox proportional hazards models. Multivariable models adjusted for age, race, sex, marital status, insurance, tumor grade, and tobacco use.

Results: Among 1,819 CRC patients, neither historical redlining nor neighborhood disadvantage independently predicted late-stage diagnosis (HRI: adjusted OR = 1.01, 95% CI 0.77–1.32; ADI Q4 vs Q1: adjusted OR = 1.30, 95% CI 0.84–2.02). Joint disadvantage (high ADI + redlining) was also not associated (OR = 1.04, 95% CI 0.75–1.44). For CRC-specific mortality, fully adjusted models showed no significant associations for redlining (HR = 0.99, 95% CI 0.84–1.16), ADI (Q4 vs Q1: HR = 0.83, 95% CI 0.65–1.05), or joint disadvantage (HR = 1.01, 95% CI 0.74–1.36).

Conclusion: Historical redlining and contemporary neighborhood disadvantage were not significantly associated with late-stage CRC diagnosis or CRC-specific mortality. Findings suggest that while structural inequities shape broader health environments, their direct effects on CRC outcomes in Kentucky may be mediated by other factors.

11-T

Associations Between HIV Stigma, Discrimination, and Mental Health in People Living with HIV and Cancer

Boxtha C, Lin YC, Hume E, Bowles K, Sprow O, Coghill AE, Vadaparampil ST, Velez A, Suneja, G, Islam JY,

Purpose: People with HIV (PWH) who are diagnosed with cancer face unique psychosocial challenges as they navigate healthcare systems while living with a dual burden of disease. This study examines the association between HIV-related stigma and everyday discrimination on mental health and quality of life outcomes among PWH and cancer.

Methods: We conducted a cross-sectional survey between December 2022 and August 2025 among PWH with cancer receiving care at Moffitt Cancer Center, an NCI-designated Cancer Center in Florida. Using multivariable linear (continuous outcome) and Poisson (categorical outcome) regressions, we assessed overall and subscale associations between the Berger HIV Stigma Scale and Everyday Discrimination Scale mean scores with mental health outcomes. Main outcomes included resilience, loneliness, stress, social support, and depressive symptoms. Models were adjusted for age, sex, highest educational attainment, marital status, annual household income, insurance status, and cancer type.

Results: Among the 120 participants, the median age was 59 years, 58.3% were non-Hispanic White, and 76.7% were men. Psychological distress was associated with everyday discrimination and HIV stigma. Everyday discrimination was associated with high depressive symptoms (PR=1.47, 95% CI: 1.24, 1.74), high loneliness (PR=1.27, 95% CI: 1.04, 1.54), high stress (PR=1.15, 95% CI: 1.03, 1.29), low resilience (PR=1.66, 95% CI: 1.04, 2.63), and low emotional support (Î2=-0.36, CI: -0.70, -0.03). Overall, HIV stigma was associated with high stress (PR: 1.35, 95% CI: 1.07, 1.69), lower social support (Î2=-12.54, -24.26, -0.81), low resilience (PR: 3.67, 95% CI: 1.39, 9.68), and high loneliness (PR: 2.14, 95% CI: 1.40, 3.26). Negative self-image due to HIV was the subscale most often associated with adverse psychosocial outcomes, including increased perceived stress (Î2=0.44, 95% CI: 0.22, 0.66) and depressive symptoms (Î2=0.33, 95% CI: 0.12, 0.55).

Conclusions: HIV-related stigma and everyday discrimination were strongly linked to adverse mental health outcomes among PWH with cancer. Our results highlight the need for integrated psychosocial support and stigma-reduction strategies to improve survivorship care.

12

Correlates of Human Papillomavirus Vaccination Among a Sample of Emerging Adults Aged 18-26 Living in Rural Locations in the Western United States

Kepka D, Woodall W, Borrayo E, Warner E, Kinsey A, Sussman A, Buller D

Purpose: HPV vaccination status and correlates were examined in a sample of emerging adults (EAs) living in rural locations in the western United States.

Methods: EAs (N=810) residing in rural areas in 17 western U.S. states were recruited from online survey panels or by social media advertising from August 2024-2025 for a randomized trial. EAs reported at baseline their HPV vaccine uptake status, including number of doses received. Using logistic regression analysis, we tested the association of demographics, attitudes, health care, and social media use with HPV vaccine uptake status (0=no/don't know; 1=vaccinated) and vaccine doses received (0=0 or 1 dose/don't know; 1=2 or 3 doses).

Results: Overall, 424 (52.3%) rural EAs reported being vaccinated for HPV and 184 (22.7%) not being vaccinated, and 202 (24.9%) did not know. Of the 424 EAs vaccinated, 41 EAs (9.7%) recalled receiving one dose, 88 (20.7%) two doses, and 101 (23.8%) three doses of the vaccine, but 194 EAs [45.8%] did not know. More rural EAs who were vaccinated were female (OR=1.98, p=0.001), more educated (OR=1.36, p=0.19), attended religious services less frequently (OR=0.78, p<0.001), had a personal/family history of cancer (OR=1.66, p=0.004), were more confident vaccines are safe (OR=1.39, p<0.001), and had less constraints on getting vaccinated (OR=0.76, p=0.001). More rural EAs with multiple vaccine doses were older (OR=1.10, p=0.046), female (OR=2.76, p<0.001), visited a physician for a routine health check-up more recently (OR=0.78, p=0.033), were more confident vaccines are safe (OR=1.23, p=0.049), and had less constraints on getting vaccinated (OR=0.74, p=0.005).

Conclusions: Uptake of HPV vaccination by rural EAs (52.3%) was slightly higher than the national rate in the 2022 National Health Interview Survey (47.4%). EAs need advice on how to confirm vaccination status (e.g., checking with parent, physician, or vaccine registry) when promoting catch-up HPV vaccination. HPV vaccination interventions should educate on vaccine safety/constraints, how it can reduce personal/family cancer concerns, and religious groups that support it. Medical providers should offer HPV vaccination to EAs during routine health check-ups. Male and less educated EAs would benefit from intervention.

13

Impact of long-term heat exposure on cancer mortality in the Multiethnic Cohort

Wu AH, Wu J, Tseng CC, Silva S, Park SL, Shariff-Marco S, Sangaramoorthy M, Binder A, Atherwood S, Stram DO, Le Marchand L, Wilkens L, Haiman C, Crimmins E, Cheng I

Purpose: Rising temperatures and worsening air quality have emerged as severe public health concerns. The degree to which these environmental stressors compromise cellular processes and lead to increased susceptibility to cancer mortality has not been well-studied. Moreover, data is needed on individuals from minoritized racial and ethnic groups and of lower socioeconomic status (SES), who may be disproportionately burdened. These stressors include measures such as maximum temperature (TMMX) which may influence cancer mortality but prospective information on long-term individual-level TMMX on cancer mortality is lacking.

Methods: We analyzed cancer-specific mortality among 88,283 California participants of the Multiethnic Cohort using daily TMMX exposures that were averaged for each year of follow-up from baseline through 12/31/2019. Cox proportional hazards regression models estimated hazard ratios (HR) and 95% confidence intervals (CI) of mortality from all cancers combined in association with TMMX, adjusting for individual- and neighborhood-level factors and fine particulate matter (PM2.5). Subgroup analyses were conducted by sex, race/ethnicity, and other factors.

Results: Median follow-up of 19.4 years yielded 13,172 cancer deaths. For every 5F increase (interquartile range) in TMMX, the hazard of all cause cancer mortality increased by 5% (95% CI: 1.00-1.10); this effect was slightly attenuated with adjustment of PM2.5 (HR=1.04, 95% CI 0.99-1.10). Although we did not detect statistically significant heterogeneity of associations by sex, race/ethnicity, or neighborhood SES, estimates were stronger in men (HR=1.07, 95% CI 1.00-1.15), African American participants (HR=1.06, 95% CI 0.97-1.16), and those residing in low SES neighborhoods (HR=1.06, 95% CI 1.00-1.13). Analyses by cancer-specific mortality suggested elevated HRs for deaths due to lung (HR=1.09, 95% CI 0.97-1.22) and colorectal cancer (HR=1.12, 95% CI 0.96-1.33).

Conclusions: Long-term exposure to high temperatures is suggested to increase the risk of cancer mortality, after accounting for air pollution, and other risk factors. Further investigation of the impact of long-term heat exposures on lung and colorectal cancer mortality, and the mediating role of air pollution is warranted.

14-T

From Missed Opportunities to Missed Prevention: Integrating Pathway and Machine Learning Approaches to Predict HPV Vaccine Non-Initiation and the Role of Rurality

Christini K, Brewer S, Slagle R, Payne J, McClellan J, Kepka D

Purpose: HPV vaccination is critical for cancer prevention, yet uptake remains low among rural and underserved populations. This study integrates pathway and predictive modeling to examine how rurality and insurance instability contribute to missed vaccination opportunities (HPV-MVOs) and downstream HPV vaccine non-initiation (HPV-NI).

Methods: Using data from the Utah Statewide Immunization Information System (USIIS), we conducted complementary analyses to understand and predict non-initiation of the HPV vaccine. Mediation and moderated mediation models (n = 685,614) quantified the indirect effect of rurality on HPV-MVOs via insurance instability. Second, we trained a Random Forest classifier (n = 56,512) to predict HPV-NI using demographic, behavioral, and structural features. Temporal trends were assessed using seasonal-trend decomposition via smoothing, and model interpretability was enhanced through permutation importance and partial dependence plots (PDPs).

Results: Seventy percent of adolescents experienced ≥1 HPV-MVO, and 65% did not initiate the vaccine. Insurance mediated 17.7% of rurality's effect on HPV-MVOs. Temporal trend analysis revealed divergent patterns: influenza vaccination showed a seasonal pattern with a rising trend over time, Tdap remained stable, and HPV vaccination declined after 2020. The Random Forest model achieved an AUC of 0.857 and identified key predictors of non-initiation, including insurance type, rurality, visit gaps, and race/ethnicity. PDPs revealed complex, nonlinear relationships and high-risk subgroups, such as adolescents with adult public insurance in moderately rural areas (RUCC 3–4), who had >70% predicted probability of non-initiation.

Conclusions: This study highlights a population-level pathway from missed opportunities to non-initiation, shaped by structural differences. By integrating pathway-based and machine learning approaches, we offer a robust framework for identifying at-risk groups and informing precision public health strategies. Future work will explore hybrid modeling and behavioral epoch segmentation to better capture temporal dynamics and apply predictive insights to develop a tailored HPV vaccination chatbot aimed at increasing parental acceptance and adolescent uptake in underserved populations.

15-T

Unique Longitudinal Patterns in Young Adult (YA) Cancer Incidence in the Texas Gulf Coast Region

Rizvi A, Lam A, Vadathya AK, Sooni P, Esnaola N, Shah D, Luu HN, Brandford A, Cullen J

Purpose: Each year in the United States (U.S.), an estimated 80,000 newly diagnosed cancers and 9,000 cancer deaths occur among young adults (YA). This study sought to examine longitudinal trends in the Houston Methodist Neal Cancer Center (HMNCC) 8-county catchment area (CA), with consideration of trends by race/ethnicity, sex and cancer type.

Methods: Longitudinal trends in YA cancer incidence (ages 25-39 years) were calculated using the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program Database (21 registries) between 2000-2022. Average annual percent change (AAPC) and 95% confidence intervals (CIs) were calculated fusing Joinpoint Regression for three geographical regions: HMNCC-CA (i.e., Brazoria, Chambers, Fort Bend, Galveston, Harris, Jefferson, Liberty, and Montgomery Counties), Texas, and the U.S. AAPCs were stratified by race/ethnicity, sex, and cancer type.

Results: Modest increases in YA cancer incidence were observed in the HMNCC CA (AAPC = 0.30%, 95% CI=0.15, 0.79), Texas (AAPC = 0.55%, 95% CI= 0.37, 0.74) and the U.S. (AAPC = 0.65%, 95% CI=0.39, 1.01). Among Hispanic populations, YA cancer incidence rose significantly in the HMNCC-CA (AAPC = 1.80%, 95% CI=1.30, 2.37), followed by the U.S. (AAPC = 1.56%, 95% CI= 1.33, 1.81) and Texas (AAPC = 1.44%, 95% CI= 1.18, 1.69), most notably for uterine, kidney/renal pelvis, acute lymphocytic leukemia, testis, colorectal, and thyroid cancers (AAPCs = 5.88, 3.87, 3.60, 3.37, 2.70, and 2.60%, respectively). In contrast, overall cancer incidence increased modestly but significantly among Asian populations in the HMNCC-CA (AAPC = 1.07%, 95% CI= 0.17, 2.18), with a significant increase in thyroid cancer (AAPC=1.74%).

Conclusions: There have been concerning 20-year trends in YA cancer incidence in our local Texas Gulf Coast region, including sharp rises in multiple Hispanic YA cancers. These findings require exploration in disaggregated Asian and Hispanic racial/ethnic subgroups, respectively, in our uniquely diverse demographic region. Geospatial mapping of YA cancer burden with cancer risk factor information will allow us to pinpoint neighborhoods where development and delivery of targeted cancer control efforts are most needed.

16

Cancer screening among American Indian adults living in North and South Carolina

Denlinger-Apte RL, Akinyemiju T, Bell RA, Chavis L, Dial R, Harwood EA, Lowry C, Richardson G, Wheeler S, Willis A

Purpose: Early detection via cancer screenings improves survival rates. American Indians (AI) often have later stage cancer diagnoses relative to other racial groups. Here, we examine self-reported cancer screening uptake among AI adults living in North and South Carolina.

Methods: We administered an online REDCap survey with recruitment occurring primarily by trusted tribal members during tribal community events (e.g., Pow Wows). Data collection occurred between July 2023 and September 2024. Survey completion took approximately 10-15 minutes and respondents could receive $25 for completion. Survey eligibility included: (1) being 18 years of age or older, (2) residing in NC or SC, and (3) self-identifying as AI. The survey primarily assessed commercial tobacco use but included a supplemental module focused on cancer screening behavior.

Results: In this convenience sample, N=2,771 AI adults completed the survey (mean age: 42.0 years [SD= 15.8], 64.1% female, 26.0% earned a bachelor's degree or more; and representation from 50+ tribes in North America). When respondents were asked if they had ever received any type of cancer screening, 41.8% of the sample responded – Yes – (while those indicating – No – skipped the subsequent cancer-specific screening questions). Among those recommended for breast cancer screening (female, ages 40-74; n=929), 57.5% reported having a mammogram within the last 2 years. Among those recommended for colorectal cancer screening (ages 45-75; n=1074), 47.8% reported ever being screened. Among those recommended for prostate cancer screening (males, ages 55-69; n=170), 47.1% reported ever being screened. Finally, among those recommended for lung cancer screening (ages 50-80; current or former smoker who quit in the past 15 years; n=440), 20% reported ever having a low dose CT scan. When asked reasons for not receiving cancer screening common answers included: unsure of where to get screened (n=127), screening costs/not covered by insurance (n=82), and afraid of the test results (n=84).

Conclusions: Many AI adults in NC and SC are foregoing cancer screenings. Thus, culturally-tailored education and outreach campaigns aimed at increasing cancer screening knowledge and uptake are essential for improving AI cancer survivorship.

17-T

Acculturation and Breast Cancer in the United States: A Systematic Review From Risk Factors to Survival and Mortality

Dharamdasani T, Bissett M, Bandera EV, Satagopan JM

Purpose: To synthesize evidence on how acculturation relates to the breast cancer continuum among U.S. women, from risk factors to survival and mortality.

Methods: We conducted a literature search (1995–2024) for studies examining associations between acculturation and breast cancer risk factors, incidence, clinical presentation, treatment, quality of life (QoL), survival, and mortality among U.S. women. Study characteristics were summarized descriptively. Random-effects meta-analyses pooled nativity-based estimates for stage at diagnosis, population mortality, all-cause mortality, and breast cancer–specific mortality; other outcomes were synthesized narratively.

Results: Ninety-two studies were included. Nativity was the predominant acculturation measure, used in 63 studies. Nativity and migration history measures were common for risk factor studies, while validated scales were often used in treatment and QoL studies. Higher acculturation, measured by nativity or migration history, was generally associated with more adverse risk profiles (lower parity, shorter breastfeeding, higher obesity). Foreign-born women had lower population incidence, although findings on risk were inconsistent. Results for stage at diagnosis were inconclusive, with no significant differences between foreign-born and U.S.-born women (pooled OR=1.10, 95% CI: 0.99–1.22; n=5). Women with lower acculturation, measured by nativity or validated scales, were less likely to receive breast-conserving surgery or reconstruction. QoL tended to improve with higher acculturation, measured by validated scales. Foreign-born women had lower population mortality (pooled rate ratio=0.68, 95% CI: 0.63–0.73; n=6), but no survival advantage (pooled all-cause HR=1.05, 95% CI: 0.94–1.18; pooled breast cancer-specific HR=1.04, 95% CI: 0.93–1.16). Meta-analyses showed substantial heterogeneity (IÂ²: 89%–95%). Comparisons were limited by heterogeneous approaches to handling missing nativity and differences in populations.

Conclusion: The association between acculturation and the breast cancer continuum is complex and varies across outcomes. More rigorous and standardized approaches to measuring acculturation are needed to understand these relationships and inform efforts to address breast cancer disparities.

18

Barriers and Facilitators Women Faced when Accessing Gynecological Oncology Care at the Huntsman Cancer Institute: Rural vs Urban Study

Douglas S, Christini K, Slagle B, Goldsmith A, Lannoy J, Harris K, Gibson B, Kepka D

Purpose: To examine barriers and facilitators to gynecologic oncology care at Huntsman Cancer Institute (HCI) among women from urban and rural areas across the Mountain West.

Methods: We used a convergent mixed-methods design to examine patient experiences with gynecologic oncology care. A REDCap survey captured demographics, referral-to-appointment time, diagnosis, treatment, and physical, social, and emotional health. Addresses were geocoded to calculate distance and classify rurality using Rural–Urban Continuum Codes (≥4 = rural). Quantitative data were analyzed in RStudio and SAS using chi-square tests. To contextualize survey findings, participants completed follow-up phone interviews, which were recorded, transcribed, and thematically analyzed in Dedoose. Integration enabled triangulation and a comprehensive understanding of access and care experiences.

Results: A total of 101 patients participated: 41 rural (47%), 47 urban (53%), and 13 not reported. Half (48, 50%) lived further than 129 miles from HCI. Patients reported receiving support from friends (39%) and family (52%) regardless of residence (p>.05). Patients living within 129 miles of HCI reported worrying about dying more often than those living farther (35% vs. 10%, p<.05). Rural patients were less likely than urban patients to report satisfaction with coping (83% vs. 98%, p <.05). Interviews revealed six barrier themes (travel-related challenges, insurance issues, missing work, anxiety, cost, and difficulty finding lodging) and five facilitator themes (supportive and caring staff at HCI, the ability to complete tests or treatments closer to home, family and/or friend support, efficient appointments, and access to resources or accommodations). Convergent analysis revealed complementary patterns: rural patients reported lower coping satisfaction (p<.05), despite similar social support (p>.05). Qualitative data highlighted structural barriers that may constrain rural patients' ability to benefit from support.

Conclusions: Mixed-methods integration illuminated how structural barriers compound rural patients' challenges and shape gynecologic oncology care experiences, even with similar reported social support; combined findings suggest such support may be insufficient to offset these barriers.

19

Beyond the Clinic Walls: Colorado's 20-Year Transformation in Colorectal Cancer Screening and Outcomes

Dwyer AJ, Staples ES, Henning J, Risendal BC,

Purpose: To describe the statewide impact of the Colorado Cancer Screening Program (CCSP) on colorectal cancer (CRC) prevention, screening, and system transformation among diverse and medically underserved populations.

Methods: Since 2006, CCSP – anchored at the University of Colorado Comprehensive Cancer Center – has implemented a sustainable statewide system integrating patient navigation, clinic workflow redesign, and evidence-based interventions. Through multilevel implementation and partnerships, CCSP expanded access, improved follow-up, and strengthened data-driven quality improvement. Program outcomes were assessed using Uniform Data System (UDS) metrics and clinic performance data from 82 sites across Colorado.

Results: CCSP has directly navigated nearly 50,000 Coloradans into CRC screening and improved access for hundreds of thousands more. Screening rates among medically underserved populations increased by 20% (UDS, 2006–2022), yielding an estimated $12–15 million in healthcare savings through detection of at least 550 advanced adenomas. In its latest expansion (2022–2025), CCSP supported 82 clinics, achieving an additional 8% rise in screening within 2.5 years. Patient navigators addressed cultural and linguistic barriers, reduced no-shows (<10%) and inadequate bowel preparations (<2%), and ensured timely follow-up after abnormal tests. Clinics adopted standing orders, registries, and dashboards, while endoscopy partners standardized referral and preparation, collectively improving early-stage detection.

Conclusions: Over nearly two decades, CCSP has transformed CRC screening from episodic encounters into a coordinated statewide prevention system. Colorado's CRC screening rates have increased by more than 10% in the past decade, now exceeding national averages (75.5% vs. 71.1%). CCSP's evidence of impact has also shaped policy – ensuring preventive screening coverage, securing payment for follow-up colonoscopies, contributing to guideline changes lowering screening age from 50 yr to 45 yr, and driving pending Medicaid reimbursement for navigation services. CCSP demonstrates a scalable model for achieving population-level cancer prevention.

20

Mapping Digital Navigation Interventions Through the PRISM Framework: A Scoping Review of Community Health Worker and Patient Navigator Technologies

Dwyer AJ, Henning J, Bataglia T, Fleisher L

Purpose: Technology-enabled navigation tools are increasingly used to enhance Community Health Worker (CHW) and Patient Navigator (PN) programs, yet implementation varies across settings. This scoping review examined how digital technologies – such as mobile health (mHealth), telehealth, and electronic health record (EHR) systems support navigation and patient engagement, using the Practical, Robust Implementation and Sustainability Model (PRISM) to identify facilitators, barriers, and policy alignment. Methods: A structured search identified 64 studies (2019–2025) involving CHWs or PNs using digital tools for prevention, screening, or chronic disease management. Data were extracted for intervention type, outcomes, and implementation context, and coded by PRISM domains: intervention characteristics, external environment, infrastructure, organization, stakeholder perspectives, and outcomes.

Results: Seven technology categories were identified: mHealth (n=24), telehealth (n=13), EHR integration (n=9), AI/machine learning (n=4), SMS (n=4), e-learning (n=2), and hybrid multimodal models (n=5). mHealth interventions improved adherence by 10–30% and engagement across preventive and chronic care; telehealth expanded access and continuity by 20–40%; and EHR-integrated navigation improved data accuracy and coordination. SMS programs were effective in low-literacy populations, while AI-enabled systems enhanced triage efficiency but raised privacy and bias concerns. Implementation success correlated with CHW/PN co-design, workflow integration, leadership engagement, and training. Barriers included limited funding, fragmented infrastructure, and digital inequities. Evidence is strongest for intervention design and implementation readiness, with few long-term or cost-effectiveness evaluations.

Conclusions: PRISM-guided synthesis shows CHWs and PNs as essential intermediaries linking technology to patient-centered care. Digital tools enhance navigation when human connection, equity, and institutional support are preserved. Findings align with the President's Cancer Panel's 2024 recommendations, supporting equitable access, ethical technology use, and workforce empowerment. Future implications are applicability beyond oncology. and research in impact and sustainability.

21-T

Regional Variation of Early-Onset Cancers with Correlated Incidence Rates in the United States, 2001-2021

Ellis ET, Terry MB

Purpose: Increasing incidence of early-onset cancers with correlated incidence rates (IRs) across time may point to similar etiologies, systemic environmental risk factors, and health disparities. Such methods when used in the past provided some of the first evidence that smoking was related to cervical cancer.

Methods: We used the U.S. Cancer Statistics Public Use Database to conduct a population-based time-trend analysis (January 1, 2001 – December 31, 2021). 870,533 individuals were diagnosed with early-onset kidney, endocrine, or colorectal cancers. We used SEER*stat to obtain age-standardized IRs. We computed the Pearson correlation (r) of age-adjusted incidence rates from 2001–2021 between pairs of cancer sites. We used the National Cancer Institute's Joinpoint regression software to calculate the average annual percent change (AAPC) and Age Period Cohort web tool to investigate cohort patterns. All analyses were conducted separately for men and women.

Results: Incidence rates for kidney, endocrine, and colorectal cancers were highly correlated among women (kidney-endocrine r=0.86; kidney-colorectal r=0.91; endocrine-colorectal r=0.62) and men (kidney-endocrine r=0.95; kidney-colorectal r=0.92; endocrine-colorectal r=0.79). Women had statistically significantly increased IRs compared to men, with IR ratios ranging from 1.63 (Northeast) to 1.41 (South), and excess IRs ranging from 18.5 (Northeast) to 11.1 (South) cases per 100,000. All regions had statistically significantly increased AAPCs, with the greatest change among Southern non-Hispanic American Indian/Alaska Native women (4.87%) and men (5.78%). 48 and 44 states for women and men, respectively, had statistically significantly increased AAPCs. Cohort rate ratios were statistically significantly increased for the youngest cohort (born 1996–2000) relative to the oldest cohort (born 1921–1925) in all regions except the Northeast and ranged from 1.41 (West) to 1.53 (South) in women, and 1.39 (Midwest) to 1.69 (West) in men.

Conclusions: These data support absolute and relative differences in IRs between regions and demographic subgroups and increasing incidence trends of statistically correlated early-onset cancers across the U.S.

22-T

Risk Factors and Demographic Characteristics Associated with Oral Cancer in Young Adults: A Case-Control Study Using Data from the All of Us Research Program

Mendonca NF, McDonald JA

Purpose: Oral squamous cell carcinoma (OSCC) is typically diagnosed in older adults (>65 years), but recent studies have reported a rising incidence among young adults (<45 years). This trend is concerning because younger patients may have different exposures and behavioral risk factors compared to the traditional older population. Understanding modifiable factors contributing to early onset OSCC in young adults is essential.

Methods: The All of Us Research Program fully enrolled 849,000 participants between 2018 and 2024, of whom 315,000 consented to share their electronic health records. We conducted a case–control study by identifying 126 young adults (<45 years) diagnosed with OSCC with complete data on sociodemographic variables, lifestyle behaviors and medical conditions. We identified 192,634 young adults without a history of oral cancer as controls and matched cases at 4:1 by age at diagnosis, sex, race/ethnicity, and alcohol user (n=504 controls). We performed bivariate analyses using Chi-square test, Fisher's exact test and t-test. All analyses were conducted in October 2025 using RStudio (version 4.4.2).

Results: Cases and controls were well balanced for age (mean (SD): 34.6 (7.4) vs 35.0 (6.7), $p = 0.53$), sex (68% vs 69% female, $p = 0.99$), race/ethnicity ($p = 0.92$), and alcohol use ($p = 0.61$). E-cigarette non user was significantly higher among cases than controls (83% vs 63%, $p < 0.001$). Other behavioral factors, including cigarette smoking history and drinking status, did not differ significantly between groups (all $p > 0.05$), while smoke status was significantly different between cases and controls (current 41.7% vs 61.4%, former 58.3% vs 38.6%, $p = 0.049$). Cases had higher prevalence of periodontal disease, tooth loss/edentulism, mood disorders, diabetes/hyperglycemia, and hyperlipidemia compared to controls ($p < 0.001$), whereas eating disorders and HIV infection were rare and showed no significancy.

Conclusion: In this matched analysis, the prevalence of periodontal disease, tooth loss, depression, diabetes, and hyperlipidemia was higher among cases, highlighting these conditions as more common in young adults with OSCC. These findings suggest that health condition may be directly related to the OSCC development in this population.

23-T

Residential Mobility Patterns of New Jersey Colorectal Cancer Cases Diagnosed 2014-2019: Implications for Characterizing Environmental Exposures

Ghias EG, Stroup AM, Harris G, Henry KA, Mooney SJ, Rundle AG, Li J, Sowa W, Hampel HL, Stanich PP, Wang F, Xu X, Plascak JJ

Purpose: This retrospective cohort study assessed pre- and post-diagnosis residential mobility patterns among New Jersey colorectal cancer (CRC) cases.

Methods: Cancer and sociodemographic data were obtained from the New Jersey State Cancer Registry for residents aged 20 years or older diagnosed with their first, primary invasive CRC between 2014-2019 with at least 60 days of follow-up time after diagnosis. Residential address histories were generated through linkage to LexisNexis Inc. Covariates included age, sex, race/ethnicity, marital status, insurance status, stage at diagnosis, tumor grade, subsite, first course treatment, and vital status at end of follow-up. Address histories from January 1, 2009 to December 31, 2023 were divided by pre- and post-diagnosis periods. A move was defined as a geocoded address change with distance ≥ 100 m2. We tested differences in covariates by move status with chi-square tests. Move rates per 100 person-years (py) of address history were calculated by pre-/post-diagnosis period.

Results: Among 15,943 CRC cases, 28.1% (N=4,480) moved pre-diagnosis and 6.8% (N=1,084) moved post-diagnosis, with a similar trend across covariates of fewer moves post- versus pre-diagnosis. Post-diagnosis, 7.4% (N=875) of non-metastatic cases moved compared to 5.3% (N=183) of metastatic cases ($p < .001$). Move rates by stage at diagnosis and diagnosis period exhibited the opposite trend: 2.7 moves per 100 py (95% CI: 2.3, 3.0) among metastatic stage versus 1.9 (95% CI: 1.8, 2.0) among non-metastatic stage. Pre-diagnosis move rates were over 10 moves per 100-py for those aged 20-49 years (13.3; 95% CI: 12.7, 13.9), Non-Hispanic Black (10.7; 95% CI: 10.2, 11.2), Hispanic/Latino (11.0; 95% CI: 10.5, 11.6), on Medicaid (14.4; 95% CI: 13.7, 15.2), and uninsured (14.3; 95% CI: 13.0, 15.6). All move rates declined post-diagnosis with those on Medicaid recording the highest move rate (3.5 per 100-py; 95% CI: 3.0, 4.0).

Conclusions: These results lead to two main conclusions: 1) accounting for uneven follow-up via move rate calculations clarifies residential mobility patterns, and 2) differential measurement error may be present if residential mobility is not accounted for in assessing environmental exposures among CRC cases.

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Asian American Breast Cancer Survival: Insights from the Asian American Resiliency and Cancer (ARC) Study

Gomez SL, Von Behren J, McGuire V, Kim MO, Gao L, Shariff-Marco S, Lin K, Cheng I, Kwan M, Wu AH, John EM, Loo L, Kurian A, Koo J, D'Addario L, Roh J, Ergas IJ, Castillo E, Ambrosone C, Morey B, Kushi L, Yao S

Purpose: We sought to understand the extent to which multilevel prognostic factors contribute to lower breast cancer mortality among Asian American (AA) relative to non-Latina White (NLW) females in the ARC Study.

Methods: We pooled survey, cancer registry, and social environment data for 3,971 AA and 5,023 NLW females diagnosed with incident invasive AJCC stage I-IV breast cancer from 1992-2019 from Pathways (Kaiser Permanente Northern California), the Northern California Breast Cancer Family Registry, the Asian American Breast Cancer Study, and the Multiethnic Cohort Study. Follow-up was through 12/31/2020, identifying 2,635 deaths (1,048 AA, 1,587 NLW) due to all causes and 1,142 (529 AA, 613 NLW) breast cancer deaths. Multivariable Cox proportional hazards models estimated adjusted hazard ratios (HR) for all-cause and breast cancer-specific mortality for AA ethnic groups relative to NLW females, adjusting for clinical, sociodemographic, reproductive, lifestyle, and neighborhood factors.

Results: All-cause mortality was lower for all AA ethnic groups compared with NLW females after adjustment, statistically significant for Chinese (HR=0.77, 95% CI: 0.62-0.96), Filipina (HR=0.81, 95% CI: 0.67-0.99), Japanese (HR=0.71, 95% CI: 0.54-0.93), and multi-race AA who were not Native Hawaiian/Pacific Islander (NH/PI) (HR=0.66, 95% CI: 0.50-0.88). Most AA ethnic groups also showed slightly lower, but not statistically significant HRs for breast cancer-specific mortality. When considering birthplace among AAs, lower overall mortality was observed for foreign-born Chinese (HR=0.73, 95% CI: 0.57-0.94), foreign-born Filipina (HR=0.79, 95% CI: 0.63-0.94), US-born Japanese (HR=0.63, 95% CI: 0.45-0.90), and US-born multi-race AA not NH/PI females (HR=0.59, 95% CI: 0.39-0.88), relative to NLW.

Conclusions: Even after accounting for clinical, sociodemographic, reproductive, lifestyle, and neighborhood factors, several AA ethnic groups had lower overall mortality relative to NLW females. The detailed data available in the ARC study will enable more focused analyses of specific factors contributing to the lower mortality among AA breast cancer survivors.

25-T

Past the Barrier, Past Assumptions: Stage, Support, and Survival in Breast Cancer Patients Living with HIV

Gonzalez J, Adams SA, Ravikumar P

Purpose: To describe and compare the demographic, tumor characteristics, and survival between breast cancer (BC) survivors with and without human immunodeficiency virus (HIV) infection.

Methods: Aretrospective cohort of 9,489 BC cases (2000-2018) were identified from state cancer registry records linked with either Medicaid or a state-sponsored insurance program. A flag was created for HIV based upon ICD-9-CM/ICD-10-CM codes from medical services files. Factors examined included age at diagnosis, partnered support, racial identity, tumor grade, and vital status. Group differences were assessed using Welch's t-test Ï‡Â² tests as appropriate.

Results: The HIV-positive group comprised 1.3% of the cohort. Compared with HIV-negative patients, women with HIV were younger at diagnosis (p<.05), had lower partnered support (p<.05), a higher proportion of Black women (p<.05), higher tumor grade (p<.05), and more advanced stage at presentation (p<.05). Vital status differed by HIV status, with a greater proportion of alive patience HIV+ survivors (p<.05). Interestingly, a significantly greater proportion of survivors were participants in South Carolina's National Breast Cancer Early Detection Program among those without HIV compared to those with HIV (p<0.05).

Conclusions: In 2022, ~1.2 million people were living with HIV in the U.S. (â‰ˆ0.3–0.4% of the population), supporting the relative over-representation of HIV (1.3%) in this BC cohort. This cohort of women with HIV were a younger age with distinct social and tumor profiles; notably, Vital status was improved among HIV-positive patients. Using a biological pre-invasion â†' localized invasion â†' spread framework clarified risk patterns and underscored the prognostic inflection at barrier breach. Findings support HIV-status–aware risk stratification and survivorship planning, alongside attention to partnered support, race-associated disparities, grade, and stage at diagnosis.

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Mitigating Disparities in Breast Cancer Care Through Supportive Digital Interventions

Graetz I, Hernandez S, Hu X, Krukowski RA, Vidal GA, Schwartzberg LS

Purpose: To examine whether self-efficacy in managing symptoms is associated with symptom burden and adherence to adjuvant endocrine therapy (AET) among women with early-stage breast cancer, and whether self-efficacy moderates the effectiveness of a remote monitoring intervention.

Study Design: Post-hoc analysis of a randomized trial evaluating app-based remote monitoring for women prescribed AET.

Methods: Participants were randomized to Enhanced Usual Care (EUC), an App-Only, or an App+Feedback. Low self-efficacy was defined as a T-score <45, representing half a standard deviation below the normative mean (PROMIS Self-Efficacy for Managing Symptoms). Outcomes included 12-month symptom burden (FACT-ES) and adherence (≥80% of expected doses recorded using a connected pillbox). Multivariable regression evaluated associations of self-efficacy with symptoms and adherence, and differential intervention effects by self-efficacy level.

Results: Among 265 participants, 19% had low self-efficacy. Women with lower self-efficacy for managing symptoms were significantly younger (mean age: 55.2 vs. 59.4 years, p=0.01), more likely to identify as Black (40.4% vs. 30.0%, p=0.01), have a high school education or less (28.8% vs. 16.9%, p=0.05), report household incomes below the federal poverty level (23.1% vs. 8.0%, p<0.01), and have lower health literacy (38.5% vs. 14.1%, p<0.01) compared to those with higher self-efficacy. In EUC, low self-efficacy was associated with higher symptom burden (–12.7 points, p<0.001) and lower adherence (25.0% vs. 60.8%, p<0.01). App+Feedback intervention improved adherence (62.5% vs. 25% in EUC: +37.5 ppt, p=0.03) and marginally reduced symptom burden (56.5 vs. 49.6 om EUC: +6.6 points, p=0.09) among low self-efficacy group, but not among those with higher self-efficacy.

Conclusions: Without additional support, individuals with low self-efficacy had poorer symptom control and treatment adherence. Remote symptom monitoring with supportive text messages significantly improved AET adherence and modestly reduced symptom burden, suggesting it may be an effective strategy to mitigate disparities among those with lower self-efficacy.

27

Fast Food, Slow Burn: Examining the Association Between Food Swamps and Dietary Inflammatory Index

Grunert C, Tsai MH, Hogg-Graham R, Jackson Y, Bevel M, Guha A, Jones, S, Judd S, Conwell D, Kang J, Moore JX

Purpose: This study examined the association between residence in a food swamp–areas with an abundance of fast-food restaurants and convenience stores relative to healthier options–and the Dietary Inflammatory Index (DII), and whether neighborhood social vulnerability (SVI) modified this relationship.

Methods: Between 2003 and 2007, the REasons for Geographic and Racial Differences in Stroke (REGARDS) study enrolled 30,161 non-Hispanic Black and White adults, oversampling participants from the Stroke Belt region. Food swamp exposure was measured using the Retail Food Environment Index (RFEI) and categorized as low, moderate, or high. DII was analyzed as both a continuous and binary outcome (high vs. low). Social vulnerability was assessed using the Centers for Disease Control and Prevention's SVI, where higher scores indicate greater neighborhood disadvantage. Linear and logistic regression models estimated associations between food swamp exposure and DII, adjusting for sociodemographic and lifestyle factors, with analyses stratified by SVI.

Results: Overall, 44.7% of participants lived in high food swamp areas, 38.5% in moderate, and 16.8% in low. Those in high food swamp areas were younger (mean age 64.5 years), more often female (56.4%), and less likely to be Black (40.2%). In fully adjusted models, residence in high food swamp areas was associated with higher odds of high DII (aOR = 1.07, 95% CI: 0.99–1.15) and higher mean DII scores (mean difference = 0.57, 95% CI: 0.19–0.94). Stratified analyses showed significant associations in moderate SVI neighborhoods, where high food swamp exposure was linked to greater odds of high DII (aOR = 1.19, 95% CI: 1.03–1.37) and higher mean DII (mean difference = 0.82, 95% CI: 0.06–1.59).

Conclusion: Living in high food swamp areas, particularly in moderately vulnerable neighborhoods, was associated with elevated DII, suggesting that the combined effects of unhealthy food environments and structural disadvantage may amplify dietary inflammation. Interventions addressing both food access and broader social conditions are needed to reduce diet-related inflammation and chronic disease risk.

28

Social Stress and Neighborhood Environments Among Black Men with Prostate Cancer

Guan A, Rice T, Chu B, DeRouen MC, Li S, Inamdar P, Beyer KMM, Zhou Y, Gibbons J, Beebe-Dimmer JL, Cress R, Kuliszewski MG, Gundell S, Kanetsky P, Lotan T, Modjeski D, Nazirkar SP, Park JY, Pawlish K, Pinder R, Pooler L, Shrestha A, Stroup A, Thrift A, Ward KC, Wu X, Huang FW, Hamilton AS, Conti D, Haiman CA, Cheng I, Gomez SL, Shariff-Marco S.

Purpose: Multilevel manifestations of racism, including structural disadvantages and harmful interpersonal encounters, can be embodied as biological responses that increase risk of aggressive prostate cancer. We examined how Black men with prostate cancer experience stress across different structural environments.

Methods: We used data on 12,506 Black men with prostate cancer across the United States from the RESPOND study. Aggressive disease was defined using overall T stage, metastasis, lymph node involvement (T4, M1, or N1 disease), or overall Gleason score (8+). Participants completed survey items on neighborhood environment (safety, quality, and cohesiveness), major and everyday experiences of discrimination, medical mistrust, and adverse childhood events. Neighborhood-level measures of segregation typology, redlining, and racial bias in mortgage were appended to participants' geocoded addresses at diagnosis. Chi-square and Kruskal-Wallis tests were used to estimate associations between self-reported measures of stressors with these neighborhood-level measures.

Results: Most participants were over 65 years old at survey completion (80%), partnered (63%), and diagnosed with non-aggressive prostate cancer (65%). Compared to earlier life periods (childhood to age 30 years), participants age 31 to prostate cancer diagnosis perceived their current neighborhoods as less cohesive and reported fewer experiences of everyday discrimination. A majority of participants reported at least one major experience of discrimination (77%) over their lifetime and at least one adverse childhood experience (66%). Participants living in "mixed Hispanic and Black" neighborhoods and in "predominantly Black" neighborhoods had worse perceptions of neighborhood safety. Those in "mixed Hispanic and Black" neighborhoods also reported worse neighborhood quality (e.g., trash/litter, traffic, noise, light at night) and a higher number of major discrimination experiences.

Conclusion: The RESPOND cohort is a unique resource for examining multilevel social stressors contribution to health. The findings highlight a complex interplay between individual experiences, neighborhood environments, and structural factors in shaping stress exposure among Black men with prostate cancer.

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Trends in the incidence of physical activity-related cancers in the United States, 2001-2022

Guo F, Adekanmbi V, Hsu CD, Hoang TN, Berenson AB

Purpose: Increased physical activity is associated with reduced risk of several types of cancers, especially colon cancer, postmenopausal female breast cancer, and uterine cancer. This study was to assess the trends in the incidence of physical activity-related cancers among US adults.

Methods: We used data for physical activity-related cancers (colon, postmenopausal breast, and uterine cancers) from United States Cancer Statistics (USCS) 2001-2022. Incidence of physical activity-related cancers were calculated as cases per 100,000 persons and age-adjusted to the 2000 US standard population. Annual percentage changes (APCs) of the incidence rates (IRs) were calculated by fitting a least-squares regression line to the natural logarithm of the rates, using the calendar year as a regressor variable.

Results: For colon cancer, the IR increased from 6.6 to 10.1 cases per 100,000 persons (APC 1.9, 95% confidence interval (CI) 1.6 – 2.1) among males 20-49 years old and from 6.3 to 10.0 cases per 100,000 persons (APC 2.0, 95% CI 1.7 –2.4) among females 20-49 years old. Non-Hispanic American Indian/Alaska Natives in both young males and females had the highest APC. The IR of colon cancer decreased from 156.6 to 83.1 cases per 100,000 persons (APC -3.1, 95% CI -3.4 – -2.9) among males ≥50 years old and from 119.7 to 68.7 cases per 100,000 persons (APC -2.7, 95% CI -2.9 – -2.5) among females ≥50 years old. Non-Hispanic White males and non-Hispanic Blacks females ≥50 years old had the lowest APC. For postmenopausal breast cancer, the IR increased in all racial/ethnic groups except in non-Hispanic White females (APC 0.2, 95% CI -0.1 – 0.4). For uterine cancer, the IR increased in both young females (8.6 to 11.3 per 100,000 persons, APC 1.5, 95% CI 1.3 – 1.8) and females ≥50 years old (74 to 82.1 per 100,000 persons, APC 0.9, 95% CI 0.7 – 1.1). Non-Hispanic American Indians/Alaska Natives had the highest APC among young females and Non-Hispanic Asians or Pacific Islanders had the highest APC among females ≥50 years old.

Conclusion: The only decreasing trends in physical activity-related cancers were seen for colon cancer among postmenopausal women. Our findings highlight the need for continued efforts to promote physical activity among US adults.

30-T

Associations between Gentrification and Cardiometabolic Cancer Risk Factors among Young Adult Original Residents in the United States

Halvorson-Fried SM, Jensen TM, Serrano NH, Hall MG, Taillie LS, Ribisl KM

Purpose: We assessed relationships between gentrification and cardiometabolic cancer risk factors in a nationally representative sample of young adults, including those who stayed in their neighborhoods (stayers) and those who moved (movers).

Methods: We linked tract-level gentrification measures derived from US census data on housing costs, education, and household income to the National Longitudinal Study of Adolescent to Adult Health for two time intervals (Wave 3-4 [2001-2008, mean age 22-29] and Wave 4-5 [2008-2017, mean age 29-38]). We tested associations between gentrification and biomarkers (e.g., metabolic syndrome, central obesity); sociobehavioral factors (e.g., housing insecurity, fast food consumption); and psychosocial stressors (e.g., perceived racial discrimination) using multivariate regression with cluster-robust standard errors. We then assessed moderation by race/ethnicity using interaction terms and probed significant interactions.

Results: Among stayers from 2001 to 2008, gentrification was associated with lower odds of food insecurity and lower fast food consumption in 2008. However, among stayers from 2008 to 2017, gentrification was associated with higher odds of central obesity in 2017. There were no other associations between gentrification and the outcomes we examined in the overall sample among stayers or movers. Moderation analysis resulted in mostly null findings but showed different effects by race/ethnicity, which varied by time period. From 2001 to 2008, there were harmful associations between gentrification and risk factors for non-Hispanic Black stayers (racial discrimination) and movers (central obesity) and Hispanic/Latino stayers (low HDL-cholesterol) and movers (hypertension). From 2008 to 2017, there were beneficial associations between gentrification and risk factors for non-Hispanic Black movers (central obesity) and Hispanic/Latino movers (hypertension).

Conclusions: Gentrification may be associated with some increased risks for cardiometabolic cancer risk factors, such as central obesity, and some decreased risks, such as food insecurity and fast food consumption, for original residents. Associations vary by race/ethnicity and year, indicating the potential importance of race, age, and broader economic context.

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Time to Cervical Cancer Treatment and Disparities in Survival

Hilton MR, Washington J, Damgacioglu H, Sonwane K, Deshmukh AA, Amboree TL

Purpose: Delayed cervical cancer treatment negatively affects survival; however, disparities in treatment delays and their impact on survival have not been clearly quantified.

Methods: Using the Surveillance, Epidemiology, and End Results (SEER)-21 database, we identified first primary microscopically confirmed cervical cancer cases (site codes C53.0-53.9; histologic codes 8010-8671/8940-8941) and assessed 5-year cervical cancer-specific Kaplan-Meier survival by race/ethnicity, and time to treatment. Stratified survival probabilities were adjusted for stage at diagnosis, year of diagnosis, and age using Cox Proportional Hazards models. Analyses were conducted in SEER*Stat version 9.0.42 and R.

Results: We identified 91,441 cases with information on time to treatment from 2000-2022, and cervical cancer-specific survival was 74% (95%CI=73.7-74.3). Adjusted survival was lowest among non-Hispanic (NH)-Black women (69.3, 68.6-69.9), followed by NH-American Indian/Alaska Native (AIAN) (71.8, 68.7-74.8), NH-White (73.5, 73.1-73.9), Hispanic (75.5, 75.0-76.0), and NH-Asian/Pacific Islander (API) (76.1, 75.2-77.0) women. Median time to treatment was 26 days and was longest among NH-Black and Hispanic women (29 and 30 days, respectively) followed by NH-API (27), NH-White (23) and NH-AIAN (22) women. Survival for those treated within 30 days was 75.6% (95%CI=75.2-76.0), and adjusted survival was lowest among NH-Black women (71.5, 70.6-72.3) followed by NH-AIAN (75.1, 71.4-78.7), NH-White (75.3, 74.9-75.8), Hispanic (76.5, 75.9-77.2), and NH-API (77.5, 76.3-78.6) women. Conversely, survival for those treated after 30 days was 71.8% (95%CI=71.3-72.2), and adjusted survival remained lowest among NH-Black women (66.1, 65.1-67.1) followed by NH-AIAN (67.2, 62.1-72.3), NH-White (71.1, 70.5-71.8), Hispanic (73.8, 73.0-74.5), and NH-API (74.2, 72.7-75.6) women.

Conclusions: Our findings reveal that disparities in cervical cancer specific-survival persist even when treatment is received within a comparable timeframe across racial/ethnic groups, suggesting that additional factors may contribute to differences. Further research is warranted to identify underlying contributors, particularly among NH-Black women.

32-T

Association between Anti-Inflammatory Medication Use and Prevalence of Monoclonal Gammopathy of Undetermined Significance in a Large Screened U.S. Population

Holder EX, Bernstein M, Wan J, Lam E, Emerson J, Kataria Y, Zirpoli G, Racine-Brzostek S, Haiman CA, Cai Q, Reiner A, Palmer JR, Desai P, Cozen W, Bertrand KA

Purpose: Monoclonal gammopathy of undetermined significance (MGUS) is a necessary precursor to multiple myeloma (MM) – a rare and fatal cancer of the blood that is 2-3 times more common in Black men and women than non-Hispanic White individuals. MGUS prevalence is also higher in Black men and women; therefore, the racial disparity in MGUS prevalence likely drives the disparity observed in MM incidence. Inflammatory processes may influence MGUS/MM, but few previous studies have evaluated the possible association between anti-inflammatory medication use and MGUS in a multi-racial population. This study evaluated the association between aspirin and statin use and MGUS in three large cohorts: Black Women's Health Study (BWHS), Multiethnic Cohort (MEC), and Southern Community Cohort Study (SCCS).

Methods: In the BWHS (n=3,801), participants aged 50-79 years were randomly selected for MGUS screening. In the MEC (n=1,289) and SCCS (n=2,986), putative cases were selected for laboratory confirmation if they had a billing code for MGUS; participants without a billing code were also screened. MGUS case status was defined as detection of a paraprotein <3 g/dL in serum by serum protein electrophoresis (SPEP) with reflex to immunofixation for positive or equivocal SPEP in archived blood samples. Medication use near the time of blood draw was based on self-report. Logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs), adjusting for age, sex, race/ethnicity, education, cohort, and body mass index.

Results: Our analysis included 900 MGUS cases and 7,129 non-cases. ORs comparing aspirin use at blood draw to no use were 1.07 (95% CI 0.92, 1.24) in age- and sex-adjusted models and 1.19 (95% CI 1.01, 1.41) in fully adjusted models. Corresponding ORs for the association between statin use and MGUS were 0.94 (95% CI 0.80, 1.09) in age- and sex-adjusted models and 1.13 (95% CI 0.96, 1.33) in fully adjusted models. Associations for race-specific analyses were null except among Black participants (n=530 cases; ORMV 1.28, 95% CI 1.03, 1.58).

Conclusions: These preliminary findings do not provide evidence that aspirin or statin use is associated with a lower prevalence of MGUS. Elevated ORs suggest possible confounding by indication.

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Childcare access: a new way to prevent cancer

Thimm-Kaiser M, Martinez A, Laine S, Houghton LC

Purpose: In 2014, New York City (NYC) introduced policy implementing universal pre-kindergarten education and we investigated whether access to childcare was associated with parents' physical activity, a major way driver in preventing cancer

Methods: We combined childcare access data from NYC Department of Education with physical activity data from the 2011-2020 Community Health Survey acquired from the NYC Department of Health and Mental Hygiene We estimated the association between neighborhood pre-k enrollment and past-30-day exercise in a sample of N= 28,224 NYC parents, 2011-2020, using survey-weighted logistic regression, accounting for the complex sampling design. Reported effect estimates correspond to the odds ratio (OR) for a 10-percentage-point increase in neighborhood pre-k enrollment. The model included main effects for neighborhood poverty (low/medium/high) and parental employment status (employed/not employed) and a three-way interaction between pre-k enrollment, neighborhood poverty, and parental employment to allow the exposure effect to differ across combinations of poverty and employment. We adjusted for year, parental sex, parental age group, parental household income, single-head-of-household status, parental race/ethnicity, parental foreign birth, neighborhood percent nonwhite, and neighborhood percent foreign born.

Results: The estimated association between neighborhood pre-k enrollment and parent-reported recent exercise differed by both neighborhood poverty and parental employment (three-way interaction p=0.024). Specifically, a 10-percentage point higher neighborhood pre-k enrollment was associated with lower odds of parent-reported exercise among employed parents in low-poverty neighborhoods (OR 0.83; 95% CI 0.69–0.99; p=0.043) and with higher odds among employed parents in high-poverty neighborhoods (OR 1.32; 95% CI 1.07-1.62; p=0.010). There was no statistically significant associations for employed parents in medium-poverty neighborhoods and for non-employed parents, regardless of neighborhood poverty level.

Conclusions: Providing access to free childcare as a means to increases physical activity can be a future area for primary cancer prevention especially in adults under 50 years among whom cancer is rising.

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Mediating Effects of Social Vulnerability Index on the relationship between Historical Redlining and Breast Cancer Outcomes

Groznik M, Howard SP, Evans N, Walker B, Jones S, Williams L, Carthens S, White B, Lewis R, Arthur A, Moore JX

Historical redlining was a racially motivated federal policy that began in the 1930s, during which lending entities refused to provide government-issued loans to Black, immigrant, Jewish, and other "undesirable populations." Subsequently, the Home Owners Loan Corporation created color-coded maps that graded neighborhoods from low to high risk, providing affordable loans to White neighborhoods alone. A more contemporary approach to measuring social disadvantage is the Social Vulnerability Index (SVI). Previous research has indicated negative health outcomes linked to redlining; however, little investigation has focused on this connection within Kentucky communities in relation to cancer outcomes. This study examines the impact of redlining on breast cancer outcomes, including late-stage breast cancer diagnoses and breast cancer-specific survival. Data for breast cancer patients were obtained from the Kentucky Cancer Registry and matched with census tracts for historical redlining and SVI data. The final sample included 1,556 cases in Jefferson and Fayette County, Kentucky. Results indicated individuals living in historically high-redlined areas reported 85% higher odds of late-stage cancer diagnosis (OR: 1.85; 95% CI: 1.31-2.60) and 89% higher odds of breast cancer death (OR: 1.89; CI: 1.38-2.59) . SVI was observed to be a non-significant mediator between historical redlining and late-stage breast cancer diagnosis (percent mediated=-48.60, p=0.191) and breast cancer mortality (percent mediated=37.95, p=0.183). This result suggests that direct effect of historical redlining is more significant to breast cancer outcomes than contemporary measures of social determinants of health.

35-T

County-Level Food Insecurity in the Context of Pediatric Cancer: Analysis of 2000-2021 SEER Data

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Purpose: Food insecurity has been understudied in the context of pediatric cancer. The objective of this study was to quantify the burden of county-level food insecurity among children with cancer in the US and to characterize the effect of living in counties with a high level of food insecurity on pediatric cancer survival.

Methods: This population-based longitudinal study used data from the SEER Specialized Incidence Data with County Codes, 17 registries, and included all individuals with a primary cancer diagnosis at age 0-19 from 2000-2021. The primary exposure of interest was the county child food insecurity rate, obtained from Feeding America's Map the Meal Gap data. Cox proportional hazards models were used to compute crude and adjusted hazard ratios (aHRs) for the association between food insecurity (in quartiles) and survival. A directed acyclic graph was used to identify variables needed to adjust for to control for confounding, including median household income, county-level rurality, race/ethnicity, year of diagnosis, sex, age at diagnosis, and cancer type.

Results: 85,768 children with cancer were included in this study. The median county-level food insecurity rate was 21.00% (IQR: 17.40%-25.40%). Racial/ethnic minority children with cancer were more likely to live in high food insecurity counties (food insecurity rate over 25%), especially for American Indian/Alaskan Native children (42.11%) and Hispanic children (34.14%) ($p<0.0001$). In the unadjusted model, higher food insecurity rates were associated with an increased hazard of cancer mortality (Q2 vs. Q1: HR=1.15, 95% CI:1.08-1.21; Q3 vs. Q1: HR=1.34, 95% CI: 1.27-1.41; Q4 vs. Q1: HR=1.46, 95% CI: 1.39-1.54). After adjustment to control for confounding, the association between food insecurity and cancer mortality was attenuated (Q3 vs. Q1: aHR=1.09, 95% CI: 1.03-1.16; Q4 vs. Q1: aHR=1.09, 95% CI: 1.01-1.17).

Conclusions: Our study observed lower cancer survival among children living in counties with a high childhood food insecurity rate. Multilevel interventions targeting the food environment and food access may help to improve outcomes among children with cancer.

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Impacts of HIV stigma and discrimination on cancer care quality among people with HIV and cancer receiving cancer treatment at an NCI-designated cancer center in the US

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Purpose: In the U.S., people with HIV (PWH) are less likely to receive cancer treatment than their counterparts without HIV. We assessed the impact of HIV-related stigma and discrimination on self-rated cancer care quality among PWH undergoing active cancer treatment.

Methods: We conducted a cross-sectional survey (December 2022–August 2025) among PWH with a new cancer receiving care at an NCI-designated center in Florida. Multivariable linear regressions examined associations between HIV stigma (Berger HIV Stigma Scale) and discrimination (Everyday Discrimination Scale) with cancer care quality measures. Care quality outcomes included the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Global Health Care Rating and Care Coordination scale, RTI's Patient-Centered Communication in Cancer Care (PCCC) scale, and the 10-item Health Care System Distrust scale. Models were adjusted for age, sex, educational attainment, marital status, income, insurance, and cancer type.

Results: Among 120 participants (mean age 59 years), 35.8% were Black or Hispanic/Latino, 76.7% male, 33% had a high school education or less, 44% reported household incomes <$35,000, and 39% were Medicaid insured. The most common cancers were blood (27.5%), gastrointestinal (22.5%), and genitourinary (21.7%). Overall HIV stigma scores were not associated with composite cancer care quality measures; however, subscales revealed significant associations. Personalized HIV-stigma, which measures perceived negative consequences of other people knowing a person's HIV status, was associated with lower "fostering healing relationship" PCCC scores (ß=-0.29;95% CI:-0.56, 0.01). HIV disclosure concerns were associated with lower care coordination (ß=-0.23; 95% CI:0.46, -0.01) and greater health care system distrust (ß=0.23; 95% CI:0.05, 0.41). Concerns about HIV-related public attitudes were also associated with higher distrust (ß=0.31; 95% CI:0.02, 0.59). Higher everyday discrimination scores were associated with lower global health care ratings (ß=-0.41; 95% CI:-0.71, -0.11).

Conclusion: Facets of HIV-related stigma and discrimination negatively influence perceived cancer care quality among PWH. Addressing stigma as a modifiable social process may improve cancer care engagement.

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Breast Cancer Screening Method Prevalences in Rural and Urban Women Post-Pandemic

Jacobson I, Gully B, Eldien A, McGovern E

Purpose: Breast cancer, the second most commonly diagnosed and second-leading cause of cancer death among U.S. women, is detected by screening methods including mammograms, breast MRIs, and genetic testing. There are known disparities in rural cancer care, including observed disparities in breast cancer screening. The COVID-19 pandemic worsened the rural cancer gap overall. This study aims to estimate the prevalence of various breast cancer screening methods among rural and urban women post-pandemic.

Methods: We used weighted data from the 2023 National Health Interview Survey on 15,745 women, including 2,432 rural women. We obtained unadjusted prevalences of six breast cancer screening outcomes: 1) whether respondent had ever gotten a mammogram; 2) whether respondent had gotten a mammogram in the previous 2 years; 3) whether respondent ever had a breast MRI; 4) whether respondent had gotten a breast MRI in the previous 2 years; 5) whether respondent had ever discussed cancer testing for risk with doctor; and 6) whether respondent had ever gotten genetic testing for cancer risk. We then built Firth-penalized regressions estimating adjusted odds of all six outcomes in sample rural vs urban women.

Results: Prior to adjustment, rural women were less likely to have ever had a mammogram (60.8% vs 64.6%, P:0.017), and marginally less likely to have ever discussed genetic testing (8.9% vs 10.3%, P:0.093) or have ever gotten genetic testing for cancer risk (5.4% vs 6.5%, P:0.050). After adjustment, odds of ever discussing genetic testing with a doctor remained marginally lower for rural than urban women (aOR: 0.87, 95% CI: 0.74-1.02, P:0.088).

Conclusions: Rural-urban differences in breast cancer screening outcomes were attenuated after adjustment for sociodemographic factors, suggesting these factors primarily drive observed disparities. Addressing these upstream social determinants of health could help improve rural breast cancer screening disparities.

38-T

Socioeconomic Determinants of Treatment Delay in Non-Small Cell Lung Cancer at a Community Cancer Program in Southeast Texas

Jain P, Ganatra N, Patel R, Patel S, Jamal A, Devi S, Terro T, Khalil M.

Purpose: Delays in time-to-treatment initiation (TTI) worsen outcomes in NSCLC, but community programs serving large, semi-rural areas may face distance and payer related barriers. We evaluated which socioeconomic and access factors were associated with delayed TTI in a CoC-accredited program in Southeast Texas.

Methods: We retrospectively analyzed 355 adults with NSCLC treated at Baptist Hospitals of Southeast Texas. Delayed TTI was defined a priori as >45 days from diagnosis to first cancer-directed therapy (surgery, systemic therapy, or radiation). Exposures were travel distance to facility (>15 vs ≤15 miles), primary payer (Private, Medicare, Medicaid/Uninsured, Other/Unknown), race (White vs Non-White), stage (I–II vs III–IV), and age (<65 vs ≥65 years). Multivariable logistic regression estimated adjusted odds ratios (aOR) and 95% confidence intervals (CI); list wise deletion yielded 308 patients.

Results: Overall, 45.3% experienced TTI >45 days. After adjustment, living >15 miles from the treating facility was independently associated with delay (aOR 1.61, 95% CI 1.00–2.60; p=0.049). Patients with stage III–IV disease were less likely to be delayed than those with stage I–II (aOR 0.37, 95% CI 0.22–0.62; p<0.001), indicating prioritization of advanced cases. Compared with private insurance, other payer groups showed a consistent but nonsignificant trend toward delay, Medicare (aOR 1.69, 95% CI 0.76–3.74), Medicaid/Uninsured (aOR 1.97, 95% CI 0.68–5.70), and Other/Unknown (aOR 2.11, 95% CI 0.76–5.86). Neither age ≥65 nor Non-White race independently predicted delay.

Conclusions: In this Southeast Texas community NSCLC cohort, geographic access, specifically residence >15 miles from the treating facility, was the clearest socioeconomic driver of treatment delay. A practical quality-improvement plan for similar programs is: (1) EMR alerts for NSCLC patients approaching 30-45 days without therapy; (2) automatic navigator/social work outreach for patients living >15 miles or with non-private insurance to arrange transport and financial clearance; and (3) tele health pre-treatment visits to complete staging and referrals before travel. These targeted, distance-aware steps may reduce TTI in underserved community settings.

39-T

The development of a composite measure to identify priority areas of need for cancer screening interventions.

Karp D, Hamade K, McNair C, Leader A

Purpose: We developed and validated a population-based index to identity priority communities in need for cancer screening interventions.

Methods: Public data (American Community Survey and CDC Places) were used. 23 variables associated with breast cancer screening rate disparities were selected for principal component analysis. 5 components were combined by weighted sum into a composite measure, Community Needs Priority Index (CNPI), which was calculated for residential census tracts across the Sidney Kimmel Cancer Center catchment (n=1216). For validation, Electronic Health Records were obtained for patients screened on Jefferson's mobile van from 2021-2025 (n=3,662). 418 mobile events were held with 176 community partners. Data were stratified by CNPI quintile, and Spearman's rank correlation was used to evaluate trends by subgroup. Concordance between CNPI of patient residential and screening locations was assessed. Multi-level logistic regression was used to estimate correlation of CNPI and underscreening (rarely/never screened). Model performance was evaluated for discrimination, calibration, and spatial diagnostics.

Results: CNPI values ranged from 0 to 1 (mean=0.259, sd=0.161). The 5th quintile (n=243 tracts) represented the highest need communities, which had the largest number of screened patients (n=1616, 44%) and events (n=188, 45%). Underscreening rates increased from lowest need (27%) to highest need (47%); 43.1% overall. 29% of patients lived in a higher need area than where they were screened; 44% stayed in the same quintile. CNPI was positively associated with higher odds of underscreening; both event and residential location were statistically significant. For one-unit increase in CNPI, the odds of being under-screened increased six-fold (OR=5.93, p<0.001). 20% of variation in outcomes was attributable to differences between screening location (variance=0.80, sd=0.89). ROC test showed good discrimination (AUC=0.75).

Conclusion: Cancer centers are tasked with administering community interventions to reduce cancer burden across their catchment areas. The CNPI offers an evidence-based framework and validated approach to identify which communities are highest priority for cancer screening interventions.

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Disparities in 24-hour movement among cancer survivors in the United States: a population-based analysis

Wang X, Kehm RD

Purpose: Evidence indicates that cancer survivors have less healthy 24-hour movement patterns than the general population, with lower activity levels, more sedentary time, and poorer sleep. Yet, few studies have examined whether these behaviors differ by sociodemographic factors within the survivor population.

Methods: We analyzed questionnaire data from the 2021-2023 National Health and Nutrition Examination Survey to examine differences in 24-hour movement behaviors between adults with and without a history of cancer, both overall and by age, sex, race and ethnicity, and educational level. Movement behaviors included participation in recreational physical activity (any/none), average daily sedentary time (categorized into tertiles), and typical hours of sleep on weekdays and weekends (<7, 7-9, >9 hours/night). We used logistic regression for binary outcomes and multinomial logistic regression for categorical outcomes, adjusting for age, sex, race and ethnicity, and educational attainment. Models incorporated sample weights and accounted for the survey's complex design to produce nationally representative estimates. To evaluate potential effect modification, we included interaction terms between cancer status and each sociodemographic variable.

Results: Out of 11,933 adults with complete data, 15% reported a history of cancer. Cancer survivors had 24% lower odds of any recreational physical activity in the past year compared to adults without cancer (OR=0.76, 95% CI=0.60-0.97), with no differences based on sociodemographic factors. Overall, cancer status was not associated with sedentary behavior; however, survivors aged ≥65 had 49% higher odds of being in the highest versus lowest tertile of sedentary time (OR=1.49, 95% CI=1.06-2.11), and survivors with a high school education or less had 98% higher odds (OR=1.98, 95% CI: 1.24-3.16). Among adults with more than a high school education, cancer survivors had 81% higher odds of sleeping >9 hours on weekdays compared to adults without cancer (OR=1.81, 95% CI=1.20-2.72).

Conclusions: The impact of a cancer diagnosis on 24-hour movement behaviors may vary by sociodemographic factors, with older adults and those with lower education potentially more vulnerable to changes in sedentary behavior.

Travel Award Winner

41-T

Rural Identity Associates with Caregiver Burden and Financial Impacts among Young Adult Cancer Caregivers

Killela MK, Rogers KN, Turner CA, Allred J, Thompson A, Adelstein K, Warner EL

To examine the relationship between rural identity and caregiver burden and financial impact among young adult cancer caregivers (YACCs). YACCs aged 18-39 residing in areas of geographic disparities (i.e., rural, health professional shortage, persistent poverty) and serving as primary caregivers to an adult cancer survivor were surveyed about their rural identity (a 15-item scale on lived experiences and rural culture, range: 15-60), caregiver burden (a 10-item scale assessing the physical and mental impacts of caregiving, range: 0-20, higher score indicates greater caregiver burden), and financial impact (20 items evaluating attitudes, experiences, and coping strategies to address the financial costs of caregiving, range: 20-100, lower score indicates worse financial impact). Descriptive and inferential statistics were calculated in Stata 19 to produce descriptive characteristics, and multivariable linear regression models to assess associations between rural identity, caregiver burden and financial impact. Models were adjusted for age and sex. Among N=100 participants, most were 27-39 years (86%), female (69%), caring for a parent (41%), employed full-time (44%), and had experienced employment disruptions due to caregiving (64%). Most (45%) cared for survivors diagnosed <2 years prior, primarily with lung or breast cancer. The mean rural identity was 34.1 (standard deviation (SD)=9.8; range 15-58). Each one-point increase in rural identity scale was correlated with a 0.13 increase in caregiver burden score (ß=0.13, 95% confidence interval (CI): 0.02, 0.25 p=0.03). Each one-point increase in rural identity scale was correlated with a 0.50 decrease in financial impact score, meaning worse financial impact (ß=-0.50, 95% CI: -0.90, -0,09, p=0.02). Stronger rural identity was associated with greater caregiver burden and worse financial impact among YACCs; caregivers with stronger rural identity may engage in burdensome caregiving tasks (e.g., long travel times), have limited access to financial support, and may not seek out additional support due to a sense of self-sufficiency. Further research should investigate how rural identity can be considered in designing and implementing interventions aimed at reducing financial and caregiver burden among rural YACCs.

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Anal and cervical cancer screening experiences and information needs among people with HIV

Kohler RE, Wagner RB, Tergas A, Krause KD, Swaminathan S

Purpose: Anal cancer screening and more frequent cervical screening are recommended for people with HIV (PWH) due to high prevalence of high-risk human papillomavirus (hr-HPV). This qualitative study explored anogenital HPV screening experiences and perceptions among PWH.

Methods: PWH over 35 years old were recruited from clinics and community organizations serving PWH in New Jersey, as well as through snowball sampling. Semi-structured interviews included questions about anogenital HPV cancer screening experiences. Recordings were professionally transcribed and thematically analyzed.

Results: Mean age was 56 years among 26 PWH (n=15 men, n=11 women). Most were gay or bisexual (61%). The sample was predominantly African American/Black (69%) and/or Hispanic (15%). Among those eligible, few reported anal screening (7/25; 28%), some (4/7; 57%) needed follow-up anoscopy, and two were treated for precancer. Mentally preparing before anal procedures helped some cope with physical and psychological discomfort. Low awareness, confusion with STI testing and other prostate or colon cancer screenings, low perceived risk of anal cancer, and anal sex stigma were key barriers to anal screening. All participants were willing to screen for anal cancer if recommended, noting that early treatment initiation was important for both HIV and cancer. Regarding cervical screening, nearly all women (10/11; 90%) screened routinely and many (5/10; 50%) had received follow-up colposcopy; three received treatment for precancer. Half of women who screened did not realize cervical Paps were specifically for cancer screening. Care coordination and transportation support facilitated PWH attending both cervical and anal follow-up appointments. Many believed anal cancer education campaigns were needed to raise awareness and de-stigmatize screening among PWH.

Conclusion: Findings highlight low anal screening uptake compared to cervical screening. Notably, low awareness, low perceived risk, and stigma affected anal screening, but willingness to screen in the future was high. Information about cancer risk and the importance of screening for PWH was valued. Robust care coordination is important to ensure follow-up attendance of abnormal screenings in this high-risk population.

43-T

Characterizing Catch-Up Human Papillomavirus Vaccination Among Young Adults

Kong WY, Jenkins GD, St Sauver JL, Finney Rutten LJ, Jacobson RM

Purpose: Human papillomavirus (HPV) vaccination among adolescents is still inadequate in conferring widespread protection against HPV cancers. This low uptake level underscores the critical need to vaccinate those who remain unvaccinated after transitioning to young adulthood.

Methods: We examined the electronic health records of adults aged 18-26 who were patients at Mayo Clinic Midwest primary care practices as of January 1, 2024. We described the demographic, geographic, and clinic visit characteristics of our cohort before conducting a series of Poisson regression to assess associations between patient characteristics and HPV vaccine initiation between January 1 and December 31, 2024.

Results: Our cohort included 55,511 persons: 55.1% female, 86.9% White, 90.7% non-Hispanic/Latino, 60.8% urban residents, and 39.2% with ≥14 clinic visits in the past 3 years. Most had initiated HPV vaccination prior to 2024 (n=44,492, 80.2%). Among the 11,019 (19.9%) young adults who did not receive any vaccine dose, 331 (3.0%) initiated in 2024. Initiation was higher among Asians versus Whites (incidence rate ratio [IRR]=2.04, 95% confidence interval [CI]=1.22-3.19) and those with ≥14 versus 0-2 clinic visits (IRR=2.99, 95% CI=2.06-4.47), but lower among males (IRR=0.53, 95% CI=0.42-0.68) and rural residents (IRR=0.75, 95% CI=0.57-0.97). Stratified analyses revealed similar patterns of vaccine initiation by sex. Among females, initiation was higher among Asians versus Whites (IRR=2.14, 95% CI=1.19-3.58) and those with 7-13 clinic visits (IRR=2.77, 95% CI=1.60-5.04) and ≥14 clinic visits (IRR=3.14, 95% CI=1.88-5.58). Among males, initiation was higher with 7-13 clinic visits (IRR=2.62, 95% CI=1.50-4.73) and ≥14 clinic visits (IRR=3.17, 95% CI=1.82-5.71).

Conclusions: Catch-up HPV vaccination was low with 3% of unvaccinated young adults initiating the vaccine within a one-year period. Overall, initiation was higher among Asians and those with more medical encounters, but lower among males and those in rural areas. Clinic visits were positively associated with initiation for females and males. These findings highlight the importance of promoting HPV vaccination during all adolescent and young adult clinic visits, with focused attention on males and those in rural areas.

44-T

Variation in Cervical Cancer Screening Preferences by Social Drivers of Health

Kong WY, St Sauver JL, Jacobson RM, MacLaughlin KL, Finney Rutten LJ

Purpose: Routine screening is an underutilized strategy against cervical cancer that has a lower uptake among some women, including those with poorer social drivers of health. The anticipated availability of at-home self-testing represents an opportunity to address screening disparities. To understand likely uptake of self-testing, we compared women's cervical cancer screening preferences by social vulnerability and experience with healthcare discrimination.

Methods: We analyzed data on cervical cancer screening preferences from women aged 25-65 who participated in the 2024 Health Information National Trends Survey. We summarized preferences for self-testing versus clinician screening and used weighted Rao-Scott chi-square tests to assess associations between sociodemographic characteristics and screening preferences. We then used weighted logistic regression to examine associations of social vulnerability and healthcare discrimination with screening preferences, adjusting for significant sociodemographic characteristics.

Results: Among 2,197 women, more preferred clinician screening (61.50%) to self-testing (20.49%). Screening preferences did not differ by most sociodemographic characteristics, but non-Hispanic White women were more likely to prefer self-testing than women of other races and ethnicities (p=0.03). After adjusting for race and ethnicity, women with higher social vulnerability (adjusted odds ratio [aOR]=1.08, 95% confidence interval [CI]=1.04-1.13) and those who experienced healthcare discrimination were more likely to prefer self-testing than clinician screening (aOR=2.49, 95% CI=1.64-3.79). Women with high social vulnerability preferred self-testing to avoid embarrassment (58.94%) compared to those with low (23.88%) or moderate levels of social vulnerability (46.65%, p=0.007). Reasons for preferring self-testing did not differ by healthcare discrimination (p>0.05).

Conclusion: Women with greater social vulnerability and experience with healthcare discrimination were more likely to prefer cervical cancer screening by self-testing versus clinician screening, in part, to avoid embarrassment. These findings point to the potential utility of self-testing in improving cervical cancer screening access among women with poorer social drivers of health.

Golden Anniversary Award Winner

45-T

Subjective Social Status and Cancer Screenings for Rural US Women

Larson RJ, Baltic RD, Flinner DL, Stump TE, Mohanan PO, Champion VL, Paskett ED

Purpose: This study assessed the association of Subjective Social Status (SSS) with cancer screening rates, knowledge, and barriers among rural US women and evaluated intervention effectiveness across SSS scores.

Methods: This is a secondary analysis of the Rural Interventions for Screening Effectiveness (RISE) randomized trial which tested tailored DVD and patient navigation (PN) interventions to simultaneously improve breast, cervical, and colorectal cancer (CRC) screening among rural Midwest women not up to date (UTD) with screening guidelines. Women completed a survey on screening knowledge and barriers, SSS, and demographics. Cancer screening status was verified by medical record review. Eligible women were randomized 1:2:2 to usual care, DVD, or DVD+PN. Pearson's Chi-squared test, Fisher's exact test, logistic regression, and Wilcoxon rank sum tests were performed. Following a significant interaction in the logistic regression model, contrast statements provided simple effects of the influence of interventions on screening uptake at specified values of continuous SSS. All tests were 2-sided with, Îffl=0.05.

Results: The baseline survey was completed by 1643 women aged 50-74. The median SSS score was 7. SSS was significantly associated with income, self-reported health status, knowledge score, barriers score and being UTD with any cancer screening test at baseline (all p<0.05). Of 1643 women, 983 were eligible for randomization. Considering screening outcomes and SSS, the interaction term in the logistic regression model was marginally significant (p<0.058), and simple effects were significant. The DVD+PN intervention was more effective among those with higher SSS than those with moderate and lower SSS vs usual care (high OR=4.18 p<0.0001; moderate OR=2.73 p<0.001; low OR=1.78 p=0.33) and vs DVD alone (high OR=3.36 p<0.0001; moderate OR=1.86 p<0.01; low OR=0.95 p=0.91).

Conclusion: This is the first known study of SSS and cancer screening among rural women. A significant association was found between SSS and cancer screening uptake, knowledge, and barriers. SSS interacted with intervention effectiveness. This highlights the different needs of those along various levels of SSS. Research is needed to address cancer screening needs across SSS groups.

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Factors Associated with Treatment Delay in Young Breast Cancer Patients in the United States

Lee AW, Diep J, Mamudu L, Wells N

Purpose: To identify determinants of delays in treatment among young women with breast cancer

Methods: We used population-based cancer registry data from the Surveillance, Epidemiology, and End Results (SEER) Program spanning 2011 through 2022 to examine factors that may be associated with experiencing a delay in treatment among 32,454 young women diagnosed with breast cancer under age 40. A treatment delay was defined as not receiving the first course of treatment within 60 days of diagnosis. Sociodemographic (e.g., race, socioeconomic status) and tumor (e.g., subtype, stage) characteristics were explored using a multivariable logistic regression model to estimate the likelihood of having a breast cancer treatment delay using odds ratios (ORs) and 95% confidence intervals (CIs).

Results: Of the breast cancer patients we analyzed, 12.4% did not receive their first course of treatment until more than 60 days after their diagnosis. Relative to Non-Hispanic Whites, all other racial groups were significantly more likely to experience delayed treatment, with Hispanic Whites and American Indian/Alaskan Natives having close to twice the odds (OR=1.97, 95% CI 1.80-2.15 and OR=1.98, 95% CI 1.39-2.82, respectively). The likelihood of experiencing a delay was also 23% lower for those belonging to a high versus low socioeconomic status level and for those with a triple negative versus HR+/HER2+ tumor subtype (OR=0.77, 95% CI 0.70-0.84 and OR=0.77, 95% CI 0.68-0.88, respectively).

Conclusions: Timely treatment of breast cancer is known to improve disease survival. While factors associated with this have been well-studied in older patients, there is limited data specifically among young women, who constitute a unique population and may experience delays for different reasons. Our findings highlight key disparities in timely treatment for young women; hence, efforts to understand the underlying reasons for these disparities, particularly in racial/ethnic minority groups, are critical to ensure timely care for all.

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Rural-Urban Disparities in HPV Vaccine Uptake Among College Students

Lee M, Chen C, Gerend MA, Tsai MH, Vilegas J, Flack J

Purpose: Human papillomavirus (HPV) is the most common sexually transmitted infection in the United States and a leading cause of several cancers. Although HPV vaccination is a highly effective preventive measure, uptake remains suboptimal – especially among individuals from rural areas. College students fall within the recommended age for HPV vaccination, yet few studies have explored rural–urban differences in vaccine uptake within this population. This study aimed to examine factors associated with HPV vaccine uptake among college students, with a specific focus on rural–urban disparities.

Methods: A cross-sectional survey was conducted among 179 college students aged 18-26 years at a public university in the U.S. Midwest. Participants self-reported their HPV vaccination status, sociodemographic characteristics, and sexual behavior history. Bivariate analyses compared characteristics between rural and urban students, and multivariable logistic regression models were used to assess predictors of HPV vaccine uptake defined as receipt of one or more doses of the 3-dose HPV vaccine series.

Results: In total, 59.2% had not received any doses, while 40.8% had initiated or completed the HPV vaccine series. Rural students were significantly less likely than their urban counterparts to report HPV vaccine uptake (30.3% vs. 48.5%, respectively) ($p = 0.014$). In adjusted analyses, rural students had decreased odds of HPV vaccine uptake compared to urban students (aOR = 0.46, 95% CI: 0.25–0.86). Additionally, males had significantly lower odds of HPV vaccine uptake compared to females (aOR = 0.19, 95% CI: 0.09–0.38). Students who reported vaginal sexual debut at age 15 or younger had higher odds of uptake (aOR = 3.64, 95% CI: 1.36–9.73) compared to those who had never had sex.

Conclusion: HPV vaccine uptake among college students remains low, with pronounced rural-urban disparities. These findings underscore the importance of campus-based, culturally tailored interventions to improve vaccination coverage, particularly among rural and male students. Addressing these disparities is essential for reducing long-term HPV-related cancer burden in young adult populations.

48-T

Perspectives on Lung Cancer Screening in the LGBTQ+ Community: Insights from LGBTQ+ Serving Professionals

Liang I, Hoover K, Nafoui N, Williams F, Hirsch EA, Byrne MM, Futrell M, Basu Roy U, Studts CR, Studts JL

Introduction: Annual lung cancer screening (LCS) is the most significant opportunity to reduce the burden of lung cancer, the leading cause of cancer mortality in the US. However, limited uptake across the US, particularly among disadvantaged communities, is a barrier to achieving its optimal impact. Individuals in the sexual and gender minority community (SGM) have higher risk of developing lung cancer, but low rates of LCS uptake.

Purpose: The purpose of this study is to understand the community specific perspectives of LCS in the SGM community.

Methods: Individuals who work with the SGM community were recruited to participate in a multi-method study. Semi-structured interviews addressed attitudes and factors influencing LCS engagement, while surveys collected demographic data. Survey data were analyzed descriptively. Four trained coders analyzed interviews to identify key themes.

Results: Eleven Clinicians, eight individuals from SGM-serving organizations, six students, and one researcher (N=26) from Colorado were interviewed in 2024 and 2025. Twenty-three participants identified as SGM (92%), and eight reported a smoking history (30%). Personal experiences of healthcare discrimination along with past and current structural discrimination contribute to mistrust within the SGM community, resulting in vigilance, anticipatory actions taken to avoid potential negative healthcare encounters. The presence of lung cancer-related stigma, nihilism, and fatalism further complicates this dynamic, introducing additional sources of mistrust and expanding the range of concerns that individuals are vigilant about. These experiences and responses vary across SGM subpopulations, generational cohorts, and individuals with intersecting marginalized identities. Affirming care moderates these effects at every stage of the lung cancer screening process.

Conclusion: Cancer screening outreach efforts must develop robust, trustworthy, and responsive engagement strategies that reach into communities that have historically complicated relationships with the healthcare system. Understanding LCS perspectives in the SGM community from individuals working with this community provides insight into the development of targeted engagement interventions and support strategies.

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Racial and Ethnic Disparities in Treatment Initiation and Survival Among Patients with Advanced Endometrial Cancer: A Population-Based Analysis (2013-2022)

Lin YC, Garcia-Rodriguez O, Boxtha C, Turner K, Shahzad MM, Islam JY

Purpose: In the US, Black women are more likely to die due to endometrial cancer (EC) compared to other demographic groups. We aimed to assess associations of time to treatment initiation (TTI) and overall survival with race and ethnicity by socioeconomic status (SES) among women with advanced EC.

Methods: We conducted a retrospective cohort study using the Flatiron Health Research Database among adult women diagnosed with advanced (stages III-IV) EC or locoregional or distant recurrence between 2013 and 2022. The main outcomes included delayed (>6 weeks) treatment initiation and all-cause mortality. Primary exposures included race/ethnicity and quintiles of area-level SES (Yost Index). We computed adjusted prevalence ratios (aPRs) with 95% confidence intervals (CIs) using Poisson regressions to assess racial and ethnic disparities in TTI, and we computed adjusted hazard ratios (aHRs) using Cox proportional hazards models to assess mortality. All models were adjusted for sociodemographic, comorbidities, and cancer characteristics.

Results: Among the 4177 women included in this study, the racial/ethnic composition included 68.1% non-Hispanic (NH)-White, 15.2% NH-Black, 5.3% Hispanic/Latino, and 2.2% NH-Asian. Overall, the median TTI was 26.0 days, and the median overall survival time was 3.1 years. After adjustments for participant characteristics, delayed treatment initiation was associated with living in the lowest SES quintile among NH-Black (aPR: 1.07, 95% CI: 1.00, 1.13) and Hispanic/Latino (aPR: 1.12, 95% CI: 1.00, 1.25) participants compared to NH-White. We observed the inverted moderation effect with all-cause mortality associated with living in the highest SES quintile among NH-Black (aHR: 2.49, 95% CI: 1.55, 4.00) participants compared to NH-White.

Conclusions: Our findings demonstrated racial and ethnic disparities in treatment and survival outcomes that were significantly modified by socioeconomic factors among women with advanced EC.

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Feasibility of a Faith-Based Mind-Body Intervention to Reduce Cancer Risk among Black Adults Residing in Rural and Urban Communities

Mama SK, Holland S, Anderson G, Cohen L, Li Y, McNeill LH

Purpose: Harmony & Health (HH) integrates yoga with spirituality to promote physical activity (PA) and psychosocial wellbeing among Black adults who are insufficiently active and have overweight/obesity and at higher risk of cancer. We worked closely with church leaders to develop the theory-based HH curriculum and found it to be acceptable. The purpose of this multi-site trial was to confirm the feasibility of HH across two geographically distinct sites, one urban in Houston and one more rural in Longview, Texas.

Method: We partnered with churches and community organizations to recruit participants. Black adults who reported not meeting PA recommendations (<150 min/week of PA), being sedentary (≥6 hours/day of sitting time), and had overweight/obesity (body mass index [BMI] ≥25.0 kg/m2) were randomized to the HH intervention or a health education (HE) attention control group. Sessions were held in-person twice a week for 8 weeks (16 sessions) and focused on stretching, breathing, and guided relaxation with scripture in HH and topics related to cancer prevention and health in HE. Participants completed assessments at weeks 0 (baseline), 9 (post-intervention), and 24 (follow-up). Feasibility of recruitment, retention, and adherence were assessed across sites and a priori benchmarks were used to evaluate implementation.

Results: 420 people expressed interest, 219 were screened (76.3% eligible), and 100 were enrolled, 50 at each site (recruitment goal met). Overall retention rates were 88.0% and 82.0% at weeks 9 and 24, respectively (exceeded benchmark of ≥80.0%). Across sites, 62.0% of HH participants and 72.0% of control participants attended ≥10 of the 16 sessions. Mean attendance was lower in Longview than Houston for the HH (M=13.3 in Houston vs. 9.7 in Longview) and HE (M=14.2 in Houston vs. 10.3 in Longview) groups (exceeded benchmark of ≥80.0% in Houston but not Longview).

Conclusion: Findings support the feasibility of HH across two geographically distinct sites. Results will be used to modify implementation procedures in preparation for a multi-site efficacy trial of HH, which, if successful, could be an innovative strategy to improve PA and psychosocial wellbeing to reduce cancer risk among rural and urban Black adults.

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Bridging the Gap in Catch-up HPV Vaccination

Mantina NM, Palmer KNB, Yusoof KA, Rajkumar T, Magrath PA, Barraza L, Madhivanan P.

Purpose: Nearly 39% of individuals entering young adulthood are at increased risk for vaccine-preventable HPV-associated cancers due to suboptimal adolescent vaccine coverage. This pilot study aimed to assess the perceptions of HPV vaccine promotion and delivery strategies between unvaccinated young adults and healthcare professionals.

Methods: Unvaccinated young adults (YA) and healthcare professionals (HP) participated in a concept mapping study involving three activities: (1) brainstorming – participants generated ideas in response to a prompt focused on increasing HPV vaccination; (2) sorting – participants grouped the generated statements into clusters of similar ideas; (3) rating – each statement was evaluated for perceived effectiveness and feasibility using a 5-point Likert scale. Data were analyzed using groupwisdomâ„¢.

Results: A total of 25 participants (19 YA and 6 HP) contributed to the study. The 41 statements generated were organized into five conceptual clusters: accessibility, information, promotion, messaging, and legal. Accessibility was rated as the most effective cluster by both groups (mean rating - YA: 4.6; HP: 4.0) but ranked third-lowest in feasibility (3.3). Information was the second-most effective cluster for YA (4.1) and rated highest in feasibility (3.6). Promotion was the second-most effective for HP (3.7) but perceived as the second-least feasible (3.2). Messaging was the second-most feasible (3.4) yet rated as the second-least effective by both groups (YA: 3.4; HP: 3.0). Legal was consistently rated lowest in both effectiveness (YA: 3.2; HP: 3.0) and feasibility (1.4).

Conclusion: Understanding the differing perspectives and priorities of young adults and healthcare professionals is essential for improving HPV vaccine delivery and uptake. This study highlights areas of alignment and divergence that influence efforts to close the gap in HPV vaccination coverage. Effective implementation of vaccine strategies should consider both feasibility and community needs to ensure greater impact.

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Impact of County-Level Socioeconomic, Healthcare, and Environmental Measures on Cancer Late-State Incidence and Mortality: A Machine Learning Approach

Gao C, Tehranifar P, Kensler K, Banerjee S, Al Hussein Al Awamlh B, Pua BB, Mao J

Purpose: To assess the interactive impact of socioeconomic, healthcare, and environmental factors on cancer late-stage incidence and mortality on the county level using a machine learning approach.

Methods: We used age-adjusted late-stage incidence (2017-21) and mortality (2018-22) rates for breast, colorectal, lung and prostate cancer for 2723 counties in contiguous US from NIH State Cancer Profile. County-level variables examined were social and health vulnerabilities, environmental and climate burdens, healthcare resource availability, and preventive care use. We used XGBoost models and SHAP value to determine their predictive impact on late-stage incidence and mortality of each cancer. We performed a Principal Component Analysis (PCA) on all county-level predictors to identify themes of measures associated with high rates of late-stage incidence and mortality.

Results: XGBoost found that county-level health vulnerabilities (e.g. obesity, hypertension) were consistently among the top 15 predictors of cancer late-stage incidence and mortality. Low screening use was predictive of high breast and colorectal cancer late-stage incidence and mortality. Smoking prevalence was most predictive of lung cancer late-stage incidence and mortality. Using PCA, we found 4 major themes associated with higher late-stage cancer incidence: 1.) health vulnerability, housing instability (e.g. high proportion of renter-occupied, low-income housing), along with low walkability; 2.) low preventive care use combined with high rates of uninsured population; 3.) low density of medical professionals; 4.) environmental burden (e.g. pre-1980 housing, risk management site). We found 3 major themes associated with higher cancer mortality: 1.) a combination of health vulnerability, low socioeconomic status (e.g. high poverty, single parent household), low density of medical professionals, and low walkability; 2.) low preventive care use and service availability combined with high rates of uninsured population; 3.) environmental and climate burden (e.g. high hurricane, tornado frequencies).

Conclusion: The complex interplay of socioeconomic, healthcare, and environmental factors linked to increased cancer late-stage incidence and mortality suggests a need for multilevel, multi-component strategies.

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Cancer Related Health Inequities by Sexual Orientation in a National U.S. Sample

May J, Adams S

Purpose: We applied a Social Determinants of Health (SDOH) mechanisms framework to identify and characterize cancer related health inequities by sexual orientation in a U.S. sample.

Methods: Data were analyzed from the 2023 Behavioral Risk Factor Surveillance Survey (BRFFS; N=335,903). Weighted frequencies of SDOH indicators, cancer risk factors, chronic conditions, and preventative care uptake were compared for heterosexual, lesbian/gay, and bisexual/'something else groups'. Results were interpreted using the Center for Latino Adolescent and Family Health (CLAFH) SDOH framework, mapping capital, processes, exposures, susceptibilities, and resilience pathways to health inequities.

Results: Bisexual/'something else' respondents had the highest rates of income insecurity (e.g., ≤$20k: 14.8%), uninsurance (10.5%), financial and food hardship (unable to pay bills: 19.7%; SNAP: 16.1%), and unmet basic needs (transportation: 16.2%). They experienced more psychosocial adversity, with 30.3% reporting always or usually feeling stressed and 16% always or usually lonely, alongside lower rates of emotional support (always: 30.2%) and life satisfaction (very satisfaction: 22.3%). Behavioral risk exposures, including current smoking (13.5%) and e-cigarette use (8.8%), were highest among bisexual/'something else' group. While diagnosed cancer prevalence was greater among heterosexual adults, patterns of SDOH exposures suggested compounded future risk for the bisexual/'something else' group. Discrimination and race-related stress were also more prevalent among LGB groups.

Conclusions: Clear or intersecting cancer-related health inequities exist among sexual minority adults, especially bisexual/'something else' populations, driven by structural, behavioral, and psychosocial SDOH factors. Leveraging the CLAFH framework highlights that effective prevention requires packaged, multilevel interventions that address social and material disadvantage, discrimination, psychological adversity, and behavioral risks in tandem to reduce inequities across the life course.

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GUIDE: Developing a Clinical Trial Navigation and Reimbursement Intervention to Increase Participation in Cancer Clinical Trials

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Purpose: We are conducting a pilot randomized trial of a clinical trial navigation and reimbursement intervention to increase participation in cancer clinical trials.

Methods: Eligible participants include adult cancer patients considering and eligible for an open clinical trial at the Fred Hutchinson Cancer Center or the University of Washington. Participants are identified by Clinical Research Nurses (CRNs) in the Breast, Genitourinary, Lymphoma, Multiple Myeloma, and Thoracic Head and Neck clinics, or by physician referral. Participants are asked to complete a baseline survey and are then randomized to the GUIDE intervention or usual care. In the GUIDE intervention arm, cancer patients meet with a Clinical Trial Navigator to review the cancer clinical trial, identify barriers to participation, and learn about the reimbursement program for trial-related costs. Patients receive 6-months of navigator support and up to $2,000 of reimbursement for out-of-pocket (OOP) expenses including transportation, lodging, food, childcare, eldercare, and other OOP costs. Usual care includes all supportive care services, including traditional patient navigation. Participants are followed for 6-months and asked to complete a follow-up survey.

Results: We have enrolled 100 participants (response 58%). Median age of participants is 62 years, 54% identify as male, 45% female, and 1% transgender. 16% of study participants are from a minoritized racial or ethnic group. At baseline, 80% of participants report that their OOP medical expenses are more than they thought they would be and 89% report worrying about financial problems in the future as a result of their illness or treatment. GUIDE intervention participants (n=53) have received a total of $57,523 in clinical-trial related expense reimbursement with transportation being the most common OOP expense.

Conclusions: The GUIDE intervention is currently providing reimbursement for clinical trial-related expenses. At the conclusion of the trial, we will compare GUIDE to usual care to understand whether the intervention can improve cancer clinical trial enrollment and retention, health-related quality of life, trust, resilience, and financial burden.

55-T

Prostate Cancer Health Differences: Forecasting Incidence and Prevalence Using Age-Period-Cohort Analysis

Douglas A. Monroe, Philip S. Rosenberg, Rachael Stolzenberg-Solomon, Hormuzd Katki, Ana F. Best

Purpose: While incidence and prevalence of prostate cancer have decreased in recent decades, there are notable differences between non-Hispanic White (NHW), and non-Hispanic Black (NHB) men. We applied age-period-cohort forecasting to address the question: can disparities between NHW and NHB men be expected to continue in the future?

Methods: Prostate cancer incidence and survival data were obtained from SEER-12 (1992-2021; ages 40-84). We applied age-period-cohort and JoinPoint modelling to estimate incidence and 95% CIs by single year of age and period. The models forecast incidence to year 2035 using observed birth cohort and period trends measured by JoinPoint and curvature. We modelled survival using JoinPoint for the relative hazard of all-cause death by age and year at diagnosis. These estimates are used to forecast the prevalence of prostate cancer survivors.

Results: The estimated age-incidence rate of prostate cancer was higher for NHB than NHW men; longitudinally, NHW men born in 1959 have a maximum risk of 590/100,000 (age 69), while NHB men born in the same year have a maximum risk of 1000/100,000 (age 68). JoinPoint models fit to cohort rate-ratios estimate a risk decrease of 1.45% (95% CI: 1.37-1.54) per birth year for NHW men born in or after 1931 while the corresponding decrease for NHB men starting in 1940 was 0.75%/year (0.53-0.96). NHW and NHB men are forecasted to have stable or decreasing incidence for all age groups, from 2021 to 2035. Overall survival for men diagnosed at age 62 in year 2006 was higher for NHW than NHB men at 5, 10, and 15 years. NHW and NHB men are forecasted to have stable or decreasing prevalence for all age groups, from 2021 to 2035 although NHB rates are much higher overall than for NHW.

Conclusion: In our forecast models, absolute rates of prostate cancer will remain high in the future. Decreases in prevalence correspond to decreases in incidence and differences between NHW and NHB populations are expected to persist. Our analysis may inform or compliment research on prostate cancer screening and survivorship.

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Weight Stigma Across the Breast Cancer Care Continuum: Patient Experiences and Recommendations

Nash, Sarah H., Ahlich, E., Green, J., Hauff, C., Wissler-Gerdes, E., Henderson, R., Skiba, M.

Purpose: To qualitatively assess experiences with weight stigma during breast cancer screening, treatment, and survivorship.

Methods: Participants were recruited using ResearchMatch and social media. Semi-structured interviews were conducted via Zoom with adults (≥19 years; BMI ≥30) at various stages of the breast cancer care continuum. Data were analysed to identify patterns and themes using NVivo15, with the a priori codebook developed based on the Health Stigma and Discrimination Framework.

Results: Participants (n = 23) included those who had recently been screened for breast cancer (n = 10), individuals currently undergoing breast cancer treatment (n = 3), and individuals at least one but less than five years from diagnosis (n = 10). Most interviewees (n = 20) reported positive experience in healthcare across the cancer continuum; however, almost all interviewees were able to identify stigmatizing experiences related to body weight. We identified five overarching themes related to weight stigma in breast cancer care: Stigma Experiences and Practices, Structural Barriers to Care, Provider Interactions and Communication; Psychosocial Impacts of Weight Stigma; and Multi-level Resiliencies. Interviewees also shared recommendations for improving care, including more respectful and inclusive provider communication and physical environments designed to accommodate diverse body sizes.

Conclusions: Participants' experiences underscore how weight stigma can influence healthcare interactions, access to care, and emotional well-being across the breast cancer care continuum – from screening through survivorship. Identification of resiliencies and recommendations by participants points to actionable opportunities for creating more inclusive and equitable cancer care.

Early Detection and Risk Prediction of Cancer

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Sex-based differences in delayed diagnosis among those with symptoms of early onset colorectal cancer seen within the Veterans Health Administration, 1999-2022

Nash SH, Kolb J, Sabater-Minarim D, Demb J

Purpose: Examine sex-related differences in time from red flag symptom presentation to diagnostic workup in the Veterans Health Administration (VHA), among those at risk for early onset colorectal cancer (EOCRC).

Methods: We evaluated two cohorts defined by first presentation of either iron deficiency anemia (IDA, n = 64,577) or abdominal pain (n = 487,952) in Veterans age 20-49 years between 1999-2022. We compared sociodemographic and clinical covariates between men and women. We examined the association between sex and time to EOCRC diagnostic work-up (completion of colonoscopy or esophagogastroduodenoscopy [EGD]) within 3 years using Kaplan-Meier approximation of cumulative incidence and multivariable Cox models to calculate hazard ratios (aHR).

Results: Women were younger than men at age of presentation in both the abdominal pain (Women vs. Men: 36 vs 39 years) and IDA (39 vs 44 years) cohorts. Among those with abdominal pain (n = 378,179 men, 109,773 women), 21% had an endoscopy within 3 years (11% colonoscopy, 10% EGD). Women had a lower 3-year cumulative work-up completion (16%, 95% CI: 16-16%) compared to men (21%, 95% CI: 21-21%), corresponding to a 15% lower likelihood of diagnostic work-up (aHR: 0.85, 95% CI: 0.84-0.87). Median time to work-up for women with abdominal pain was 188 days (Q1-Q3: 57-551 days), compared to 144 days for men (Q1-Q3: 47-485 days). Among those with IDA (32,192 men, 32,385 women), 30% had an endoscopy within 3 years (16% colonoscopy, 14% EGD). Women had a lower 3-year cumulative work-up completion (14%, 95% CI: 14-15%) compared to men (35%, 95% CI: 34-36%), corresponding to a 56% lower likelihood of diagnostic work-up (aHR: 0.44, 95% CI: 0.42-0.46). Median time to work-up for women with IDA was 260 days (Q1-Q3: 80-627 days), compared to 118 days for men (Q1-Q3: 40-414 days).

Conclusions: Among Veterans ages 20-49 years, women with IDA and abdominal pain were less likely than men to complete diagnostic workup at 3 years and had longer overall time to endoscopy. These sex-related differences in diagnostic workup completion may reflect modifiable targets to minimize delays in EOCRC diagnosis within the VHA. Further research is warranted to determine if these patterns hold in a non-VHA population.

Cancer Health Disparities

58-T

Disparities in HPV-Associated Oropharyngeal Cancer Survival Outcomes Between Individuals Living with and without HIV

Nichols AR, Vo V, Islam J, Qualliotine J, Dickey BL

Purpose: Human Papillomavirus (HPV) is the primary etiologic agent responsible for most oropharyngeal cancer (OPC) cases in the United States. People with HIV (PWH) face an elevated risk for HPV infection and HPV-associated malignancies. However, the impact of HIV status on survival following a diagnosis of HPV-OPC remains unknown. The purpose of this study was to explore differences in HPV-OPC survival among people living with and without HIV (PWoH) focusing on social drivers that may impact survival.

Methods: Data from the National Cancer Database (NCDB) was used to identify patients diagnosed with oropharyngeal cancer (ICD-0-3 codes: C01.9, C02.4, C05.1, C052, C09.0-9.1, C09.8-9.9, C10.0-10.4, C10.8-10.9, C14.2) with a positive result for HPV-DNA to a high-risk type. PWH were identified using ICD9 (04200 to 04499, 07953, and V08) and ICD10 (B20 to B24, R75, Z21, B97.35) codes. Demographics (sex, age, race) and social factors (insurance status, income, education, distance to treatment facility, and treatment facility type) and cancer stage were descriptively compared by HIV status. Kaplan Meier curves assessed survival time after cancer diagnosis by HIV status and stage. Unadjusted and adjusted cox proportional hazards models evaluated hazard of mortality.

Results: There were 24,474 individuals identified with HPV-OPC and a known HIV status of which 161 were living with HIV and 24,313 without HIV. Patients with and without HIV significantly differed by demographics, stage, insurance status, distance to treatment facility, and county-level education and income levels ($p < 0.0001$). PWoH experienced better overall survival than PWH ($p < 0.0001$). Significantly increased hazard of mortality was observed for late-stage cancer, HIV positive status, older age groups, less distance to treatment facility, and having Medicare/Medicaid coverage as compared to private insurance.

Conclusions: HIV status is associated with significant disparities in survival among individuals with HPV-OPC even after adjustment for demographics and key social drivers of health. These findings underscore the need for further research to better understand the underlying factors driving these disparities and to develop interventions aimed at improving survival in this vulnerable population.

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Strengthening Screening Continuity Over Time: An Evaluation of Repeat Colorectal Cancer Screening in a Multi-Site Federally Qualified Health Center

Nonzee NJ, Wang Y, Gregerson P, Tran K, Solis CG, Sandoval G, Bastani R

Purpose: Our study objective was to assess rates and factors that influence repeat CRC screening (i.e., screening over time, per guidelines) in a large multi-site Federally Qualified Health Center (FQHC) in Los Angeles County.

Methods: Using EHR data, we performed a retrospective cohort study among patients who completed a stool test (FOBT/FIT) in 2021 and examined CRC screening completion over the following three years (2022-2024). Our cohort included patients aged 45-70 years who completed a normal index stool test in 2021 at one of the FQHC's 16 primary care sites. Our primary outcome, completion of repeat CRC screening (yes/no), was defined as completion of an index stool test and at least two additional FIT/FOBTs, a FIT-DNA (Cologuard) test, or a colonoscopy over the 4-year study period (2021-2024). Logistic regression analyses were performed to evaluate the association between repeat screening and patient demographic and social factors and clinic site of care.

Results: Our sample included 1130 patients (average age 60 years (SD 6); 55% female (n=624), 64% Latino (n=722), 59% primary language not English (n=663), 13% housing unstable (n=147), 5% food insecure (n=62)). Overall, 44% of our sample (n=498/1130) completed repeat CRC screening over the 3-year follow-up period. In bivariate analyses, significantly higher rates of repeat CRC screening were observed among patients with stable vs. unstable housing (46% vs. 36%) and who never vs. ever experienced food insecurity (49% vs. 16%), with substantial differences in rates across clinic sites; all $p<0.05$. In adjusted analyses, higher likelihood of repeat CRC screening was associated with increasing patient age (aOR 1.03, 95% CI 1.00-1.05; p=0.03), while lower likelihood was associated with experiencing housing instability vs. stability (aOR 0.60, 95% CI 0.39-0.93; p=0.02) and food insecurity ever vs. never (aOR 0.30, 95% CI 0.14-0.59; p=0.001); clinic site also remained a positive correlate.

Conclusions: Completion of guideline-recommended CRC screening over time may be shaped by social contextual factors and site of care. Results support interventions in low-resource clinical settings that target multiple levels of influence to strengthen screening continuity and life-saving benefits of CRC screening.

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Healthcare utilization and cancer incidence in the Hispanic Community Health Study/Study of Latinos

Parada H Jr, Sahrai L, Agalliu I, Perreira KM, Telzak AH, Pirzada A, Penedo FJ, Gallo LC

Purpose: To examine multiple measures of health care utilization in association with cancer incidence among adults from the Hispanic Community Health Study/Study of Latinos (HCHS/SOL)

Methods: We included 16,415 adults from the HCHS/SOL, a multicenter prospective cohort study. At baseline (2008-2011), healthcare utilization measures included frequency (1 or ≥2 visits in the past 12 mos. vs. no care) and location (US or outside of the US vs. no care). Participants also reported whether they had experienced any of 10 listed barriers related to access (e.g., couldn't get an appointment soon enough; 4 items), transportation (1 item), language (1 item), or socioeconomic factors (4 items), summed and categorized as ≥1 vs. 0 barriers. Facilitators of healthcare access and utilization included staff helpfulness/respectfulness [2 items, usually/always vs. never/sometimes], provider communication [4 items, usually/always vs. never/sometimes], and insurance status (public, private, or other vs. no insurance). Linkages to four state cancer registries ascertained incident cancers from baseline through 2021. Survey-weighted multivariable Cox regression estimated hazard ratios (HRs) and 95% confidence intervals (CIs) for the associations between the measures of healthcare utilization and cancer incidence.

Results: Having public (vs. no) insurance was associated with a lower cancer detection rate (HR=0.79, 95%CI=0.88-1.08), while having private insurance was associated with a higher cancer detection rate (HR=1.53, 95%CI=1.18-2.00). Those who reported ≥1 (vs. 0) barriers had a 47% higher cancer detection rate (HR=1.47, 95%CI=0.95-2.26). Additionally, those who perceived office staff at a doctor's office or clinic as usually or always (vs. never or sometimes) helpful or respectful had a 73% higher cancer detection rate (HR=1.73, 95%CI=1.01-2.96). Frequency and location of healthcare and patient-provider communication were not significantly associated with cancer incidence.

Conclusion: Healthcare experiences and access factors were associated with cancer incidence among Hispanic/Latino adults of diverse backgrounds. Future studies should address how barriers to care and in particular insurance coverage may be associated with cancer disparities in this population.

61-T

Addressing Structural Racism in Cancer Prevention and Control: A Scoping Review and Application of Public Health Critical Race Praxis

Parker ST, McLemore MR, Ince J, Harris Abril, Barrington WE

Cancer disparities persist among African American populations, with disproportionate rates of cancer morbidity and mortality linked to structural racism. Despite extensive research into health disparities in cancer, race-based inequities remain entrenched. Structural racism, a determinant of health inequities, shapes access to social determinants of health (SDOH) such as quality education, housing, and healthcare, which impact cancer outcomes.

The purpose of this review, therefore, was to: 1) assess the degree to which anti-racism frameworks or theories were applied in cancer prevention and control; 2) synthesize how anti-racism has been conceptualized across cancer prevention and control using Public Health Critical Race Praxis (PHCRP); and 3) suggest a new conceptual model for cancer prevention and control and strategies for application based on our synthesis. We expect the latter will better specify mechanisms of structural racism to guide systems-level interventions to optimize cancer prevention and control efforts.

Methods included PHCRP as a race conscious research approach to critique cancer prevention and control literature and the preferred reporting items for systematic reviews and meta-analysis extensions for scoping reviews (PRISMA-ScR). A total of 15 articles were analyzed based on the inclusion and exclusion criteria.

Findings indicate limited application of anti-racism frameworks and racial constructs such as SDOH, and structural racism were not well conceptualized or contextualized relevant to health disparities in cancer. Structural solutions to address disparities were absent in 9 of the studies reviewed. This study recommends the application of critical frameworks to identify and examine the mechanisms through which structural racism and other social determinants of equity shape social determinants of health and contribute to health disparities in cancer prevention and outcomes. By employing critical frameworks, researchers can enhance the focus on structural barriers and produce actionable insights to dismantle inequities in cancer prevention and control. This approach is vital for advancing health equity and achieving better cancer outcomes for marginalized communities.

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Code Enforcing Cancer

Plascak JJ

Purpose: This study tests whether a recent cancer diagnosis is associated with issuance of property code violations.

Methods: Geocoded, individual-level cancer data were from the Ohio Cancer Incidence Surveillance System for residents of three Columbus, Ohio zip codes, aged 20 years or older diagnosed with their first, primary invasive solid tumor between 2010-2019. Covariates were age and date of diagnosis, date of death or loss to follow-up, sex, race/ethnicity, marital status, insurance status, stage at diagnosis, and cancer type. End of follow-up was earliest of 12/31/2020, death, lost to follow-up, or 1-year post-diagnosis. Geocoded property code violations, between 2010 and 2020 from City of Columbus, were categorized into property upkeep-related (e.g., overgrown vegetation, excessive trash on property, buildings in disrepair) or not upkeep-related (e.g., graffiti, garbage bins, zoning code). County Auditor parcel-level data were used to join co-located cancer and code violation datasets, and assess parcel total value, while limiting to single-family and non-rental parcels. The dichotomous outcome was upkeep-related code violation (yes/no), and primary exposure was a code violation between 1 year pre-diagnosis or post-diagnosis (or end of follow-up). A generalized estimating equation logistic regression model accounting for parcel clustering was built to generate odds ratios, 95% CIs and chi-square tests.

Results: The three zip codes contained 929 cancers, 11,573 upkeep code violations, and 13,779 parcels. 25th, 50th, and 75th percentiles of parcel total value were $51,200, $95,200, and $138,000. A recent diagnosis of cancer was associated with a 77% higher odds (95% CI: 1.16, 2.69, p = 0.01) of property upkeep-related code violation compared to no recent cancer diagnosis, adjusted for cancer diagnoses at earlier times and parcel value.

Conclusions: Those experiencing cancer and associated cancer-related symptoms may be more likely to incur property code violations for overgrown vegetation, excessive trash on property, or buildings in disrepair. Additional longitudinal studies are needed to replicate and better understand these findings.

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Ethnic Enclave Residence and Breast, Cervical, and Colorectal Cancer Incidence, Stage of Diagnosis, and Mortality Among Asian American or Hispanic/Latino Adults in Five U.S. States: A Population-Based Study

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Purpose: Ethnic enclaves are culturally and ethnically distinct neighborhoods with high concentrations of individuals of the same ethnic origin and immigrants. The ENCLAVE study assessed whether Asian American or Hispanic/Latino enclave residence was associated with outcomes among adults with breast, cervical, or colorectal cancer in five states.

Methods: We developed census-tract measures of Asian American and Hispanic/Latino enclaves using 2000 Census and 2008-2012 American Community Survey data for California, Florida, New Jersey, New York, and Texas. State cancer registries identified Asian American or Hispanic/Latino adults diagnosed with female breast, cervical, or colorectal cancer from 2000-2017. We examined associations of residence in enclaves (vs. non-enclaves) with cancer incidence using age-adjusted incidence rates and ratios; late-stage diagnosis with adjusted log binomial regressions; and mortality with adjusted competing risk models.

Results: The analysis included 148,429 Asian American and 316,679 Hispanic/Latino adults across the three cancers. Among Asian Americans, enclave residence was associated with higher breast (incidence rate ratio [IRR]=1.14; 95% CI: 1.11, 1.16) and colorectal cancer incidence (female IRR=1.14; 95% CI: 1.08, 1.19; male IRR=1.25; 95% CI: 1.19, 1.32). Among Hispanics/Latinos, enclave residence was associated with lower breast (IRR= 0.82; 95% CI: 0.81,0.83) and female colorectal (IRR=0.94; 95% CI: 0.92, 0.97) but higher cervical cancer (IRR=1.27; 95% CI: 1.20, 1.32) incidence. Asian Americans living in enclaves had lower risk of late-stage breast cancer (risk ratio [RR]=0.97; 95% CI: 0.94, 0.99). Hispanics/Latinos living in enclaves had increased risk of late-stage breast cancer (RR=1.07; 95% CI: 1.05, 1.08). Enclave residence was associated with lower mortality risk for Asian Americans with breast, cervical, and male colorectal cancer ($p<.05$). Conversely, for Hispanics/Latinos, enclave residence was associated with higher mortality risk for breast and male colorectal cancer ($p<.05$).

Conclusions: Distinct patterns emerged by racial/ethnic group, outcome, and cancer types. Findings highlight the role of neighborhood context and underscore the need for culturally tailored outreach to improve cancer prevention.

64-T

Individual Determinants in Health Care Utilization: A Key Barrier to Cancer Screening among Females

Rahman MM, Burus JT, Lang Kuhs KA

Purpose: A substantial share of females in the United States (US) remain not up-to-date (UTD) with breast, cervical, or colorectal cancer screening despite evidence-based guidelines. While national estimates of cancer screening are routinely reported, there remains a limited understanding of individual determinants of healthcare utilization among females.

Methods: Using 2024 Behavioral Risk Factor Surveillance System data, we applied Andersen's Behavioral Model of Health Services Use to identify predisposing, enabling, and need factors associated with not being UTD for breast, cervical, and colorectal cancer screening, as defined by US Preventive Services Task Force (USPSTF) guidelines. We applied complex sampling weights and constructed logistic regression models among females eligible for breast (n=133,048), cervical (n=98,009), and colorectal (n=120,090) cancer screening, using not UTD status for each as the dependent variables. Independent variables were grouped into predisposing (e.g., demographic and behavioral), enabling (e.g., access-related), and need (e.g., health status) domains.

Results: We found several predisposing and enabling factors to be significantly associated with not UTD status for all three USPSTF recommended cancer screenings. Significant predisposing factors included being among the youngest eligible age-groups (40-49 years for breast, 21-29 years for cervical, and 45-49 years for colorectal cancer screening), non-Hispanic Asian race and ethnicity, not graduating college, currently smoking, and having never-married (not including unmarried couples) (all $p<0.05$). Significant enabling factors included inability to afford medical care, having no health insurance, not having a primary care provider (PCP), and rural residence (all $p<0.05$). Compared to females with a PCP, females without a PCP had 240% greater odds of not being UTD with breast, 121% greater odds for cervical, and 196% greater odds for colorectal cancer screening. No need-related factors assessed were significantly associated with all three cancer screenings.

Conclusions: These findings highlight key demographic, behavioral, and access-related factors that may be targeted to increase cancer screening uptake and reduce disparities in preventive care among US females.

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Emerging Burden of Obesity-Associated Cancers incidence in Puerto Rico (2000-2022): Disproportionate Increases Among Younger Adults

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Purpose: Obesity is a known risk factor for 13 cancer types. Rising trends in obesity-associated cancers (OAC) have been documented in the United States and globally, yet data specific to Puerto Rico remain limited. This study aims to characterize the burden and temporal trends of OACs among adults in Puerto Rico from 2000 to 2022.

Methods: We analyzed invasive cancer cases diagnosed among adults aged ≥20 years using data from the Puerto Rico Central Cancer Registry. OACs were defined based on CDC criteria (i.e. esophageal adenocarcinoma, gastric cardia, colorectal, liver, gallbladder, pancreas, multiple myeloma, postmenopausal female breast, corpus and uterus (not otherwise specified), ovary, kidney, meningioma, and thyroid cancers). Age-adjusted incidence rates were standardized to the 2000 U.S. population. Joinpoint regression estimated Average Annual Percent Change (AAPC) by sex, age and cancer type. Results: Between 2018 and 2022, 35,468 cases of OACs were reported (213.18 per 100,000). From 2000 to 2022, the incidence of OACs increased significantly (AAPC:1.4%), while non-obesity-associated cancers remained stable (AAPC:0.1%). Women showed higher statistically significant increases in OACs than men (AAPC: 1.55% vs 1.11%; p <0.05, each). Women under 50 had the steepest increases: AAPC of 4.9% (ages 20-39) and 4.6% (ages 40-49). Similarly, men ages 20-39 and 40-49 showed AAPCs of 4.8% and 3.8% respectively (p<0.05, each). The AAPC for men 20-39 was twice that observed in for men 50-59.

Results: Among men under 40, the largest increases were thyroid (AAPC:7.5%), kidney (AAPC:4.4%), and colorectal cancers (AAPC:4.0%). In women under 40, the highest increases occurred in thyroid (AAPC:6.1%), colorectal (AAPC:5.0%), and uterine cancers (AAPC:4.9%). For women and men aged 40-49, both showed rising trends in colorectal, kidney, and thyroid cancers. Women experienced significant incidence increases in endometrial, ovarian, and pancreatic cancers, while men had increases in multiple myeloma.

Conclusions: Obesity-associated cancers are rising at an alarming rate in Puerto Rico, with the steepest increases among adults under 50. These findings call for urgent strategies that promote obesity prevention, healthy lifestyles, and early identification of high-risk individuals.

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Urban-Rural Disparities in Childhood Cancer Incidence Trends in Georgia over the Last 20 Years

Gardner J, Lupo PJ, Scheurer ME

Purpose: To determine cancers for which rural residents have an over-representation in incidence or for which the trends in incidence were different compared to those who live in urban areas in Georgia.

Methods: Cancer incidence data from the Georgia Comprehensive Cancer Registry, a part of the NCI SEER Program which covers the entire state of Georgia, was used to examine incidence rates and trends (annual percent change, APC) from 2000-2022 for pediatric cancers (0-19 years at diagnosis) across the state.

Results: Overall, the incidence of childhood cancer is not statistically higher in Georgia compared to the rest of the United States. Further, incidence for all pediatric cancers combined is not statistically higher in rural counties in Georgia (192 v 185 per 1,000,000 children 0-19 years old in rural and urban counties, respectively). However, there were interesting trends for specific pediatric cancers between rural and urban counties. Incidence in leukemias, and ALL specifically, increased at a higher rate in rural areas than in urban areas: APC 1.5 vs 0.7 for leukemias and 1.9 vs 0.2 for ALL in rural vs urban counties, respectively. The trends for the rural counties were also statistically different than zero, whereas the urban ones were not. The APC for neuroblastoma in rural counties was 2.8 (significantly different from zero) compared to no increase in urban counties. The APCs for NHL and other carcinomas (especially thyroid cancer) were significantly elevated for both rural and urban counties. Whereas, lymphomas, as a group, germ cell tumors, and hepatic tumors were only significantly elevated in urban areas. The APC for Hodgkin lymphoma in rural counties was significantly reduced (-2.7) compared to urban counties which say a non-significant increased APC of 0.2.

Conclusions: To begin to address the cancer disparities that exist for children and adolescents in rural areas, we need to first understand which specific cancers are impacting rural residents at greater rates and more rapidly compared to those who live in urban areas. Georgia is an ideal state to begin examining these differences, given it is a relatively large and demographically and geographically diverse state and it has an excellent gold-standard cancer registry.

67-T

Understanding Cancer Experiences Among Southwest Asian and North African Adults in Virginia Through an Interpretative Phenomenological Lens

Shahab, GH, Barnes, A

Purpose: Southwest Asian and North African (SWANA) populations are largely invisible in U.S. cancer surveillance due to standard racial classifications that collapse diverse identities under"White". This erasure limits understanding of how SWANA adults experience cancer and survivorship. To address this gap, we explored how SWANA adults in Virginia make sense of a cancer diagnosis within their cultural, social, and spiritual contexts.

Methods: Using an interpretative phenomenological approach (IPA), we conducted semi-structured 60-minute interviews (in-person or virtual) with 16 SWANA adults aged 18-74 who had received a cancer diagnosis. Participants were asked to reflect on their lived experiences of diagnosis, treatment, coping and survivorship. Interviews were transcribed, read iteratively and coded inductively. Themes emerged from participant life narratives, analyzed in relation to social, familial, cultural and faith-based factors.

Results: Our preliminary findings reveal several interlinked themes: (1) Faith as anchor – many participants described illness as a divine test or predetermined fate; (2) Silence & stigma – concerns about disclosure and community gossip shaped how and when they shared their diagnosis; (3) Family as double-edged support – deep care and emotional burden coexist in family dynamics; (4) Healthcare navigation struggles – participants detailed insurance barriers, communication challenges, and mistrust of providers; (5) Alternative causation frameworks – beliefs such as the "evil eye" or linking chronic stress to illness surfaced in narratives; and (6) Resilience and agency – despite obstacles, participants emphasized self-advocacy, continued work, prayer, and active coping.

Conclusions: SWANA cancer survivors' experiences highlight that spiritual beliefs, family expectations, and systemic barriers are deeply entwined, shaping the journey from diagnosis to survivorship. Recognizing these culturally grounded frameworks is essential to developing equity-focused cancer support interventions and communication strategies that validate SWANA identities rather than subsuming them under broad racial categories.

68-T

Regional Variations in the Uptake of Colorectal Cancer Screening Among Commercially Insured Individuals Aged 45-49 Years in the United States

Siddique S, Wang R, Gross CP, Ma X

Purpose: To evaluate regional patterns in the uptake of colorectal cancer (CRC) screening in a cohort of commercially insured individuals aged 45-49 years who were recommended to undergo CRC screening by the United States Preventive Services Task Force in May 2021.

Methods: We leveraged deidentified claims data from the Blue Cross Blue Shield Axis database, which covers about one third of Americans. Invasive and non-invasive CRC screening procedures among beneficiaries with average CRC risk were included. Screening in each 2-month interval was calculated from July 2021 through December 2024 and compared across four residential regions (Midwest, Northeast, South, and West) using two-sided t-tests and autoregressive integrative time series analysis.

Results: In this cohort of 11,819,948 distinct beneficiaries aged 45-49 years, individuals residing in the South had the lowest screening uptake (mean screening in each 2-month period = 1.71%), compared to those residing in the Northeast (1.98%), Midwest (1.90%), and West (1.86%) (all $p < 0.01$). Colonoscopy was the most commonly used screening modality in each region, followed by stool DNA tests, fecal immunochemical tests (FIT), and fecal occult blood tests (FOBT). The South and the West had lower uptake of colonoscopy (0.92%, 1.02%, respectively), compared to the Northeast (1.14%) (both $p < 0.05$). In the South, stool DNA test use was comparable to that in the Northeast (0.54% vs 0.51%, $p = 0.61$); however, in the West, stool DNA test use was significantly lower than in the Northeast (0.35 vs 0.51, $p < 0.001$). The West had significantly higher use of FIT compared to the Northeast (0.44% vs 0.23%, $p < 0.001$). Use of FOBT was low in all regions, with particularly low uptake in the Midwest compared to the Northeast (0.04% vs 0.09%, $p < 0.001$).

Conclusions: The overall uptake of CRC screening and the use of different screening modalities among privately insured individuals aged 45-49 years varied across the four geographic regions in the United States. Given the impact of different modalities on the potential to reduce CRC incidence and modality, it is important to take into account these regional differences while developing strategies to improve screening coverage and reduce the burden of CRC for all.

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Follow-up After Positive Stool Test in a Community-Based Colorectal Cancer Screening Program

Spencer JC, Quinn R, Mitchell V, Calderon-Mora J, Shokar NK

Purpose: We sought to examine predictors of follow-up after a positive stool test using data from a community-based colorectal cancer screening program on the US/Mexico border.

Methods: We combined participant data across three waves of a community-based colorectal cancer screening program targeted uninsured, underscreened, primary Hispanic individuals on the border of West Texas. Participant recruitment methods for stool testing varied across program waves, but in all three waves those with a positive test were contacted by a patient navigator to assist in scheduling a colonoscopy. Our primary outcome was completion of a colonoscopy within six months of a positive test, twelve months was considered in sensitivity analysis. We evaluated bivariate and multivariate predictors of timely follow-up, including sociodemographic characteristics.

Results: Over the duration of stool-testing program (2012-2021), 1,060 individuals had a positive stool result. Of these, 716 (68%) completed a colonoscopy within six months and 762 (72%) completed within twelve months. Wave of program during which an individual was recruited was the strongest predictor of completion, with 74% of |those in the first wave completing a colonoscopy within six months compared to 58% of those recruited in the third wave. Program wave was not a significant predictor after controlling for sociodemographic differences in those recruited in each wave, including that those in later waves tended to be older and report worse overall health.

Conclusions: In a stool-testing program targeting uninsured individuals, more than two-thirds of participants completed a diagnostic colonoscopy within six months. This is comparable to follow-up rates seen in insured populations, suggesting patient navigation is largely successful at connecting an uninsured, very low-income population to needed care. Completion varied by wave – the particularly steep decline during wave 3 was largely due to the fact that the endoscopy suite was closed during the COVID pandemic. There is room for improvement in colonoscopy completion, particularly in older populations (aged 60+) and those with competing health demands.

Early Detection and Risk Prediction of Cancer

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Screening Use Patterns in Women Age-eligible for Breast, Cervical, and Colorectal Cancer Screening in the United States

Spencer JC, Montealegre JR, Calderon-Mora J, Pignone MP

Purpose: To identify screening gaps and prioritize interventions designed to increase uptake of one or multiple screening tests, we evaluated patterns of screening across three cancers in age-eligible women.

Methods: We conducted a retrospective analysis of the 2024 Behavioral Risk Factor Surveillance Survey, restricting to women aged 45-64, reflecting the ages in which women are currently recommended to complete screening for all three cancers. We used survey-weighted means and regressions to evaluate up-to-date use of breast, cervical, and colorectal cancer screening. We report the proportion and total number of US women estimated to be due for each combination of screenings. We also identify predictors of being up to date (UTD) with any screening (vs. no screening) and with all screenings (vs. one or two screenings).

Results: Only 50.3% of age-eligible women reported being UTD with all three age-appropriate cancer screening tests. 28.8% were UTD with two screenings, 13.2% were UTD with only one screening, and 7.7% were UTD with no screenings. Together, these reflect 17.9 million women aged 45-64 due for one or more screening tests, with nearly half this group (42.2%; 7.6 million) due for multiple tests. Colorectal cancer was most commonly overdue, followed by breast cancer screening. Socioeconomic factors predicted all (vs. one or two) screenings, while access factors such as insurance strongly predicted UTD use of both any screening (vs. none) and all screenings (vs. one or two).

Conclusions: Despite gains in screening nationally, there remain millions of middle-aged women due for one or more cancer screening test. To maximize health, it is important to address underlying policy barriers to accessing care, such as insurance and primary care capacity, as well as expand or bundle together interventions to address the high number of women needing multiple screening tests.

Cancer Health Disparities

71-T

Physical Activity and Breast Cancer Outcomes in the Pathways Cohort Study of Breast Cancer Survivors

Srivastava T, D'Addario LL, Van Blarigan EL, Roh JM, Kushi LH

Purpose: Physical activity (PA) improves survival and quality of life in breast cancer (BCa) survivors. Yet, limited research to date has been conducted in racially and ethnically diverse cohorts. We examined PA after diagnosis in relation to risk of cancer recurrence among women with breast cancer (BCa) in the Pathways Study cohort at Kaiser Permanente Northern California.

Methods: A cohort of 4,504 recently diagnosed BCa patients was enrolled between Jan 2006 and May 2013 with data collected through surveys and medical records. The cohort was followed for recurrence and mortality outcomes, with follow-up through Dec 31, 2022 for the analyses presented here. We categorized PA levels at enrollment in the cohort based on meeting the World Health Organization (WHO) guideline of at least 7.5 MET-hours/week. We first described PA level variation among participants by race/ethnicity, using Ï‡2 tests and multinomial logistic regression. We then examined associations between PA and BCa recurrence, BCa progression (recurrence or mortality), and all-cause mortality using Cox Proportional Hazards regression models.

Results: Among 4,386 BCa survivors with baseline PA data, 79% of non-Hispanic White (NHW), 73% Asian American (AA) [p<0.001 compared with NHW], 73% Hispanic, and 70% non-Hispanic Black (NHB) patients met the WHO PA guideline. The median PA level was 23.25 MET-hrs/wk among NHW, 18.28 MET-hrs/wk among AA, 17.19 MET-hrs/wk among Hispanic, and 13.97 MET-hrs/wk among NHB patients. The sample size for AIAN/NHPI was insufficient to report results. Across race/ethnicity, meeting the WHO guideline was associated with a 22% lower rate [Adj. HR= 0.78 (0.68, 0.90)] of all-cause mortality and a 15% lower rate of BCa progression [Adj. HR= 0.85 (0.75, 0.96)] compared to not meeting the guideline. We found no statistically significant associations between PA and BCa recurrence across all races/ethnicities.

Conclusions: Meeting WHO PA guidelines was associated with lower rates of BCa progression and mortality, underscoring the need to promote guideline-level activity across all survivor groups. AA BCa survivors were less likely than NHW to meet PA guidelines in a statistically significant way, highlighting the need to identify barriers to PA in this population.

Lifestyle and Preventive Interventions

72-T

Colorectal Cancer Etiology: The Paradigm III Conceptual Model

Srivastava T, Rehkopf DH, Bondy ML, Van Blarigan E, Shariff-Marco S, Witte J, Potter M, Venook A, Hiatt RA

Purpose: Colorectal cancer (CRC) is the second leading cause of cancer-related death in the U.S. and California. Early-onset CRC (EO-CRC) has increased by 1.5% per year since the 1990s, now representing the leading cause of cancer death among young men and the second among young women after breast cancer. By 2030, ~25% of rectal cancers will occur in people under 50. To better understand the multifactorial etiology of CRC and EO-CRC, the UPSTREAM Research Center initiated development of a dynamic conceptual model.

Methods: Building on the Paradigm II breast cancer etiology model (https://cbcrp.org/causes/), we conducted a literature review to identify and evaluate putative risk factors for CRC and EO-CRC. We classified factors by data quality, strength of evidence, and potential interactions, and organized them into biologic, behavioral, social, and environmental domains to create the Paradigm III model. The strength of each relationship was categorized by relative risk (RR): strong (RR>2.0), modest (RR=1.5–2.0), and weak (RR<1.5). We followed U.S. Preventive Services Task Force guidelines for evidence quality.

Results: The model identified 31 key variables of etiologic importance across four domains associated with both CRC and EO-CRC. High-quality evidence (HQE) indicates that identifying as Hispanic strongly increases EO-CRC risk compared with non-Hispanic White. Alcohol intake and obesity each modestly increase CRC risk, per HQE, and medium-quality data suggest modest increase for EO-CRC. HQE shows that Enterotoxigenic Bacteroides fragilis and inflammatory bowel disease (IBD) strongly increase CRC incidence, with IBD modestly elevating EO-CRC risk. In contrast, high vegetable consumption modestly reduces CRC incidence, supported by HQE. Low-quality data suggest low area-level income weakly increases CRC risk. The Paradigm III framework will be available as an interactive, evidence-based online tool for broad access.

Conclusion: The Paradigm III conceptual model provides a novel framework to understand the interplay of multiple etiologic factors contributing to CRC risk. It will also support development of mathematical models predicting long-term impact of interventions on social determinants of CRC incidence such as income-supplementation initiatives.

Cancer Health Disparities

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Cancer Health Needs Assessment in Hidden Populations: Experiences with Cancer Screenings and Health Care

Asmus L, Stack-Babich M, Xayavong A, Trovato A, Shifflett S, Ghei K, McDaniels-Davidson C, Nodora J

Purpose: In 2024, Moores Cancer Center and the SDSU Institute for Public Health conducted a cancer health needs assessment of the LGBTQIA+ community in San Diego County to characterize experiences with cancer screening and care.

Methods: A multi-mode survey (digital, print, and telephone) was completed by 516 LGBTQIA+ individuals, supplemented by 16 in-depth qualitative interviews. The 55-question survey assessed knowledge, behaviors, and perceptions related to cancer screening and health. Interviews explored experiences with medical services, barriers to care, and suggestions for improvement. Demographic data allowed for analysis of intersectional subgroups within the broader LGBTQIA+ community. Participants were compensated $15 for surveys and $30 for interviews.

Results: Key findings include screening rates for screenable cancers (80% colonoscopy or blood stool test, 73% mammogram, 59% cervical cancer, 53% prostate specific antigen, 41% anal Pap, and 33% lung cancer screening), and HPV vaccination (39% vaccinated with at least one dose, ranging from 88% (18-26 year olds) to 12% (65 years and older) and related knowledge (68% knew that HPV could cause cancer). Results varied by gender identity and sex assigned at birth. Lack of awareness about the need for regular screening (56%) was the most frequently cited reason for not being screened, with the second most frequent reason being advised by a medical professional that the screening was unnecessary (16%). Notably, 38% of those eligible for anal cancer screening were unaware it was available. Of the 516 respondents, 338 provided qualitative feedback on recommendations for healthcare providers to improve their care experience, centering on respectful and inclusive quality care, and the need for increased knowledge and competence among healthcare providers. Respondents also identified LGBTQIA+ competent health centers of care in San Diego.

Conclusion: Our assessment of LGBTQIA+ individuals in San Diego County revealed low screening rates in certain cancer types and persistent risk factors and barriers at individual and system levels. The findings can be used to educate both community members and providers to improve cancer-related health outcomes.

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Improving Access to Cancer Screening for the Spanish-Speaking Community at a Federally Qualified Health Center (FQHC)

Strom C, Digby EG, Beard KR, Winkfield KM

Purpose: Vanderbilt-Ingram Cancer Center (VICC) partnered with the Matthew Walker Comprehensive Health Center (MWCHC), a local FQHC, to launch an evidence-based cancer screening navigation initiative via the Tennessee Breast and Cervical Screening Program to increase access to care for Spanish-speaking communities and improve Centers for Medicare & Medicaid Services (CMS) Quality Measures.

Methods: In 2023, VICC integrated a bilingual bicultural Screening Navigator (SN) into the MWCHC clinic to provide onsite support with funding from the Health Resources and Services Administration. The SN's primary role is to support clinic patients by offering culturally tailored education and assistance throughout the screening process to address any barriers to care. Additionally, the SN leads comprehensive outreach strategies such as educational workshops and participation in wellness events to identify community members in need of screening. A retrospective review of navigation and CMS Quality Measure data was performed.

Results: From 3/2023–9/2024, the SN participated in 53 community events identifying 388 women in need of screening. Navigation was provided to 325 women (84%) with an average age of 44 leading to 488 screenings (244 mammograms and pap tests). No-show rates at FQHCs can range from 18-25% or more while our results show a 16% no show rate in patients with added language barriers. Data for the clinic's CMS measures were assessed by year from 2021 (pre-navigation) to 2024 and showed the women seen in the clinic who met mammography guidelines remained relatively stable (49-51%) and the women who met guidelines for cervical cancer screening increased 12% (51-57%).

Conclusions: Evaluation demonstrates programmatic success connecting communities to cancer screening services through a comprehensive strategy that combines a SN with culturally appropriate outreach and engagement. While initial review of CMS Quality Measures yielded mixed results, there are additional opportunities to measure outcomes. Similar partnerships with FQHCs are a viable way to address the needs of vulnerable communities. The infrastructure developed through the grant now includes colorectal cancer screening and will expand to additional under-resourced communities served by MWCHC.

75-T

Neighborhood-level Social Vulnerability and Survival in Patients with Oral Cavity Cancer: A Population-Based Study in Texas

Tortolero GA, Murphy CC, Sturgis EM, Peskin MF, Yamal JM, Bauer C

Purpose: To examine the association between neighborhood-level social vulnerability and overall survival in a population-based sample of patients diagnosed with oral cavity cancer (OCC).

Methods: Using population-based data from the Texas Cancer Registry, we identified 14,416 patients diagnosed with OCC from 1995 to 2020. Neighborhood-level social vulnerability was measured using the 2010 US Centers for Disease Control and Prevention's Neighborhood Social Vulnerability Index (CDC-SVI). We examined CDC-SVI by sample-based quintiles (Q1 = least vulnerable to Q5 = most vulnerable). Follow-up time was from diagnosis until last contact, death, or end of study. We examined overall survival by CDC-SVI quintile using Kaplan-Meier curves with differences compared via a log-rank test. Cox proportional hazards regression models assessed the association between CDC-SVI quintiles and all-cause mortality, with robust standard errors clustered at the census tract level. The four CDC-SVI themes (socioeconomic status, household composition and disability, minority status and language, and housing type and transportation) were each assessed as quintiles to further understand neighborhood-level disparities.

Results: The most vulnerable neighborhoods had a higher proportion of patients diagnosed at a distant stage (13.1%) compared to least vulnerable (7.9%). The five-year survival probability for patients in the least vulnerable neighborhoods was 61.5% (95% CI: 59.6, 63.2) and 44.8% (95% CI: 42.9, 46.6) for those in the most vulnerable neighborhoods. In adjusted models, patients in the most vs. least vulnerable neighborhoods had a 50% (hazard ratio=1.50, 95% CI: 1.40, 1.61) higher risk of all-cause mortality. Across all CDC-SVI themes, patients in the most vulnerable neighborhoods consistently had a lower overall survival probability.

Conclusions: In a large and diverse population of patients with OCC, increased neighborhood-level social vulnerability was associated with worse overall survival. These findings underscore the importance of mitigating inequities in survival and show the need for targeted efforts to enhance detection, access to high-quality care, and survivorship care among patients in socially vulnerable neighborhoods.

76-T

Adherence to American Cancer Society and U.S. Dietary Guidelines Among African American Men with Prostate Cancer

Tovar MY, Sheean P, Awoyinka I, Gebreegziabher M, Morelli W, Papanek P, Bylow K, Kilari D, Stolley MR

Purpose: Prostate cancer (PC) is the most common cancer among men in the United States (U.S.), with African American (AA) men at highest risk of incidence and mortality. Given advances in screening and treatment options the survival rate of PC is high. The American Cancer Society (ACS) provides physical activity (PA) and nutrition guidelines to reduce risk of cancer recurrence and cancer-specific and overall mortality. These guidelines promote plant-based eating, regular PA and resistance training. Many cancer survivors are unaware of these guidelines and face challenges adopting them. We examined ACS and U.S. Dietary Guidelines adherence for AA men with PC, an underserved community at high risk of PC incidence and mortality.

Methods: This cross-sectional study examines baseline characteristics of men enrolled in Men Moving Forward (MMF), a randomized, waitlist control, lifestyle intervention for AA men with PC. MMF participants (n=123) were diagnosed with non-metastatic PC, completed treatment > 6 months prior to enrollment, possessed a BMI of > 23.0, and were non-adherent to the ACS guidelines on PA, fruit and vegetable consumption, and/or red and processed meat consumption. Dietary intake was measured using the VioScreen Food Frequency Questionnaire. PA was obtained using actigraphy and self-reported resistance training. Adherence was evaluated using the Healthy Eating Index-2020 (HEI-2020) and a novel ACS scoring metric. Descriptive statistics were used to calculate the proportion of men who adhered to ACS guidelines, specifically 150 minutes of weekly moderate PA, 2-times weekly resistance training, adequate intake of fruit/vegetables and whole grains, and limiting sugar sweetened beverages, red and processed meat, and alcohol.

Results: Participants demonstrated low mean HEI-2020 scores (62.6 + 10.9) and low adherence to fruit/vegetable and whole grain consumption with 14.6% and 14.8% meeting ACS guidelines, respectively. However, 91.9% of participants limited alcohol, 78.1% limited red meat, and 71.5% avoided processed meats. Only 27.3% adhered to PA and 33.3% to resistance training guidelines.

Conclusion: Results underscore the critical need to support lifestyle changes in AA men with PC to advance health equity and enhance survivorship outcomes.

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Unequal Beginnings: Geographic and Demographic Disparities to Initiation of Treatment in Early-Onset Colorectal Cancer

Tsai MH, Coughlin SS, Cortes J

Purpose: To investigate disparities in the initiation of treatment and the use of treatment modalities among individuals diagnosed with early-onset colorectal cancer (EOCRC, ages 20-49), with a focus on differences by sex, race/ethnicity, and rurality in the United States.

Methods: We conducted a cross-sectional analysis using data from the 2006-2020 Surveillance, Epidemiology, and End Results Program. Key exposures included sex, race/ethnicity (White, Black, Hispanic, American Indian/Alaska Native (AI/AN), Asian/Pacific Islander (PI)), and a three-level rurality classification (all urban, mostly urban, rural). The primary outcomes were receipt of any treatment initiation and specific treatment modalities (surgery, chemotherapy, and radiation). Multivariable logistic regression models were employed.

Results: Of total 82,427 EOCRC patients, most were male (53.5%), White (54.6%), and lived in fully urban areas (66.9%). Males (54.9%, p=0.097), racial minorities (p<0.001), and younger patients in fully urban areas (70.7%; p<0.001) had higher rates of no treatment. In adjusted analysis, we found that male patients were 16%-19% less likely to receive surgery regardless of rurality (p<0.05). In fully/ mostly urban areas, Black patients were found to have a 22% to 41% lower likelihood of receiving any treatment modality (all urban: OR, 0.78; 95% CI, 0.69-0.88; mostly urban: OR, 0.69; 95% CI, 0.54-0.87) or chemotherapy specifically (all urban: OR, 0.75; 95% CI, 0.67-0.84; mostly urban: OR, 0.59; 95% CI, 0.48-0.73); Hispanic patients had a 24% lower likelihood of receiving any treatment modality (mostly urban: OR, 0.76; 95% CI, 0.60-0.95). In rural areas, a 33%-34% lower likelihood of receiving radiation was found among AI/AN (OR, 0.67; 95% CI, 0.46-0.98) and Asian/PI patients (OR, 0.66; 95% CI, 0.44-0.99).

Conclusions: Disparities in the receipt of surgical treatment were evident among male patients, irrespective of residential rurality. Black and Hispanic individuals residing in fully/ mostly urban areas were less likely to initiate treatment. Additionally, AI/AN and Asian/PI patients living in rural areas experienced lower likelihoods of receiving radiation therapy. These findings highlight the need for more equitable access to cancer care for young populations.

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Disparities in colorectal, cervical, and breast cancer screening uptake among disaggregated Asian ethnicities in California, 2016-2020

Tsai MH, Pollard E, Phung MT, Lee M, Lee AW

Purpose: To examine recent ethnic-specific screening differences for colorectal cancer (CRC), breast cancer, and cervical cancer among screening-eligible Asian Americans in California.

Methods: We used cross-sectional data from the 2016, 2018, and 2020 California Behavioral Risk Factor Surveillance System (BRFSS) to examine cancer screening behaviors for the six largest Asian American ethnic subgroups (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese) and Non-Hispanic Whites (NHWs). The weighted prevalence of eligible people who were up to date with CRC screening [colonoscopy, sigmoidoscopy, or Fecal Occult Blood Test (FOBT)], breast cancer screening (mammography), and cervical cancer screening (Pap test) was calculated, based on the U.S. Preventive Services Task Force recommendations.

Results: Overall, screening rates were lower among Asians than NHWs (65.5% vs. 72.4% for CRC, 80.4% vs. 81.7% for breast cancer, and 61.0% vs. 83.0% for cervical cancer, respectively) although there was variation by Asian ethnic subgroup for each cancer type. Among 5,662 adults eligible for CRC screening, while 79.6% (95% CI: 55.3%-100.0%) of Vietnamese were up to date with their screening, only 50.8% (95% CI: 28.2%-73.3%) of Japanese and 61.3% (95% CI: 46.6%-76.0%) of Chinese were up to date. When we looked at 2,934 women eligible for mammography, we found that 90.9% (95% CI: 92.9%-98.9%) of Chinese were up to date; the percentage was only 77.0% (95% CI: 62.7%-91.2%) for Filipino and 63.3% (95% CI: 28.8%-97.8%) for Japanese. Lastly, among 3,605 women eligible for Pap test, the Asian subgroups with the lowest screening rates were Vietnamese (33.1%; 95% CI: 0.0%-68.5%) and Asian Indian (53.8%; 95% CI: 31.1%-76.6%).

Conclusions: Due to limited recent data on cancer screening by Asian ethnic subgroup, this study provides a timely update to the literature. Screening uptake varied notably across the Asian subgroups: Japanese had the lowest rates for both CRC screening and mammography, while Vietnamese women reported the lowest rate of Pap test. These findings underscore key disparities in cancer screening behaviors across Asian subgroups, highlighting the critical need to disaggregate the Asian American population to better inform targeted public health initiatives.

Cancer Health Disparities

79-T

Characterizing Gastric Cancer and Time-to-First-Treatment Among American Indian Alaska Native and White Patients in North Carolina

Uhrin MT, Jackson BE, Baggett CD, Spees LP, Begay JA, Epplein M, Wheeler SB, Bell RA, Emerson MA

Purpose: To examine demographic, clinical, and time-to-first-treatment characteristics among non-Hispanic American Indian and Alaska Native (NHAIAN) and non-Hispanic white (NHW) individuals diagnosed with and treated for gastric cancer in North Carolina (NC).

Methods: Using data from the NC Central Cancer Registry, we identified NHW and NHAIAN patients diagnosed with gastric cancer (ICD-O-3: C16X) between 2003-2021 and constructed two cohorts: 1) gastric cancer diagnosis cohort (NHAIAN n=111; NHW n=7,685); and 2) gastric cancer treatment cohort (NHAIAN n=97; NHW n=6,040). We tabulated race-stratified distributions of demographic, clinical and treatment characteristics. Race-specific cumulative incidence functions (CIF) and time-specific differences in functions with bootstrapped 95% confidence limits (CL) were estimated and adjusted for key factors using inverse probability weighting for the internal population of NHAIAN.

Results: NHAIANs were more likely to be diagnosed at a younger age (65 vs 68 years; p=0.006), with non-cardia cancer (80% vs 62%; p<0.001), at a later stage (36% vs 32%; p=0.021), and live in an area with a lower residential population density than NHW gastric cancer patients (76% vs 26%; p<0.001). NHAIANs were less likely to receive treatment (66% vs 77%; p=0.010), although the overall median time-to-first-treatment did not differ significantly between groups (31 vs 27 days; p=0.633). The CIF for treatment initiation was consistently lower over time for NHAIAN compared to NHW, with a notably large difference observed at 30 days after diagnosis (CIF difference= -0.09; 95% CL = [-0.17, -0.01]).

Conclusion: Our findings indicate that NHAIAN gastric cancer patients were less likely to receive treatment with an observed difference in the cumulative probability of initiating treatment within the first year. Differences in receipt of treatment could, in part, be driven by the lack of navigation services outside of NCI designated cancer centers. Culturally tailored interventions such as community-based or virtual navigation programs should be considered to address delays in treatment initiation for NHAIANs.

80-T

Racial and ethnic differences in gastric cancer by stage of diagnosis in the United States (2009-2019)

Urujeni C, Epplein M, Li CI, Pete D

Purpose: This study examines the incidence of gastric cancer by stage of diagnosis among the non-Hispanic Black (NHB), American Indian/Alaska Native (AI/AN), Asian/Pacific Islander (A/PI), and Hispanic population, compared to non-Hispanic White (NHW) population, during 2009-2019.

Methods: Using Surveillance, Epidemiology, and End Results data, age-adjusted GC incidence rates, rate ratios (RRs) and 95% confidence intervals (CIs) were calculated by stage and race/ethnicity. Stratified analyses were performed by sex, age and anatomical site.

Results: Compared to NHW individuals, incidence rates of regional and distant stage GC diagnosis were nearly two times higher in Hispanic (RRRegional, 1.87; 95% CI, 1.78-1.97; RRDistant, 1.92; 95% CI, 1.84-2.00), A/PI (RRregional, 2.17; 95% CI, 2.04-2.30; RRDistant, 1.58; 95% CI, 1.49-1.68), and NHB (RRregional, 1.78; 95% CI, 1.78-1.97; RRDistant, 1.92; 95% CI, 1.84-2.00) individuals. In stratified analyses, the increased rate of advanced-stage diagnosis for Hispanic, A/PI, and NHB individuals remained generally consistent by sex and age, although young AI/AN individuals also had a significantly higher rate of distant GC (RR, 2.38; 95% CI, 1.36-3.83). By site, the increased rates of advanced-stage diagnosis were limited to non-cardia and overlapping/unspecified GC, whereas these populations had lower rates of cardia GC than NHW individuals.

Conclusions: Hispanic, A/PI, and NHB individuals have disproportionately high advanced-stage non-cardia GC rates compared to NHW individuals.

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Developing CLEAN: A culturally and linguistically adapted colorectal cancer screening education and navigation program

Vang S, Mui A, Luo J, Wang M, Foster V, Jandorf L, Shaukat A, Kwon SC

Purpose: Co-develop a multilevel intervention to promote colorectal cancer (CRC) screening in Chinese Americans

Methods: We partnered with community-based organizations (CBOs) serving Chinese Americans in New York City to co-develop a multilevel intervention promoting CRC screening completion. Guided by the Self-Regulatory Model and PEN-3, we conducted interviews and focus groups with Chinese American community members, service providers, and CBO staff to explore cognitive and motivational factors, informational needs, and contextual barriers to CRC screening completion (n=39). We applied a hybrid deductive-inductive analysis to identify salient, cultural and contextual influences on CRC screening. Insights informed the adaptation of evidence-based educational materials, including narrative video modules, bilingual print resources, and patient navigation protocols. Iterative feedback sessions (n=8) were then used to refine messaging, linguistic tone, and delivery strategies to enhance cultural and linguistic relevance and acceptability.

Results: Community members highlighted the need for greater understanding of CRC risk factors, disease progression, role of screening in early detection, and CRC curability. Participants were confused about bowel preparation and stool kit collection, particularly when instructions were unclear or not in their language. Past negative experiences with bowel preparation and concerns about insurance, time, and cost discouraged screening. To promote CRC screening uptake, participants emphasized using narrative education, visually engaging materials, community health workers, and language-concordant physicians. Findings were translated into concrete program components, ensuring that community-identified needs and preferences determined educational content, delivery approach, and navigation support for stool collection or colonoscopy completion.

Conclusions: This co-development process illustrates how community engagement can advance health equity by strengthening the design and adaptation of cancer prevention programs for populations facing cultural, linguistic, and access barriers. Our program will be piloted to evaluate its feasibility, acceptability, and preliminary impact on CRC screening uptake in Chinese Americans.

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Trends in Pancreatic Cancer Incidence and Mortality According to Rurality and Race and Ethnicity

Washington JM, Damgacioglu H, Sonawane K, Hawkins WG, Deshmukh AA, Amboree TL

Purpose: Given evidence of poor cancer outcomes in rural areas, we examine temporal changes in rural-urban disparities in pancreatic cancer incidence and mortality from 2001-2022.

Methods: Using the National Program for Cancer Registries and Surveillance, Epidemiology, and End Results (NPCR-SEER) database in SEER*Stat, we identified pancreatic cancer cases (site codes C25.0-25.9; histology codes 8000-9049/9056-9139/9141-9589) and estimated annual age-standardized incidence rates (IR) per 100,000 by rurality, race, and ethnicity. Rurality was defined using 2013 Rural-Urban Continuum codes (1-3=urban,4-9=rural). We used data from the National Center for Health Statistics to estimate pancreatic cancer-specific mortality rates (MR) per 100,000 and rate ratios (RR). JoinPoint Regression (version 5.2.0.0) was used to evaluate trends.

Results: We identified 981,791 pancreatic cancer cases (IR: 12.7) between 2001-2022 with no significant difference by rurality. During 2001-2022, incidence significantly increased 1.2%/year (95%CI=0.7-1.7) among rural non-Hispanic (NH)-Black and 1.9%/year (95%CI=1.2-2.8) among rural NH-American Indian/Alaska Native (AIAN) individuals, while rates stabilized for urban NH-Black and urban NH-AIAN individuals. Incidence also increased significantly 0.8%/year among urban NH-Asian/Pacific Islander (API) (95%CI=0.6-0.9) and urban Hispanic (95%CI=0.7-1.1) individuals while rural rates for these groups declined or stabilized. Mortality was 18% higher (RR=1.18, $p<0.01$) among NH-Black (MR: 13.6) compared to NH-White individuals (MR: 11.5) from 2019-2023 but remained lowest among NH-API (MR: 7.8), NH-AIAN (8.7), and Hispanic (MR: 8.9) groups. The disparity was exacerbated in rural areas – NH-Black (MR: 15) had 26% higher (RR=1.26, $p<0.01$) mortality compared to NH-White individuals (MR: 11.9), while mortality remained lowest among Hispanic (MR: 8.1), NH-API (MR: 8.2), and NH-AIAN (MR: 10.8) groups.

Conclusions: Pancreatic cancer incidence increased among rural NH-Black and NH-AIAN groups, and urban NH-API and Hispanic groups with notable mortality disparities among rural NH-Black individuals. Future research is needed to understand the reason for these patterns to reduce cancer burden and improve survival, particularly in rural areas.

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Evaluation of a Stakeholder and Equity Data-Driven Implementation (SEDDI) Approach to HPV Self-Sampling Across Primary Care Clinics

Aqeel M, Yang A, Manser S, Boman K, & Xiong, S

Purpose: Human papillomavirus (HPV) self-sampling can improve cervical cancer screening rates by reducing barriers, such as limited mobility, that contribute to screening inequities among women. The Stakeholder and Equity Data-Driven Implementation (SEDDI) approach offers a structured method for adapting evidence-based interventions like HPV self-sampling within clinics that serve populations facing screening disparities. This study evaluated the feasibility of using SEDDI to guide HPV self-sampling implementation in collaboration with healthcare professionals.

Methods: The SEDDI approach was implemented in three primary care clinics in Minneapolis-St. Paul (Bethesda, Phalen Village, and Mill City). Clinic implementation teams, consisting of providers and staff, were developed, and focus groups with these teams were conducted between May to July 2025. Transcripts were cleaned, de-identified, and analyzed using rapid qualitative analysis, guided by a priori domains to identify key themes and illustrative quotes.

Results: A total of eleven providers and staff participated in the focus groups. The SEDDI process enabled implementation teams to identify gaps in cervical cancer screening. All three clinics successfully introduced HPV self-sampling for all eligible patients, without targeting specific populations for equity outreach. Teams highlighted the value of the implementation guide and the research team's technical support, particularly in workflow design and staff training, as critical to successful rollout. Each clinic plans to sustain HPV self-sampling and enhance patient awareness moving forward.

Conclusion: Healthcare professionals viewed the SEDDI approach favorably, recognizing it as an effective strategy for implementing new evidence-based interventions and advancing efforts to reduce health disparities.

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The association between residential segregation and overall survival among U.S. cancer patients

Meggett K, Han X, Yabroff KR, Fan Q, Mayo R, Zhang L

Purpose: Residential segregation is a risk factor for worse cancer outcomes including late-stage diagnosis and increased mortality. The association between residential segregation and cancer survival on a national scale has been less evaluated. This study applied a nationwide database to examine the relationship between zip code-level racial and economic residential segregation and overall survival among patients newly diagnosed with cancer in the U.S.

Methods: Cancer patients diagnosed from 2013-2017 were identified from the National Cancer Database (NCDB) and followed up until December 31, 2022. Data from 2013-2017 American Community Survey were used to measure zip-code level residential segregation via the Index of Concentration at the Extremes (ICE), categorized into quintiles, and linked with NCDB. Cox proportional hazard models adjusted for age, sex, comorbidity score, insurance, diagnosis year, state, zip-code level metropolitan status and social deprivation index. P-trend was calculated. Analyses were stratified by sociodemographic variables and cancer type.

Results: A total of 4,241,751 patients were analyzed. Compared to patients living in the least segregated areas, the adjusted hazard ratio (HR) of death were 1.23 (1.22–1.24), 1.20 (1.19–1.20), 1.18 (1.17–1.18), and 1.12 (1.13–1.12) for patients in the other four ICE groups (P-trend <.0001). When stratified by cancer site, similar patterns were observed with the strongest associations in thyroid, melanoma, uterine corpus, female breast, and oral cavity and pharynx cancers. Consistent patterns were seen across sociodemographic groups and all cancer types.

Conclusions: Higher zip-code level residential segregation is associated with worse survival, with a dose-response pattern across sociodemographic groups and cancer types. Interventions addressing both structural and individual barriers in highly segregated communities are needed to reduce cancer inequities.

85-T

Spatial Relationships Between Sociodemographic Factors and County-Level Lung and Bronchus Cancer Incidence in California

Yang S, Peters BO, Kong N

Purpose: Lung cancer incidence varies across sociodemographic groups which may suggest differences in risk exposures and preventive services. Understanding the sociodemographic drivers of geographic disparities can guide resource allocation and interventions. The study aims to assess the county-level sociodemographic determinants of lung and bronchus cancer incidence in California and if the associations across county and year.

Methods: County-level sociodemographic data (2011-2020) were obtained from American Community Survey 5-year estimates. Lung and bronchus cancer incidence data for the same period were extracted from the Surveillance, Epidemiology, and End Results program (SEER). Hotspot analysis was used to describe the hot spots and cold spots of lung and bronchus cancer incidence at county-level and geographically weighted regressions were used to describe the spatial heterogeneity of regression coefficients.

Results: The maps identified hotspots of higher incidence in northern counties (e.g., Lassen & Plumas) and cold spots in western counties (e.g., Santa Barbara & San Luis Obispo). Geographically weighted regression (GWR) showed strong regional variation in how sociodemographic factors relate to county-level lung and bronchus cancer incidence in California. Percentage of male population, median age, and percentage of people older than 65 years were found significantly associated mostly in the northern region (ß=-0.345 – 0.648; ß=-1.828 – 0.760; ß=0.796 – 1.989; ß=-0.719 – -0.305; respectively). Annual median household income and percentage of Black or African American were consistently associated statewide, with the largest effects in Northern California (ß=-0.719 – -0.305; ß=0.301 – 0.762; respectively). Percentage of White was found significantly associated in the southern region (ß=0.407 – 0.870). These patterns highlight that sociodemographic predictors differ by location, suggesting the need for region-specific strategies.

Conclusion: Evidence suggests strong spatial variation in lung and bronchus cancer incidence and sociodemographic associations across California. These mixed patterns highlight the need for geographically targeted interventions to address local disparities in lung cancer risk.

86-T

Understanding the Relationships between Tobacco Retailer Density, Tobacco Retail Policy and County-level Lung and Bronchus Cancer Incidence in California

Yang S, Peters BO

Purpose: Tobacco smoking is a known mediator between retail density and lung cancer, but whether retailer density is directly associated with lung and bronchus cancer incidence, independent of smoking prevalence, is unclear. This study examines the association between lung and bronchus cancer incidence and tobacco retailer density and the modifying effect of tobacco retail policy on the association at the county level in California.

Methods: Tobacco retail location data (2001-2010) were obtained from the California Department of Tax and Fee Administration. County-level population and sociodemographic data from the American Community Survey were used to calculate retailer density (retailers per 1,000 population). Lung and bronchus cancer incidence (2011-2020) was extracted from the Surveillance, Epidemiology, and End Results, applying a 10-year latency period (e.g., 2001 density matched to 2011 incidence). Covariates included air pollution (pm2.5) data (CDC Environmental Public Health Tracking Network), adults smoking prevalence (Behavioral Risk Factor Surveillance System), and retail policy score (American Non-smokers' Right Foundation). Stepwise multilevel regression models were used to examine the association between lung and bronchus cancer incidence and tobacco retailer density adjusting for time, smoking prevalence, air pollution, policy score, and sociodemographic variables. Results: No modifying effects of tobacco retail policy are found. Higher retailer density is significantly associated with increased cancer incidence only when interacted with year (ß=4525.846, p= 0.016). However, the effects of retailer density on predicting lung cancer incidence decrease over year (ß= -2.264, p= 0.016; AME=-6.78, 95% CI: -26.8 - 13.2).

Conclusion: When interacting tobacco retailer density with year, higher retailer density is significantly associated with higher lung and bronchus cancer incidence on a county-level in California, reflecting limited county-level variation. Future studies should explore potential state-level factors that contribute to lung cancer incidence to inform policy.

Foundational Science and Policy

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A Systematic Review of Retailer Compliance with Tobacco Control Policies in the United States

Peters B, McArthur NA

Purpose: Retailer compliance with U.S. tobacco control laws beyond the Synar program remains unexplored. The systematic review synthesizes the results of the peer-reviewed studies on compliance with tobacco retail laws at all government levels in the United States.

Methods: This systematic review synthesized 41 peer-reviewed studies (2010-2025) evaluating compliance with age restrictions, flavor bans, signage rules, and other retail policies (e.g., pricing laws, self-service bans) at federal, state, and local levels. Studies were identified through four databases and quality assessed using the Newcastle—Ottawa Quality Assessment Scale. Data extraction included study characteristics, policy type, policy level, data collection method, compliance measure, and violation rates.

Results: Violation rates ranged from 0.2–61.1% (age), 0.0–44.7% (flavor), 4.0–66.2% (signage), and 1.3–80.0% (other). Compliance was generally higher in jurisdictions where similar laws existed across multiple levels of government. High-quality studies used validated tools and representative samples. Results show variability in compliance by policy type, influenced by study design, policy environment, and enforcement.

Conclusion: Policy layering and federal-local-state alignment may improve compliance. Implementation alone did not ensure effectiveness; enforcement, retailer education, and clear definitions were essential. Peer-reviewed studies should consistently use standardized, validated instruments to assess compliance, improving the ability to compare compliance rates across jurisdictions and policy types.

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Statewide Smokefree Laws and Cigarette and E-cigarette Use: A Multi-Year Interrupted Time Series Study (2000-2023)

Peters B, McArthur NA

Purpose: Smokefree laws have been effective in curbing smoking prevalence and as at 2025, 28 states had implemented a comprehensive smokefree law of which 20 had included e-cigarettes. This study aims to examine the comparative impact of state-level smoke-free laws by comprehensiveness (none vs smokefree vs smokefree including e-cigarettes) across states and time.

Methods: Data were from the 2000-2023 Behavioral Risk Factor Surveillance System (BRFSS). The smoke-free policy data was from the Center for Disease Control and Prevention, including the year of implementation. The outcome measures were current cigarette (2000-2023 data) and e-cigarette use (2011-2023 data). We created two exposure variables for smoke-free law: for the cigarette model - weak (no law or less than comprehensive) and strong (comprehensive smokefree laws); for the e-cigarette model - weak, medium (comprehensive smokefree laws), and strong (comprehensive smokefree laws including e-cigarettes). We included a time variable defined as time since policy implementation as an interaction with policy strength to model how the effect of policy strength changes over time for both models. Sociodemographic variables included race/ethnicity, age group, education, and sex.

Results: For the cigarette model, each passing year is associated with a 1.4% decrease in the odds of smoking (OR=0.986, 95% CI: 0.983-0.989). However, there seemed to be an increase in smoking odds over time in states with strong laws relative to states with weak laws (OR=1.033, 95% CI: 1.001-1.065). For the e-cigarette use model, the odds of e-cigarette use decreased by about 10% (OR=0.90, 95% CI:0.81-0.99), immediately after strong laws took effect compared to before the policy. It also showed that the odds of e-cigarette use declined over time in states with strong laws (OR=0.882, 95% CI: 0.803-0.969) compared to states with weak policies.

Conclusion: The findings show that strong smoke-free laws are associated with a decrease in current cigarette use over time, but this decline becomes less steep relative to states with weaker laws over time. Similarly, strong laws are associated with a decrease in e-cigarette use immediately after being passed compared to before and a sharper decline in e-cigarette use over time relative

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Understanding the Differential Impact of Smokefree laws on Smoking Prevalence by Tobacco Nation status: A Difference-in-Difference Analysis

Peters B, McArthur NA, Bauldry SG

Purpose: Tobacco nation states face systemic barriers to tobacco control, including weaker policy environments and limited public health infrastructure. While comprehensive smoke-free laws are known to reduce smoking prevalence, their effectiveness may vary by region and sociodemographic group. Understanding whether these laws work equally well in high-burden states, and for which populations are most impacted by tobacco, is critical to advancing health equity.

Methods: Data were from the 2000-2023 Behavioral Risk Factor Surveillance System (BRFSS). The smoke-free policy data was from the Center for Disease Control and Prevention, including the year of implementation. The outcome measure was current cigarette use (Yes/No) while the treatment variable was the presence of comprehensive state-level smoke-free laws (Yes/No). Tobacco Nation (TN) states (n=13) were coded as the control group. Sociodemographic variables included race/ethnicity, age group, education, and sex. A difference-in-difference model was used to evaluate the differential impact of implementing comprehensive smoke-free laws in TN vs. TN states, and a 3-way interaction model was used to evaluate the differential change by race/ethnicity and education.

Results: Living in a TN state was associated with higher odds of smoking (OR=1.115, 95% CI: 1.056-1.177). The interaction terms showed that living in TN states with comprehensive smoke-free laws had increased odds of smoking (OR=1.124, 95% CI: 1.022-1.1237) relative to non-TN states with similar laws. From the 3-way interaction model, Hispanic individuals and those with less than a high school education in TN states saw a significantly higher odds of smoking post-policy compared to similar individuals in non-Tobacco Nation states.

Conclusion: Comprehensive smoke-free implementation significantly reduced smoking both in TN and non-TN states. However, the effects were significantly weaker in TN states, especially among Hispanic individuals and those with less than a high school education. Being in a TN state, specifically being Hispanic and less-educated, contributes to persistent smoking-related health disparities.

Early Detection and Risk Prediction of Cancer

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Sociodemographic Determinants of Cancer Screening Delay Due to Worry about COVID-19

Adjei Boakye E, Patel P, Dagli C, Nair M, So M, Fokom Domgue J

Purpose: COVID-19 pandemic resulted in disruptions of preventive healthcare services across the United States (U.S.) leading to decline in cancer screening rates. Hence, it is important to understand which population groups were most affected. We examined the association between sociodemographic characteristics and delays of cancer screening due to worry about COVID-19 among U.S. adults.

Methods: We utilized data from the Health Information National Trends Survey (HINTS 7); a nationally representative survey of the U.S. adult population conducted between March and September 2024. The study outcome was self-reported delay or avoidance of cancer screening due to worry of COVID-19 (yes/no). The independent variables were age, sex, race/ethnicity, education, income, marital status, census region, health status, healthcare provider visits, and urbanicity. Weighted multivariable logistic regression model was used to examine the association between sociodemographics and delayed cancer screening.

Results: A total of 4,496 participants were included. Of those, 17% respondents reported delaying or avoiding cancer screening due to worry about COVID-19. Approximately 51% were female and 62% were non-Hispanic White. In the adjusted model, non-Hispanic Blacks (OR: 2.15; 95% CI: 1.43, 3.23) and Hispanics (OR: 2.84; 95% CI: 1.97, 4.09) compared to non-Hispanic Whites had higher odds of delay/avoidance of cancer screening due to worry of COVID-19. Respondents with less than $35,000 (OR: 4.32; 95% CI: 2.71, 6.89) and $35,000-$75,000 (OR: 2.24; 95% CI: 1.54, 3.27) had higher odds of delaying/avoiding cancer screening compared to those with an income of over $100,000. Respondents with fair/poor (OR: 2.06; 95% CI: 1.37, 3.11) and good (OR: 1.63; 95% CI: 1.13, 2.34) health compared to those with excellent health had higher odds of delaying/avoiding cancer screening due to worry of COVID-19.

Conclusion: We observed significant disparities in cancer screening delay due to worry about COVID-19 among racial/ethnic minority groups and individuals of lower socioeconomic status. These findings suggest that worry about COVID-19 continues to affect timely cancer screening uptake and calls for targeted strategies to promote equitable access to preventive services.

91-T

A Scoping Review of Faith-based Cancer Screening Interventions Implemented Among Racial and Ethnic Minorities in the United States

Anderson SL, Kegler MC, Smith A, Guan Y, Epps F, Morshed AB.

Purpose: This scoping review explored core elements of faith-based cancer screening programs implemented among minority populations in the United States.

Methods: Articles published until 2025 were retrieved from four databases. Studies (n=335) were identified and examined using inclusion/exclusion criteria. Two coders completed abstract (n=169), full-text screening (n=70), and data extraction. The Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation (PRECEDE) framework was utilized to help identify potential program components that can inform a future faith-based lung cancer screening intervention for Black Americans.

Results: 28 studies were included. Churches were the most common intervention setting. Studies included a variety of minority groups, with 60.7% of studies prioritizing Black Americans, followed by Latino (21.4%) and Asian American (10.7%) populations. Colorectal cancer was the most frequently targeted cancer in intervention studies (39.3%). More than half (60.7%) of studies reported statistically significant changes for one or more outcomes, and the most common primary outcomes measured were individual-level/psychological (i.e., knowledge, self-efficacy, etc.,) and screening completion/adherence. The most common intervention components were group education sessions, lay health advisors/peer counselors, and print materials. 82.1% of studies addressed predisposing (i.e., intrapersonal) factors in the PRECEDE model, such as knowledge, perceptions, or self-efficacy, which are key to motivating screening behaviors. To facilitate access to screening resources, some studies assisted participants in identifying providers and scheduling appointments, offered educational presentations by local healthcare professionals, and distributed screening vouchers.

Conclusions: Previous faith-based cancer screening interventions appear to have been largely successful in improving short-term cancer-related outcomes among minority populations. Future research should prioritize the development and implementation of cancer screening programs in faith-based settings, especially for newer cancer screenings like lung cancer, as churches have shown utility as a promising intervention setting for cancer prevention and control.

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Case-Control Study of Sleep Disturbances and Colorectal Adenoma Formation

Burch JB, Berger CW, Mercadel J, Beach K, Wells JL, Shah R, Taylor S, He J, Rahman Y, Bickston S, BouHaidar D, McMenamin K, Murphy A, Hbert JR, Strayer S.

Purpose: Colorectal cancer (CRC) is among the most common and deadly forms of cancer, and it can be prevented by removing adenomatous polyps (adenomas) in the gastrointestinal tract during a screening colonoscopy. Sleep disturbances are associated with pathophysiological processes that can drive carcinogenesis.

Methods: This case-control study examined indicators of sleep and circadian rhythm disturbances as adenoma risk factors in screening colonoscopy patients, including molecular (clock gene-related epigenetic markers), physiological (actigraphic sleep, rest/activity rhythms, social jetlag), and psychometric measures (chronotype, fatigue, sleep quality). This analysis tested the hypotheses that poor subjective sleep quality or objectively measured sleep disturbances are associated with an increased odds of adenoma formation. Data were collected 4-6 weeks prior to a patient's screening colonoscopy. Sleep quality was assessed using the Pittsburg Sleep Quality Index. Continuous wrist actigraphy over 3-7 days was used to quantify sleep: onset latency, duration, efficiency, and wake after sleep onset (WASO). Sleep timing (bedtime, wake-up) and sleep stage were recorded using an OURA ring over the same period. Multiple logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for each risk factor, after adjustment for age, race and sex.

Results: Overall, 303 patients were enrolled, with 106 histologically confirmed adenoma cases (35%) and 176 controls (58%). Participants with a hyperplastic polyp (n=18), unknown polyp histology (n=2), or CRC (n=1) were excluded. Relative to controls, cases tended to be older (55ÂffI8 vs. 53ÂffI8 years, p<0.01) male (47% vs. 32%, p=0.01) European Americans (75% vs. 68%, p=0.22) with a family history of cancer (58% vs. 46%, p=0.07). Adenoma cases were more likely to have elevated WASO (≥60 minutes, OR: 2.01, CI: 1.10-3.68, p=0.02), and poor sleep efficiency (<85%, OR: 2.50, CI: 1.20-5.26, p=0.01) relative to controls. Other sleep measures did not differ between cases and controls.

Conclusions: The results suggest that poor sleep may increase the risk of adenoma formation. Sleep improvement may serve as a novel, modifiable target for adenoma and CRC prevention.

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Multilevel Determinants of Cervical Cancer Screening Among Asian Americans: A Systematic Review

Chiang SC, Wang H, Sifat MS, Chen LS, Ma P

Purpose: This study aimed to identify interpersonal, community, and societal factors influencing cervical cancer screening intention and uptake among Asian American (AA) populations in the United States, utilizing the NIMHD Minority Health and Health Disparities Research Framework.

Methods: We conducted a systematic review of literature published in English from January 2000 to February 2025. Eligible studies were those that: 1) were original research presenting empirical or primary data; 2) focused on Asians or an Asian subgroup in the US; 3) included outcomes related to cervical cancer screening intention (e.g., willingness, acceptability) and uptake; and 4) analyzed data on determinants associated with these outcomes for AA populations.

Results: This review included 62 articles (9 qualitative and 53 quantitative). Although various AA subgroups were explored, the majority of studies analyzed Asians as a single group (n=25, 40%). Subgroup-specific research was most common for Vietnamese (n=15, 24%), Chinese (n=12, 19%), and Korean (n=12, 19%), with fewer studies addressing other Asian ethnic groups. Nativity information was rarely used in the analyses (n=7, 11%). Forty-three studies (69%) measured interpersonal-level determinants, emphasizing the importance of support from family, healthcare providers, and friends, as well as the patient-clinician relationship. Thirty studies (43%) assessed community/organizational factors, emphasizing the availability of bilingual or bicultural healthcare services and the impact of discrimination experienced in healthcare settings. Only approximately 10% of studies explored societal-level determinants, primarily focusing on cultural norms regarding healthcare practices and acculturation differences.

Conclusions: Asian American women's attitudes and behaviors toward cervical cancer screening are shaped by multilevel and often culturally influenced determinants. Our results highlight the lack of research that contextualizes cervical cancer disparities by examining the roles of nativity, acculturation, and culture within these multilevel frameworks, particularly for understudied Asian subgroups.

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Time Varying Breast Cancer Risk Associated with Gestational Weight and Weight Gain Among Parous Women

Rome FI, Schwab S, Ghosh D, Calonge N, Cruz CG, Borges VF, Crooks J, Cook LS

Purpose: Breast cancer (BC) risk is known to transiently increase after childbirth. Because weight/body size is a known breast cancer risk factor, we hypothesized that maternal gestational weight measures may help predict subsequent BC risk because of pregnancy-related tissue remodeling in the breast that possibly increases carcinogenic potential. Therefore, we evaluated associations of pre-pregnancy body mass index (BMI), gestational weight gain (GWG), and adherence to Institute of Medicine (IOM) GWG recommendations with subsequent BC risk by stage and allowing for changes in risk over time.

Methods: This retrospective population-based cohort links the Colorado Birth Registry and Colorado Cancer Registry and identified 452,478 women aged 12-44 years with singleton births from 2006-2017 who were followed for BC diagnoses (n=1,919) through 2021. Exposures included standard pre-pregnancy BMI categories, GWG tertiles, and IOM GWG adherence (above, within, below). Cox proportional hazards models with time-varying coefficients were used to estimate hazard ratios (HRs) over a median follow-up of 8.7 years (range, 0-15) with adjustment for maternal age, income, parity, and ethnicity.

Results: Among these parous women, 1014 (53%) were diagnosed with early-stage (I/II) BC and 905 (45%) were diagnosed with late-stage (III/IV) BC. The risks for early-stage BC among overweight or obese women (vs normal) were not elevated and declined over time. However, HRs for advanced-stage BC in overweight or obese women were elevated from the beginning and remained elevated during follow-up. The highest GWG tertile (vs the lowest) showed an initial elevation in risk for advanced-stage BC, but not early-stage BC, that decreased over time. No notable patterns were noted with adherence to IOM recommended GWG.

Conclusion: Maternal pre-pregnancy BMI and GWG were associated with time-varying breast cancer risk, particularly for advanced-stage BC. These results highlight a vulnerable postpartum window in which risk assessment in clinical care could help identify women at higher BC risk. As predictive factors, these measures may improve risk stratification for targeted screening and prevention strategies among parous women before they age into guideline driven BC screening.

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Machine Learning Approaches for Early Detection of Bladder Cancer Using Analysis of Healthcare Utilization Patterns

Cui W, Finkelstein J

Purpose: Our study aimed to develop machine learning models using structured claims data to predict bladder cancer diagnoses 1-3 months ahead of time through patterns in diagnoses, procedures, and medication use.

Methods: The dataset used in this study was the IBM MarketScan administrative claims. Three relational data tables were used: enrollment, outpatient diagnoses and procedures, and outpatient medications. Bladder cancer cases were identified using ICD-9 188.xx or ICD-10 C67.xx codes, excluding patients with prior cancers. Eligible patients were aged ≥50, diagnosed between 2016-2019, and continuously enrolled for two years. Matched non-cancer controls were selected using 1:1 propensity score matching by age, sex, and Charlson comorbidity index.

We developed XGBoost models to predict bladder cancer 1-3 months before diagnosis using a one-year activity window. For each prediction window, diagnoses, procedures, and medications were used as features. We selected features that appeared in at least 10 patients, resulting in 158 procedure groups, 325 diagnosis groups, and 152 medication groups. After two-stage feature selection, the final XGBoost model used top features from procedure, diagnosis, and medication groups, along with demographics, comorbidity, and healthcare utilization measures.

Results: The dataset included 5,469 bladder cancer patients and 5,469 non-bladder cancer patients. The 1-month-ahead model, based on data from 1-13 months before diagnosis, achieved a precision of 0.80, specificity of 0.83, and an AUC of 0.78. Using data from 2-14 months prior, the 2-month-ahead model reached a precision of 0.72, specificity of 0.76, and an AUC of 0.71. The 3-month-ahead model had a precision of 0.70, specificity of 0.75, and an AUC of 0.71.

Analysis of the feature importance showed hematuria as the strongest predictor across all models, followed by urinary infections, genitourinary symptoms, endoscopy, and CT imaging.

Conclusions: In conclusion, the 1-month-ahead model achieved the strongest predictive performance, whereas, the 2- and 3-month-ahead models showed reduced performance. Moreover, the two-stage feature selection process effectively minimized multicollinearity across variables which enhanced model robustness and generalizability.

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Utilizing Transformer Architecture for Early Detection of Bladder Cancer Based on Real-World Data

Cui W, Finkelstein J

Purpose: The goal of this study was to develop and validate a BERT-based deep learning model, pretrained on large-scale longitudinal claims data, to predict the future diagnosis of bladder cancer 6 months ahead in older adults using patients' historical diagnosis patterns.

Methods: We developed a BERT-based deep learning pipeline to predict bladder cancer diagnosis 6 months in advance using longitudinal administrative claims data from MarketScan. Adapted from MedBERT, the pipeline was reimplemented in TensorFlow 2.x with the Hugging Face Transformers library for scalability and compatibility. For pretraining, we sampled one million patients with at least three visits between 2015 and 2017, organizing outpatient diagnoses (ICD-9-CM/ICD-10-CM) chronologically and tokenizing them for masked language modeling and next sentence prediction tasks. During fine-tuning and testing, we used 2018–2019 data to identify bladder cancer cases (ICD-9 188.xx; ICD-10 C67.xx) among patients aged 50 or older with two years of prior continuous enrollment. Controls without cancer were matched 1:1 by age, sex, Charlson Comorbidity Index, and diagnosis year. Each patient's 1 year observation window (17–6 months before diagnosis) was used to train the model to predict bladder cancer occurrence 6 months before clinical diagnosis.

Results: The testing set included 1,815 patients, with 902 bladder cancer cases and 913 controls. The model trained for 3 epochs achieved an accuracy of 0.65 and precision of 0.67 but had a lower recall of 0.57. The 5-epoch model showed the best balance, achieving the highest AUC of 0.71 and recall of 0.65, indicating improved detection without major loss in accuracy (0.65). The 10-epoch model reached the highest recall of 0.67 but showed reduced precision (0.62) and AUC (0.69), suggesting more false positives. Overall, shorter training durations (3–5 epochs) yielded better discrimination, while longer training led to overfitting and performance decline.

Conclusions: In conclusion, this study showed that a BERT-based model pretrained on large-scale claims data can identify patients at higher risk for bladder cancer. The 5-epoch model achieved the best performance (AUC = 0.71), showing the potential of transformer models for early disease prediction.

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Screening up-to-date status as of recommended ages for discontinuation of routine colorectal, cervical, and lung cancer screening

Del Vecchio NJ, Pocobelli G, Cushing-Haugen K, Kamineni A, Corley CA, Katharine RA, Halm EA, Li CI, Carroll NM, Oshiro CE, Silver MI, Greenlee RT, Neslund-Dudas C, Breslau ES, Chubak J

Purpose: Cancer screening guidelines specify ages at which routine screening should be discontinued and, except for cervical cancer screening, do not require specific criteria be met regarding screening history for discontinuation. Data on up-to-date screening status at discontinuation age are sparse, and the balance of benefits and harms of screening beyond the recommended discontinuation ages may vary based on whether a person is up to date with screening as of recommended discontinuation ages.

Methods: This study was conducted as part of the NCI-funded Population-based Research to Optimize the Screening Process (PROSPR) consortium, using administrative and clinical data from several U.S. healthcare systems during 2010-2019. We estimated the prevalence of being up to date with average-risk colorectal, cervical, and lung cancer screening as of the day prior to recommended discontinuation ages for routine screening. Up-to-date screening status, based on U.S. Preventive Services Task Force guidelines, was ascertained among persons who were eligible for screening and had sufficient observation periods (i.e., PROSPR enrollment) to assess screening status.

Results: We ascertained up to date status as of the day prior to 76th, 66th, and 81st birthdays for colorectal (N=316,756 persons), cervical (N=20,282 persons), and lung cancer (N=1,151 persons) screening-eligible persons, respectively. For colorectal cancer screening, 84.4% were up to date at discontinuation age (95% confidence interval [CI]: 84.3% to 84.5%), 58.9% (95% CI: 58.2 to 59.6) were up to date with cervical cancer screening, and 6.3% (95% CI: 5.1% to 7.9%) were up to date with lung cancer screening.

Conclusions: The prevalence of being up to date with routine screening as of recommended ages for discontinuing colorectal, cervical, and lung cancer screening varied appreciably, and was particularly low for lung cancer screening. These findings may inform priorities for interventions aimed at increasing adherence to cancer screening guidelines prior to recommended discontinuation ages.

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Polycystic Ovarian Syndrome as a Risk Factor for Breast Cancer Among Women of Reproductive Age in Texas

Ernest DK, Francis J, Jang S, Singh B, Mathew MS, Messiah SE

Purpose: To evaluate the role of polycystic ovarian syndrome (PCOS) as a risk factor for breast cancer among reproductive-aged women in Dallas, Texas.

Methods: This retrospective longitudinal study utilized data from a large electronic health records database from a single site academic medical institution. Eligible participants were non-pregnant females aged 12–50 years with no history of hysterectomy (N=37,960). One-to-one propensity score matching was used to create comparable cohorts of women with and without PCOS (N=18,980 per group), matched on age, race, and ethnicity. The five-year breast cancer risk was estimated using risk ratios (RR) and 95% confidence intervals (CI), with p-values ≤0.05 considered statistically significant.

Results: In this sample (mean age 26.9 years; 57.2% were White, 15.8% Black or African American, 6.5% Asian, and 20.6% other/unknown race), women with PCOS had a longer mean follow-up time (970 vs. 692 days) and a higher incidence of breast cancer (5.2 vs. 3.7 new cases per 1,000 women). Over the 5-year study period, PCOS was associated with a 30% higher risk of breast cancer (RR=1.30; 95% CI: 1.01,1.69; p=0.02) and had nearly 5% hazard of breast cancer diagnosis (HR=1.05; 95% CI: 0.77, 1.43; p=0.19) compared to women without PCOS.

Conclusion: Women in their reproductive years who suffer from PCOS face a markedly higher risk of developing breast cancer. This finding underscores the need for heightened cancer surveillance among this vulnerable group and further prospective investigations to elucidate the hormonal mechanisms linking PCOS to cancer risk.

99-T

Mode of notification delivery matters when informing patients of elevated breast cancer risk

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Background: In 2019, The Ohio State University Wexner Medical Center (OSUWMC) started assessing lifetime breast cancer (BC) risk for all women undergoing routine screening mammography. Women with ≥20% lifetime risk are notified and advised to consult a healthcare provider. Notifications are delivered either electronically or by mailed letter to patients who did not access the electronic portal.

Purpose: To examine whether notification delivery mode differed in women's recall of receiving the notification, recall of its contents, and confidence in understanding the information.

Methods: Eligible participants were ≥18 years old, received a routine screening mammogram at one of OSUWMC's 14 sites between April 2019 and October 2020, and had a predicted lifetime breast cancer risk of ≥20%. Descriptive analyses were used to assess differences by notification delivery mode.

Results: Our study sample included 1,006 patients (aged 40-72 years; M=50.0, SD=7.3), mostly non-Hispanic white (90.1%), with at least a bachelor's degree (80.4%), and above-median income (69.3%). Most participants received the high-risk notification electronically (61.1%), and 38.4% received a printed letter. Patients who received a printed letter were more likely to remember receiving it (75.1%) compared to those who received it electronically (60.8%, $p < .001$). Patients who received a printed letter were also more likely to recall that the notification stated they may be at higher-than-average risk for breast cancer (50.2% vs. 35.8%; $p < .001$) and included advice to meet with a high-risk provider (42.5% vs. 24.2%; $p < .001$). Additionally, those who received a printed letter more often remembered being advised to talk with their primary care provider about visiting a high-risk clinic (25.9% vs. 14.5%, $p < .001$). We observed no differences between delivery modes in women's confidence in understanding the notification (>90% in both) or perceptions of complexity (~33% in both).

Conclusion: Mode of notification delivery influenced recall, with printed letters outperforming electronic notifications; however, recall was suboptimal in both groups. Findings suggest that effective communication of elevated BC risk may require more intensive or tailored strategies to increase patient engagement.

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Opportunistic Screening for Cardiovascular and Chronic Obstructive Pulmonary Disease CT Biomarkers Among Individuals Undergoing Lung Cancer Screening with Low-dose Computed Tomography

Groner LK, Onyebeke C, Thomas C, Peffla J, Pinheiro LC

Purpose: As cardiovascular disease (CVD) and chronic obstructive pulmonary disease (COPD) are both independent risk factors for lung cancer, we examined the prevalence of CT biomarkers of CVD (coronary artery calcium [CAC]) and COPD (emphysema) on low-dose computed tomography (LDCT) in an asymptomatic lung cancer screening (LCS) cohort and their impact on downstream care.

Methods: We retrospectively reviewed baseline LDCT reports (2015-2022) of asymptomatic LCS program enrollees to identify emphysema and CAC. Cardiopulmonary care within 12 months before and after LDCT were compared using McNemar's chi-squared test with continuity correction. Associations with demographic and community-level characteristics were assessed via univariate logistic regression.

Results: Qualitative CAC and emphysema scores were reported for 2218 and 2335 participants, respectively (median age 64; 52.0% male), with CAC identified in 65.0% and emphysema in 84.0%. Emphysema was associated with older age (odds ratio [OR], 1.04/year [95% CI, 1.03- 1.06]), non-White race (1.63 [1.26-2.12]), and living in a zip code with lower household income (1.89 [1.21-3.11]), lower educational attainment (1.64 [1.25-2.15]), and greater food insecurity (2.01 [1.53-2.65]); $p<0.001$. Pulmonary care increased from 24.0 to 45.1% post-LDCT ($p<0.001$): medication change (22.7 to 25.1%, $p<0.008$) and pulmonology referral (0.7 to 7.6%), pulmonary rehabilitation (0.1 to 1.3%), pulmonary function testing (0.1 to 13.6%), and vaccination (0.6 to 13.8%); $p<0.001$. CAC was associated with older age (1.11/year [1.10-1.13]) and male sex (1.95 [1.63-2.33]), $p<0.001$. Non-White race was associated with lower odds of CAC (0.73 [0.60-0.88], $p=0.001$). Cardiovascular care increased from 42.6 to 63.3% post-LDCT ($p<0.001$): revascularization (0.0 to 0.8%, $p=0.003$) and cardiology referral (1.1 to10.2%), medication change (42.3 to 43.3%), cardiac imaging (0.0 to 18.4%), and stress testing (0.0 to 12.6%); $p<0.001$.

Conclusions: To our knowledge, this is the largest retrospective LCS cohort study examining opportunistic screening for CAC and emphysema on LDCT and the impact on downstream cardiopulmonary care. CAC and emphysema are prevalent in an asymptomatic LCS population, and their detection on LDCT significantly changes care.

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Body Mass Index and Risk of Ovarian Cancer by Endometriosis Status: a Pooled Analysis from the Ovarian Cancer Cohort Consortium

Harris HR, Cushing-Haugen KL, Sasamoto N, Terry KL, Farland LV on behalf of the Ovarian Cancer Cohort Consortium

Purpose: Endometriosis is a common inflammatory condition that is characterized by the presence of endometrial-like tissue outside the uterine cavity. It is well established that women with endometriosis have approximately a two to three-fold increased risk of endometrioid and clear cell ovarian cancer. However, we are currently unable to identify which women with endometriosis are at highest risk. Existing studies on risk factors for ovarian cancer among women with endometriosis have been case-control design in which exposures are ascertained retrospectively, including body mass index (BMI) which was recalled by participants and may not capture the relevant etiologic exposure window.

Methods: Our objective was to examine the association between BMI and epithelial ovarian cancer risk among those with and without endometriosis in 10 prospective cohorts in the Ovarian Cancer Cohort Consortium (n=725,122 total participants). BMI and endometriosis were self-reported in a majority of the studies. We used pooled logistic regression to estimate odds ratios (ORs) and 95% confidence intervals (CIs).

Results: 6.5% of participants reported an endometriosis diagnosis. During follow-up 4,327 cases of ovarian cancer cases were diagnosed, with 345 cases among those with endometriosis and 3,982 cases among those without. Among those with endometriosis, a BMI≥30 kg/m2 was associated with a 32% higher risk of ovarian cancer (95% CI=1.10-1.73) compared to those with a BMI=20-24.9. No association was observed among those without endometriosis (corresponding OR=1.00, 95% CI=0.92-1.09). In histotype specific analysis, the difference between those with (OR=1.51, 95% CI=1.02-2.24) and without endometriosis (OR=0.91, 95% CI=0.81-1.02) was primarily driven by the association between BMI≥30 and high-grade serous ovarian cancer, while the association between BMI and the endometrioid/clear cell histotypes was consistent across endometriosis status.

Conclusions: This is the first study to report differences in the association with BMI and ovarian cancer risk by endometriosis status. This may provide insight into the malignant transformation of endometriosis and help identify women with endometriosis most at risk of ovarian cancer that could benefit from targeted interventions.

102-T

Metabolic Syndrome and Risk of Kidney Cancer: A Large U.S. Population-based Case-Control Study

Jung M, Wang X, Deng Z, L'Esparance K, Li M, Graff R.E, Chung B.I, Langston M.E

Purpose: To examine the association between metabolic syndrome (MetS) and kidney cancer risk in the U.S. population.

Methods: This case-control study using the MarketScan database (2007-2022) identified adult kidney cancer cases and 1:10 frequency-matched controls by age, index year, sex, insurance enrollment duration, and geographical region. Metabolic exposures, including obesity, hypertension, diabetes, and dyslipidemia, were assessed using diagnoses and prescriptions, with binary classification (MetS: ≥3 conditions; non-MetS: <3). Secondary analyses examined pre-MetS (1-2 conditions), metabolically healthy status (0 condition), dose-response relationships, combinations of conditions, and interaction between obesity and MetS. Cases were further classified as advanced or non-advanced based on proxies derived from prescriptions, diagnoses, and procedures. Multivariable logistic regression models were used to estimate odds ratios (ORs) and 95% confidence intervals (CIs).

Results: A total of 48,587 kidney cancer cases and 480,714 controls were included. MetS was associated with an increased risk of kidney cancer compared with non-MetS (OR=1.43; 95% CI: 1.39-1.47). MetS (OR=1.83; 95% CI: 1.77-1.88) and pre-MetS (OR=1.47; 95% CI: 1.44-1.50) were associated with a higher risk compared with metabolically healthy status. Each additional condition was associated with a 22% increase in kidney cancer risk in a dose-dependent manner (95% CI: 1.21-1.23). Across all combinations, multiple conditions were associated with a higher risk than a single condition. Obesity seemed to amplify risk across metabolic health strata, with metabolically healthy obesity (OR=1.48; 95% CI: 1.44-1.52) and metabolically unhealthy obesity (OR=1.77; 95% CI: 1.71-1.84) showing higher risk compared to metabolically healthy non-obesity. The association between MetS (compared with metabolically healthy status) and kidney cancer risk was more pronounced in advanced cases than in non-advanced cases (OR=2.04 vs 1.58, p-heterogeneity<0.01).

Conclusions: MetS was associated with an increased risk of kidney cancer. These results highlight the importance of comprehensive metabolic health in kidney cancer risk and support risk stratification to guide targeted preventive strategies.

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Drive times and Lung Cancer Screening Centers in Florida

Komrokji SR, Ayzenshtat L, Sangi-Haghpeykar H, Ashraf N, Vermund S, Schwarzberg A, Sommers KE, Hoang E, Sotomayor E , Anderson ML

Purpose: Determine the extent to which drive time potentially contributes to rural disparities in lung cancer screening in Florida.

Methods: American College of Radiology (ACR)-accredited facilities providing low dose computed tomography (CT) for lung cancer screening in Florida were identified and mapped using ArcGIS. Geographic centroids for census tracts retrieved from the 2023 American Community Survey (ACS) were defined, after which, 40-minute drive times from screening centers were calculated using ArcGIS service area tool. Demographic data, including race, ethnicity, mean age and insurance status were retrieved from ACS. Health data, including the incidence of smoking, cancer and COPD were retrieved from Center for Disease Control and Prevention (CDC) 2023 Places database. Features of census tracts < or > a 40-minute drive time from any ACR-certified screening center were compared using two-tailed Student's t-tests assuming independent groups.

Results: A total of 417 census tracts with centroids >40-minute drive time from the nearest ACR-certified lung cancer screening center were identified in Florida. Collectively, these cover 30,126 sq miles (53.9% of Florida), are populated by 1,628,336 residents (7.4% of Florida) and are significantly more likely to be classified as rural ($p<0.0005$). Their residents were more likely to be male ($p<0.0005$), age >65 years ($p=0.0001$), and white ($p<0.0005$). They were also characterized by lower median income ($p<0.0005$) and a greater likelihood of being covered by Medicaid ($p<0.005$) or being uninsured ($p=0.001$). Lastly, we found that the residents of tracts >40 minute drive time from an ACR-certified screening center are characterized by higher rates of smoking ($p<0.0005$), COPD ($p<0.0005$) and a greater incidence of any cancer ($p<0.0005$).

Conclusion: When defined by drive-time, a significant proportion of Florida residents are faced with travel times that potentially limit their access to an ACR-certified to lung cancer screening program despite the fact that they are greater risk for developing lung cancer.

104-T

Does Asymmetry in Mammographic Breast Density inform Breast Cancer Risk in Women with a Family History of Breast Cancer?

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Purpose: To examine whether right-left asymmetry in mammographic breast density (MBD) increases breast cancer (BC) risk beyond the association of MBD itself. MBD is a known breast cancer risk factor used to inform women of elevated breast cancer risk and the need for supplemental screening.

Methods: We used a nested case control study (450 cases, 1056 controls) drawn from the Sister Study cohort, which is enriched for BC family history. We calculated asymmetry (aPD, aDA, = absolute difference between right and left MBD) in Cumulus-measured percent density (PD) and cm2 dense area (DA) at the mammogram closest to enrollment ≥ 6 months before diagnosis (mean age 49 years, mean 3.7 years before diagnosis). We used logistic regression to evaluate the association of asymmetry quartile with BC risk, adjusting for age at mammogram, body mass index (BMI) at enrollment, and average of the right and left MBD measures. We stratified by MBD (at median), BMI category, and 5-year breast cancer risk score (≥1.67% vs. <1.67%, based on the BOADICEA model which estimates BC risk based on familial and personal characteristics).

Results: Greater aPD and aDA was observed with increasing PD and DA. Neither aPD (OR 1.0, 95% CI 0.7-1.4) nor aDA (OR 1.1, 95% CI 0.8-1.6) was associated with BC risk in the whole sample beyond the association with PD (OR 1.02, 95% CI 1.01-1.03) or DA themselves (OR 1.01, 95% CI 0.99-1.01). aDA was associated with BC risk among women with low BOADICEA risk score (OR 1.9, 95% CI 0.9-4.2, OR 2.7, 95% CI 1.3-5.4, OR 1.6, 95% CI 0.7-3.4 for the 2nd, 3rd, and 4th aDA quartile compared to the lowest quartile), but not among high-risk women (OR 1.0-1.1 for the 3 quartiles). aPD and aDA were also associated with BC risk among women with a BMI ≥ 30 (OR 2.7, 95% CI 1.4-5.5 and OR 2.3, 95% CI 1.1-4.7 for the highest quartile of aPD and aDA, respectfully, vs. the lowest quartile), but not among women with lower BMI.

Conclusions: MBD asymmetry was associated with breast cancer risk beyond overall MBD among women with low familial risk or high BMI, based on mammograms about 3 years before diagnosis. These findings suggest asymmetry may reflect factors beyond early tumor development and highlight its potential relevance for refining mammographic risk assessment.

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Implementation of Genetic Services for Families after Tumor Testing for Pediatric Cancer: The GIFTT study

Lupo PJ, Scollon SR, Pereira S, Hamilton K, Parbhoo K, Fallahazad N, Henderson TO, Hou YC Claire, Taylor OA, Shi C, Scheurer ME, Chavez-Yenter D, Kamihara J, Cottrell CE, Diller LR, Bradbury AR

Purpose: Approximately 15% of children with cancer have a pathogenic or likely pathogenic (P/LP) germline variant in a cancer predisposition gene (CPG). Cascade genetic testing can identify family members who require screening and intervention. Evidence-based strategies to ensure uptake of cascade testing in this population have not been comprehensively evaluated, limiting translation into routine care.

Methods: To identify families with increased risk of cancer and to implement genetic services, we have developed the "Genetic Information for Families after Tumor Testing" (GIFTT) Study. Guided by implementation science frameworks, this study leverages key resources: 1) Molecular Characterization Initiative (MCI), an NCI-funded national effort implemented through the Children's Oncology Group; 2) Project: EveryChild, the COG registry protocol that obtains consent for future contact from children diagnosed with cancer; and 3) Penn Telegenetics Program, which develops interventions to improve access to genetic services.

Results: As of July 31, 2025, 5,356 patients have been tested as part of MCI. Among these, 752 (14%) have a reportable germline finding. This includes families in which there is risk of Lynch syndrome (>63 families), Li-Fraumeni syndrome (>70 families), and hereditary breast-ovarian cancer syndrome (>30 families). We have developed the following implementation-focused aims: 1) assess genetics-related healthcare utilization and identify barriers/facilitators to cascade testing; 2) develop and refine a patient-informed digital chatbot to increase uptake of cascade testing; and 3) evaluate adoption, reach, and longitudinal outcomes of implementing remote genetic services for cascade testing.

Conclusions: We are developing a family-based cohort of children with cancer found to have a P/LP germline variant in a CPG to evaluate genetics-related healthcare utilization and inform strategies for cascade testing. We are implementing and evaluating a digital telehealth delivery intervention to promote cascade testing in first-degree relatives. This implementation science approach will generate evidence to guide the dissemination and scale-up of cascade testing in pediatric oncology settings.

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Conducting Prostate-specific Antigen Tests With a Mobile Clinic at Outreach Events to Increase Prostate Cancer Screening among Underserved Men in Lower Alabama

McNair C, Lowman J, Starks S, Silbernagel E, Butterworth C, McGowen C, Diaz B, Jaye S, Wright N, Keel C, Pierce J

Purpose: The purpose of this study was to implement a grant-funded community outreach prostate cancer screening program for high risk and underserved men in lower Alabama using a mobile clinic to conduct free prostate-specific antigen (PSA) tests.

Methods: Mitchell Cancer Institute Cancer Control and Prevention Outreach scheduled PSA testing events through community leaders in underserved areas in lower Alabama. USA Health mobile clinic vehicles staffed by Outreach and USA Health registered nurses volunteering their time set up at the site. Income and risk eligibility based on CDC guidelines were determined: self-reported income and uninsured or under-insured; high risk age 40-49 years old; average risk age 50-69 years old; or symptomatic 70-75-year-olds. Eligible men were counseled about PSA tests for prostate cancer screening, consented, and registered. Blood was drawn, processed, then transported to the lab at the end of the event. Results were mailed with explanatory letters. Men with elevated PSA test results were called by navigators and referred to USA Health Urology for care to include an office visit, repeat PSA test, imaging, and biopsy with pathology as appropriate.

Results: 459 men were screened by PSA test at 23 screening events in 7 counties in 18 unique ZIP codes; 7 events were in rural areas based on federal definitions with 35.1% (n=161) of the men screened at the rural sites. The median screened per event was 13 men (range 2-86). Median age was 60.5 years (range 40-75 years); 81.5% (n=374) of the men screened were Black. 43 men (9.4%) screened had elevated PSA levels and were referred. Of these men, 79.1% (n=34) were Black; median age was 66 years old (range 45-75); 27.9% were screened at rural sites. This percentage of elevated PSA test results is higher than the 8% rate expected from literature for PSA-based screening programs. At this time 24 (55.8%) abnormal result patients have seen a Urology provider; 6 opted to see outside providers. 8 completed diagnostics: 2 patients were diagnosed with Stage T1c prostate cancer, 6 with benign conditions. Follow-up navigation continues for the rest.

Conclusion: Early detection of prostate cancer in underserved men is achievable through PSA-based screening programs using community outreach mob

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Using a cancer outreach mobile clinic to screen for cervical cancer-related HPV genotypes using self-collection kits

McNair C, Lowman J, Starks S, Silbernagel E, McGowen C, Diaz B, Pierce J

Purpose: The purpose of this pilot was to determine the feasibility of using HPV self-collection screening kits and a mobile clinic at community outreach events to screen women for HPV.

Methods: Mitchell Cancer Institute Cancer Control and Prevention Outreach used a mobile clinic to offer HPV testing by self-collection during the University of South Alabama Health GO Run for gynecologic cancer in September 2025. Recruitment took place on-site via announcements, flyers with a QR code to the eligibility form, and an information table. Community Health Worker students assisted patients with the eligibility form. Women between 30-65 years old with a cervix, no recent history of abnormal Pap or HPV tests (<3 years), and no current abnormal discharge, bleeding, or pain were eligible. Patients were asked about HPV vaccine series completion, when their last Pap screening was, if it included HPV testing, and if a referral to a primary care provider or OB-GYN was needed. Patient access staff created an electronic medical record for patients, and the HPV test order from a USA Health gynecologist was entered. The self-collection kits consisting of a collection swab, sealable bag for sample, and instructions were provided by Go Doc Go and tested for 9 HPV genotypes (16, 18, 31, 45, 51, 52, P1, P2, P3). The mobile clinic vans were equipped with a private exam room, sink, and desk and staffed with a gynecologic nurse. Once collected, samples were sent to a third-party laboratory used by the testing company. Results were available in the patient portal and mailed with a letter explaining what negative or positive results mean. Patients with positive results received calls from navigators for follow-up care.

Results: 7 women completed the eligibility form: 6 women were eligible and completed screening; 1 was ineligible due to not having a cervix. 5 patients were White, 1 patient was Black. Median age was 50 years (range: 34-57). 1 patient lived in a rural ZIP code. 1 patient had received the HPV vaccine, 3 said no, 1 unsure, and 1 response missing. All 6 patients screened were negative for all HPV types tested.

Conclusion: Targeted outreach at community events using self-collection HPV testing with a mobile clinic is a feasible way to increase HPV screening am

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Perceived Readiness and Role of Primary Care Providers in Managing Breast Cancer Risk among High-Risk Patients

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Purpose: Guidelines recommend that women with a high risk of breast cancer (BC) engage in risk-management care, yet concordance with these guidelines is low. Primary care providers (PCPs) are often the first point of contact for patients to discuss BC risk. This study assessed PCPs' perspectives after being notified their patient is at high risk of BC.

Methods: The Ohio State University Comprehensive Cancer Center conducts BC risk assessment with routine mammography services and notifies appropriate patients and their PCPs of high-risk status along with mammography results. Between January 2020 and May 2021, we recruited PCPs who had received such notifications for at least two patients. PCPs completed a survey that assessed prior training and comfort level with and perceived professional responsibilities related to discussing BC risk management. We used descriptive statistics and thematic coding for quantitative and open-ended questions, respectively.

Results: 64 PCPs completed the instrument. Most were female (75%) and White (80%). Most recalled having a patient receive the high-risk notification (70%). Among the 85% that saw their patients after the notification, 25% subsequently initiated risk discussions. While most PCPs thought the notification was helpful for patients (78%) and providers (72%), 42% also felt it was burdensome. Nearly all agreed PCPs should assess family history (94%) and BC risk (92%) and make genetic counseling referrals (90%), but fewer felt PCPs should discuss chemoprevention (33%) and preventive surgery (37%). Most (73%) had never received formal training about discussing BC risk with patients, though 51% were interested in such training. Some (53%) also provided open-ended feedback. They valued the notifications but also expressed concern regarding unclear high-risk criteria, lack of information about patients' individual risk, increased patient anxiety, and limited follow-up care or guidance.

Conclusion: PCPs support assessing and discussing BC risk with high-risk patients, but >50% believe that PCPs are not responsible for discussing specific BC prevention methods. Our findings highlight the need for additional PCP training, referral support, and multidisciplinary care to support risk management for women with high BC risk.

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Primary Care Patient Intention to Have Lung Cancer Screening

Myers R, Sifri R, Bittner-Fagan H, Careyva B, Felix T, Zhan TT, Shimada A, DiCarlo M, Johnson M, Jackson H, Indictor A, Thompson A, Reynolds H, Burgess N, Blaker J.

Purpose: The United States Preventive Service Task Force (USPSTF) and the Centers for Medicare and Medicaid Services (CMS) both recommend annual lung cancer screening (LCS) for older adults (USPSTF: 50 to 80 years of age; CMS: 50 to 77 years of age) who have 20 or more pack-years of smoking history and who currently smoke or have quit smoking in the previous 15 years.

Methods: We are conducting an ongoing NCI-funded R01 study in 4 health systems, which involves delivering provider and patient support to facilitate LCS performance among primary care patients who are eligible for screening. In the study, we administered a baseline telephone survey to 175 consented patients from 28 primary care practices. On the survey, we assessed patient intention to have LCS using a single item with a 5-level Likert-type scale response set and dichotomized the variable as Strongly Agree = 5 vs Else < 5. The survey also included items to measure respondent knowledge about SDM and LCS (5-item index), perceptions about LCS (salience and coherence of LCS (4 items), response efficacy of LCS (3 items), risk of lung cancer (2 items), worries and concerns related to LCS (3 items), and social support for LCS (2 items), decisional conflict (4 items), fatalism (6 items) and sociodemographic background characteristics. We modeled intention to have LCS in univariable and logistic regression analyses.

Results: Survey respondents tended to be white (82%), 50-64 years of age (60%), female (53%), unmarried (52%), currently smoking (54%), and have less than a college education (54%). We found that that 94 (54%) respondents reported a high intention to have LCS. Variables that were positively associated with intention in our data were perceived salience and coherence (OR = 2.944, CI: 1.314, 6.872), response efficacy (OR = 8.798, CI: 3.258, 25.827), and social support (OR = 2.871, CI: 1.345, 6.515).

Conclusions: Just more than half of respondents expressed strong intention to have LCS. Patients with strong intention to screen tended to report that screening is important, is likely to be effective, and is supported by their primary care provider.

110-T

Baseline Abdominal Adiposity and Obesity-Related Cancer Mortality in Postmenopausal Women: Findings from the WHI DXA Cohort

Okwor UE, Ziller SG, Blew RM, Roe DJ, Odegaard A, Caan B, Chen Z, Banack H, Saquib N, Johnson KC, Karanth S, Sun Y, Bea JW

Purpose: Obesity-related cancers (ORC) account for over 150,000 U.S. deaths annually. Yet little is known about how dual-energy X-ray absorptiometry (DXA)-derived abdominal fat depots predict ORC mortality. Although post-diagnosis studies link abdominal adiposity to cancer prognosis, evidence from pre-diagnostic measures in the prevention setting remains limited. We examined whether visceral adipose tissue (VAT), subcutaneous adipose tissue (SAT), and total adipose tissue (TAT), as measured by DXA, were associated with ORC mortality among postmenopausal women.

Methods: We included 9,767 postmenopausal women from the WHI DXA cohort (1993-2020) free of cancer at baseline. VAT, SAT, and TAT were quantified from baseline DXA scans and modeled as continuous variables (per 100 cm^2 increase) and quartiles, with the lowest quartile as referent. The primary endpoint was death from ORC (breast, colorectal, pancreatic, ovarian, liver, kidney, endometrial, esophageal, gallbladder, gastric cardia, thyroid, or multiple myeloma). Any deaths not from ORC were treated as competing risks, and women alive at last follow-up were censored. Competing risk models using Fine and Gray sub-distribution hazards (SHR) estimated associations of adiposity with ORC mortality, adjusting for demographics, lifestyle, reproductive, and clinical covariates.

Results: During a median follow-up of 19 years (189,179 person-years), 450 ORC deaths occurred. Higher baseline VAT was associated with increased ORC mortality (per 100 cm^2: SHR 1.19, 95% confidence interval (CI) 1.05–1.35). Women in the highest VAT quartile (>217 cm^2) had a 49% higher risk compared to the lowest quartile (≤106 cm^2) (SHR 1.49, 95% CI: 1.10–2.03). Higher SAT was associated with increased mortality (per 100 cm^2: SHR 1.12, 95% CI 1.03–1.21), with the highest quartile (>465 cm^2) conferring 46% greater risk (SHR 1.46, 95% CI 1.04–2.03); TAT showed similar positive associations. VAT/SAT ratio was not associated with ORC deaths.

Conclusions: Baseline abdominal adiposity was associated with elevated risk of ORC mortality among postmenopausal women. DXA-derived abdominal adiposity was associated with increased risk of mortality. Future analyses to directly compare DXA with anthropometric measurements are warranted.

111-T

Perceptions of Multi-Cancer Early Detection Testing Among BRCA1/2 Carriers: Implications for Ovarian Cancer Prevention

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Purpose: Women with BRCA1/2 pathogenic variants face a significantly elevated lifetime risk of ovarian cancer. Yet, current ovarian cancer screening options have limited effectiveness and BRCA1/2 carriers are therefore recommended to undergo risk-reducing salpingo-oophorectomy (RRSO). Multi-cancer early detection (MCED) tests using circulating tumor DNA have shown promise for detecting cancer earlier, but little is known about how BRCA1/2 carriers perceive MCED and whether it may influence decisions about RRSO.

Methods: We conducted semi-structured interviews with 24 female BRCA1/2 carriers (Mage= 35.8, range 25–59) who had not undergone preventive surgery, recruited from a U.S. cancer center. Interviews explored participants' awareness, perceived utility, and potential influence of MCED testing on ovarian cancer prevention decisions, including RRSO. Transcripts were analyzed using thematic content analysis in NVivo.

Results: Participants had limited prior knowledge of MCED and often confused it with other cancer screening methods. Despite initial uncertainty, most expressed cautious optimism about its potential as a non-invasive tool to support decision-making. Across interviews, MCED was consistently framed as a confirmatory resource – helpful in validating decisions already made – rather than a determining factor in whether to undergo RRSO. Some participants saw value in using MCED to guide timing, particularly to support decisions to delay surgery. Key concerns included test accuracy (particularly false positives), unclear follow-up protocols, and cost or insurance barriers. Psychological impacts – especially anxiety and distress associated with false positives – were also central. Trust in healthcare providers and high expectations for test accuracy strongly shaped willingness to consider MCED.

Conclusion: BRCA1/2 carriers view MCED as a potentially valuable adjunct to existing strategies, primarily to validate decisions around the timing of RRSO. Integrating MCED results into clinical conversations may enhance patient confidence. However, concerns about clinical utility, emotional burden, and accessibility highlight the need for clear patient education and thoughtful integration into shared decision-making as MCED moves toward implementation.

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Determinants of tobacco addiction severity and associated oral potential premalignant lesions among tobacco users attending a tobacco cessation clinic in tertiary cancer hospital

Sharmila P, Gauravi M, Pratibha P, Majmudar P

Purpose: Oral cancer is a major public health concern in India, ranking as the third most common cancer and having the highest prevalence globally, primarily due to widespread tobacco and areca nut use. Understanding the relationship between addiction severity and oral lesions can guide more effective, personalized cessation strategies in Tobacco Cessation Clinics.

Methods: A retrospective study audit of 8,245 tobacco users attending the Tobacco Cessation Clinic between 2016-2022 was conducted in a tertiary cancer hospital. Data on sociodemographic characteristics, pattern of tobacco use and association with oral lesions, and Fagerström Test for Nicotine Dependence scores were analysed using descriptive statistics, chi-square test, and regression models with statistical significance at $p<0.05$.

Results: The mean age of tobacco users was 45.9 ±12.5 years, with 88.7% males and 11.3% females, and a majority (74.8%) residing in urban areas. Smokeless tobacco use was predominant (70.3%)with a mean onset at 29.6 years of age. The most common lesions associated with smokeless tobacco were leukoplakia (38.4%) and submucous fibrosis (12.7%)($p<0.0001$). Higher nicotine dependence was associated with oral potential premalignant lesions, and lower readiness to quit ($p<0.0001$). Multivariate analysis showed that smoked tobacco use was associated with increasing age [OR=1.021 (1.014–1.029)]; smokeless tobacco use was associated with male gender [OR=20.395 (10.871–38.265)], rural residence [OR=1.561 (1.364–1.787)] and family history of tobacco use [OR=1.008 (1.004–1.012)]; dual use was associated with younger age [OR=0.979 (0.972–0.986)], lower education[OR=0.743 (0.642–0.861)], and higher nicotine dependence[OR=1.016 (1.014–1.018)].

Conclusion: This study provides a strong association between addiction severity and risk of oral potential malignant lesions. Integration of oral cancer screening, with Fagerström Test for Nicotine Dependence scores and behaviorally tailored counselling can enhance cessation outcomes.

Cancer Health Disparities

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Understanding Women's Perspective on acceptability and feasibility of Cervical Cancer Screening with Human Papilloma Virus self-sampling

Sharmila P, Gauravi M, Pratibha P, Kharat B, Pande Ay

Purpose: Despite Cervical cancer being the second leading cause of cancer deaths among women in India, the national average for cervical cancer screening coverage remains extremely low at below 2%. This study therefore aims to explore factors influencing women's decisions and their experiences with HPV-self-sampling (HPV-SS) as an alternative strategy to improve screening uptake.

Methods: In a cross-sectional study on multimodal strategies for increasing the adoption of cervical cancer screening in resource poor settings, among women aged 30-55 years in Mumbai, India, eligible women were invited for health education sessions and 500 consenting women were recruited for cervical cancer screening by HPV-SS. Trained healthcare workers guided participants on HPV-SS. A structured questionnaire administered to a subsample of 260 women explored factors influencing HPV-SS uptake, user experience and investigate reasons for refusal.

Results: A total of 1767 eligible population were identified and invited, 561 attended awareness session, and 500 [89%] consented to HPV SS with 61 [11%] women refusing to take the test. Among a sub-sample of 260 women who accepted HPV-SS, 57% cited free availability and 28% accepted as it is self-performed. Most cited concerns included lack of confidence in test results (64%) and discomfort with touching genital area (57%) followed by fear of hurting while performing the test, (30%) . Majority (>90%) of women reported no pain or bleeding and were comfortable performing the test. Key reasons for refusal included lack of perceived need (56%), spouse disapproval (54%). embarrassment (27.9%), lack of family permission (27.9%), and fear for the procedure (11.5%) were major factors.

Conclusion: The Study findings highlight high level of acceptance of the HPV self sampling which was easy to perform in the comfort of their homes, without the need to attend health facility.At the same time, less perceived need by women and family/spouse disapproval points towards extending health education to key decision makers to improve screening coverage.

Early Detection and Risk Prediction of Cancer

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Understanding Cancer Prevention Gaps in a Bangladeshi American Community: Insights from a Philadelphia-Based Survey

Sifat M, Khan M, Melillo R, Blanding-Godbolt J, Raz MH, Chowdhury N, Chowdhury S, Islam S, Chiang SC

Purpose: This study aims to assess cancer awareness, screening behaviors, health literacy, and lifestyle factors among Bangladeshi and Bangladeshi American adults residing in the greater Philadelphia area.

Methods: A cross-sectional, community-based survey was conducted from May to October 2025 targeting Bangladeshi adults (≥18 years). Recruitment occurred at cultural events, mosques, and grocery stores. The self-administered survey, evaluated cancer awareness, screening history, health literacy, and health behaviors. Chi-squared tests examined correlations between sociodemographic factors, health behaviors, and perceived barriers with adherence to cervical, breast, colon, and prostate cancer screening. Results: The sample (n=162, English responses) was half female (50.3%); immigrants (84.5%), and long-term US residents (71% for >10 years) with high self-reported health literacy (79.1%). Cancer diagnosis was reported by 7.2% of respondents. Despite this, screening adherence was low: only 28% were up to date on mammograms, 44.4% of eligible women had never had a Pap smear, 69% of eligible men had never had a PSA test, and 13.5% had never had a colonoscopy. Knowledge gaps were prevalent, with 72.9% unaware of CT scans for lung cancer. Screening barriers included low perceived risk (18%) and lack of screening knowledge about what screening was necessary (12.5%). Pap test adherence was associated with U.S. residence >5 years (p=.047), employment (p=.044), and financial comfort (p=.006). Logistical barriers to screening included lack of time for mammograms (p=.006), and difficulty scheduling colonoscopy (p=.033). Lifestyle factors included low level of exercise (59.9% exercised ≤2 times/week), and low fruits/vegetables consumption (<5 servings daily for 96.2%).

Conclusion: Despite high health literacy and long-term U.S. residency, Bangladeshi and Bangladeshi Americans in Philadelphia show low adherence to cancer screening guidelines. Knowledge gaps, low perceived risk, and logistical barriers contribute to underutilization of preventive services. Culturally tailored interventions focusing on education and overcoming logistical hurdles are urgently needed.

Community & Science

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Elevated Combustible Cigarette and E-Cigarette Use and Cancer Fatalism in the Greater Philadelphia Region: A Comparative Study of the Greater Philadelphia Region and National Rates

Sifat M, Banks J, Phan L, Mellilo R, Barta J, Wen KY, Juon HS

Purpose: To examine sociodemographic and belief-based predictors of cigarette and e-cigarette use in the Greater Philadelphia region compared to national rates.

Methods: Cross-sectional survey data were analyzed from 2,744 adults in the Sidney Kimmel Comprehensive Cancer Center (SKCCC) catchment area and 6,252 respondents from Health Information National Trends Survey (HINTS 6). Tobacco use was categorized as never, former, or current. Cancer-related beliefs included perceived risk, fatalism, and lifestyle attribution. Multivariate logistic regression identified factors associated with cigarette and e-cigarette initiation and current use, including sociodemographic variables and perceived discrimination.

Results: Current cigarette use was significantly higher in the SKCCC region than nationally (25.9% vs. 12.0%, p<.05), as was e-cigarette use (16.4% vs. 4.4%, p<.05). Disparities were found by racial/ethnicity; for example, Hispanic adults in the region reported nearly five times higher cigarette use than national rates (27.6% vs. 5.9%). In multivariate analyses, believing that nothing can be done to lower ones' cancer risk was associated with increased odds of initiating e-cigarette (aOR=1.26, 95% CI=1.04-1.53) and cigarette use (aOR=1.23, 95% CI=1.02-1.48). Financial hardship and high perceived discrimination were associated with cigarette use. Younger adults (18–34) were more likely to be current users of both cigarettes (aOR=4.58, 95% CI=2.79–7.52) and e-cigarettes (aOR=3.09, 95% CI=1.28–7.44) compared to older adults (65+).

Conclusions: Tobacco use is disproportionately high in the Greater Philadelphia region, particularly among socioeconomically disadvantaged and racial/ethnic minority populations. Interventions should consider age- appropriate messaging, knowledge about cancer risks and risk reduction, and address discrimination to reduce tobacco-related cancer disparities and promote health equity.

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Lower Firmicutes/Bacteroidetes Ratio as a Potential Noninvasive Microbial Biomarker for Colorectal Cancer

Su LJ, Lutz KC, Koh AY, Hsu PC, Huang EH, Kazmi SM, Matich EK

Purpose: Firmicutes and Bacteroidetes are the dominant bacterial phyla in the gut microbiome. The Firmicutes-to-Bacteroidetes (F/B) ratio is a recognized marker of intestinal balance, with deviations indicating dysbiosis. Altered F/B ratios have been linked to obesity, metabolic disorders, and inflammatory bowel disease, but evidence in colorectal cancer (CRC) remains inconsistent. Mechanistically, the microbiota modulate host inflammation, metabolism, and short-chain fatty acid (SCFA) production, processes central to carcinogenesis.

Methods: We conducted a case-control study of patients undergoing colonoscopy at the University of Arkansas for Medical Sciences (2019–2021). Patients with prior cancer treatment were excluded. Participants were quota-sampled to balance race/ethnicity, sex, and insurance status. Digital surveys were completed prior to stool collection. Colonoscopy results were classified as normal, polyp, or CRC. Of 98 eligible patients, 38 completed both the survey and stool collection. Long-read nanopore 16S rRNA sequencing was used to profile stool microbiota across CRC, polyp, and normal groups.

Results: Among 38 participants, 7 had CRC, 18 had polyps, and 12 had normal findings (1 missing diagnosis). Taxonomic abundance and diversity were compared between CRC and non-CRC (normal + polyp) groups. Lower alpha diversity in CRC patients trended towards significance (p = 0.06), possibly indicating higher dysbiosis compared to non-CRC patients. Of 12 major taxa, only Firmicutes (p = 0.007) and Bacteroidetes (p = 0.09) were differentially abundant. The mean F/B ratio was 76% lower in CRC patients compared with non-CRC participants (p = 0.006), indicating a substantial microbial imbalance associated with malignancy.

Conclusion: Our pilot data reveal a significantly reduced F/B ratio in CRC patients, suggesting loss of Firmicutes-related metabolic and anti-inflammatory functions may contribute to colorectal carcinogenesis. The F/B ratio may serve as a noninvasive biomarker for CRC risk stratification. Larger, longitudinal studies are needed to validate these findings and to determine whether restoring Firmicutes abundance or SCFA production can prevent or delay CRC onset.

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Associations of stromal markers with subsequent breast cancer risk in benign breast tissue

Yaghjyan L, Heng YJ, Guzman-Arocho Y, Ratcliffe M, Tamimi RM

Purpose: Stroma may play an important role in breast carcinogenesis. We examined the associations of stromal markers alpha-smooth muscle actin (ÎffISMA), tenascin-C (TNC), fibroblast activation protein (FAP), calcyclin (s100A6), and matrix metallo-peptidase (MMP14) in benign breast biopsy samples with subsequent breast cancer (BCa) risk.

Methods: This study included women with biopsy-confirmed benign breast disease (BBD) from a nested case-control study of BCa within the Nurses' Health Study (NHS) and NHSII cohorts. The data on BCa risk factors were obtained from baseline questionnaires and updated biennially thereafter. Immunofluorescence (IF) of stromal markers was completed on tissue microarrays constructed from normal terminal duct lobular units (TDLU) and using commercial antibodies (ÎffISMA: 1:400 dilution; FAP: 1:50; MMP14: 1:150; TNC: 1:200; s100A6: 1:300). For each core, the % positivity was quantified using inForm v2.6.0. Multivariate logistic regression was used to examine the associations of each marker's expression (continuous and binary with 1% cutoff) with subsequent BCa risk, while adjusting for BCa risk factors.

Results: In our study (85 BCa cases/296 controls), IF readings were available for 82 cases and 288 controls for all markers. Among the 381 women in our sample, 108 (28.3%) had non-proliferative BBD, 212 (55.6%) had proliferative BBD without atypia, and 61 (16.0%) had proliferative BBD with atypia. Stromal marker expression was highest in women with proliferative BBD with atypia, for all the markers, compared to the other BBD subtypes. The expression of ÎffISMA, S1006A, TNC, FAP, and MMP14 was not associated with subsequent BCa risk (Odds Ratio [OR] per 10% change=1.05, 95% Confidence Interval [CI] 0.71, 1.54; OR=1.08, 95% CI 0.90, 1.30; OR=0.79, 95% CI 0.36, 1.73; OR=1.15, 95% CI=0.98, 1.35; OR=0.95, 95% CI 0.77, 1.18; respectively). In secondary models adjusting for BBD subtype and percent mammographic breast density, these associations remained similar.

Conclusion: Our findings suggest that the expression of stromal markers in normal TDLUs from benign biopsies is not associated with subsequent BCa risk. Further studies are needed to confirm these findings.

Cancer Health Disparities

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Disparities in Cancer Clinical Trial Participation by Race, Insurance, and Social Vulnerability

Mwasa JK, Ciriaco NL, Turner M, Sholle E, Andy C, Nino I, Tamimi R

Purpose: Randomized clinical trials (RCTs) are critical for advancing cancer care, yet samples often fail to reflect populations most affected by cancer, limiting equity and generalizability of study findings. In this analysis, we evaluate the representativeness of interventional cancer RCTs from January 2022 to January 2024 at Weill Cornell Medicine/ New York Presbyterian Hospital. Methods: We conducted a retrospective cross-sectional study using electronic health record data to identify patient characteristics associated with trial enrollment for breast, prostate, rectal, colon, and lung cancers. Descriptive statistics and bivariate tests (chi-square, Wilcoxon rank-sum) compared characteristics of RCT enrolled and non-enrolled patients, including race, gender, age, insurance, language, Social Vulnerability Index (SVI), and Charlson Comorbidity Index. Multivariable logistic regression models identified independent predictors of trial participation. All analyses were stratified by cancer type.

Results: Across cancer types, trial participants were more likely than non-participants to be White, privately insured, and English-speaking. Medicare coverage was consistently associated with lower odds of enrollment. Black men with prostate cancer had 71% lower odds of trial participation than White men (OR=0.29, 95% CI: 0.13-0.56, $p<0.001$), independent of insurance, comorbidities, and SVI. Rectal cancer patients with higher comorbidity scores were less likely to enroll, while prostate cancer patients with higher scores were more likely to participate. Geospatial analysis revealed variation across the NYC metropolitan area. Manhattan and Brooklyn accounted for the majority of enrolled patients for both breast and prostate cancer.

Conclusion: These findings highlight persistent disparities in trial participation by race, insurance, comorbidity, and geography, emphasizing the need for targeted recruitment strategies, and robust statistical methods to transport treatment effect estimates to representative populations. Future work should work to overcome barriers to clinical trial enrollment and develop a trial generalizability index to systematically assess how well trial samples reflect the broader patient population across sociodemographic and clinical dimensions.

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Lung cancer screening practices among primary care physicians in the US

Tan NQP, Bover-Manderski MT, Hoffman RM, Volk RJ, Steinberg MB, Hrywna M, Delnevo CD, Kinney AY

Purpose: Lung cancer screening (LCS) reduces lung cancer mortality, but uptake is very low in the US. Primary care physicians (PCPs) are crucial in facilitating guideline-concordant LCS for patients. Hence, the purpose of this study was to evaluate self-reported LCS practices among PCPs in the US and identify facilitators for effective implementation.

Methods: A random sample of 1500 PCPs in Internal Medicine and Family Medicine under the age of 65 was drawn from the American Medical Association Physician Masterfile. PCPs were invited to complete an online survey via a mailed invitation and three biweekly reminders between May to July 2025. PCPs were eligible to participate if they had direct contact with adult patients in an outpatient practice.

Results: The sample included 199 respondents (23.2% response rate). Respondents were 54.6% male, with a mean age of 50.6 (SD=9.3); 60.9% identified as White and 58.9% specialized in Family Medicine. Overall, 94.8% of PCPs agreed or strongly agreed that the benefits of LCS outweighed the risks, and 86.6% disagreed or strongly disagreed that the false positive rate was too high. On average, PCPs reported referring 67% of their eligible patients for LCS within the past year. Seventy-five percent reported collecting information on pack-year smoking history, 56.4% calculated patients' pack-year smoking history, 67.2% collected information on years since quitting smoking, and 72.8% coordinated LCS using a decentralized approach. Most PCPs rated electronic medical record (EMR) prompts that flag LCS-eligible patients or those due for annual LCS, tools to establish eligibility, and designated staff members to identify eligible patients and navigate referred patients as extremely useful. They expressed strong interest in adopting new LCS technologies, including validated risk calculators and liquid biopsies.

Conclusions: PCPs overwhelmingly endorsed the effectiveness and clinical value of LCS and referred most eligible patients for LCS. As PCPs are often independently responsible for implementing screening, including obtaining accurate smoking histories, EMR-based tools, risk assessment resources, and dedicated support staff may improve LCS referrals, coordination, and uptake.

120-T

Patients' Tell: Adherence to Annual Lung Cancer Screening

Dieudonne RJ, Tompkins AK, Tieu K, Erkmen CP

Purpose: This pilot study aims to investigate barriers to annual lung cancer screening (LCS) adherence by analyzing patient-reported factors for missed or delayed screenings.

Methods: Patients who underwent LCS at the Temple Health Lung Cancer Screening Program from 2013 to 2024 were surveyed regarding factors influencing their adherence status. Patients were surveyed via phone or online and were compensated with a $20 gift card. Factors, reported by patients to impact screening uptake, were assessed.

Results: 50 participants were surveyed. The most frequently cited barrier was the absence of symptoms (30%), predominantly among men (73%, $p = 0.011$). Amongst Black/African-American participants, fear and anxiety were specifically reported as common factors to delay screening (10%). Additional barriers included waiting for providers to schedule appointments (22%), financial concerns (18%), fear of screening results (16%), scheduling difficulties (14%), and transportation challenges (10%).

Conclusion: The study highlights possible gaps in patient knowledge and logistical support, illustrating that providing patients with opportunity to share their specific challenges offers unique insights. The findings emphasize the importance of targeted educational interventions, emphasizing that lung cancer can be asymptomatic until advanced stages. Future research should be diverse in methodology and explore interventions addressing race- and gender-specific disparities in LCS participation.

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Diagnostic Evaluation Following Red-Flag Signs and Symptoms for Early-Onset Colorectal Cancer Detection

Van Doosselaere L, Fritz C, Ruesga M, Martinez ME, Liu L, Banegas M, Gupta S, Demb J

Purpose: Characterize colonoscopy workup following presentation with eight red-flag symptoms for early-onset colorectal cancer (CRC) to inform risk-based diagnostic triage.

Methods: We conducted a retrospective cohort study of adults aged 18-49 using IBM MarketScan claims (2017–2023). Symptom-indexed episodes were derived for eight symptoms: abdominal distension, abdominal pain, anemia, change in bowel habit (CIBH), constipation, diarrhea, hematochezia, and nausea/vomiting. Symptoms ≤60 days apart were grouped into one episode. We excluded adults with prior CRC, colectomy, colonoscopy, sigmoidoscopy, or esophagogastroduodenoscopy before the first episode. The primary outcome was time to colonoscopy; CRC was a competing event, with censoring at disenrollment or age 50. We estimated colonoscopy uptake as standardized cumulative incidence (adjusted for demographics, enrollment gaps, and Charlson comorbidity index) and reported median time from presentation to colonoscopy among completers. Relative differences by symptom count were assessed using Cox proportional hazards models to derive adjusted hazard ratios (HRs) and 95% confidence intervals (CIs).

Results: We identified 6,200,974 symptom-indexed episodes among 5,067,413 individuals. Adjusted 365-day colonoscopy uptake was 10.51% (95% CI 10.26%-10.75%) overall. Abdominal pain (present in 53% of episodes) and nausea/vomiting (25% of episodes) had the lowest uptake – 8.87% and 6.83%, respectively – with longest times to completion (medians: 63 and 92 days). In contrast, CIBH (3% of episodes) and hematochezia (7% of episodes) had the highest uptake – 47.86% and 42.03%, respectively – and shortest times to completion (medians: 16 and 28 days). Colonoscopy likelihood increased with symptom count per episode (2 symptoms: HR 1.92, 95% CI 1.91-1.93; ≥3 symptoms: HR 4.70, 95% CI 4.66-4.74 vs. 1 symptom).

Conclusions: Colonoscopy uptake differed substantially by symptom. High uptake following hematochezia and CIBH suggests risk-based triage is effective for these higher-risk presentations. Low uptake following common, nonspecific symptoms highlights the need for refined risk stratification approaches that pair symptoms with other clinical features or diagnostic tests to guide colonoscopy referral in younger adults.

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Three perspectives, one map: A theoretical explanation of preventive oncology decision making by integrating the Health Belief Model, Theory of Planned Behavior, and Elaboration Likelihood Model.

Varikkodan S, Barbee A

Background: Preventive behaviors against cancer are influenced by cognitive appraisal, social norms, and information processing habits. The Health Belief Model (HBM), Theory of Planned Behavior (TPB), and Elaboration Likelihood Model (ELM) are fundamental to addressing these aspects. However, working independently has yielded a lack of integration between them.

Theoretical Underpinning: In this review, HBM, TPB, and ELM are brought together to understand (1) what precedes preventive behavior in terms of beliefs and motivations, (2) how the routes in message processing affect beliefs and their tenacity, and (3) where mediation and moderation are applicable in predicting behavior. The comparison between HBM and TPB revealed similarities in HBM self-efficacy and TPB's PCs, as well as differences in HBM threat appraisal, TPB intention-based behavior, and ELM's dual-component persuasion routes. The information gathered helped construct a conditional process model for cancer prevention.

The theory suggests a process where people process information either in a deep manner (central route) and/or in a superficial manner (peripheral route), as per the ELM. The resulting fundamental health beliefs are related to risk, seriousness, benefit, barrier, and efficacy concerns, as outlined in the Health Belief Model (HBM). The HBM variables interact with norms and control concerns in TPB to develop behavior intention, which is the best predictor of behavior. The deep and surface methods of information processing contribute to the development of both stable and unstable behavior.

Implications: The integration of all these theories enables the understanding of how identical health information is associated with diverse health outcomes. The integration of different theories yields a synthesis that combines three health frameworks of high utility into a single health model, testing how changes can occur in beliefs, attitudes, and intentions, as well as in central and peripheral processing.

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Unveiling the truth: A scoping review of myths and misconceptions about cancer and cancer-related health-seeking behavior.

Varikkodan S, BrintzenhofeSzoc K, Winters A

Purpose: Lack of awareness about cancer symptoms and screening contributes to delayed diagnosis (Chitharaj et al., 2019). Myths and misconceptions significantly hinder treatment-seeking behaviors by discouraging preventive actions and access to support upon diagnosis (Coreil et al., 2004; Ahmad, 2000; Daher, 2012). This scoping review aims to identify recent trends in cancer awareness and perception.

Methods: Following the JBI framework and PRISMA-ScR guidelines, a scoping review was conducted using four databases to explore awareness, myths, and misconceptions about cancer. The collaboratively developed search strategy incorporated various keywords and Boolean operators for comprehensive data collection. Quantitative studies from 2003-2023 in English were included, focusing on the research question. Out of 1,749 articles, 97 underwent full-text review, with 23 selected for detailed analysis.

Results: The review of 23 articles across various countries found that individuals who view cancer as uncontrollable – due to beliefs in fate, genetic causes (Henke et al., 2021), or misconceptions such as surgery spreading cancer (Thanigchalam et al., 2023) are less likely to seek screening or treatment. People from minoritized groups, those with lower education, rural residents, highly religious individuals, and those with limited personal exposure to cancer believes causes and treatments are uncontrollable, they less likely to seek cancer-related health-seeking (Marouf et al., 2023). While individuals with high self-efficacy, awareness that behavior can influence cancer risk, greater cancer experience, and better cancer education show less fatalism and are more proactive (Babazadeh et al., 2018).

Conclusion: This review highlighted the global prevalence of cancer-related myths and misconceptions across diverse populations. It underscores the critical necessity for developing educational programs specifically designed to dispel misconceptions about cancer. This is essential for improving cancer prevention activities, early detection and diagnosis, treatment adherence, and patient outcomes.

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Understanding Latine Adults' Perspectives on Family Health History for Cancer Prevention: Insights from Interviews with English- and Spanish-Speaking Participants

Wang H, Santoyo-Angulo V, An J, Adeola MT, Sheng J, Preston M

Purpose: Family health history (FHH) is an important, low-cost tool for identifying cancer risk, informing screening recommendations, and guiding prevention. However, Latine communities experience persistent cancer prevention disparities, including underuse of cancer screening and genetic services. Guided by the Capability, Opportunity, Motivation–Behavior (COM-B) framework, this study explored knowledge, communication patterns, and perceived barriers and facilitators related to using FHH for cancer risk assessment and prevention among Latine adults.

Methods: Semi-structured interviews were conducted with 27 Latine adults in Indiana (19 Spanish- and 8 English-speaking; ages 21–61; 6 men; 55% Catholic; about half with a high school education or less). All participants received brief FHH education before the interview. The guide was developed using COM-B. Data was analyzed using a semi-deductive/inductive content analysis approach.

Results: Preliminary findings reveal three interrelated themes. First, limited cancer-related FHH knowledge and informal family communication: most participants knew little about cancer history within their families, and conversations were sporadic, often occurring during illness and shaped by cultural taboos and emotional discomfort (e.g., reluctance to discuss cancer due to beliefs that talking about it could bring illness or upset relatives). These patterns were especially pronounced among Spanish-speaking participants. Second, motivational shifts and ambivalence: after brief education on cancer risk and FHH, many expressed interest in sharing and using this information for prevention, but fear of uncovering genetic risk or causing family distress tempered motivation. Third, structural and informational barriers: lack of insurance, language barriers, limited provider engagement, and uncertainty about how to use FHH for cancer prevention impeded action. Participants emphasized the need for language-concordant providers, simple bilingual tools, and trusted community support.

Conclusions: Preliminary findings highlight critical gaps in cancer-related FHH knowledge and communication among Latine adults and underscore the need for culturally and linguistically tailored strategies to support cancer risk assessment and prevention.

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Pharmacists' perspectives on integrating lung cancer screening shared decision-making into existing pharmacy-based tobacco cessation services

Wangen M, Hirschey R, Tran A, Ferrari R, Xu J, Marciniak M, Reuland D, Wheeler SB, Brenner A

Purpose: We explored pharmacists' perspectives on incorporating a lung cancer screening (LCS) shared decision-making (SDM) program into existing tobacco cessation services to expand access to LCS among eligible individuals.

Methods: We conducted semi-structured virtual interviews with pharmacists offering tobacco cessation services to understand factors influencing potential integration of LCS-specific eligibility assessments, counseling, and care coordination into pharmacy workflows. Participants were recruited through state pharmacy associations via an emailed questionnaire. The interview guide was adapted from prior qualitative work exploring pharmacy-based cancer screenings. We used Zoom to record and transcribe the interviews and summarized themes using rapid-turnaround analysis.

Results: Pharmacists (n=7) described how three steps of the LCS SDM process could be integrated into pharmacy practice as well as barriers. For eligibility assessments, pharmacists were comfortable determining age, but noted calculating pack-years relies on accurate patient report, which requires trust-building. In counseling, they felt confident discussing LCS, drawing on experience explaining side effects and motivating patients to act, and viewed coordination with primary care providers (PCP) as a way to reassure patients. For care coordination, pharmacists emphasized the need for relationships and referral protocols, noting challenges reaching PCPs in large health systems and viewing pharmacist-facilitated connections to PCPs or LCS programs as a way to expedite screening. Barriers included addressing patient fears about biopsies or cancer and financial concerns such as lack of insurance, rather than pharmacy capacity, though a few mentioned limited staff time and uncertainty around reimbursement. All expressed interested in integrating this program.

Conclusions: Pharmacies may be a practical setting to initiate LCS SDM and expand access by leveraging existing workflows. Pharmacists were confident in initiating discussions but emphasized that addressing patient hesitancy and strengthening coordination with PCPs and LCS programs will be key for implementation. Future work will refine strategies and include perspectives from LCS staff, PCPs, policy experts, and patients.

126-T

Proteomic Profiling and Risk Stratification of Hepatocellular Carcinoma Across Two Cohorts

Watts EL, Watling CZ, Cheung LC, Abnet CC, Hicks B, Huang W-Y, Hutchinson AA, Katki H, Loftfield E, Machiela MJ, McGlynn KA, Shi J, Stolzenberg-Solomon R, Moore SC

Purpose: To address limitations of current hepatocellular carcinoma (HCC) surveillance – biannual ultrasound ±AFP, which has low sensitivity and poor adherence – we investigated associations between circulating proteins and HCC risk and developed a multi-protein score to improve disease prediction and risk stratification.

Methods: Serum proteins were measured using the Olink Explore HT platform in a nested case–control study within the PLCO trial, including 118 HCC cases and 118 matched controls (median follow-up=9.7 years). Associations for 4,003 proteins were evaluated using conditional logistic regression with Bonferroni correction, and an eight-protein risk score was developed using LASSO regression. Validation was conducted in the UK Biobank cohort of 50,198 participants, including 32 HCC cases, where 2,923 proteins were measured with the Olink Explore 3072 platform (median follow-up=11.6 years). In UK Biobank, Cox regression quantified associations between individual proteins and HCC risk, and the C-index assessed discrimination of the multi-protein score. The score was also applied to stratify individuals with cirrhosis or current/past hepatitis B/C infection, groups typically considered for HCC surveillance, and estimate 8-year cumulative HCC risk across higher- and lower-risk groups.

Results: In PLCO, 106 proteins were significantly associated with HCC risk, and 94% (n=93) of those available replicated in UK Biobank. Pathway enrichment analyses highlighted inflammation and growth factor signaling. The eight-protein score demonstrated strong discrimination (C-index=0.92, 95% CI 0.83–0.98) in the overall population, with predictive performance stable more than ten years before diagnosis. Among at-risk individuals, a high vs low score stratified risk effectively, with 8-year cumulative risk of 19% vs 3% for those with cirrhosis and 14% vs 1% for those with hepatitis B/C.

Conclusions: These findings demonstrate the potential of proteomic profiling to discriminate between individuals at highest vs lower risk, providing a foundation for precision surveillance. Future studies in clinical populations should develop cost-effective assays and evaluate whether proteomic risk stratification can enhance early detection to reduce liver cancer mortality.

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A Single Healthcare System Recruitment Approach for the Vanguard Randomized Pragmatic Trial: Opportunities for Modification to Enhance Representativeness

White LL, Goldberg S, Sawyer JK, Steiner C, Hixon B, Flores Garcia M, Kennedy A, Rios C, Nichols L, Ritzwoller DP

Purpose: Recruitment strategies that produce generalizable findings from randomized pragmatic trials is a growing body of research. Recent advances allow for electronic recruitment, though all demographic groups may not be equally responsive. The NCI-sponsored Cancer Screening Research Network (CSRN) Vanguard trial has a defined catchment population at multiple healthcare systems, making it an ideal setting to conduct recruitment science in randomized trials (RT).

Methods: Vanguard is a three-arm RT of two multi-cancer detection assays and a control group. Adults aged 45-75 without invasive cancer in the last 5 years are eligible. Kaiser Permanente Colorado (KPCO) began multi-modal recruitment on September 16, 2025. Leveraging KPCO's robust research infrastructure that includes electronic health records and cancer registry data, we identified a cohort for electronic outreach and high-volume heterogeneous clinics for in-person recruitment. Weekly random samples of 200 potentially eligible participants with upcoming clinic visits are sent email invitations. Interested individuals schedule a phone call with study staff or show interest at in-clinic recruitment sessions, then complete electronic or paper consent, and online survey. Study randomization takes place after blood samples are collected at any 20 KPCO clinics. Descriptive statistics identified variation in demographics between those eligible versus those consented.

Results: We identified a cohort of 130,236 potentially eligible individuals, of whom 35% were age 65-75, 53% were female, and 71% were white/non-Hispanic. By October 24, 2025, 889 individuals were contacted via email, 66 individuals discussed the study with staff in-clinic. From these efforts, 50 individuals consented, resulting in a response rate of 5%. Most consented individuals (62%) were age 65-75, female (74%), and white/non-Hispanic (90%).

Conclusions: While we used multi-modal recruitment to launch the Vanguard RT, the first 6 weeks showed significant differences in representativeness among those consented relative to those eligible. These findings motivate our team to rapidly modify our approach by using targeted and weighted sampling outreach, Spanish language recruitment materials, and other strategies to maximize generalizability.

128-T

Use of Historical Population Data to Generate Persons-At-Risk in Cancer Mortality Studies

Yi J, Plascak JJ, Lesinski J, Ghias E

Purpose: Estimating cancer mortality rates is crucial in addressing disparities and public health interventions for prevention. However, estimating true cancer mortality rates using publicly available data is challenging due to the latency between exposure and disease onset. Methods to account for lifetime risk and temporal changes by occupation, sex, and age are often not described in detail. This study generated cancer mortality rates by sex, cancer type, and hundreds of detailed occupations among working-age adults in the United States using a stratified historical approach.

Methods: Cancer deaths (ICD-10 codes C00-C99) from 2020 to 2023 among adults aged 20-64 years were obtained from the US National Center for Health Statistics and categorized by sex and occupation. Population estimates by sex, age, year, and occupation were from the annual American Community Survey and Decennial Censuses. An adjusted persons-at-risk for an age cohort was obtained by averaging the total population in each age-sex-occupation-specific strata across the historical years from 1976 to 2023. Each stratum was further re-scaled using a sex-specific correction factor. Subsequently, average annual age-adjusted cancer mortality rates and 95% confidence intervals by sex, occupation, and cancer sites were calculated.

Results: The overall average cancer mortality rate per 100,000 working-age US residents was 55.2 among males and 49.1 among females. The highest overall cancer mortality rates included five occupations shared across sexes (fishing and hunting workers, rates 167.4 and 143.9; mining machine operators, rates 126.6 and 127.0; funeral directors, rates 112.7 and 152.8; animal trainers, rates 117.3 and 110.5; and dietitians and nutritionists, rates 111.4 and 105.6, for males and females, respectively) and occupations that spanned across several higher-level groups.

Conclusions: Cancer mortality rates in working-age adults vary by sex and occupation, highlighting the complex role that exposures play in cancer mortality risk and the need to properly account for latency and stratification on a granular level. Our historical approach addresses these challenges and can also be used in future research concerning both cancer mortality and incidence.

129-T

Follicle stimulating hormone, luteinizing hormone, and breast cancer risk in postmenopausal women

Ziller SG, Lima SM, Bea JW, Wactawski-Wende J, Manson JE, Roe DJ, Funk JL, Odegaard A, Harris HR, Cheng E, Jung SY, Simon MS, and Ochs-Balcom HM

Purpose: The postmenopausal period is characterized by an increase in circulating levels of follicle stimulating hormone (FSH) and luteinizing hormone (LH) along with a higher risk of breast cancer (BC). Given the coinciding time periods and prior evidence from preclinical studies, we examined whether baseline FSH and LH levels are associated with odds of BC risk in postmenopausal women.

Methods: Using a nested case-control study including women enrolled in the Women's Health Initiative (WHI) dual-energy X-ray absorptiometry cohort who were cancer-free at baseline, 620 incident invasive BC cases were matched to 619 controls on age, race, ethnicity, and study membership arm (observational study, dietary modification trial, or calcium/vitamin D trial). We excluded participants from the hormone therapy (HT) trials. We descriptively compared cases and controls according to reproductive factors, hormone levels, and adiposity measures. We conducted conditional logistic regression to calculate odds ratios (OR; 95% confidence intervals [CI]) for estimating the associations of FSH and LH (tertiles: T1, T2, T3) with BC, after adjusting for demographic factors, lifestyle factors, medication use, reproductive factors, family history, estradiol (E2), and sex hormone binding globulin. Additionally, unconditional logistic regression was conducted by stratifying baseline E2 (≥19.28 vs <19.28 pg/mL according to the median concentration in controls).

Results: Participants were predominantly white (83.2%) with a mean baseline age of 61.7 years. Cases were more likely to have a female relative with breast cancer and higher body mass index. Compared to women in FSH T1, women in T2 had significantly higher risks of BC (ORT2=1.69, 95% CI: 1.01-2.84; ORT3=1.20, 95% CI: 0.65-2.22). We did not observe significant associations between LH and breast cancer. The associations of FSH and LH with incident BC were attenuated and no longer significant when stratified by baseline E2.

Conclusion: We found that higher FSH was significantly associated with higher risk of BC in postmenopausal women, whereas this association may not be linear. Future work should further investigate the modifying effect of E2 and test this gonadotropin hypothesis in a sample of women from the WHI HT trials.

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From Above and Below: How Cancer Risk Perception from Sun and Seafood Consumption Impact Preventive Care Utilization

Lopez I, McManus DJ, Albertini-Fleurant A, Del Campo A, Ortiz Gonzalez J, Peddada A, Wells A, Macdonald C, Wester J, Ashad-Bishop KC

Purpose: Urban fishers are uniquely vulnerable to intersecting threats that pattern increased cancer risk and poor prognosis, specifically prolonged ultraviolet radiation (UVR) exposure from increasingly frequent extreme heat days and heightened exposure to carcinogenic environmental contaminants through seafood consumption. We conducted a mixed-methods investigation to understand how perception of UVR and heavy metal exposure risk, both alone and in combination, informs sun-protective behaviors (SPBs), preventive care utilization, and skin cancer (SC) screening adherence.

Methods: Semi-structured interviews were conducted in English, Spanish, and Haitian Kreyol among near-shore urban fishers in Miami-Dade County, Florida's largest coastal county by population. Survey questionnaires asked approximately 35 multiple-choice, true/false, and Likert-scale questions covering sociodemographic traits, fishing motivations and practices, UVR and heavy metal risk perception, and frequency and purpose of preventive care utilization. Interview data and corresponding field notes were analyzed using rapid qualitative methodology to identify emergent themes.

Results: We found that urban fishers rely on lived experiences and years of accumulated fishing expertise rather than expert opinion for best practices regarding UVR exposure and SC prevention. Despite excessive UVR exposure, participants reported insufficient and inconsistent SPBs and lack of adherence to SC screening recommendations. Further, participants expressed little concern about cancer risk patterned by seafood consumption, thus no impact was reported on healthcare utilization or screening adherence.

Conclusions: We found poor evidence of adoption of sun-protective behaviors and inconsistent preventive care utilization, including SC screening. Despite elevated, intersecting health risks among anglers, there is limited research examining the influence of risk perception of carcinogenic exposures on cancer-related health protective behaviors among this population. Awareness of the multifactorial nature of health risks among urban fishers provides a critical foundation to improve SPBs, access to care, and cancer screening adherence among this high-risk population.

131

Nitrate Contamination in Drinking Water: A Knowledge, Attitudes, and Behaviors Survey

Brown KA, Mencia R, Woolsey S, Baumert J, Bell JE

Purpose: In agricultural regions of the United States, nitrate contamination in drinking water is a significant public health concern and has been associated with numerous adverse health outcomes, including cancer. This study assessed the knowledge, attitudes, awareness, and confidence of healthcare professionals (HCPs) toward nitrate contamination and associated health effects.

Methods: A cross-sectional survey was administered to HCPs (n=488) to assess the knowledge, attitudes, awareness, and confidence toward nitrate contamination, drinking water quality, and health outcomes. Descriptive statistics, non-parametric tests, and linear regression analysis were used to explore trends in the data, compare means in behavior, and examine the potential impact of knowledge and attitudes on information-sharing practices with patients. Qualitative analysis of open-ended questions was used to identify gaps in knowledge associated with human health outcomes, current access to nitrate resources, and preferences for receiving future training and resources for dissemination.

Results: The majority of participants reported that they were not knowledgeable (n=271, 55.5%) or somewhat knowledgeable (n=156, 33%) about the health effects of nitrates, with even fewer (n=30, 6.1%) identifying specific cancers as a significant health risk. HCPs also reported a lack of confidence (n=351, 72%) in advising patients about these health risks. Attitude was found to be a strong and significant predictor of information-sharing behaviors (B=0.624, p<0.001). Participants also reported a strong desire for additional knowledge and resources through educational videos, virtual training, and resource websites.

Conclusions: The results of this study found that HCPs reported overall low levels of knowledge and confidence regarding the health impacts of nitrate contamination. Despite this, participants expressed a positive attitude toward engaging in information-sharing behaviors, including advising patients and sharing additional resources if provided. Future research should build upon the findings of this study and develop targeted interventions to provide education and training for HCPs about nitrate contamination and its impact on cancer and other adverse health outcomes.

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Magnetic Resonance Imaging (MRI)-Assessed Body Composition, Plasma Proteomics, and Cancer Risk: the UK Biobank Image Study

Cheng TD, Tounkara F, Handley D, Mahenge CM, Akasheh RT, Nguyen X, Yu L

Purpose: We aimed to evaluate the relationships between body composition and cancer risk and circulating proteomics.

Methods: Participants in the UK Biobank Image Study (n=80,766) without prior cancer diagnosis and with a trunk MRI image taken before 12/31/2020 were included. Cases (n=1,129) were individuals with the first cancer diagnosis at least 6 months after the imaging study. Controls (41,668) were individuals with no cancer diagnosis during follow-up. Six body composition variables derived using 3D organ segmentation (AMRA Profiler Research) included liver proton density fat fraction (PDFF), visceral adipose tissue index (VATi), abdominal subcutaneous adipose tissue index (ASATi), muscle fat infiltration (MFI), weight-muscle ratio (WMR), and fat ratio (FR). Imputation for the body composition variables was performed using the K-Nearest Neighbors (KNN) method among 15,691 (36.6%) of controls with missing data. Sex-specific cancer risk was estimated using inverse-probability-treatment weighting and weighted-logistic regression accounting for covariates, including body mass index (BMI). Imputation for the plasma proteomics data (Olink) at the image study was performed using the KNN method among the 1,063 individuals. Cancer propensity related to the body composition variables was estimated using the Random Forest method and correlated with plasma proteomics data using the Elastic-net method.

Results: The mean age of the participants was 65.0 (Âffl7.8) years old. All six body composition variables were significantly associated with cancer risk in women (liver PDFF, odds ratio [OR]=1.02; VATi, OR=1.21; ASATi, OR=1.06; WMR, OR = 1.09; MFI, OR=1.09; AFR OR=2.97 per unit increment; all P<0.05). In men, VATi (OR=1.17), WMR (OR=1.09), MFI (OR=1.08), and AFR (OR=2.44) were significantly associated with cancer risk. The area under the curve for the cancer propensity score to predict cancer status was 0.7 for both men and women. The proteomic analysis suggests these body composition variables may mediate cancer risk through influencing several distinct pathways, such as TGF-Î2 superfamily signaling.

Conclusion: Our findings reveal cancer risks associated with body composition variables beyond BMI and the potential mechanisms underpinning the associations.

133-T

Metabolomics Analysis of Postmenopausal Breast Cancer Risk: A Meta-Analysis of Cohort Studies

Corleto KA, Moore SC, Watts E, Stevens VL, Wang Y

Purpose: Breast cancer is the most frequently diagnosed cancer and the leading cause of cancer-related death in women worldwide. It is a heterogeneous disease whose etiology is not fully understood. Several prospective cohort studies have used metabolomics to evaluate the role of metabolic factors in breast cancer development, but results have been inconsistent. To help clarify metabolism's role in breast cancer etiology, we meta-analyzed blood metabolomics data from three nested case-control studies of breast cancer risk.

Methods: The studies originate from three different cohorts the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial and the Cancer Prevention Study II and III and together comprise 2,064 postmenopausal breast cancer cases and 2,054 controls. Metabolomics data were generated by Metabolon, Inc. using liquid chromatography-tandem mass-spectrometry. Logistic regression models were used to estimate odds ratios (ORs) and 95% (CIs) per one standard deviation increase on the log-scale level for each metabolite in each study. Study-specific estimates were combined using random-effects meta-analysis to generate overall ORs and 95% CIs, with multiple testing controlled using the false discovery rate (FDR <0.05).

Results: Out of 979 metabolites analyzed twenty-two were significantly associated with postmenopausal breast cancer risk, these included eleven sex steroid related hormone metabolites, such as androsterone sulfate (OR per 1 standard deviation [SD] = 1.18; 95% CIâ€‰=1.10-1.25); an alcohol-related metabolite, alpha hydroxyisovalerate (1.14; 1.06-1.22); a diet-related metabolite, delta tocopherol (1.16; 1.07-1.25); two glycerophosphocholine metabolites, 1-linoleoyl-2-linolenoyl-GPC (0.88; 0.81-0.95) and 1-palmitoyl-2-palmitoleo-GPC (1.16; 1.07-0.26); and seven others from assorted biological pathways, including guanidinosuccinate (0.87; 0.81-0.94).

Conclusion: This large analysis refines prior evidence and extends current knowledge of metabolite biomarkers associated with postmenopausal breast cancer risk, providing a better understanding of breast cancer etiology

134-T

Association of Serum Heavy Metals with Breast Cancer Risk

Destin D, Kopinetz T, Thompson CL

Purpose: Breast cancer (BC) is the most common malignancy among U.S. women behind skin cancer. Risk factors for BC include both genetic and non-genetic factors, such as parity, age at first birth, lifestyle, and environmental exposures. Heavy metals (HMs) have been studied in both the context of dietary intake and environmental exposures, with elevated blood levels of arsenic associated with increased risk of BC. However, these associations are not conclusive and associations for other HMs such as iron (Fe), copper (Cu), zinc (Zn), rubidium (Rb), molybdenum (Mo), selenium (Se), and manganese (Mn) remain unclear.

Methods: 204 serum samples from cases (n=105) and controls (n=99) participating in a larger case-control study were assessed for concentrations of Fe, Cu, Zn, Rb, Mo, Se, and Mn using Total Reflection X-ray Fluorescence (TXRF) spectrometry. A concentration of 0 was imputed for elements with concentrations below detection limits. All elemental concentrations were scaled by their median absolute deviations (MAD), and logistic regressions were used to evaluate the association of each element with BC. Adjustments were made for age, race, batch number, parity, age at menarche, smoking and alcohol consumption. ORs, 95% CI, and p-values were obtained. All analyses were conducted using R version 4.4.2.

Results: Serum levels of Fe (OR=0.98, 95% CI: 0.96-0.99, p=0.04) were associated with decreased breast cancer risk. Borderline significant associations were found for Zn (OR=0.93, 95% CI: 0.87–0.99, p=0.05), Rb (OR=0.83, 95% CI: 0.66–0.99, p=0.06), Cu (OR=1.23, 95% CI: 0.99–1.54, p=0.06), and Mn (OR=1.44, 95% CI: 0.94-2.25, p=0.09). No statistically significant associations were found for Mo or Se (p>0.1). Limiting the sample to cases who did not receive chemotherapy increased the effect estimates but reduced statistical significance, likely due to decreased sample size.

Conclusions: Our findings suggest that Fe, Zn, and Rb may potentially lower risk of BC, while Cu and Mn may be associated with increased risks. As there's currently little to no consensus on these associations in the literature, further studies with larger samples are needed to elucidate the roles played by these HMs on BC risk.

135-T

Hair Straightener Use Over the Life Course in the Sister Study

Gedeon BA, Nichols NB, Engel SM, Butler EN, Schwartz TA, O'Brien KM, Sandler DP, White AJ

Purpose: Chemical hair straighteners can contain endocrine disrupting chemicals and carcinogens that may increase cancer risk. Given cancer's long latency, cumulative exposure to straighteners over the life course may be especially important to consider. As a preliminary step to investigating straightener use and cancer risk, we explored patterns of use of straighteners over the life course.

Methods: In 2020-2022 questionnaires, the Sister Study cohort (50,884 women enrolled during 2003-2009) collected information on frequency (1-2x per year, every 3-4 months, every 5-8 weeks, 1 or more times a month), formulation (lye/non-lye), and ages (teens, 20s, 30s, 40s, 50s and above) of straightener use. Frequent, prolonged use was defined as use for more than half the decades (>2 decades), at least 4x/year. Logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for associations with frequent, prolonged use. Multivariable models adjusted for age, physical activity (metabolic equivalent (MET) hours per week), body mass index (BMI), attained education, and household income at Sister Study enrollment.

Results: Among 37,095 women with information on life course use of hair straighteners, 12.4% (n=4,598) reported ever using straighteners, and 2.2% were classified as frequent, prolonged users. Use of any straighteners peaked in women's 20s (7.1%) and declined after age 50 (6.2%). Lye-based formulations showed a similar pattern of higher use in the 20s (3.2%) than after age 50 (1.3%). In adjusted models, high BMI (≥ 30 vs. <25 kg/m2, OR= 4.39; 95% CI: 3.62, 5.32), low physical activity (<9.2 vs. ≥9.2 MET hours, OR=1.18; 95% CI: 1.02, 1.37), household income ≤$50,000 (vs. ≥$100,000, OR= 1.63; 95% CI: 1.33, 1.99), and having a bachelor's degree (vs. high school diploma, OR= 2.14; 95% CI: 1.64, 2.80) were associated with long-term, frequent use of straighteners.

Conclusions: In our analysis, common cancer risk factors such as high BMI and low physical activity were strongly associated with straightener use. Our findings suggest that investigations of life course straightener use and cancer risk should carefully consider these and other potential confounding factors.

136-T

Prospective Evaluation of the Oral Microbiome and Postmenopausal Breast Cancer Risk in the NIH-AARP Diet and Health Study

Herrera G, Hua X, Wu Z, Liao LM, Wan Y, Dagnall CL, |Jones K, Hicks BD, Hutchinson A, Gail MH, Shi J, Gierach GL, Sinha R, Vogtmann E.

Purpose: To prospectively evaluate whether the oral microbiome is associated with post-menopausal breast cancer risk in the NIH-AARP Diet and Health Study cohort.

Methods: Oral wash samples were collected from a subset of the NIH-AARP cohort in 2005. For this study, we included 318 women who developed breast cancer after the oral wash sample collection and 318 controls, incidence density–matched on age at collection, race/ethnicity, and smoking. DNA was extracted using the DNeasy PowerSoil Pro Kit, followed by shotgun metagenomic sequencing. Conditional logistic regression was used to calculate odds ratios (ORs) for associations between alpha- and beta-diversity, species- and gene-level metrics, and breast cancer risk, adjusting for potential confounders.

Results: The average age at sample collection was 61.5 years, and breast cancer cases were diagnosed a mean of 3.4 years later. The majority of microbial metrics, including alpha and beta diversity and genus-, species-, and gene-level features, showed largely null associations, with the exception of Pielou's evenness (OR=0.82; 95% CI=0.70–0.95). When stratified by time to diagnosis, this inverse association was limited to women diagnosed within 2 years of sample collection (29% of cases). In this subgroup, alpha and beta diversity indices were associated with breast cancer risk, and previously reported genus-level associations were replicated, including the inverse association with the presence of Dialister (OR = 0.41; 95% CI = 0.19–0.90), Filifactor (OR = 0.25; 95% CI = 0.08–0.82), and Treponema (OR = 0.37; 95% CI = 0.17–0.78). In contrast, women diagnosed more than two years after sample collection showed largely null associations. Similarly, supplemental analyses limited to invasive, estrogen receptor–positive (ER+), and progesterone receptor–positive (PR+) breast cancer cases revealed that any detected associations were mainly attributed to the subset of cases diagnosed within the first two years of follow-up.

Conclusions: Our findings suggest that the oral microbiome is not prospectively associated with post-menopausal breast cancer risk in a US population. Moreover, our results provide evidence that previously reported associations may be due to reverse causation.

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Air Pollution Adductomics and Liver Cancer Risk

Lin J, Smith JW, Groopman JD, Cole RN, Kensler TW, Whitsel EA, McGlynn KA, Kaufman JD, Ioannou GN, VoPham T

Purpose: Pan-protein adductomics, a novel technology to quantify adducts formed from electrophiles (e.g., air pollutants) reacting with and modifying residues in albumin, can precisely estimate the biological effects of personal exposure to environmental pollutants. The objective of this study was to examine the associations between pre-diagnostic adductomic biomarkers and hepatocellular carcinoma (HCC) risk in the Women's Health Initiative (WHI).

Methods: We conducted a case-control study nested in WHI. Controls without HCC were matched to HCC cases on age, race, and ethnicity. All participants were postmenopausal females who never smoked and did not have hepatitis B or C virus infections. Targeted pan-protein adductomics using nanoflow-liquid chromatography, high-resolution tandem mass spectrometry was conducted using baseline serum biospecimens. Exact conditional logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for the associations between each adduct and HCC risk accounting for matching factors, study component, hormone use, and individual- and neighborhood-level socioeconomic status.

Results: A total of 17 HCC cases and 73 controls were included in this study. Cases were a median age of 69 years (interquartile range [IQR] 66-71) and mostly non-Hispanic (82.4%) or White (82.4%). Of the 10 target modifications in albumin detected among participants, two adducts at the Cys34 residue were associated with HCC risk. Higher Cys34 ß-methylthiolation adduct levels were associated with increased HCC risk (OR per IQR [0.46 relative abundance per mg albumin] increase: 2.63, 95% CI 1.09-6.96, p=0.03). Higher Cys34 dioxidation adduct levels were associated with decreased HCC risk (OR per IQR [0.44] increase: 0.59, 95% CI 0.33-0.99, p=0.04).

Conclusions: Adductomic biomarkers for Cys34 ß-methylthiolation and Cys34 dioxidation were associated with HCC risk. Prior studies have shown increased Cys34 ß-methylthiolation adduct abundances among individuals exposed to high air pollution levels, and that particular oxidation products (e.g., Cys34 dioxidation) may decrease with oxidative stress due to redox proteome perturbations. Future research should confirm these findings with larger sample sizes.

138-T

Effects of Heavy Metal Contaminants in Drinking Water on DNA Methylation Patterns in Carcinogenesis: A Synthesis of the Evidence

Schroeder ER, Mumber SL, Eagerton DH, Kadio B, Hicks AM

Purpose: This study synthesizes current evidence linking chronic exposure to heavy metals in drinking water with modifications to DNA structure and regulation in carcinogenesis.

Methods: A literature review was conducted of peer-reviewed English-language studies published between 2015 and 2025. Articles were identified through Medline, PubMed, Ovid, Scopus, and Web of Science using Boolean combinations of heavy metals, drinking water, DNA methylation, and cancer. Forty-one studies were included that reported empirical data on metal-induced epigenetic changes. Extracted data included metal type, study design, methylation outcomes, and implicated carcinogenic pathways.

Results: Chronic exposure to arsenic, cadmium, chromium, lead (Pb), or mercury was consistently associated with epigenetic mechanisms of carcinogenesis. Shared pathways included global DNA hypomethylation, hypermethylation in the promoter regions of tumor suppressor and DNA repair genes, and promoter hypomethylation of proto-oncogenes. Distinct methylation patterns were observed for individual metals. For example, lead, the most prevalent water contaminant in the United States, was linked to hypomethylation of the proto-oncogene PRMT5, whereas arsenic, a natural and industrial pollutant, induced hypermethylation of the tumor suppressor genes DAPK and p16.

Conclusions: This synthesis identifies molecular pathways through which environmental metal exposures contribute to carcinogenesis and highlights contaminated drinking water as a determinant of cancer distribution. Future research should define gene-specific methylation targets and integrate molecular biomarkers into environmental monitoring and cancer prevention strategies.

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Solar Jetlag Exposure and Liver Disease Mortality in the United States

Nondin C, Lin J, Cortez M, Karasaki S, Donzella SM, Chao SLS, Kim NJ, Vutien P, Berry K, Weaver MD, Ioannou GN, VoPham T

Purpose: Liver cirrhosis and hepatocellular carcinoma (HCC), which can be due to metabolic dysfunction-associated steatotic liver disease (MASLD), are leading causes of death globally. Although there is strong biological plausibility for circadian misalignment in the pathogenesis of liver disease (e.g., through disruptions in bile acid synthesis and glucose regulation), the impact of circadian misalignment from solar jetlag, or differential environmental light exposure due to time zone position, remains unclear. The objective of this study was to examine the association between solar jetlag exposure using a novel geospatial model and risk for mortality from MASLD, cirrhosis, and HCC.

Methods: Mortality and sociodemographic data from death certificates for all deaths occurring in the United States from 2009-2023 were obtained from the National Center for Health Statistics. A spatiotemporal model for solar jetlag (unitless score) developed using sunrise and sunset times, time zone position, latitude, and elevation was linked with the county and year of residence at death. Quasi-Poisson regression with robust standard errors was used to estimate mortality rate ratios (MRRs) with 95% confidence intervals (CIs) for the association between solar jetlag exposure and risk for mortality from MASLD, cirrhosis, and HCC adjusting for individual-level age, sex, race, ethnicity, year, marital status, and education, and county-level poverty and time zone.

Results: A total of 26,255 deaths due to MASLD, 1,211,050 deaths due to cirrhosis, and 158,944 deaths due to HCC were included. Higher solar jetlag exposure was associated with a two-fold increased risk for MASLD mortality (adjusted MRR highest [>76.16] vs. lowest quintile [≤23.59]: 2.06, 95% CI 1.65-2.56; p trend <0.001), a 52% increased risk for cirrhosis mortality (adjusted MRR highest vs. lowest quintile: 1.52, 95% CI 1.30-1.77; p trend <0.001), and a 50% increased risk for HCC mortality (adjusted MRR highest vs. lowest quintile: 1.50, 95% CI 1.30-1.71; p trend <0.001).

Conclusions: Higher solar jetlag exposure was associated with increased risk for MASLD, cirrhosis, and HCC mortality in the United States. Future research should examine the role of solar jetlag in liver disease incidence outcomes.

140-T

Proteomic Mediators of the Association Between Body Mass Index and Obesity-Related Cancers in the UK Biobank

Ryan PJ, Watts EL, Moore SC

Purpose: To identify proteomic mediators of the associations between body mass index and obesity-related cancer.

Methods: In 49,843 UK Biobank participants, 2,923 proteins were measured in fasting plasma collected at baseline. Obesity-related cancers were those previously positively associated with BMI in UK Biobank, namely cancers of the liver, kidney, pancreas, colon, stomach, bladder, thyroid, breast, and uterus and non-Hodgkin lymphoma and multiple myeloma. Over up to 14 years of follow-up, 2,423 obesity-related cancer cases were diagnosed. We used linear regression – adjusted for age, sex, race, education, smoking history, and alcohol consumption – to identify BMI-associated proteins, and proportional hazards models – adjusted for the same – to identify which of these associated with risk of each obesity-related cancer. All tests were Bonferroni-adjusted for the number of proteins examined. Mediation was evaluated by first estimating BMI–cancer associations in a base model, then re-estimating associations after adding proteins individually, and quantifying mediation as the attenuation of the log-odds ratio attributable to each protein.

Results: Of 2,222 BMI-associated proteins, 559 were associated with at least one type of cancer (ranging from 326 for liver cancer to 1 for uterine cancer). The hazard ratios (HR) per standard deviation for protein-cancer associations were often large, e.g., for the CDHR2-liver cancer association, the HR per standard deviation was 3.19 (95% CI: 2.32 – 4.38). Of 11 cancer types, we observed strong attenuation (>50%) by one or more proteins for seven of them (cancers of the liver, kidney, colon, stomach, bladder, and non-Hodgkins lymphoma and multiple myeloma). Some were strong mediators for numerous cancer types, such as the ADM protein for colon cancer, non-Hodgkins lymphoma and FABP3 for cancers of the liver, kidney, colon.

Conclusions: Numerous proteins may mediate associations between BMI and cancer risk. Several proteins appeared to mediate associations across multiple cancer types, suggesting shared obesity-related mechanisms underlying these cancers.

141-T

Coffee Consumption and Gene Expression Signatures in Normal Colon Mucosa: Insights into Potential Protective Mechanisms Against Colorectal Cancer

Devall M, Taha HM, Koepfler A, Le V, Obón-Santacana M, Peters U, Moreno V, Schmidt S, Li L

Purpose: Coffee contains several bioactive compounds that may influence colon physiology. Although several epidemiological studies have reported that increased coffee consumption is negatively associated with colorectal cancer (CRC) incidence, the molecular mechanisms underlying these effects remain inconclusive. To address this, we explored molecular mechanisms underlying coffee's potential protective effects through RNA-seq analysis of normal mucosal biopsies. We hypothesized that genes inversely associated with coffee intake would show opposite expression patterns in normal mucosa compared to CRC tumor tissue, providing novel insight into the potential cancer preventive mechanisms of coffee.

Methods: RNA-sequencing was performed on normal colon biopsies from a cross-sectional study of 445 individuals of mostly European ancestry with no polyps, lesions, or CRC history. Coffee consumption, assessed by food frequency questionnaire was categorized as "0" for (0-99 g coffee/wk), "1" for 100-199 g/wk, and "2" for 200-299 g/wk. A negative binomial regression was performed on coffee consumption while accounting for variables such as sex and smoking history. To contextualize findings to CRC, two publicly available RNA-seq datasets were analyzed and only differentially expressed genes identified in both cohorts were considered to be "cancer-relevant".

Results: Across CRC datasets, 7,793 genes were differentially expressed between tumors and matched normal tissues. Among these, 174 were nominally associated with caffeine ($P < 0.01$), with 65.5% (114 genes) of these displaying a discordant direction of association between the two analyses. Enrichment analysis revealed that most of these processes were related to inflammation and immunity, while enrichments for response to lipid (GO:0033993; FDR = 7.30E-05) and regulation of cell population proliferation (GO:0042127; FDR = 1.20E-03) were also observed.

Conclusion: Our analysis suggests that coffee consumption may modulate gene expression patterns in the normal colon mucosa that oppose those observed in CRC tumors. These findings highlight inflammatory, immune, and lipid-related pathways as potential mediators of coffee's protective association with CRC risk.

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Identifying Communities in New York where Patients with Cancer Live and are Experiencing Elevated Levels of Extreme Weather

Liu B, Sheffield P, Thompson H

Purpose: Cancer patients are more vulnerable to extreme weather with certain geographical areas contending with more extreme weather hazards.

Methods: Age-adjusted cancer prevalence from 2023 for lung, breast, colorectal, and prostate was identified from the Centers for Medicare and Medicaid Services data for New York State. The National Risk Index (NRI) from the Federal Emergency Management Agency was used to identify 12 climate-focused hazards. The NRI is calculated (in dollars) based on expected annual loss and community risk. The county-level NRI and cancer prevalence were assessed using a bivariate spatial association index, Lee's L statistic, to create geographical clusters of elevated cancer prevalence with an elevated NRI, High-High clusters.

Results: The median NRI value was 5.95 million dollars for 62 counties in New York State. The median cancer prevalence was 12%. Queens County was a statistically significant High-High cluster. The annualized frequency was highest for strong winds, coastal flooding, and riverine flooding. Queens County was in the 94th percentile for social vulnerability and 5th percentile for community resilience.

Conclusions: Cancer patients are vulnerable to extreme weather, and not all geographical areas have the same risk. This work can be helpful in clinical messaging with future research focused on refining these results.

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Green Space Exposure and Ovarian Cancer Incidence and Survival in US Cohorts of Female Nurses

Perez-Morales J, Iyer HS, Hart JE, Laden F, Kubzansky LD, Moreau J, Armaiz-Pena G, Tworoger SS, Roscoe C

Purpose: Ovarian cancer is a common cause of cancer death in women, due to the inability to identify women at high-risk and late stage at diagnosis. Inflammation and immune suppression play a key role in ovarian carcinogenesis. Studies suggest that green space exposure can positively impact inflammation and immunity. Thus, we evaluated the association between green space and ovarian cancer incidence and mortality among cases in the Nurses' Health Study (NHS) and NHSII.

Methods: Greenness was defined using the normalized difference vegetation index (NDVI), a quantitative indicator of photosynthetic vegetation. We obtained 30m2â€¯resolution Landsat satellite data and calculated average NDVI within 270m and 1230m radial buffers to represent residential exposure and exposure in a short walk/drive using addresses from 1988 to 2018. We used time-varying Cox proportional hazards models to assess the cumulative maximum average NDVI and ovarian cancer risk and ovarian cancer specific survival in cases. We adjusted for age, US region, population density, neighborhood socioeconomic status (nSES) and either ovarian cancer risk factors (incidence) or case characteristics (mortality).

Results: Over 30 years of follow-up, 1053 cases were diagnosed in 3,347,392 person years. In fully adjusted models, we observed a statistically significant association for a 0.1 unit increase in 270m NDVI and ovarian cancer risk (HR (95% CI): 1.15 (1.0-1.28)â€‹; p-value: 0.009). A similar association was found for the 1230 m bufferâ€¯(1.15 (1.03-1.28); p-value: 0.0.01). Assessing exposure at least 2 years before diagnosis did not change the association. Preliminary results showed a possible difference when stratifying the US region, with stronger associations in the South and West. Conversely, for ovarian cancer mortality, we observed a suggestive decrease in risk for a 0.1 unit increase in 270m NDVI (0.92 (0.81-1.05); p-value: 0.08) and no association for 1230m.

Conclusions: Unexpectedly, green space exposure was associated with a higher risk of ovarian cancer, while suggestively associated with improved survival among cases. On-going analyses are assessing the potential for residual confounding. Future studies are needed to assess the type and quality of greenness with risk and survival.

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Relationship between Diet Quality and the Oral Microbiome within Three US Cohort Studies

Li F, Anyaso-Samuel S, Yano Y, Hua X, Liao LM, Huang WY, Freedman ND, Beane Freeman LE, Sandler DP, Abnet CC, Sinha R, Shi J, Loftfield E, Vogtmann E

Purpose: We evaluated the association between diet quality (Healthy Eating Index [HEI] 2015) and the oral microbiome in the Agricultural Health Study (AHS), NIH-AARP Diet and Health Study, and Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial.

Methods: After excluding participants with inadequate food frequency questionnaire (FFQ) data and prevalent cancer, 1,452, 1,921, and 2,173 participants from AHS, NIH-AARP, and PLCO were included, respectively. Individual HEI components were scored from FFQ data and summed. For the oral microbiome, alpha and beta diversity and genus-level presence and relative abundance were estimated. The proportion of variability in the beta diversity matrices explained by diet quality and other covariates were calculated. Linear, logistic, and zero-inflated negative binomial regression models with adjustment for confounders estimated associations of diet quality with oral microbiome measures and cohort-specific estimates were meta-analyzed.

Results: Average diet quality was lowest for AHS (61.4) and highest for NIH-AARP (68.8). Age explained the largest variability in beta diversity (Bray-Curtis), followed by smoking, education, and the HEI component for added sugar. Although overall diet quality was not associated with alpha diversity overall, the added sugar component was consistently inversely associated with alpha diversity. For example, 5% greater energy from added sugar was associated with 3.10 fewer observed species (95% confidence interval [CI]: -4.53, -1.68). At the genus-level, most of the identified associations were with added sugar. For example, a 5% increase in energy from added sugar was associated with 21% lower odds of having detectable Parvimonas (95% CI: 0.70, 0.89).

Conclusions: Overall diet quality was not associated with the oral microbiome, but consumption of added sugars was consistently associated with oral microbial diversity and specific genera.

145-T

Molecular Insights into Gardnerella vaginalis Clades Diversity and its Potential Role in HPV susceptibility

Yusoof KA, Cui H, Robles-Morales R, Roe D, Madhivanan P

Purpose: Bacterial vaginosis (BV) is characterized by dysbiosis of vaginal microbiota and overgrowth of Gardnerella vaginalis (G.vag). G.vag is comprised of four distinct clades, characterized by differences in virulence influencing susceptibility to Human Papillomavirus (HPV), a causative agent of cervical cancer. Clades 1 and 3 are considered virulent, while Clade 2 exhibits variable virulence factor expression, and Clade 4 is a non-virulent commensal. The purpose of this study was to understand how BV treatment influences the relationship of G.vag clades and high-risk HPV (HrHPV) incidence.

Methods: This is secondary analysis of 80 African-American asymptomatic women from the BRAVO study, a multisite randomized open-label trial assessing home-based BV screening and treatment of women at high-risk for STIs. Self-collected vaginal swabs collected at baseline, 2 and 4 months were tested with qPCR for G.vag clades and the nine vaccine preventable HPV subtypes. Prevalence and incidence of HrHPV were compared across groups using Fisher's exact tests. Interaction between treatment and G.vag clade was tested using logistic regression.

Results: The average age of participants was 21.5 years. There was no significant association between G.vag clades and HrHPV incidence or prevalence. When stratified by treatment, Clade 3 demonstrated a statistically significant interaction between HrHPV incidence and women receiving oral metronidazole (interaction p = 0.015). Notably, in the treated group, 4.8% (1 of 21) women with Clade 3 had incident HrHPV as compared to 35.7% (5 of 14) women without Clade 3 (p = 0.03), while no association was observed in the untreated group (p = 0.63), where 21.7% (5 of 23) women with Clade 3 versus 8.3% (1 of 12) without Clade 3 had incident HrHPV (p = 0.63).

Conclusions: This analysis suggests a potential treatment-dependent relationship between Clade 3 and HrHPV incidence. BV treatment may reduce HrHPV incidence in women with Clade 3. Further research is needed to clarify the clinical significance between G.vag clades and HPV acquisition and/or clearance and to inform targeted STI and cervical cancer prevention strategies.

146-T

Metabolomic biomarkers of habitual alcohol use and risks of five cancers

Zhang T, Loftfield E, Moore SC, Naudin S, Playdon MC, Liao L, Albanes D, Weinstein SJ, Layne TM, Hong HG, Stolzenberg-Solomon RZ

Purpose: Alcohol is a known carcinogen for squamous cell esophageal cancer. Low-moderate intake is inconsistently associated with esophageal adenocarcinoma (EA), pancreatic ductal adenocarcinoma (PDAC), endometrial cancer, prostate cancer, and glioma. We examined associations between habitual alcohol use, associated metabolites, and risk of these cancers.

Methods: We measured 1278 metabolites in serum collected up to 26 years before cancer diagnosis in 9 nested case-control studies within the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial (PLCO) and Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study (ATBC) cohorts. We assessed partial Spearman correlations between baseline self-reported total alcohol, beer, liquor, and wine intake (ethanol g/d) and metabolites in discovery (n=1330, PLCO) and replication (n=480, ATBC) cancer-free controls sets. We estimated odds ratios (OR) and 95% confidence intervals (CI) for associations between alcohol, identified alcohol-related metabolites and risk of EA (208 cases/198 controls), PDAC (732 cases/732 controls), glioma (228 cases/229 controls), endometrial (193 cases/193 controls) and prostate (604 cases/604 controls) cancers using multivariable logistic regression.

Results: Total alcohol, beer, liquor and wine intake were correlated with 37, 8, 1 and 1 metabolites, respectively, in discovery (r=0.12–0.45, Bonferroni P<3.9—10-5) and replication (P<0.05) sets. Total alcohol ≥30 g/d (2 standard drinks, vs. 0) was associated with EA (OR=2.35, 95%CI=1.10–5.05), but not other cancers. Beer per 15 g/d was associated with higher EA and lower glioma risk. Alcohol related metabolites positively associated with cancer risk (FDR<0.20) include ethyl glucuronide (total, beer, liquor), cyclo(leu-pro) (total, beer), Îffl-hydroxyisovalerate, 2-hydroxy-3-methylvalerate, 2-palmitoleoyl-GPC (16:1) and 1-palmitoleoyl-GPE (16:1) (total) with EA; cyclo(leu-pro) and 5Îffl-androstan-3ß,17ß-diol disulfate (beer) with PDAC; and 5Îffl-androstan-3ß,17ß-diol disulfate (beer) with endometrial cancer. Ethyl glucuronide (liquor) was inversely associated with glioma.

Conclusions: Pre-diagnostic candidate metabolite biomarkers of habitual alcohol use were associated with higher EA, PDAC and endometrial cancer, but lower glioma risk.

Lifestyle and Preventive Interventions

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Effect of Weight Loss on Cancer-Related Biomarkers in Individuals with Obesity and History of Renal Stones

Lu J, Wood KD, Fargue S, Crivelli JJ, Knight J, Maalouf NM, Assimos DG, Gower B, Rogers LQ

Purpose: Assess changes in cancer-related biomarkers during a very low calorie diet (VLCD) in adults with obesity who are at greater risk of cancer due to history of renal stones.

Methods: A secondary analysis was carried-out using banked samples from a pilot, single arm, pre- to post-VLCD intervention study among adults with BMI 35-50 kg/m2 and history of kidney stones. Extensive medical and laboratory screening ruled-out history of cancer or medical comorbidity (e.g., diabetes). The VLCD lasted 10 weeks followed by a 4-week weight loss maintenance phase. BMI, body composition (dual-energy x-ray absorptiometry), and fasting blood samples were collected at baseline and after the weight loss maintenance phase. Paired t-test assessed biomarker changes pre- to post-VLCD. Pearson coefficients assessed associations among anthropometric and biomarker change scores.

Results: Eleven participants completed the study. Mean age of participants=46.8ÂffI11.9 years, 8 were women, and mean pre-weight loss BMI=45.5ÂffI7.3. A significant pre- to post-VLCD decrease was observed for BMI (mean = -5.5, p = 0.0001), estimated visceral fat mass (mean = -0.4 kg, p = 0.032), insulin (mean = -6.9 uIU/mL, p = 0.003), insulin resistance (HOMA-IR, mean = -2.0, p = 0.004), and leptin (mean = -25.2 ng/ml, p = 0.002). No significant changes were observed for IL-6, IL-10, IL-6:IL-10 ratio, C-reactive protein (CRP), adiponectin, B-hydroxybutyrate (BHOB), non-esterified fatty acids (NEFA), cathepsin L (CTSL) and cathepsin S (CTSS). Pearson coefficients revealed significant inverse correlations between adiponectin and IL-6:IL-10 (r=-0.71) change scores and between BHOB and CTSL (r=-0.69) change scores. Significant positive correlations were found between NEFA and IL-6:IL-10 (r=0.67), CRP and visceral fat mass (r=0.76), and IL-6 and BMI (r=0.71) change scores.

Conclusion: Participants with a history of renal stones who received a VLCD experienced significant reductions in BMI, estimated visceral fat, and cancer biomarkers relevant to glucose metabolism. Reductions in BMI and visceral fat were positively correlated with reductions in cancer biomarkers related to inflammation and fatty acid metabolism.

Monday, April 13, 2026

Behavioral Science and Health Communication

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Content and Linguistic Analysis of Generative Artificial Intelligence Chatbot Output about Alcohol Consumption and Breast Cancer Risk

Anbari AB, Maturino K, Rood J, Goth O, Soriano G, Henry Jesudasan G, Bautista JR

Purpose: In the US, awareness of alcohol consumption as a risk factor for breast cancer is low. Generative Artificial Intelligence (GenAI) chatbots may be a source of information about this risk. The purpose of our study was to document and evaluate GenAI chatbot responses about alcohol consumption and breast cancer risk.

Methods: We extracted 66 responses (output) from 22 configurations of 11 GenAI chatbots (e.g., ChatGPT, Copilot, Gemini, etc.) using prompts from the websites of the WHO (how does alcohol cause breast cancer?), the CDC (why does alcohol cause breast cancer?), and the National Breast Cancer Foundation (can alcohol cause breast cancer?). Using Dedoose, we conducted content analysis applying labels that corresponded to both clinical information (e.g., included causal mechanisms, discussed dose dependency) and presentation information (e.g., included references). Using Microsoft Word and Linguistic Inquiry and Word Count (LIWC) Software, we analyzed word count, reading level (Flesch Kincaid Grade Level), and linguistic features (e.g., use of technical language, emotional tone).

Results: Nearly all output included information about causal mechanisms of alcohol and breast cancer (n=65, 98.5%), and the majority included information about their dose-dependent relationship (n=58, 87.9%). About half of the output (n=35, 53%) did not provide citations or references. Four (6%) outputs included phrasing about alcohol's group one carcinogen status. Word count average was 257.1 with average college reading level (FKGL=13.2). Output included highly technical statements (M=89.4) and negative emotional tone (M=27.1). ANOVA results based on the prompt used demonstrated statistically significant differences in reading level [F(2,63)=6.90,p=.002) and tone [F=(2,63)=3.41,p=.04).

Conclusion: The variability and inconsistency present in GenAI output regarding alcohol and breast cancer risk is a public health concern. The information provided was highly technical and demonstrated a higher reading level than is suggested by the National Institutes of Health (6th grade level or below). We call attention to the need for greater standardization of GenAI output and improved education about GenAI prompt and output literacy.

149-T

Process Evaluation of a dietary chemoprevention intervention for early-stage bladder cancer survivors

Blaszak AR, Tang L, Kuliszewski MG, Li Q, Pratt R, Saad-Harfouche FG, Clark N, DiCarlo E, Yeary KHK

Purpose: Isothiocyanates (ITCs) from cruciferous vegetables have anticancer properties. We conducted a process evaluation of a randomized-controlled pilot that established the initial efficacy of a dietary intervention that increased cruciferous vegetable intake and urinary ITC levels to the hypothesized threshold to reduce bladder cancer recurrence in non-muscle invasive bladder cancer (NMIBC) survivors.

Methods: We used Linnan & Steckler Process Evaluation Framework to assess the reach, dose given/received, fidelity, implementation, recruitment, & program satisfaction of our 3-component dietary intervention

Results: Of the 153 individuals contacted, 34 (22.22%) from the New York State Cancer Registry (NYSCR) and 15 from Roswell Park (9.80%) consented to participate in the study. Treatment participants (n=23) were predominantly White (90.5%) & male (71.4%) with a mean age of 67.4 years (SD=9.3). All treatment participants received two of the three intervention components (mailed educational magazine & 30-minute live phone call to go over the magazine); for the third component (Interactive Voice Response (IVR) calls), participants answered 9.52 (SD=2.81) out of 11 calls, which provided tailored feedback based on cruciferae intake & goals. The intervention was delivered with fidelity. Participants reported positive feedback on the magazine & live calls, & high ease of intervention implementation. Participants reported dissatisfaction with the high number & repetitiveness of the IVR calls.

Conclusion: Given the high levels of dose delivered/ received and fidelity, our intervention may be easier for practitioners to deliver as intended compared to more complex interventions. Recruitment from the the NYSCR was more successful than from within our Cancer Institute; working with state cancer registries is an ideal way for broad recruitment. Participant engagement was strong, though future studies should address the repetitiveness of the IVR calls & broaden recruitment strategies.

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Influencing the Narrative: Using Inoculation Boosters to Counter HPV Vaccine Misinformation on Social Media

Boatman D, Bylund C, Starkey A, Jarrett Z, Watson M, Williams E, Kennedy-Rea S

Purpose: Passive exposure to misinformation on social media negatively affects health behaviors. The HPV vaccine has the highest volume of health misinformation online, contributing to lower vaccination rates. Inoculation messages can counter misinformation, but research into its online application is limited. The purpose of this study was to understand the impact of passive exposure to HPV vaccine misinformation on behaviors and beliefs and test the effectiveness of inoculation boosters as a potential intervention.

Methods: A pretest-posttest research design was used. Participants (n=1782) were recruited using Qualtrics Audience Panel and randomly assigned to one of three study arms: control (n=567), direct boosters (n=620), or narrative boosters (n=595). Control arm participants read four social media conversations with ten comments containing misinformation. Direct arm participants viewed the same social media conversations, but each comment section also included three direct style boosters (data/ facts). Participants in the narrative arm viewed the same social media conversations but each comment section also included three narrative style boosters (stories/pictures). Participants completed scales focused on vaccine hesitancy, intention, and conspiracy beliefs before and after viewing the conversations.

Results: Passive exposure to misinformation was associated with lower scores for vaccine hesitancy ($p<.001$), intention ($p<.001$), and conspiracy beliefs ($p<.001$). Inoculation boosters were associated with a reduced negative impact on scores, particularly related to conspiracy beliefs ($p=.002$) and hesitancy ($p=.006$). Inoculation boosters were associated with improved perceptions of vaccine effectiveness ($p<.001$). There was a slight preference for narrative style inoculation messages. Parents preferred boosters delivered by a reputable health organization ($p<.001$) while age-eligible adults preferred doctors as the messenger ($p<.001$).

Conclusion: Passive exposure to online HPV vaccine misinformation negatively affects behaviors and beliefs. Our findings suggest that inoculation boosters in social media comment sections can mitigate this, providing a foundation to develop interventions to reduce the effects of HPV misinformation online.

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Longitudinal Changes in Parental Reasons for Declining HPV Vaccine for Their Children and Predictors of Secondary Acceptance.

Calo WA, Shah PD, Fogel BN, Ruffin MT, Moss JL, Hausman BL, Segel JE, Bufalini CM, Johnston N, Caine A, Christiansen E, Llavona-Ortiz A, Kraschnewski JL.

Purpose: To characterize how parents' reasons for declining HPV vaccine for their children changed over time and correlated with secondary acceptance (i.e., vaccination after declining).

Methods: Between February 2022 and October 2024, we recruited 211 parents who declined HPV vaccination for their 11–17-year-old child in Pennsylvania. Parents enrolled in a 12-month longitudinal survey, completing 5 surveys at 3-month intervals. Surveys assessed reasons for declining HPV vaccine (thirteen reasons were aggregated into six categories), provider vaccine communication practices, parental opinions of providers' knowledge about HPV vaccine, and secondary acceptance rate. We estimated logistic regression models to assess correlates of secondary acceptance.

Results: At baseline, the main parental reasons for declining HPV vaccine were related to vaccine safety/side effects (39%), knowledge/attitudes (18%), inconsistent provider recommendation (15%), personal autonomy (8%), child not being sexually active (13%) and other (7%). During the 12-month follow-up assessment, parental reasons for declining HPV vaccine decreased in each category ($p<.05$) except personal autonomy, which was unchanged. The largest decreases were in safety/side effect (baseline=39%, 12 months=28%) and inconsistent provider recommendation (baseline=15%, 12 months=5%). Overall, 27% of parents reported secondary acceptance of HPV vaccination within 12 months. In multivariable analysis, secondary acceptance was lower among parents who reported more than one concern at baseline (OR=0.37, 95% CI:0.14, 0.95), self-reported same or higher level of knowledge about HPV vaccination as their child's provider (OR=0.35, 95% CI:0.11, 0.95), or had a child aged 12-17 years (OR=0.24, 95% CI:0.09, 0.58). Conversely, parents whose children had received all other recommended vaccines had six times the odds (OR=5.95, 95% CI:2.33, 16.40) of secondary acceptance.

Conclusions: This longitudinal study provides a nuanced understanding of HPV vaccine declination as a dynamic rather than fixed decision, suggesting that continued communication and engagement with parents may yield significant increases in HPV vaccine uptake through secondary acceptance.

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Exploring the Health Literacy Needs of Black Women Newly Diagnosed with Breast Cancer in New York City: A Qualitative Phenomenological Study

Chales N

Health literacy (HL) is correlated with patient health outcomes. For breast cancer patients, acquiring health information equips patients with knowledge to understand and manage their medical conditions. The problem is that a lack of health literacy in women newly diagnosed with breast cancer results in anxiety, poor understanding of their health condition, low understanding of treatment options, inability to self-advocate with medical providers, and poor self-management of their disease. A gap existed in the literature regarding the health information needs of Black women newly diagnosed with breast cancer. The purpose of this qualitative phenomenological study was to explore the lived experiences and information needs of Black women newly diagnosed with breast cancer in New York City. The model of causal pathways and the transactional model of stress and coping theories guided this study. Three research questions focused on exploring the participants' experiences and perspectives on health information-seeking and health information needs upon receiving their diagnosis. Purposive and convenience sampling strategies were used to recruit 16 participants. An interview protocol utilizing semi-structured interviews was the data collection instrument. Colaizzi's seven-step model was used to conduct the data analysis. Accounts of participants' experiences generated six major themes. Findings of the study could inform HL interventions and contribute to reducing health disparities among breast cancer patients. Further research to refine HL interventions and investigate navigation and survivorship unmet needs would be beneficial.

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Clinicians' Attitudes, Beliefs, and Training Needs in Providing Human Papillomavirus (HPV)-related Cancer Prevention Care to Sexual and Gender Minority Patients

Christy SM, Sutton SK, Davish M, Quinn GP, Donahue K, Kasting ML

Purpose: To describe primary care clinicians' beliefs, attitudes, and training needs regarding human papillomavirus (HPV)-related cancer prevention care for sexual and gender minority (SGM) patients and to examine potential differences by clinician type.

Methods: Primary care clinicians with a role in vaccination who provide care to patients aged 18-26 years were recruited via national panels to complete an online survey assessing HPV beliefs, attitudes, and need for additional training to address HPV topics with SGM patients. Descriptive statistics examined the extent of agreement/comfort for each item on a 5-point scale. Responses were dichotomized. Further analyses explored potential differences in agreement for physicians [MDs/DOs] versus advance practice providers [Nurse Practitioner (NP) and Physician Assistant (PA)].

Results: Participants (n=483) included those with the following credentials: MD (49%), DO (7%), NP (27%), and PA (17%). The majority (94%) agreed the HPV vaccine is effective in protecting adolescents and young adults against HPV infections and in preventing genital warts (85%) and cervical (93%), anal (86%), and oral cancers (81%). Most (91%) agreed that routinely recommending the HPV vaccine is important. About half (53%) agreed that HPV-associated cervical dysplasia can be found in females who have only had sex with other females. Most (61%) agreed that regular anal cancer screening can increase life expectancy for gay and bisexual men. About half (52%) reported being completely comfortable discussing HPV cancer risk with SGM patients. Still, most clinicians agreed that they would benefit from additional training regarding HPV and HPV-related cancer risk for sexual and gender minority patients (73% and 72%, respectively). Most clinicians also agreed that additional training was needed regarding how to recommend the HPV vaccine to sexual and gender minority patients (67% and 69%, respectively). There were no statistically significant differences by clinician type.

Conclusions: Clinicians generally reported positive attitudes toward and beliefs about HPV vaccine benefits. However, most reported that additional training about HPV-related cancer risks for SGM patients and how to recommend HPV vaccination to SGM patients would be beneficial.

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Evaluation of Rural Oregon Libraries' Implementation of a Group Walking Program and Civic Engagement Program Focused on Walkability

Currier J, Perry C, Lewis E, Maddock J, Dieckmann N, Winkle J, Franklin H, Andreyeva E, Folta S, Seguin-Fowler R

Purpose: To evaluate the implementation of two rural library-facilitated programs: Step It Up (SIU), a group walking intervention, and SIU plus Change Club (SIU + CC), which added civic engagement, using the Implementation Outcomes Framework. This analysis focused on two outcomes: appropriateness and acceptability.

Methods: This analysis focused on appropriateness (i.e., perceived fit of an intervention within a specific context) and acceptability (i.e., perceived agreeableness with an intervention). Participants were surveyed at baseline, 6, 12, and 24 months; librarians were surveyed at 3, 6, and 12 months. Implementation outcomes were measured using items from the Intervention Appropriateness Measure and the Acceptability of Implementation Measure. Annual fidelity checks complemented survey data. Descriptive statistics, independent-samples t-tests, effect sizes (Cohen's d), and confidence intervals were used to analyze differences over time and between programs.

Results: Eighteen rural Oregon libraries were randomized to implement SIU or SIU + CC. A total of 330 participants enrolled, with the sample being predominantly female (86%/n=284), white (92%/n=304), and aged 65 or older (60%/n=198). The retention rate was 79%(n=260) at 24 months. Librarians rated both programs highly appropriate, with the mean scores of 4.0 (SIU) and 4.11 (SIU + CC) on a 5-point scale and a slight increase from 3 to 6 months. Librarians' ratings of program acceptability was also high at 3 months (mean of 4.22 for SIU and 4.0 for SIU + CC), with a slight increase for SIU + CC at 6 months. Participant perceptions of acceptability and appropriateness remained stable over time, with small effect sizes. Participants reported enjoying meeting new people, social interaction, support from others, walking, and being active with the group.

Conclusions: Both SIU and SIU+CC were well-received in the rural library setting, showing high and stable levels of acceptability and appropriateness from both participants and librarians, with strong retention and engagement over two years. These findings indicate their potential for effectiveness and adoption in other health promotion and prevention program settings and populations.

155-T

Extreme Weather and Physical Activity: The Mediating Influence of Self-Rated Health

Canton I, D'Angelo H

Purpose: Regular physical activity (PA) is a well-established protective behavior in cancer prevention, yet extreme weather events (e.g. extreme heat) may limit opportunities to remain active. Extreme weather events have been associated with negative health impacts, therefore, this study examined self-rated health as a potential psychosocial mediator linking extreme weather exposure to weekly PA minutes.

Methods: We analyzed nationally representative, cross-sectional data from the NCI's Health Information National Trends Survey 7 (2024; n=4330). Weighted descriptive statistics and mediation analysis were conducted to examine the relationship between being affected by extreme weather events in the past 12 months (not at all, some/a little, a lot), health status (poor = 0 to excellent = 4), and self-reported weekly PA minutes. Covariates included sex, age, race, education, metropolitan status, region, smoking status, and health conditions.

Results: Descriptively, 37.3% (95% CI [34.9%,39.6%]) of US adults rate their health as good, 62.6% (95% CI [60.4%, 64.8%]) reported experiencing some/a little extreme weather, and respondents engaged in an average of 115.8 (SE = 1.02) minutes of weekly PA. Mediation analysis indicated no significant total effect of extreme weather on PA (ß = -0.008, 95% CI [-0.057, 0.040], p = 0.74). The natural direct effect (extreme weather --> PA) was also nonsignificant (ß = 0.007, 95% CI [-0.040, 0.055], p = 0.77). In contrast, the natural indirect effect through self-rated health was significant and negative (ß = -0.015, 95% CI [-0.024, -0.007], p < 0.01). Taken together, these findings indicate that the association between extreme weather and PA operates primarily through poorer self-rated health, rather than through a direct effect of extreme weather itself.

Conclusions: Extreme weather may be associated with lower levels of PA indirectly by worsening overall perceived general health. Interventions that address both environmental and psychosocial barriers are necessary to sustain PA and ensure all populations can achieve optimal levels of PA for cancer prevention.

156-T

Impact of Recommendation Quality on Cervical Cancer Screening Receipt

Ellingson MK, Brewer NT, Goddard K, Kritikos KI, Kennedy KL, Kahn BZ, Young JL, Gilkey MB

Purpose: To evaluate the association between the quality of a provider recommendation for cervical cancer screening and cervical cancer screening receipt.

Methods: We conducted a national survey of 788 women with children in 2025. We asked participants if they had ever received a recommendation from their provider for cervical cancer screening. If a participant had received a recommendation, we asked about three measures of recommendation quality: strength of endorsement (how important the provider said that cervical cancer screening was), inclusion of a prevention message (provider explained the risk of cervical cancer) and urgency (provider recommended getting screened that day). We defined a high-quality recommendation as meeting at least 2 of the 3 indicators. Among those who received a recommendation, we asked about self-reported receipt of cervical cancer screening. We conducted multivariable logistic regression to evaluate the association between recommendation quality and screening receipt, controlling for race/ethnicity and education.

Results: Among all survey participants, 22% received no recommendation for cervical cancer screening from their provider, 40% received a low-quality recommendation, and 38% received a high-quality recommendation. Among those who received a recommendation (n=613), more Black participants received a high-quality recommendation compared to White participants (60% vs. 45%, p <0.05). Participants who received a high-quality recommendation were more likely to have been screened than those who received a low-quality recommendation (90% vs. 80%, OR=2.6, 95% CI = 1.6, 4.2). In exploratory analyses of individual quality criteria, provider recommendations that included a prevention message or were urgent were independently associated with screening (AOR = 2.6, 95% CI = 1.6, 4.3; AOR = 5.2, 95% CI = 1.3, 8.9), but strength of endorsement was not.

Conclusion: Our findings suggest that the quality of provider communication influences cervical cancer screening uptake, with prevention messages and recommendation urgency emerging as particularly important. These findings can inform provider communication training, while also contributing to our conceptual understanding of what makes an effective provider recommendation

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What Patients Say: Effectiveness of a Health Communication Tool to Address Disparities in Clinical Trials Participation

Fleisher L, Lachow K, Harrington N, Albert M, Landau Z, Kenny C, Bass S, Edelman M

Purpose: The mychoice™ Implementation study assesses 1) feasibility and acceptability of delivering a digital, evidence-based clinical trial preparatory tool to all new medical oncology patients and 2) effectiveness and value of the mychoice™ tool on patients' preparation for a discussion about clinical trials.

Methods: mychoice™ is an IRB-approved implementation study. A link to the tool is sent to all patients after their first medical oncology consult and prompts patients through 4 sections including basic information about clinical trials, multi-cultural, multi-racial patient testimonials, questions to ask their provider, and resources, with the option to complete the brief feedback survey. Research staff contacted patients to enroll in the effectiveness component including an initial (immediately after viewing mychoice™) survey, 1-month, and 4-month surveys, a 2-month interview, and a 6-month chart review.

Results: 71 consented participants completed the initial survey and 63 completed the one-month follow-up survey. 73% of respondents were white, 21% were black, 4% were more than one race, 1% were Asian, and 3% were of Hispanic/Latino ethnicity. At Participants generally leaned toward participating in a clinical trial (Î¼ = 7.76, SD = 2.83) on an 11-point strongly agree/strongly disagree scale adapted from the Ottawa Decision Support Framework. Participants reported feeling adequately prepared to make a decision using mychoiceTM derived from Preparation for Decision Making scores (Î¼ = 71.9, SD = 17.5). There were no statistically significant differences in PrepDM scores by race/ethnicity indicating the effectiveness of mychoiceTM in appealing to all patients regardless of race/ethnicity. At six-month chart review (n=49), 20.4% of participants were offered a trial and 70% of those offered enrolled in a trial. Black participants who were offered a clinical trial appeared more prepared than White participants but initially reported lower intention to enroll.

Conclusions: Delivering multi-cultural digital health tools via EMR driven data directly to patients is both feasible and acceptable. Results suggest the value of this tool for decision making and promise of increasing patient intent to participate, especially among underrepresented groups.

158-T

From Maps to Minds: Geo-Spatial Targeting and Virtual Human Intervention Innovation to Advance Precision Colorectal Cancer Prevention in Underserved Florida Communities

Franco CL, Kauer T, Aliche O, McDuffie F, Yedavalli A, Moss FO, Krieger JL

Purpose: Persistent colorectal cancer (CRC) screening disparities exist among rural and underserved populations in Florida. To address these inequities, we utilized community-engaged practices and geo-spatial targeting to develop and disseminate ALEX (Agents Leveraging Empathy for eXams), an AI-driven virtual human (VH) bundled health intervention. The interactive ALEX intervention employs virtual human educators (vHEs) to deliver culturally tailored education about the importance of CRC screening and biospecimen donation.

Methods: We collected multimodal geo-spatial CRC incidence and mortality disparity data for nine counties within the Mayo Clinic Comprehensive Cancer Center (MCCCC) Florida catchment area. Our mapping results guided the selection of 11 Walmart Supercenter locations for community-based deployment of workplace wellness recruitment events implementing the ALEX intervention. These Cancer Conversation events aimed to (1) strengthen community partnerships by building trust with Walmart employees, and (2) deploy the AI-based VH educational intervention tailored to high-burden underserved neighborhoods. Finally, we conducted follow-up focus groups (n = 11) across Walmart stores with participating employees to explore perceptions of their vHE and ALEX intervention experience.

Results: Geo-spatial CRC map results revealed significant geographic heterogeneity with varying clusters of elevated CRC incidence and mortality concentrated in rural and sociodemographic disadvantaged areas. Guided by these data, ALEX recruitment events successfully reached employees in high-burden regions, and served as a trusted, relatable, and engaging messenger for CRC screening importance. Focus group data revealed that ALEX vHE's social identity concordance and cultural relevance enhanced participants' comprehension, credibility, trust, and motivation for screening.

Conclusion: Integrating geo-spatial targeting with an educational community-engaged VH intervention represents a novel model for precision prevention. Our approach demonstrates the feasibility, acceptability, and promise of deploying culturally tailored, technology-enhanced cancer education within high-risk, underserved communities through sustainable community partnerships to promote CRC screening uptake.

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Cancer Risk Factors Among Career and Volunteer Firefighters: Results from the Virginia Firefighter for Lifelong Health Registry

Glasgow TE, Burch JB, Arcan C, Barsell DJ, Diala O, Stokes T, Weissman S, McGill R, Archibeque S, Fuemmeler BF

Purpose: Firefighting is a carcinogen and understanding the multitude of risk factors is critical to preventing cancer in this occupational group. Research focuses largely on career firefighters and less on volunteers, despite most firefighters being volunteers. This study compares cancer risk behaviors between career and volunteer firefighters.

Methods: Participants were from the Virginia Firefighters for Lifelong Health (VA-FLH) research registry, an open cohort of Virginia career, volunteer and retired firefighters. VA-FLH was established by both researchers and firefighter community members. Analyses included career (n=256) and volunteer (n=73) firefighters. Logistic regression models, controlling for age, sex, race, education, and prior cancer diagnosis, were conducted to determine differences on the lifestyle behaviors between career and volunteer firefighters. Odds ratios (ORs), 95% confidence intervals (CIs), and p-values are reported for significant findings.

Results: Career firefighters were more likely to reporting getting an annual comprehensive occupational physical exam (OR = 11.10, 95% CI = [4.77, 27.82], $p < .001$) and more likely to report engaging in at least two days per week of strength training (OR = 2.16, 95% CI = [1.13, 4.14], $p = .02$). There were no differences in moderate physical activity, obesity, sleep quantity/quality, tobacco use, alcohol use, cancer screening (i.e., prostate, colorectal) and seeing a healthcare provider for routine check-ups (all ps > .05). Although the number of female firefighters in the registry is small, 19 out 21 of those aged 40+ reported being screened for breast cancer.

Conclusions: Career and volunteer firefighters did not differ on most lifestyle behaviors; however, volunteer firefighters were less likely to report getting a comprehensive physical exam and less likely to engage in the U.S. recommended two or more days of strength training. The National Fire Protection Association recommends all firefighters get an annual comprehensive physical exam to prevent and detect cancer earlier. Future research should explore why volunteer firefighters are less likely to get exams and develop programs or interventions to increase the percentage of volunteer firefighters who routinely have exams.

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Latinas Integrating Fitness and Therapy (LIFT): A Pilot Study

Gonzalez-Voller J, Leach HJ, Borrayo E, Jurewicz B, Martinez S

Purpose: The study will aim to examine the feasibility, acceptability, and preliminary effects of a combined stepped-care mental health counseling and exercise intervention —AYUDA: Step-by-Step Support and Fit Cancer.

Methods: To date, no studies will have examined the feasibility or effects of a culturally tailored, stepped-care mental health intervention combined with exercise for Latina cancer survivors delivered via telehealth. Thus, this study will be innovative in its integration of two evidence-based approaches: Stepped-care mental health counseling, which will implement counseling treatment based on symptom severity and survivor preferences, offering a cost-effective and scalable model. Fit Cancer, a group-based exercise program that will be adapted for videoconference delivery and culturally tailored for Spanish-speaking participants. Using a single-arm, pre/post design, the study will aim to recruit 20 Latina cancer survivors residing in Colorado who will be currently undergoing or within six months of completing primary treatment (e.g., chemotherapy or radiation therapy). Participants will receive a virtual 10-week intervention consisting of AYUDA: Step-by-Step Support delivered individually in four steps and Fit Cancer delivered in small groups. Participants will receive culturally adapted materials in English or Spanish, including resistance bands, towels, water bottles, wrist-worn activity trackers, and printed workbooks.

Results: Feasibility and acceptability will be assessed using both quantitative and qualitative measures, including recruitment and retention rates, adherence, participant satisfaction, and technology usability. Emotional distress will be measured using the PROMIS scales for anxiety and depression. Secondary outcomes will include quality of life, physical activity, and physical function.

Conclusion: Latina cancer survivors will continue to face disparities in psychological health and access to supportive care. This study will address these disparities by offering a culturally responsive, remotely delivered intervention that combines mental health counseling and exercise. The stepped-care model will ensure treatment is matched to individual needs, while telehealth delivery will enhance reach and scalability. Findings will inform th

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Effect of Gain- and Loss-Framed Messages on Women's Responses to Negative Family Cancer History Screening Results

Guan Y, Marra A, Liu Y, Ramirez Leon D, Zhang A, Escoffery C, McCullough LE, McBride CM

Purpose: Effective communication of family cancer history (FCH) screening results is critical for promoting informed cancer prevention behaviors. Guided by prospect theory, this study examined how gain- versus loss-framed messages influence women's understanding and acceptance of negative FCH screening results and their cancer prevention intentions. We also explored whether these effects differ by race.

Methods: In March 2025, we conducted a two-arm randomized online experiment comparing gain- versus loss-framed messages, stratified by race (Black vs. Non-Black). Participants were U.S. women aged ≥40 years who screened negative on the FCH screening (i.e., considered average risk for breast cancer), recruited through a national consumer panel (N = 655). Pre-surveys assessed participants' cancer worry, health literacy, and trust in providers and the healthcare system. Post-surveys evaluated their understanding of inherited and general breast cancer risk, acceptance of results, and intentions for mammography and regular family history updates. Chi-square tests and ANOVAs were used to examine the impact of message framing on the post-survey response. Multivariable linear and logistic regression models, adjusted for sociodemographic and psychosocial factors, were used to evaluate whether race is an effect modifier.

Results: Of the 655 participants, 44% were Black, non-Hispanic and 56% were non-Black (including White, Hispanic, and other racial/ethnic groups), with a mean age of 58.8 years. Message framing was not significantly associated with risk understanding, result acceptance, or cancer prevention intentions (all $p > 0.10$). In multivariable analyses, Black women demonstrated greater acceptance of loss-framed messages compared to gain-framed messages (interaction $p = 0.049$), a pattern not observed among non-Black participants. No significant interaction between race and message framing was detected for other outcomes (all $p > 0.10$).

Conclusions: Message framing alone may not meaningfully influence understanding or prevention intentions following negative FCH screening results. However, tailoring communication strategies to reflect racial differences in message reception could enhance the effectiveness of cancer prevention messaging for diverse populations.

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Addressing Skepticism of Personalized Cancer Risk Information among Black Women

Housten AJ, Waters EA, Tate CE, Lewis C, Taber JM, Smyth HL, Shen G, Scherer LD

Purpose: Breast cancer risk models can provide women with breast cancer risk information tailored to their individual risk factors. However, women sometimes react to these estimates with skepticism. Black women are disproportionately affected by breast cancer and their reactions to personalized cancer risk information are understudied. This study assessed skepticism toward Gail model breast cancer risk estimates among Black women and explored possible explanations for that skepticism.

Methods: Black women aged 39-74 years were recruited for an online survey (April-May 2025). Participants (N=694, Mean age=55.8 years) completed the Gail model, were presented with their personal 10-year risk, and informed if their risk was lower, higher, or about the same as women in the general population. They were then asked what they thought their personal risk was, and responses were categorized as: 1) over-estimator: believing their risk was higher than the estimate, 2) under-estimator: believing their risk was lower, and 3) acceptor: believing their risk was the same as the estimate. Participants completed measures of healthcare distrust, family cancer history (more than first degree relatives), and sociodemographic factors (e.g., health literacy, education). Multinomial logistic regression models determined how these factors were associated with risk skepticism using acceptors as the reference category.

Results: Risk skepticism was common: 51% believed their risk was lower than the model estimate (under-estimators) and 18% believed their risk was higher than the estimate (over-estimators). Both over- and under-estimators were more likely than acceptors to express healthcare distrust. Over-estimators (but not under-estimators) were more likely than acceptors to have a family history of breast cancer, and had lower health literacy (all $p<.01$). Under-estimators (but not over-estimators) were less likely than acceptors to have a regular doctor ($p<.05$).

Conclusions: Many Black women were skeptical of their personalized breast cancer risk. Several putative mechanisms may explain this skepticism, including healthcare distrust. Interventions are needed to support Black women's personalized risk-based screening decisions.

Cancer Survivorship

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Cost of Initiating Treatment After Active Surveillance among Commercially Insured Men in the United States Diagnosed with Prostate Cancer

Khan S , Chang S-H, Politi MC, L'Hotta AJ, Drake BF, Kim E, Housten AJ

Purpose: Providing cost transparency for those diagnosed with non-metastatic prostate cancer (PCa) is critical for well-informed treatment decision making as active surveillance (AS) and definitive management are equally viable options. Our objective was to predict costs of initiating treatment after AS for men with PCa with commercial insurance in the United States.

Methods: We used Merativeâ„¢ MarketScanÂ® Commercial Database data. The cohort included men diagnosed with PCa aged 18-63 between 2006 and 2020 that chose AS as their initial management. Cumulative total and out-of-pocket costs per year following transition from baseline AS to active treatment (up to 5 years) were computed. Costs from different years were adjusted to the 2020 price level based on the Consumer Price Index. A multivariable regression model was used to estimate the cost and then predict the cost of initiating treatment after AS for a typical patient by year of treatment initiation. Covariates included diagnosis age, year, Charlson comorbidity score, region, health plan type, and relation to employee with insurance (employee, spouse, child/other).

Results: Our cohort consisted of 3,472 men undergoing AS for their initial PCa management. During 5-years of follow-up, 670 (19.3%) patients initiated treatment after a period of AS. The typical (mode) patient was diagnosed at 59 with a Charlson Comorbidity Score of 0, has a Preferred Provider Organization (PPO) health plan, lives in the South, and was diagnosed in 2007. For this patient, initiating active treatment between years 1 and 2, the cumulative predicted total cost was $80,797 (versus $29,953 for patients remaining with AS) and the cumulative out-of-pocket cost was $5,320 (versus $3,448 for patients remaining with AS). For patients initiating active treatment between years 4 and 5, the predicted cumulative total cost was $122,758 (compared to $47,427 for patients remaining with AS) and the cumulative out-of-pocket cost was $10,742.09 (compared to $7,146 for patients remaining with AS).

Conclusion: Our study will allow commercially insurance men with PCa to make more informed treatment choices with realistic cost estimates for potential future treatment pathways, including staying on AS compared to initiating active treatment.

Behavioral Science and Health Communication

164-T

Cognitive and affective factors associated with interest in and decisions to take Multi-Cancer Detection (MCD) tests

Hua J, Payne JB, Acevedo AM, Klein WMP, Han PKJ

Purpose: The present study examined cognitive and affective correlates of interest in and decisions to take Multi-Cancer Detection (MCD) tests.

Methods: In a secondary analysis of pooled data from experimental studies (N = 3,132, M age = 54.2 years old, SD = 6.88, 50% female, 72% Non-Hispanic White), linear and logistic regression models examined how interest in MCD testing and a hypothetical decision to take an MCD test, were each associated with health behavior theory constructs including expectations for MCD testing, coping self-efficacy, cancer risk perception, positive and negative affect about MCD testing, anticipated regret (of consequences from not taking an MCD test), and cancer worry. Age, sex, education, race/ethnicity, personal and family history of cancer, prior awareness of MCD tests, and prior participation in clinical trials were included as covariates in all models.

Results: Greater interest in MCD testing was associated with positive expectations for testing (Î2=.26, 95% CI=.23, .29), coping self-efficacy (Î2=.18, 95% CI=.15, .21), cancer risk perception (Î2=.10, 95% CI=.07, .13), excitement (Î2=.10, 95% CI=.07, .13) and hopefulness about testing (Î2=.21, 95% CI=.17, .25), as well as anticipated regret (Î2=.17, 95% CI=.14, .20) and cancer worry (Î2=.08, 95% CI=.05, .11). Conversely, lower interest in testing was associated with negative expectations for testing (Î2=-.09, 95% CI=-.12, -.07). Greater odds of deciding to take an MCD test were associated with positive expectations for testing (OR=3.80, 95% CI=3.13, 4.64), coping self-efficacy (OR=1.66, 95% CI=1.51, 1.82), cancer risk perception (OR=1.46, 95% CI=1.26, 1.69), excitement about testing (OR=1.72, 95% CI=1.44, 2.05), anticipated regret (OR=1.36, 95% CI=1.24, 1.50), and cancer worry (OR=1.38, 95% CI=1.22, 1.56). Lower odds of deciding to test were associated with anxiety about testing (OR=.82, 95% CI=.69, .96) and negative expectations for testing (OR=.49, 95% CI=.41, .59).

Conclusion: Positive affect, expectations, coping self-efficacy, anticipated regret, worry, and risk perceptions were consistently related to interest in MCD testing and hypothetical decisions to test. Research on acceptability and perceptions of MCD tests should consider these theory-based cognitive and affective factors.

165-T

Effects of "No Safe Level" and Alternative Messages to Describe the Alcohol-Cancer Risk Relationship

Joseph MN, Payne JB, Rohde JA, Jesch E, Gaysynsky A, Iles II, Ferrer RA, Berrigan D, Moser RP, Klein WMP, Han PKJ

Purpose: To understand how the "no safe level" and alternative proposed messages to describe the relationship between alcohol and cancer risk affect important alcohol-related cognitions.

Methods: We recruited a convenience sample of US adults (N=1,096) from Prolific in 2023. Participants were randomly assigned to view one of four different warning messages linking alcohol to breast and colon cancer and varying how the risk relationship was described: "no safe level"; "the more you drink, the higher the risk"; "the less you drink, the lower the risk"; and unspecified (no description). ANCOVA models adjusting for age and sex tested the effects of these messages on perceptions of cancer risk, causal certainty about the alcohol-cancer relationship, and message credibility and novelty, as well as reactance, interest in learning more, and future intentions to reduce alcohol consumption.

Results: The "no safe level" message elicited higher perceived novelty than both the unspecified and "less you drink, the lower the risk" messages (ps<.05), and higher interest in learning more than the "less you drink, the lower the risk" message (p<.05). The "more you drink, the higher the risk" message elicited higher perceived causal certainty than the unspecified message (p<.05). No message-specific differences in other alcohol-related cognitions were observed.

Conclusions: Different messages describing the alcohol-cancer relationship have variable effects on alcohol-related cognitions. These findings suggest there may not be a single optimal message, but that different messages may be useful for certain purposes. The "no safe level" message may more effectively capture attention and stimulate curiosity, whereas "the more you drink, the higher the risk" message may more accurately convince audiences that drinking alcohol causes cancer. More work is needed to determine how to best communicate the alcohol-cancer risk relationship to the public, and to assess whether combinations of messages can optimize important alcohol-related cognitions.

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Obesity and Age-Related Chronic Conditions in a Cohort of Florida Firefighters

Kava, B, Gould Rothberg, BE, Brown, E, Paultre, K, Caban-Martinez, A, Kobetz, E, Schaefer Solle, N

Purpose: Characterize patterns of chronic disease and cancer among Florida firefighters and their associations with demographic factors and body mass index (BMI).

Methods: Firefighters evaluated by the Firefighter Cancer Initiative Cares-2-Go mobile clinic between 01/01/2022 and 07/31/2025 were included. Age at last clinic visit, categorized into decades of life, sex, race and ethnicity, height, weight and a history of cancer, hypertension (HTN), dyslipidemia (DLD), diabetes mellitus (DM), thyroid dysfunction, and gastroesophageal reflux disease (GERD) were extracted from the medical record. BMI was calculated and categorized as normal weight (18.5 to 24.9 kg/m2), overweight (25.0 to 29.9 kg/m2) and obese (≥30 kg/m2). Bivariate distributions between BMI class and medical histories were determined. Multivariate analysis adjusting for demographic parameters was conducted by Poisson regression.

Results: In total, 630 firefighters were evaluated. Ninety-three (14.8%) firefighters were of normal weight, 350 (55.6%) were overweight and 187 (29.7%) were obese. This is comparable to the prevalence of adult obesity in Florida (30.1%). Twenty-four (3.8%) firefighters were previously diagnosed with cancer including melanoma (4), kidney (4), breast (3) or thyroid cancers (3). Additionally, 11 firefighters had non-melanoma skin cancer. HTN was diagnosed in 75 firefighters including 7.5% of normal weight, 10.6% of overweight and 16.6% of obese firefighters. After adjusting for age and sex, HTN approached significance with increasing weight (ptrend=0.06). DLD was identified in 90 firefighters including 10.8% of normal weight, 12.9% overweight and 18.7% obese firefighters. After adjusting for age and sex, DLD was not associated with weight (ptrend=0.16). The prevalence of both HTN and DLD significantly trended upwards with age (p<0.0001).

Conclusion: These findings underscore ongoing study of chronic diseases in firefighters. The importance of continued cancer screening and cardiac assessment is emphasized.

Travel Award Winner

167-T

Clinical Champions as an Implementation Strategy to Improve HPV Vaccine Communication: A Randomized Implementation Trial

Kennedy KL, Queen TL, Heisler-MacKinnon JA, Calo WA, Gilkey MB

Purpose: Clinical champions are healthcare professionals who help their colleagues improve the delivery of evidence-based care. Despite their prominence as an implementation strategy, champions are understudied. Thus, we conducted a two-arm cluster randomized implementation trial to evaluate how champions compare to external facilitators on implementation outcomes when working to improve primary care professionals' (PCPs') HPV vaccine communication.

Methods: The Announcement Approach Training (AAT) is a one-hour, in clinic communication workshop proven to increase HPV vaccination rates among adolescents. Between 2023-2024, we randomized 47 primary care clinics within six healthcare systems to receive Champion AAT (delivered by systems' own clinical champions) or Traditional AAT (delivered by external facilitators). We used enrollment tracking logs to assess reach, or the proportion of the 904 eligible PCPs in participating clinics who attended a workshop. We used PCP surveys to evaluate AAT acceptability on a validated 5-point scale, and a 16-item rubric to evaluate facilitators' fidelity to the AAT protocol.

Results: Champions reached more eligible PCPs with AAT than external facilitators (66% vs 54%, p<.05). This finding was consistent for two subgroups of PCPs: providers, defined as physicians and advanced practice providers (59% vs 43%) and nursing staff, defined as nurses and medical assistants (74% vs 64%, both p<.05). For acceptability, PCPs receiving Champion versus Traditional AAT reported similarly high levels of satisfaction with facilitators' effectiveness in leading the workshop (mean=4.6 vs 4.7, p>.05), while satisfaction with communication skills training was slightly lower (4.4 vs 4.6, p=.04). Fidelity to the AAT protocol was similarly high in Champion and Traditional AAT arms (96% vs 98% of core content covered, p>.05).

Conclusions: Findings suggest that, compared to external facilitators, clinical champions achieve higher reach and similar acceptability and fidelity when delivering HPV vaccine communication training. Our randomized implementation trial is among the first to provide high-quality evidence of champions' promise for scaling up evidence-based communication interventions.

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Predictors and Latent Class Associations With Lung Cancer Screening Intentions

Kruse GR, Neil J, Chang Y, Anctil R, Nagawa CS, Shao R, Flores I, Durieux N, Mao B, Park ER

Purpose: To determine factors associated with intentions to undergo lung cancer screening (LCS) among eligible adults in primary care.

Methods: We surveyed LCS-eligible English and Spanish speaking adults in two primary care systems with rural and urban catchments from 02/2023-04/2024 about smoking, lung cancer and LCS history, attitudes, beliefs, and psychological factors. Associations between these factors and screening intentions were assessed with 1) multivariable logistic regression using bootstrap sampling to select model variables and 2) latent class analysis and chi-square tests. This study was reviewed and approved as exempt by Massachusetts General Brigham IRB (# 2021P003139), the University of Oklahoma IRB (#14825), and the Colorado Multiple IRB (#24-0128).

Results: Of 292 survey respondents, most were currently smoking (n=174, 59.6%), some had undergone LCS (n=115, 39.5%), and 29.5% (n=86) were 'extremely likely' to screen in the next 12 months. In regression models, having a healthcare provider (HCP) recommend LCS (odds ratio [OR]: 4.22, 95% confidence interval (CI) 2.40-7.44), being â€˜somewhat' or â€˜extremely worried' about getting lung cancer (OR 2.45, 95% CI 1.40-4.32), and speaking English at home (OR 3.54, 95% CI 1.74-7.17) were associated with intention to screen. Four latent classes emerged (Log likelihood -13652.1, Bayesian Information Criterion 26935.2) and were significantly associated with intentions to screen (p<0.001): 54.8% of 'Resourced' (White, high educational attainment, commonly reported receipt of advice to screen, high screening self-efficacy) indicated that they were extremely likely to screen compared to 22.8% in 'Older Co-morbid' (older, Spanish preferring, depressive and/or anxiety symptoms, cancer worry), 19.4% in 'Former Smoking' (healthy, former smoking, low worry and low perceived risks), or 16.9% in 'Current Smoking' (current smoking, low importance of quitting, limited screening self-efficacy, and high fatalism).

Conclusions: Factors associated with intentions to screen highlight opportunities to expand LCS: development of Spanish language LCS materials, increasing HCP discussions of LCS, and tailoring communications to incorporate cancer worry and screening self-efficacy could increase LCS use.

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Relationships Between Neighborhood Factors, Physical Activity, and Quality of Life Among Cancer Survivors

Lancioni EM, Parker H, Anderson HA, Leach HJ

Purpose: To determine whether rurality and neighborhood deprivation were associated with quality of life (QOL) and physical activity (MVPA) levels among post-treatment cancer survivors.

Methods: Secondary data analysis of baseline data from participants enrolled in a PA intervention study. QOL was measured by the Functional Assessment of Cancer Therapy-General (FACT-G), which includes subscales of emotional, social, physical, and functional wellbeing. PA was measured over 7-days using an activPAL accelerometer. Rurality was based on Rural-Urban Commuting Area (RUCA) Codes. A neighborhood deprivation index (NDI) was based on Federal Information Processing Standard (FIPS) Codes (higher NDI scores = greater deprivation; range=1-95). T-tests compared NDI between urban (RUCA 1-3) vs rural (RUCA ≥4) neighborhoods. Linear regression models examined associations of rurality and NDI with QOL and PA. Cancer stage, time since diagnosis, age, and sex were included as covariates in all models.

Results: Participants (N=101) were M=59ÂffI1 years old, mostly female (81%) and diagnosed with Breast (32%), Ovarian (14%), Leukemia/Lymphoma (31%) or other (23%) cancer. Participants were M=33.7ÂffI4.3 months since diagnosis and stage I/II (47%) or stage III/V (32.4%). The average NDI was 32.1ÂffI21.4 and the median RUCA score was 1.0 (IQR 1-2; 81% urban, 19% rural). Average NDI was not different between urban (31.7ÂffI19.3) and rural (33.8ÂffI28.8) neighborhoods (p>0.05). RUCA code predicted social wellbeing (b=1.1 (95CI=0.32-1.77), p<.01), and NDI predicted light intensity PA (b=-0.01 (95CI=-0.01t--0.002), p=<.01). There was a significant interaction between light PA (LPA) and NDI on physical wellbeing (b=-0.06 (95CI=-0.11--0.01), p=0.026) and emotional wellbeing (b=-0.02 (95CI=-0.05t--0.002), p=0.033).

Conclusion: Rurality was positively associated with greater social wellbeing, and higher NDI was associated with lower LPA. The significant interaction between LPA and NDI on physical and emotional wellbeing suggests higher levels of LPA may buffer the negative impact of NDI on these subscales of QOL. Findings highlight the need to explore how living in rural areas might foster social connectedness and the potential for interventions to promote PA in neighborhoods with higher deprivation.

170-T

Subjective Normative Influences on Undergraduate HPV Vaccination Decision-Making

Lee, AB, Werthmann DW, Kirby, KB, Daniel, CL

Purpose: This study examined subjective normative influences on HPV vaccination decision-making among undergraduate students post-COVID-19 at a southeastern university.

Methods: An online, cross-sectional survey was distributed in November 2024 to all enrolled undergraduate students aged 18-26 years via email. The survey assessed HPV vaccination status, knowledge and beliefs about HPV and HPV vaccine, and normative influences on HPV vaccination, including participants' motivation to comply with various referent groups. Preliminary data were assessed with descriptive statistics and chi-square analyses.

Results: Of 1,133 respondents, most were female (74.1%), White (74.9%), and insured (90.4%), with a mean age of 20.1. Nearly half (47.8%, n=541) reported receiving at least one HPV vaccine dose, though fewer than half of these (45.5%, n=244) completed the series. Around one-third (31.8%, n=360) were unsure of their vaccination status. Top reported influences on HPV vaccination were recommendations from healthcare providers (52.5%), personal beliefs (27.1%), and parent/guardian recommendation (12.1%). Participants reported the highest motivation to comply if vaccination was recommended by a doctor (81.4%), parent/guardian (76.7%), or partner/significant other (76.7%). Few reported peer conversations about HPV (17.1%) or the HPV vaccine (16.7%) and most indicated no influence from social (57.6%) or news media (54.9%).

Conclusions: Findings highlight the central role of subjective norms and motivation to comply in HPV vaccination decisions among college students. Low levels of peer and partner communication suggest limited perceived social pressure to vaccinate. Conversely, strong motivation to comply with trusted referents "particularly healthcare providers and parents" illustrates enduring interpersonal influence. The weaker impact of CDC recommendations may reflect reduced institutional trust post-COVID-19. Although students perceived minimal media influence, indirect normative cues likely persist. Interventions strengthening trusted referents (e.g., healthcare providers) should be integrated with strategies to increase peer visibility and normalize discussions around HPV and vaccination to enhance motivation and improve HPV vaccine uptake/completion.

171-T

Mapping Changes in HPV Vaccine Communication Practices Using the Announcement Approach

Llavona-Ortiz JY, Van Scoy LJ, Fogel B, Pinto C, Graham J, Calo W

Purpose: To explore changes in HPV vaccine recommendations by age group (9-10; 11-12; 15-17) among primary care team members (PCTMs) working in Pennsylvania.

Methods: Study procedures occurred between May 2024 and July 2024. Eligible participants were PCTMs that 1) offered vaccination services to children 9-17 years old (y/o) during the pandemic and 2) could read and write in English or Spanish. The study interview guide included questions informed by the Announcement Approach (AA) steps (Announce; Connect & Counsel; Try Again). PCTMs were asked to share their usual HPV vaccine recommendation practices for each age group across AA steps. They were also asked about changes in their recommendation after the COVID-19 vaccine approval.

Results: Participants were physicians (60%), nurses/nursing assistants (20%), and medical assistants (20%). Almost 50% of PCTMs had 20 years of experience or more, and over half (54%) reported starting to recommend the HPV vaccine at ages 9-10. Within the Announce step, usage of words like 'due' and 'eligible' within the recommendation for the HPV vaccine was most common among age groups 9-10 and 11-12. For patients 15-17 y/o, it was more common for PCTMs to seek the involvement of the patient in the vaccine discussion. For the Connect & Counsel step after initial parental hesitation, approaches were distinct across all age groups. While many PCTMs provided printed or online resources about the HPV vaccine to parents of 9-10 y/o, exploring existing concerns of parents regarding the HPV vaccine was more frequent with parents of 11-12 y/o. For the Try Again step, which takes place at a subsequent visit, PCTMs would bring up the initial conversation of the past visit or start the conversation as if it never happened. Most PCTMs said that the COVID-19 vaccine approval did not lead to changes in their HPV vaccine recommendation practices.

Conclusions: Usage of the AA by PCTMs varies across age groups. Prior literature involving the AA has mostly focused on 11-12 y/o patients, with recent shifts towards more inclusion of patients 9-10 y/o. However, the 'Try Again' step is still under assessment across all age groups and continues to be a promising area to explore within vaccine recommendation practices.

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Leveraging Artificial Intelligence to Co-Design Messages Targeting Alcohol Consumption as a Breast Cancer Risk Factor in Young Adult Women

Mays D, Hundal K, Long L, O'Regan A, Alvarado E, Fakhari H, Alalwan MA, Kerstiens S, Hirko K, Kunyangna P, LoConte N, Stehman C, Villanti AC, Wadie K, Shoben A, Gatti-Mays ME, Scherr CL

Purpose: Alcohol consumption is a breast cancer risk factor, yet awareness of this risk among young adult women is low. Few studies have examined effective messaging strategies to increase awareness. We used generative artificial intelligence (AI) to co-design message content with young adult women to improve awareness of alcohol consumption as a risk factor for breast cancer.

Methods: We conducted co-design focus groups in 2 phases with women ages 18-25 years who consumed alcohol ≥ 1 day/month, from 5 states (OH, IL, WI, MI, NJ). In Phase 1, participants (7 groups, n=41) shared their perspectives on messages about alcohol and breast cancer risk. We used generative AI to create message images based on these insights and elicited reactions to the AI-generated imagery. We thematically analyzed transcripts to inform draft messages designed for social media. We obtained feedback on draft messages in Phase 2 focus groups (9 groups, n=49) and analyzed transcripts to identify actionable steps for revising and finalizing messages.

Results: Phase 1 participants preferred images that were relatable, illustrated the link between alcohol and breast cancer, portrayed consequences, compared alcohol to other carcinogens, and encouraged healthier lifestyles or alternatives. Based on the feedback, generative AI created images such as women undergoing breast cancer treatment, depicting alcohol alongside other carcinogens, alcoholic drinks with pink colors, and young women engaging in healthy alternatives. Reactions to the images revealed caution in making messages too appealing, ensuring a clear link with breast cancer risk, and the potential of emotionally evocative messages. We revised images and added text to capitalize on Phase 1 co-design efforts. Phase 2 participants suggested making risk information behaviorally measurable (e.g., drinks per week), communicating biological mechanisms and why they are vulnerable, emphasizing 'in the moment' decisions (e.g., declining a drink), and using credible sources like physicians and researchers.

Conclusions: Our findings highlight messaging strategies for young women addressing alcohol consumption as a breast cancer risk factor, a behavior that is normative, socially acceptable, and for which awareness of breast cancer risks is low.

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Social Media Content about Alcohol Consumption and Breast Cancer: An Artificial Intelligence Guided Content Analysis

Alalwan MA, Alvarado E, Wadie K, Stehman C, Zahed K, Kunyangna P, Fakhari H, Long L, Hirko KA, LoConte NK, Villanti AC, Shoben A, Scherr CL, Mays D

Purpose: Alcohol consumption is a leading preventable risk factor for breast cancer, yet public awareness remains low. Social media may help raise awareness about alcohol as a breast cancer risk factor but has been understudied. We used machine learning models and artificial intelligence (AI) to analyze social media content about alcohol and breast cancer.

Methods: We identified a convenience sample of 10,000 social media posts (e.g., X, Reddit, Instagram) about alcohol consumption and breast cancer between September 2023 and September 2024 using the Infegy social media listening platform and Boolean search logic with relevant keywords and hashtags. We used Bidirectional Encoder Representations from Transformers Topic (BERTopic) modeling to cluster posts based on common topics, selecting the optimal cluster solution based on coherence scores and qualitative review of a sample from each cluster. We analyzed posts from each final cluster with ChatGPT 4o for content themes, which were independently reviewed qualitatively by two human coders for a subsample of posts to verify AI coded themes.

Results: After cleaning the data to remove duplicates, the final analytic sample included 8,882 posts. Of the BERTopic models, the 27-cluster model achieved a high coherence score (CV=0.63) and optimal theme interpretability. After excluding the outlier cluster identified by BERTopic, AI identified 26 total themes, which human coders reviewed to verify and consolidated into 16 unique themes. The most prominent themes included content about fundraising and breast cancer awareness events (38%), followed by personal breast cancer stories (13%), screening and early detection (10%), alcohol and cancer in general (8%), and alcohol and breast cancer risk (4%).

Conclusions: This analysis used a novel machine learning and AI approach to summarize social media content on alcohol consumption and breast cancer. Human coder verification supported the application of AI-driven social media content analysis. Results showed the social media content predominantly focused on fundraising and breast cancer awareness events, with markedly less content addressing alcohol consumption as a breast cancer risk factor.

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Digital Storytelling Intervention to Promote HPV Vaccination Among Parents of Adolescents in Arizona

Moore-Monroy MJ, Yusoof KA, Robles-Morales Martinez BR, Nievedale R, Tinney J, Madhivanan P, Strickland L, Hernandez S

Purpose: This research builds on the CHILD Study, which examined parental attitudes related to HPV vaccination. The CHILD study found that lower vaccine uptake is related to overall vaccine hesitancy due to limited knowledge.

Methods: The mixed methods design utilizes community engaged research methods. The purpose is to evaluate the impact of a digital story (DS) intervention on parental hesitancy regarding the HPV vaccine. DS are brief, impactful multimedia videos developed by community members on their lived experiences. In healthcare, DS provide patients with a community and culturally relevant perspective and improve patient engagement and outcomes. Objective one focused on recruiting 8 community members for a DS workshop to create culturally and community relevant narratives. Participant stories focused on their perspectives on HPV vaccine. We recruited broadly to ensure diverse input and to identify which messages and messengers were most impactful. In collaboration with our community advisory board (CAB), we recruited 9 Medical Assistants (MAs) and 11 Community Health Workers (CHWs)to evaluate, and rank completed stories for relevance. MAs and CHWs have a deep understanding of both the community and the medical perspectives due to their role as bridges between providers/ health care system and the community.

Results: The results of the prioritization and ranking 6 stories were chosen for the second phase. 2 were not chosen for the second phase, they lacked sufficient focus.

The CHWs and MAs responses were generally positive. Comments focused on relevance of the stories. "Very relatable and useful to parents stigma about vaccination." It was moving (heart emoji). Other responses focused on the stories presenting the information in a comprehensive and engaging manner. "I really liked the video; it seems very relatable. Since it started it seemed engaging, and it seems related to the community. I really tells the story of how Doctor visits could be." The stories were culturally relevant. "Really like. Especially its in Spanish."

Conclusions: The DS have potential to promote discussions with providers and influence parental decision making. The stories are relevant and address concerns in a concise, comprehensive and respectful manner.

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Building Understanding and Trust: Community perspectives on a randomized clinical trial design for multi-cancer detection tests

Muthukrishnan M, Ayala A, Gonzales R, McCray N, Marx CM, Toriola AT, Park Y, James AS

Purpose: The purpose of this study is to understand participants' support for and concerns about taking part in cancer screening trials that evaluate the acceptability and feasibility of multi-cancer detection (MCD) tests.

Methods: We conducted 3 focus groups (n=17, 12/2024-03/2025), in-person or via Zoom. Participants who were age ≥45 and could speak and comprehend English were recruited from a research participant registry at Washington University School of Medicine. Focus groups were audio-recorded, professionally transcribed, and uploaded to NVivo for thematic analysis. Codes were derived inductively, and emerging themes were discussed and decided upon by consensus of the study team.

Results: Participants were mostly White (86.7%), female (80.0%), had a monthly income >$2500 (80.0%), and had a college degree or higher (86.7%). Most (73.3%) had a family history of cancer, and 93.3% had insurance. Several themes emerged related to MCD tests and study design. First, participants were concerned with insurance coverage for MCD testing, and how that might affect follow-up care for positive test results. Participants were also concerned about false positives. Second, most participants wanted to know if they were in the control vs. intervention group, and exactly what would happen to their samples if they were in the control group. There were mixed feelings about receiving only positive results. Participants asserted they would want to be fully informed of all study details in advance, including the benefits of not sharing negative results with participants. Participants also asserted they would want someone who is qualified to give them test results and answer questions. Lastly, participants acknowledged challenges related to recruiting a diverse participant sample and discussed potential solutions.

Conclusions: Focus groups provided valuable perspectives on potential research participation. Overall, participants expressed a desire for information and clarity about the research process, especially related insurance, costs, and return of test results. Participants encouraged researchers to provide complete study details and answer questions to ensure participants fully understand the procedures, including why negative test results would not be shared.

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Predictors of Lung Cancer Screening Among Screening Eligible Primary Care Patients

Park ER, Neil JM, Karout L, Anctil R, Nagawa CS, Shao R, Flores I, Durieux N, Mao B, Kruse GR

Purpose: To assess if lung cancer screening (LCS) intentions predict LCS completion among screen eligible adults in primary care.

Methods: We surveyed English and Spanish-speaking adults eligible for LCS in two primary care systems with rural and urban catchments from February 2023 through April 2024 about smoking, lung cancer and LCS history, attitudes, beliefs, and psychological factors. The current study assessed the association between survey screening intentions and LCS completion within 12 months and explored correlates of LCS completion. This study was reviewed and approved as exempt by Massachusetts General Brigham IRB (# 2021P003139), the University of Oklahoma IRB (#14825), and the Colorado Multiple IRB (#24-0128).

Results: At baseline, 310 participants completed the survey; 58.3% (n=181) were current smokers, 24.8% (n=77) had undergone LCS prior to survey completion, and 31% (n=96) were 'extremely likely' to screen within 12 months. 69% (n=215/310) never completed a LCS (before or/and after survey). Among participants who had completed a LCS before or/and after the survey (n=95), 62% (n=59/95) did so after the survey. In a univariant analysis, screening intention was associated with screening completion in the 12-month post-survey (40.7% answered extremely likely to have a LCS vs 28.7% among those not screened, p=0.002). Having received a LCS recommendation from a healthcare provider and speaking English at home were also associated with higher screening completion (p=0.048 and 0.023 respectively). In a multivariable model, both screening intention (OR: 1.54, 95% CI: 1.14-2.09, p=0.005) and language spoken at home (OR: 1.32, 95% CI: 1.09-1.61, p=0.004) predicted LCS completion within 12 months.

Conclusions: Among LCS-eligible primary care patients, screening intention and language spoken at home were significant predictors of subsequent lung screening behavior. Provider communication is an important component facilitating the screening process but may be influenced by patients' language barriers and screening intentions. Future interventions that strengthen screening intentions and promote effective provider-patient communication, while addressing language barriers, are necessary to improve LCS uptake.

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Self-Collection for Human Papillomavirus (HPV) Testing in a Community Setting: Participation and Follow up among Women in the Rio Grande Valley, Texas

Parker SL, Salcedo MP, Rivas S, Lezama-Sierra J, Tijerina I, Lincoln M, Garces N, Schmeler KM, Montealegre JR

Purpose: Self-collection of vaginal samples for high-risk human papillomavirus (HR-HPV) testing (HPV self-collection) is recognized as a strategy to increase access to cervical cancer screening (CCS). In medically underserved areas, including the Rio Grande Valley (RGV) of Texas, outreach strategies may be needed to reach women with limited access to care. We report on a community health worker (CHW)-led HPV self-collection intervention in the RGV, including follow-up among participants with positive HR-HPV test results.

Methods: PrevenciÃ3n en sus Manos is a single-arm feasibility trial conducted between February 2024 and March 2025. Trained bilingual (English/Spanish) CHWs organized CCS events in partnership with three school districts in the RGV. After a CHW-led education activity, attendees who were due/past due for CCS were invited to participate in the study. After confirming eligibility, they performed HPV self-collection on-site and the samples were mailed by CHWs to a commercial laboratory for testing using the BD Onclarity HPV assay. The CHWs communicated results to participants via telephone and navigated participants for follow-up Pap testing and/or colposcopy with the study clinician.

Results: CHWs led 21 community-based CCS events with 528 total attendees. Of these, 216 were due/past due for screening, 212 were eligible, and 211 completed HPV self-collection. A total of 33 (15.6%) tested positive for HR-HPV; 32 (97.0%) were notified of their result and 28 (84.8%) attended their follow-up visit for Pap and/or colposcopy, 18 (64.3%) with the study clinician and 9 (32.1%) with their primary care provider. Six participants (18.2%) were lost to follow-up.

Conclusions: There was high participation in HPV self-collection among women who were due for CCS who attended CHW-led events, supporting the use of this strategy to increase participation in CCS. In addition, most participants (87.5%) who were notified of their positive results attended follow-up visits, highlighting the importance of navigation services and appointment access. Nonetheless, 6 of the 33 (18.2%) participants with positive HR-HPV test results did not receive follow-up. Additional work is needed to ensure follow-up when implementing HPV self-collection for CCS.

178-T

"You should always be given the benefits and risks of screening": Women's reactions to the United States Preventive Services Task Force 2024 mammography guideline

Parmet T, Morse B, Yoder G, Jolaoso D, Schapira MM, Lewis CL, McCafferty K, Hersch J, Cappella JN, Tate C, Arnett K, , Scherer LD

Purpose: From 2009 to 2024, the United States Preventive Services Task Force (USPSTF) recommended that women aged 40-49 make an informed choice about when to begin having mammograms. In 2024, the USPSTF updated its guideline, recommending that all women start biennial screening at age 40. As the new guideline de-emphasizes informed choice, we conducted focus groups to evaluate whether women still want to be informed about both the benefits and harms of breast cancer screening (BCS).

Methods: Participants were women ages 39-49 who had been previously enrolled in an ongoing longitudinal study where they were exposed to a decision aid conveying information about the prior USPSTF guideline and BCS harms and benefits. They were invited to participate in a follow-up focus group after completing a survey that communicated the new USPSTF guideline and the rationale for the change. Focus group questions probed women's thoughts about being informed about BCS harms and benefits considering the new guidelines. Purposive sampling was used to obtain a sample diverse in race, educational attainment, and prior screening preferences. A rapid coding framework was used to analyze the data and articulate themes.

Results: A total of 8 focus groups were conducted with 4-6 people in each (N=39). 41% identified as Black (51% white), 51% had less than a college degree, and 76% had indicated a preference to screen at their current age (vs. waiting until older). Three themes emerged: 1) Receiving information about the harms of BCS had little to no negative effect on participants; 2) Participants emphasized the importance of being educated about both BCS benefits and harms and that information should not be withheld; 3) Participants were strongly opposed to the idea of screening as a performance metric for clinicians, instead insisting screening is a personal choice.

Discussion: Even though the USPSTF no longer emphasizes informed choice in its 2024 BCS guideline, these women still wanted to be informed about both BCS harms and benefits and perceived little or no harm in being educated. Withholding information, and implementing targets for screening uptake, were viewed as unacceptable. These women believed they should be empowered to make their own screening decisions and did not

179-T

Women's screening preferences shift after being informed about the 2024 United States Preventive Services Task Force breast cancer screening guideline

Parmet T, Yoder G, McCaffery K, Hersch J, Schapira MM, Lewis CL, Cappella JN, Morse B, Scherer LD

Purpose: In 2024 the United States Preventive Services Task Force (USPSTF) revised their breast cancer screening guidelines to recommend that all women get screened for breast cancer biennially starting at age 40. We investigated how communicating information about the new guideline affected women's screening preferences and beliefs about what women should know before screening.

Methods: This study included 301 women who were previously enrolled in a longitudinal study where they were exposed to a decision aid informing them about BCS harms and benefits and the prior USPSTF recommendation. Participants completed an online survey including an informational intervention about the 2024 Task Force recommendation. Outcomes included screening preferences pre- and post-intervention and ratings (1=not at all important to 4=very important) of information considered important to know before screening.

Results: Information about the new guideline influenced participants' screening preferences. Post-intervention, compared with pre-intervention, participants preferred to screen at their current age (86% vs 81%; p <0.001) and biennially thereafter (45% vs 33%; p<0.001). Participants believed it was important for women to be informed about the benefits of screening (M=3.77), their personal risk of breast cancer (M=3.75), and overdiagnosis (M=3.48) and false positives (M=3.61).

Conclusions: Being informed about the 2024 USPSTF mammography guideline shifted screening preferences, leading more women to want to screen more consistently with that guideline. Even though the new guideline deemphasizes informed decision-making, women still wanted to be informed about BCS harms and benefits, as well as their personal cancer risk.

180-T

Effects of Critical Openness and Intellectual Humility on Cognitions Associated with Multicancer Detection Tests

Payne JB, Hua J, Acevedo AM, Klein WMP, Han PKJ

Purpose: To explore the relationship between interest in multi-cancer detection (MCD) tests and two individual characteristics that have been under-studied and may be important for informed decision-making about MCD tests: intellectual humility (awareness of one's own cognitive limitations) and critical openness (the ability to change one's mind according to new evidence).

Methods: In a secondary analysis of pooled data from experimental studies (N=3,132), four separate multiple regression models were used to examine the extent to which critical openness and intellectual humility are associated with interest in and the hypothetical decision to take the test (primary outcomes) and intentions to seek and avoid information about MCD testing (secondary outcomes). All models controlled for covariates including sex, age, education, race, ethnicity, cancer and family cancer history, clinical trial experience, and prior familiarity with MCD tests.

Results: Both intellectual humility and critical openness were significantly associated with interest in and the hypothetical decision to take an MCD test, as well as information seeking. Critical openness was significantly associated with avoidance. Higher intellectual humility was associated with lower interest (ß=-.1, p<.001) but higher odds of hypothetically deciding to take the test (OR=1.48, p<.001); conversely, higher critical openness was associated with higher interest (ß=.3, p<.001) and lower odds of hypothetically deciding to take the test (OR=0.47, p<.001). Higher intellectual humility was associated with lower information seeking intentions (ß=-.09, p<.001), whereas higher critical openness was associated with higher information seeking intentions (ß=.42, p<.001); higher critical openness was associated with lower information avoidance (ß=-.01, p<.001), but intellectual humility had no significant association.

Conclusions: These findings suggest that intellectual humility and critical openness may be associated with people's judgments and decisions regarding MCD testing. More research is needed to understand how these under-studied characteristics influence other health judgments and decisions, and whether they can be intervened upon to promote informed decision making about new medical technologies.

181-T

Fun in the sun? Physical Activity as a Potential Modifier of the Association between Alcohol Consumption and Sunburn Occurrence

Peterson KT, Berrigan D, Perna FM

Purpose: Sunburn is the primary modifiable risk factor for skin cancer and can be influenced by alcohol consumption and physical activity (PA). This study examined whether the association between alcohol consumption and sunburn occurrence is modified by levels of PA among a nationally representative sample of US adults.

Methods: Data were obtained from Health Information National Trends Survey cycles 6 and 7. Weighted analyses were conducted using R. Respondents reported the number of sunburns experienced in the past 12 months, moderate-intensity aerobic PA (MPA), and alcohol consumption. Weekly minutes of MPA was categorized as none (0 mins/week), insufficient (<150 mins/week), sufficient (150-299 mins/week), and high (≥300 mins/week) MPA. Average alcoholic drinks per week were calculated. Times sunburned was dichotomized (0, 1+). Binary logistic regressions stratified by MPA category examined the association between average alcoholic drinks/week and sunburn occurrence controlling for age, birth sex, race/ethnicity, income, and survey cycle.

Results: Respondents (n=10,438, 51% male, 58% non-Hispanic White, 54ÂffI17 years) reported approximately 3 drinks/week on average, no sunburn (n=6808, 65%) and insufficient MPA (n=3949, 38%). Within each MPA category, average drinks/week and sunburn occurrence increased (none: 23.1% sunburned, 2.73 drinks/week; insufficient: 36.0% sunburned, 2.93 drinks/week; sufficient: 36.8% sunburned, 3.10 drinks/week; high: 37.5% sunburned, 3.60 drinks/week). Across all MPA categories, each additional drink/week was associated with higher odds of experiencing at least one sunburn: none (1.02 [1.01-1.04]), insufficient (1.02 [1.00-1.05]), sufficient (1.04 [1.02-1.07]), and high (1.03 [1.00-1.06]).

Conclusions: The results suggest higher alcohol consumption is associated with higher sunburn occurrence regardless of self-reported minutes of MPA, demonstrating that alcohol consumption and PA behaviors may co-occur and increase sunburn susceptibility. Additional research is necessary to understand how these behaviors interact to influence sunburn. Interventions aimed at reducing alcohol consumption during PA may mitigate the risk of sunburn and possibly subsequent skin cancer.

182-T

Beyond Borders and Under the Radar: HPV Vaccination Trends and Disparities Among Visa-Holding and Domestic U.S. College Students

Pierce JP, Xu YA, Canright A, Dawkins-Moultin L, Wong CY, Lu Q

HPV vaccination is suboptimal among college students. >1 million students hold visas, but their vaccination patterns are understudied. We assessed initiation (≥1 dose) and series completion across 5 academic years (FA19–SP24), comparing visa-holders to domestic and examining disparities within visa-holders. Sample: N=422,858 students aged 18-26 (12.5% visa-holders) in the National College Health Assessment. Logistic regressions assessed initiation and series completion in full and visa-only samples, adjusting for demographics and school factors. Academic-year differences by visa were tested. Visa-holders had lower initiation and completion (aORs=0.50-0.63, p<.001) vs. domestic peers. Compared to pre/early-pandemic (FA19-SP20), initiation declined in FA20–SP21 (aOR=0.89, p<.001) then returned to baseline by FA21–SP22 (aORs=1.04–1.08, ps>.05). Visa-holders had a slower recovery between FA21-SP23 (aORs=0.78–0.83, ps<.01), with the widening gap returning to FA19-SP20 levels by FA23–SP24 (aOR= 0.93, p>.05). Completion increased each year vs. FA19–SP20 (aORs=1.14–1.74, ps<.001), with the visa-domestic gap temporarily widening in FA22–SP23 (aOR=0.67, p<.001). Exploratory: uncertainty about vaccination status was higher in each year vs. FA19–SP20 (aORs=1.36–1.43, ps<.001). Within visa-holders: Black, Asian, and Middle Eastern students had lower initiation and completion (aORs=0.40–0.82, ps<.001) vs. White, while Hispanics (vs. non-Hispanics) had higher initiation (aOR=1.46, p<.001). Male students, those studying in the South and West, and those uninsured or on school insurance were especially unlikely to initiate and complete (aORs=0.35-0.75, ps<.001). Prior flu vaccination, sexual activity, and private schools were protective (aORs=1.16-2.11, ps<.01). HPV vaccination among visa-holders continues to lag behind domestic students, with pandemic-related widening of gaps. Disparities by gender, race/ethnicity, insurance, and region highlight social and structural barriers. Strategies such as integrating vaccination into international student on-boarding, tailored campaigns, and insurance navigation support are needed. Overall rising vaccination-history uncertainty signals weakening systems for vaccine awareness and records, risking missed vaccination opportunities.

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Advancing Colorectal Cancer Screening in Texas FQHCs: Lessons from a Mixed-Methods CRCCP Evaluation

Savas LS, Alaniz A, Poole A, Hines D, Catindig J, Ogochukwu E, Canales D, Chenier R, Fenton S, Valerio- Shewmaker M, Balasubramanian B, Fernandez ME

Purpose: The purpose of the study was to evaluate the impact of implementation strategies designed to increase the adoption and use of colorectal cancer screening (CRCS) evidence-based interventions (EBIs) recommended by the USPSTF Guide to Community Preventive Services in Federally Qualified Health Centers (FQHCs) in Texas. The Texas Colorectal Cancer Control Program (CRCCP), led by UTHealth Houston, collaborated with FQHCs to design and deliver strategies to support the adoption, implementation, and maintenance of CRCS EBIs, and evaluated implementation and effectiveness outcomes. Implementation strategies included tailored practice facilitation, electronic health record (EHR) optimization, and telementoring.

Methods: We conducted a mixed-methods evaluation using baseline and annual surveys, in-depth interviews, and EHR data from four FQHCs (16 clinics: ~47% uninsured patients). Here we report implementation and outcome findings, focusing on the reach of EBIs and CRCS rates over the five-year program. The RE-AIM framework (Reach Effectiveness Adoption, Implementation, and Maintenance) guided program evaluation.

Results: All participating FQHCs implemented multiple EBIs. CRCS rate outcomes are reported at the FQHC system level, with clinic level notes. FQHC #1: Screening rates increased modestly through 2023 but declined in 2024 due to staff turnover. FQHC #2: CRCS rates improved by 23% from baseline to 2022. FQHC #3: Saw a 9% increase in CRCS rates from 2022 to 2023. FQHC #4: All clinics in the system reported improvements in CRCS rates in 2024. Organizational readiness data showed varied progress, with FQHCs 3 and 4 leading in level of EBI implementation, while FQHCs 1 and 2 may benefit from targeted support. Challenges to improved CRCS rates included staff turnover, EHR changes, resource constraints, and inconsistent documentation of abnormal screening outcomes.

Conclusions: This evaluation demonstrates tailored practice facilitation, engaging leadership and staff, and EHR optimization, resulted in successful implementation of CRCS EBIs in FQHCs. While staff turnover and resource constraints pose ongoing challenges, improved implementation requires multifaceted support, particularly to improve leadership engagement and address clinic-specific barriers.

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Mammography discussions: Do clinical encounters address women's questions and priorities?

Scherer LD, Lewis C, McCaffery K, Hersch J, Cappella J, Morse B, Tate CE, Mosley B, Smyth H, Parmet T, Schapira MM

Purpose: From 2009-2024 the United States Preventive Services Task Force (USPSTF) recommended that women make an informed choice about when to begin mammography screening. Now the USPSTF recommends that all women screen at age 40, but still emphasizes that women should be informed. The purpose of this research was to inform women about mammography screening, and then assess what women want to discuss with their doctor in advance of an appointment and what they actually discuss with their doctor.

Methods: 469 female patients ages 39-49 with an upcoming annual well visit and no breast cancer history were recruited through the University of Colorado and University of Pennsylvania health systems. Patients received a mammography decision aid (DA) designed for women in their 40s that conveyed information about mortality benefit, false positives, overdiagnosis, and participants' personal Gail model breast cancer risk score. Then patients reported whether they intended to talk to their doctor about mammography and what specific topics they wanted to discuss. After the appointment they reported what was discussed.

Results: After the DA, 357 patients intended to talk to their doctor about mammography, and 301 subsequently reported they did so. Patients who did not report talking to their doctor about screening often had an existing screening plan or other priorities for the visit. Many patients wanted to talk about their cancer risk (76%) and screening preferences (75%), but only 46% reported talking about their cancer risk and 55% about their preferences. Many wanted to talk about screening benefits (59%) and screening harms (57%); 57% reported talking about benefits, but only 31% reported talking about harms. 23% wanted to talk about costs and 26% about where to get screened; only 9% reported talking about costs whereas 42% reported talking about where to get screened.

Conclusions: After reading a DA, many women wanted to talk to their doctor about screening. Yet after their appointment, women frequently did not report talking about the topics they prioritized, especially their personal cancer risk and screening preferences. Doctors may not frequently address many of patients' key questions about mammography.

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Utilizing the Healthy Oregon Project to Capture Real-Time Wildfire Smoke Exposure Data in Rural Geographic Areas

Shannon J, Ho E, Anderson KA, Stoller W, Wong CP, Bonilla N, Serrato V, Simmons M, Rohlman D

Purpose: As the frequency, duration and severity of wildfires has increased, there is growing concern with the impacts of extended smoke exposure on incidence of multiple cancers. Methods for population-wide assessment of real-time wildfire smoke exposure and health are needed. We used a novel decentralized infrastructure to evaluate real-time consequences of smoke exposure on health in Oregon.

Methods: The Healthy Oregon Project (HOP) cohort, a digital participant facing platform with >50,000 participants, was leveraged to examine connections among wildfire smoke and health. All HOP participants were invited to a wildfire smoke survey to assess adaptation behaviors in response to smoke events. Of the 3222 who completed this survey, 282 individuals residing in high wildfire risk regions were emailed the opportunity to participate in the Wildfire Smoke in Oregon study and the first 100 to respond and consent were enrolled. Air quality (AQI) was monitored daily and when it exceeded 50, participants received a HOP app push notification to start wearing a silicon wristband and complete daily symptom surveys (N=42). After 6 days, participants completed a whole person health index survey and returned the wristband by mail. When AQI returned to healthy levels for >2 weeks, participants repeated data collection for a 6 day control period.

Results: 61.6% of invited participants completed the consent after 1 notification and 100% completed after 2 notifications. 95.2% of participants completed at least 5 of 6 daily symptom surveys and 38 (90.5%) returned the wristband. Automated surveys and environmental exposure collection are anticipated to enable timely capture of exposure and health data. Future studies will also collect serum samples remotely for biological health measures. Analysis of wristband chemical content will provide detailed data on personal hazardous exposures during a wildfire smoke event.

Conclusions: Leveraging statewide population research cohorts using a decentralized digital platform can rapidly and accurately collect high-quality health and exposure data during wildfire events. By enhancing engagement and data completeness, this approach provides a scalable model for monitoring and mitigating health risks in vulnerable populations.

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Online Decision Support Increases HPV Vaccination Rates In Texas Safety-Net Pediatric Clinics.

Shegog R, Frost EL, Sun H, Thormaehlen LA, Teague T, Healy CM, Shay LA, Azam H, Khawaja A, Vernon SW, Savas LS

Introduction: HPV vaccination rates in the U.S.A. remain below the Healthy People 2030 goal of 80% completion for adolescents. The Adolescent Vaccination Program (AVP) is an evidence-based, multi-component program demonstrated to increase HPV vaccination rates in pediatric clinics through the implementation of six evidence-based strategies (immunization champions, assessment and feedback, continuing education, provider prompts, parent reminders, and parent education). The purpose of this study was to test the feasibility of using the AVP Implementation Tool (AVP-IT) (www.avptexas.org) for online clinic decision support to implement AVP strategies in 'safety net' clinics that care for the medically underserved in Texas.

Methods: AVP immunization clinic staff 'champions' in four Ibn Sina safety net clinics that serve uninsured and low-income patients accessed the online AVP-IT to input data on clinic specifications and current implementation activities, and received a tailored Action Plan to guide their implementation of the evidence-based AVP strategies. They also received webinar trainings from the research team prior to each AVP strategy rollout. Monthly monitoring calls with project staff were initiated during the 33-month study from March, 2022 through November, 2024.

Results: All clinics made progress toward full implementation of AVP strategies. AVP-IT implementation provided an immediate 3-month boost in HPV vaccine initiation rates ($p<0.001$) but this did not retain longitudinal significance. A positive long-term trend ($p<0.001$) was observed despite low post-pandemic rates. Key facilitators for strategy implementation included clinic leadership support and check-lists to cue champion task completion.

Conclusion: The AVP-IT promises accessible, practical, and scalable decision support to implement strategies to increase HPV vaccination rates. Electronic health record (EHR) optimization to access valid and reliable data for health care provider assessment and feedback reports and ongoing technical support for champions are indicated for future AVP-IT clinic implementation.

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Awareness of Diet, Physical Activity, Alcohol, and Obesity as Cancer Risk Factors: Pennsylvania versus National Comparisons

Veldheer S, Moss J, Thompson C, Calo W

Purpose: Nearly 40% of cancers are attributable to modifiable risk factors such as poor diet, alcohol use, physical inactivity, and obesity. Increasing public awareness of these factors is essential to motivate behavior change and support cancer prevention efforts. The purpose of this study was to compare public awareness of cancer risk factors among adults residing in Pennsylvania with national survey data to identify priority areas for prevention and education efforts.

Methods: In 2024, the Penn State Cancer Institute conducted a Cancer Needs Assessment (CNA), a representative survey of 1,050 adults (aged 18+) in Pennsylvania. Participants were asked about their awareness of whether 4 modifiable lifestyle factors (diet, alcohol consumption, physical activity, and obesity) contributed to cancer. Responses from Pennsylvania residents were compared with national data from the Health Information National Trends Survey (HINTS, cycles 4, 5, or 6). Descriptive statistics and chi-square analyses were conducted to compare differences in responses between the two populations.

Results: The CNA sample was 51% female, 79% White, 13% Black, and 75% urban. Compared with HINTS results, Pennsylvania residents consistently demonstrated lower awareness of lifestyle factors related to cancer: diet (42% and 35%, respectively, $p<0.001$), alcohol (79% and 27%, $p<0.001$), physical activity (60% and 26%, $p<0.001$), and obesity (64% and 36%, $p<0.001$).

Conclusions: State-level public awareness of key modifiable cancer risk factors, including diet, alcohol, physical activity, and obesity, was significantly lower among Pennsylvania residents compared to national levels reported in HINTS. These findings highlight crucial gaps in Pennsylvania residents' knowledge of lifestyle factors that contribute to cancer risk and underscore the need for targeted cancer prevention communication, outreach, and education to motivate behavior change and to reduce state and regional disparities in cancer risk.

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Co-Designing Intervention: Patient-Centered Question Guide to Inform CAM Conversations with Providers

Duah M, Vemuganti D, Yerram N, Dawson N, Johnson-Arbor K, Graham D, Johnson S, Carter-Bawa L, Lafata JE, Fridman I

Purpose: Patients seeking to support their cancer care explore information outside of clinical settings, including information about complementary and alternative therapies (CAM). Despite the prevalence of misinformation in publicly available sources of information, discussions about patient-identified therapies are not common in clinical routine. We engaged patients in co-designing a question prompt list (QPL) to empower them and help facilitate such conversations with their care teams.

Methods: We applied a user-centered approach to assess patients' experiences and recommendations. Patients with breast and prostate cancer who use CAM were identified via electronic health records for interviews and focus groups. Rapid interview analysis summarized key patient recommendations. For focus groups, three researchers independently used empathy mapping to code what patients say, think, do, and feel, which was further sorted to gain insights. These results were used to develop a QPL prototype through brainstorming activities and further refined in collaboration with four medical experts, a patient advocate, and two focus groups, during which the comprehensiveness and relevance of the content were discussed. The final step involved participants providing feedback via verbalizing thoughts while interacting with the prototype (think-aloud method).

Results: In total, 14 patients with breast cancer and 20 with prostate cancer (ages 37-70) participated in the study: 13 in interviews only, 15 in the focus group only, and 6 in both. Five participants with breast cancer completed the think-aloud interview session. The QPL is split into 5 sections of questions: after being diagnosed, while choosing treatment, after treatment, and integrative therapy. The think-aloud group responded enthusiastically, sharing how they wished they had a QPL at diagnosis, and offering suggestions for added content (impact of treatment on body appearance, strategies to cope, etc.).

Conclusions: Co-designing with patients ensures the QPL is responsive to patient concerns and priorities and ready for further efficacy testing.

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Effects of Integrating a Chatbot into Lung Cancer Care on Patient Medication Self-Efficacy

Wainwright JV, Song W, Toneff H, Kalman J, Takvorian S, Rendle K

Purpose: Following a pilot randomized controlled trial assessing the effects of a novel chatbot ('Penny') on adherence to oral targeted anticancer therapies, we sought to understand the effects of Penny on medication self-efficacy (i.e., confidence in one's ability to take prescribed therapy correctly).

Methods: Penny engages with patients bidirectionally via text messaging to promote medication adherence with motivational reminders and symptom monitoring with self-management support. We hypothesized that Penny would improve adherence (primary outcome) and symptom management (secondary outcome) by increasing medication self-efficacy (exploratory outcome). This mixed methods analysis focuses on medication self-efficacy among an embedded cohort of trial participants randomized to the Penny arm. Changes in self-efficacy before and after the 12-week trial were measured using the Self-efficacy for Appropriate Medication Use scale and analyzed using bivariate statistics. Qualitative data were analyzed using the constant comparative method and guided by the Information-Motivation-Behavioral skills model. Qualitative and quantitative data were triangulated to understand areas of convergence, divergence, and complementarity.

Results: Among 36 Penny users who completed the final survey, nearly half (47.2%) reported high self-efficacy (very confident). Across all participants, mean self-efficacy score increased significantly from baseline [Mean=33.9; SD=5.4] to trial completion [Mean=36.8; SD=2.8] (p=0.017). When stratified by patients newly prescribed medication (new users) versus those already using the medication at enrollment (prevalent users), we observed increases in self-efficacy in both groups but only reached statistical significance in prevalent users. Compared to new users, prevalent users reported higher confidence in certain scenarios (e.g., when unsure what time to take medicine). In interviews, users noted that Penny improved their ability and motivation to adhere to their prescribed medication schedules and could be more useful for newly diagnosed patients.

Conclusions: The results of this pilot study indicate that conversational chatbots may be an effective way to increase medication self-efficacy. Further study of chatbots in this context is warranted.

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Data-Driven Partnerships to Expand Equitable Cancer Education and Screening in Rural Nebraska

Schmidt R, Paritala S, Vinson J, Rodriguez J, Link A, Watanabe-Galloway S

Purpose: Rural communities across Nebraska face persistent cancer disparities contributing to delayed diagnoses and poorer outcomes. Colorectal and breast cancer screening rates remain lower in most rural counties, with elevated incidence and mortality for prostate, colorectal, and lung cancers. High rates of obesity, smoking, and long travel distances further exacerbate barriers. To address these gaps, the Fred & Pamela Buffett Cancer Center's Community Outreach and Engagement (COE) team developed a statewide strategy to expand cancer screening access and education through coordinated partnerships.

Methods: We used state cancer registry data, census indicators, and findings from a statewide cancer needs assessment survey to identify priorities based on higher incidence and mortality, low screening rates, sociodemographic characteristics, and distance to care. Building on these data, we developed a scalable model in collaboration with Nebraska Agricultural Extension, local health departments, Federally Qualified Health Centers, Native American tribes, and UNMC's satellite College of Nursing campuses. Community partners consult with COE to plan education and screening events, while COE provides staffing, logistics, navigation, and targeted guidance on cancer types. Nursing student volunteers support event delivery.

Results: In 2024, COE facilitated 21 community events, including 3 in rural counties, and provided 158 screenings and providing cancer education to 2,245 Nebraskans. By September 2025, the program grew to 37 events, providing more than 550 screenings and reaching over 6,000 individuals with education. More than 20 additional events are scheduled for the remainder of 2025, and by year's end, the program will have held 26 events in rural areas overall, with projections exceeding 1,000 cancer screenings.

Conclusions: This data-driven, partnership-based model illustrates how academic cancer centers can expand equitable education and screening in rural regions while advancing CCSG Community Outreach and Engagement goals.

191-T

School Policies and Practices Supporting Physical Activity in Arizona Public Elementary Schools, 2021-2024

Wilson K, Hodges Kulinna P, Poulos A

Purpose: Schools are critical settings for daily physical activity (PA) and habit formation, salient for children's acute and long-term health. This study analyzed policies and practices related to wellness, physical education (PE), recess, and out-of-school PA in Arizona public elementary schools between 2021-2024.

Methods: Repeated cross-sectional questionnaires were administered online to teachers (n=157, 230, 98, and 71 for 2021–2024, respectively) to assess reported PA policies and practices at school, district, and state levels using a modified CSPAP-Q instrument and linked to school-level sociodemographics. Descriptive statistics were calculated by year; differences were evaluated using omnibus chi-square tests and one-way ANOVAs with Bonferroni post hoc pairwise comparisons for significant results.

Results: We report post hoc comparisons between 2021 and 2024, noting non-significant findings where relevant. Wellness policies remained stable, with 77% of schools and 81% of districts reporting a policy in 2024, most addressing PA (school: 84%; district: 77%). Health committees (school: 47%; district: 60%) and wellness coordinators (school: 55%; district: 63%) also remained stable. PE frequency stayed low, with most schools offering one day per week; PE taught by certified teachers declined from 78% to 57%. Daily recess remained consistent, with 78% of schools providing 2+ recess periods and 90% offering 20+ minutes daily. Policy supports increased, with school-level required minutes rising from 29 to 37 and district-level from 31 to 40, alongside more prohibitions on withholding recess, greater access to loose equipment, and expanded recess monitor training. Out-of-school supports declined to lowest post-pandemic levels, with fewer reported crossing guard trainings (47% to 67%) or programs such as Walking School Bus (69% to 90%). Lastly, shared use of indoor (5%) and outdoor (18%) facilities remained low.

Conclusions: Wellness policies and recess provision in Arizona elementary schools remained generally stable between 2021 and 2024, with some increases in policy-mandated recess minutes, equipment availability, and monitor training. PE and out-of-school supports are key areas for attention in promoting children's daily PA and long-term health.

192-T

From Social Media Posts to Intervention Design Priorities: A Structural Topic Modeling Analysis of Conversations in Lynch Syndrome Community on Reddit

Xu YA, Boyd R, Vilar-Sanchez E, Chang S, Lu Q

Purpose: Lynch syndrome (LS) is the most common inherited cause of colorectal and endometrial cancers, placing carriers and their families at lifelong risk for malignancies and psychosocial burdens. This study analyzes real-world conversations from an online LS support community to identify prevalent, organically emerging topics to capture concerns and needs among this population.

Methods: We applied structural topic modeling, which treats each document as a mixture of latent topics with varying prevalences, to comments from the r/LynchSyndrome subreddit (N = 4,106). Standard NLP preprocessing was used (tokenization, stop-word removal, stemming). Models were fit in R (stm package). The number of topics was selected using diagnostic criteria (semantic coherence, residuals, lower bound, held-out likelihood). Topics were then interpreted and labeled using high-probability and FREX terms and by reviewing the three most representative posts for each topic.

Results: A 15-topic solution provided the best balance of fit and interpretability. Topic correlations suggested four semantically coherent clusters with the aggregate prevalences: Critical needs (50.21%): pre-visit preparation (emotion regulation & clinician communication), acute adjustment after diagnosis, sustained psychosocial support (bereavement, relationship negotiation), and fertility/family-planning. Genetic testing literacy & logistics (26.47%): family history/ cascade testing, insurance coverage/appeals. Risk-reduction prophylaxis (18.21%): gynecologic workups, hysterectomy/oophorectomy, aspirin use and prevention trials. Lifestyle management (5.11%): daily behavior changes in diet, activity, sleep.

Conclusion: Social media narratives provide an efficient window into LS community needs. Three cross-cutting gaps emerged: Translation gap: plain-language frames that connect genetics to concrete, actionable decisions for carriers and family; Navigation burden: tools for pre-visit anxiety management, orientation after diagnosis, and insurance/administrative workflows; Enduring psychosocial load: interventions targeting chronic uncertainty, grief, and family communication. Future intervention development should prioritize these areas, pairing practical support with evidence-based psychosocial strategies.

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Outcomes of an Intermittent Fasting vs. Continuous Calorie Energy Reduction in Prostate Cancer Patients on Active Surveillance

Yeary KHK, Yu H, Hussein AA, Varady K, DiCarlo E, Escaldi A, Tang L

Purpose: Prostate cancer (PCa) is the most common cancer in US men. Nearly 50% of those diagnosed with PCa present with low-risk PCa, for which active surveillance (AS) is increasingly recommended by clinicians to avoid side effects associated with radical therapy. Obesity is common among PCa patients on AS and a well-recognized risk factor for poor PCa prognosis. Inflammation, metabolic irregularities, and immunosuppression caused by obesity are believed to play a role in PCa progression. Yet weight loss interventions for PCa patients on AS are limited, and none to our knowledge have targeted biological factors associated with PCa progression. Thus, we developed and pilot tested two evidence-based weight loss interventions for PCa patients on AS.

Methods: We used a parallel arm randomized controlled trial to test the preliminary comparative efficacy of two 6-month weight loss interventions for PCa patients on AS. Evidence-based interventions were used to develop continuous energy restriction (CER) and 5:2 (two 600kcal fast days, eat normally for five days) intermittent fasting (IF) interventions.

Results: Twenty patients were randomized. All (10 treatment, 10 control) were retained over 6-month follow-up. Participants were predominately White (95%), with an average age of 65.9 (SD 8.45) years. There were significant within-group differences in body weight, with CER losing on average 5.79% (95% CI: 3.48, 8.09) and IF losing 7.50% (95% CI: 5.19, 9.80) of their baseline body weight from baseline to 6-month follow-up. Within IF only, there were salubrious changes in inflammatory (IL4), immune function (leptin), and metabolic (GROa, IFNg) related biomarkers. Participants on average attended 15.1 (SD 1.17) out of 16 lessons and scored 2.53 (SD 0.49) out of 3 in self-monitoring.

Conclusion: Our CER and IF interventions can cause clinically significant weight loss in PCa patients on AS. The biomarker results lend suggestive evidence towards IF's superior potential to reduce PCa progression. If later proven efficacious, our CER and IF interventions would be the first evidence-based weight loss interventions designed for PCa patients on AS that would have an immediate impact on PCa progression to reduce mortality and improve quality of life.

Cancer Survivorship

194-T

An Evaluation of the Effects of More- Versus Less-Restrictive Medicare Part D Formularies for Prophylactic Antiemetics on Health Outcomes for Older Adults Receiving Systemic Anticancer Therapy

Besaw RJ, Fry CE, Gupta A, Wiese AD, Dusetzina SB

Purpose: To evaluate the relative risk of filling antiemetics, having an emergency department (ED) visit, or hospitalization for beneficiaries in a more restrictive (MR) Medicare Part D plan (PDP) who received highly emetic systemic anticancer therapy (SACT) compared to those in less restrictive (LR) PDPs who received low/minimally emetic SACT.

Methods: We used the SEER-Medicare linked database to identify beneficiaries with primary/first breast, lung, and pancreatic cancers from 2012-2019. Our exposure of interest was beneficiary enrollment in a PDP based on 'restrictiveness,' determined by the level of coverage and use of UMTs for prophylactic antiemetics. Outcomes included antiemetic fills, ED visits and hospitalizations at 14- and 31-days post-SACT start, as we expected most outcomes to occur in this period. NCCN cancer-specific and antiemesis guidelines were used to determine first-line SACT and resultant antiemesis treatments. Comparative interrupted time series with OLS regressions were used to estimate the causal effect described above for each outcome.

Results: Of the 32,528 eligible Medicare beneficiaries, most were female (67.5%), non-Hispanic White (89.3%) and did not receive a low-income subsidy for medications (94.0%). Lung cancer was most common (49.2%), followed by breast (36.6%) and pancreatic (14.2%). In unadjusted analyses, diagnosis year was the only meaningful difference between those in MR vs. LR PDPs (standard mean difference: .26). In adjusted CITS analyses, at 14 days, we observed a 14.2 percentage point (pp) difference in antiemetic fills between highly-emetic and low/minimal-emetic groups ($p<.001$). We then observed a 14.4pp differential change in the likelihood of antiemetic fills between those in MR vs. LR PDPs across SACT emetogenicity ($p<.001$). No differential changes between restrictiveness groups across SACT emetogenicity for ED visits or hospitalizations were observed. Results were robust at 31 days.

Conclusion: Beneficiaries in MR PDPs were more likely to have prophylactic antiemetic fills compared to those in LR PDPs, while we found no differences in ED visits or hospitalizations. We hypothesize that although there may be increased UMT use, these drugs might have lower cost-sharing, leading to more fills in MR plans.

195-T

Temporal trends in surveillance mammography among breast cancer survivors participating in a general community healthcare system

Booker QS, Pfeiffer RM, Figueroa JD, Veiga LHS, Curtis RE, Hurson A, Honda SA, White L, Ryerson AB, Wang Y, Ho STY, Vo JB, Aiello Bowles EJ, Gierach G

Purpose: Research on surveillance mammography among breast cancer survivors has narrow age ranges, small samples, and limited racial and geographic diversity. We characterized mammography patterns in a large community healthcare system to identify populations needing interventions to improve surveillance outcomes.

Methods: We analyzed the NCI-Kaiser Permanente (KP) Breast Cancer Survivors Cohort, including women with stage I–III first primary invasive breast cancer diagnosed in KP Colorado (1994-2022, follow-up 2023), Georgia (2004-2019, follow-up 2020), and Washington (1990-2016, follow-up 2017). Eligible patients were aged 20-84 years at diagnosis, survived ≥1 year, and retained ≥1 breast after surgery. Using electronic health records, we calculated the annual proportion of eligible survivors who received a mammogram, with 95% confidence intervals (CIs), by years since diagnosis and patient characteristics. Each year's denominator excluded women at a second breast cancer diagnosis, death, health plan disenrollment, or study end.

Results: 14,631 women (mean age 61 years, SD 12) received 144,689 mammograms over a median 9.9-years follow-up (IQR 10.1). Receipt was highest 1 year post-diagnosis (79%; 95% CI,79–80%) and declined over time: 5 years, 69% (95% CI,70–71%); 10 years, 61% (95% CI,59–62%); 15+ years, 53% (95% CI,51–55%). Mammography receipt was similar across racial and ethnic groups and age, except among those aged 70+, where rates were lower after ~5 years. Receipt decreased with increasing stage until year 5, when CIs overlapped. At 10 years, mammography receipt was lower among women with estrogen receptor (ER)-negative tumors (52%; 95% CI,49–55%) vs ER-positive (60%; 95% CI,59–62%); unilateral mastectomy (55%; 95% CI,52–57%) vs lumpectomy (63%; 95% CI,62–65%); no radiotherapy (52%; 95% CI,49–55%) vs radiotherapy (64%; 95% CI,62–66%); and no chemotherapy (59%; 95% CI,57–60%) vs chemotherapy (64%; 95% CI,62–66%).

Conclusion: Surveillance mammography among breast cancer survivors declined over time and with increasing age and stage. Clinical factors were strongly associated with continued mammography receipt. Future research should examine relationships between guideline-concordant mammography adherence, recurrence, and survival.

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Examining the Neighborhood Exposome and Breast Cancer Survival: Introducing the Geographically Sensitive Neighborhood-Wide Association Study

Boyle J, Zhao H, Barry KH, Shen J, Miller CA, Knott CL, Fuemmeler BF

Purpose: Growing literature recognizes the importance of contextual influences on outcomes across the cancer continuum, above and beyond those of individual biological and lifestyle factors. These contextual influences comprise a neighborhood exposome consisting of socioeconomic, demographic, and built environmental factors. To advance cancer research, it is necessary to identify which neighborhood-level factors are most relevant for cancer outcomes and determine the geographic scale of their operation.

Methods: We developed a geographically sensitive neighborhood-wide association study (gs-NWAS), building on the NWAS concept, to determine specific neighborhood-level factors associated with breast cancer survival above and beyond individual-level factors, in a cohort of women diagnosed with breast cancer from 2014-2024 at University of Virginia Comprehensive Cancer Center (N=2727). We developed an analysis framework that assigned many components of the neighborhood exposome at three geographic scales (census tract, 1km, 5km weighted buffer), identified each component's most relevant scale of operation, determined multiple comparisons-adjusted factors associated with breast cancer survival in adjusted Cox regression models, and utilized machine learning methods (elastic net regression) to validate and further narrow down these components.

Results: We identified four neighborhood exposome factors associated with shorter breast cancer survival: high housing cost among low-income households (HR=1.02, 95% CI (1.00, 1.03), p=0.016), people who recently moved to current residence (HR=1.06, 95% CI (1.02, 1.10), p=0.001), people renting in crowded households (HR=1.03, 95% CI (1.02, 1.05), p<0.001), and number of public preschoolers (HR=1.06, 95% CI (1.02, 1.10), p=0.001), all operating at unique geographic scales. A combined neighborhood risk index derived from these factors was significantly associated with shorter survival (HR=1.18, 95% CI (1.11, 1.25), p<0.001).

Conclusion: This study developed and applied a gs-NWAS approach to determine key components of the neighborhood exposome and their geographic scales of operation, identifying neighborhood-level factors in housing, economic, and demographic domains associated with breast cancer survival.

Cancer Health Disparities

197-T

Creating Comprehensive Air Pollution Metrics for Assessing Breast and Lung Cancer Risks

Boyle J, Jones RR, White AJ, Zhang J, Vieira VM, Fuemmeler BF

Purpose: Air pollution (AP) is an established carcinogen for lung cancer (LC), and emerging evidence links AP with breast cancer (BC) risk. Many epidemiological studies have focused on particulate matter less than 2.5 microns in diameter (PM2.5), though AP is a complex mixture of many pollutants. Therefore, new metrics are necessary to characterize population exposures to AP more completely. We aim to develop comprehensive AP exposure metrics to determine where and how AP drives incident BC and LC across spatial, temporal, and demographic domains.

Methods: We combined multiple databases of AP across the continental US in 2015, including the Risk-Screening Environmental Indicators (RSEI) model that tracks industrial releases, and the CACES land-use regression-estimated concentrations of Criteria Air Pollutants (CAP) including PM2.5, NO2, SO2, and O3. We used geospatial operations to align these measures to common geographic scale and employed meta-analytic cancer-specific risk estimates to weight the CAP and produce a suite of metrics (APBC and APLC) capturing AP from numerous sources.

Results: APBC and APLC exhibited moderate positive skew, with few tracts having values an order of magnitude above the mean, and were typically highest in large cities and along transportation corridors. Relative to RSEI, APBC and APLC were higher in certain areas including Los Angeles (LA) and Central Valley of California and the New York City (NYC) area. Both were distributed inequitably with respect to race (higher for Black and Asian), ethnicity (higher for Hispanic), housing tenure (higher for renters), and housing stock (higher for pre-1940), all with $p<.001$. There was significant spatial clustering of both APBC and APLC, with high-high clusters within the LA, NYC, Chicago, and Houston areas.

Conclusion: We developed novel AP metrics that incorporate releases from industrial facilities, emissions along transportation corridors and from power plants, and fires, constructed to characterize BC- and LC-specific risks. Future research will use these metrics to represent the total AP burden in individual and ecological analyses and identify specific constituents of the AP exposome, informing strategies to reduce incidence and disparities of LC and BC attributable to AP.

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Associations Between Comorbidity Phenotype and Imaging Surveillance Adherence Among Early-Stage Non-Small Cell Lung Cancer Patients

Wheeler M, Karanth SK, Shrestha P, Lou X, Braithwaite D

Purpose: To examine patterns of comorbidities among patients with lung cancer and how these comorbidity patterns influence imaging surveillance adherence.

Methods: We used SEER-Medicare data to identify patients aged 66-85 diagnosed with stage I/II NSCLC between 2015-2019 who received curative intent treatment and survived at least 5 months post-treatment (N=13,876). Latent class analysis (LCA) was used to identify distinct comorbidity phenotypes using comorbidities in the NCI Comorbidity Index. The primary outcome was adherence to imaging surveillance, defined as receipt of at least one chest CT every 6 months (±2 months) for two years following completion of treatment. Logistic regression and chi-square analysis were used to examine associations between comorbidity phenotype and surveillance adherence.

Results: Among 13,876 patients with stage I/II NSCLC, most were Non-Hispanic White (83.8%), had stage I disease (79.3%), and were treated with surgical resection (61.0%). Five comorbidity phenotypes were identified through LCA and were characterized by increasing comorbidity burden and the presence or absence of cardiopulmonary conditions and diabetes. The healthiest phenotype (55.9%) had the lowest mean Charlson score (0.8), while the phenotype with the highest comorbidity burden (3.3%) had the highest mean Charlson score (7.2). Overall, one- and two-year surveillance adherence was low (42.9% and 16.9%) and declined with increasing comorbidity burden. Patients in comorbidity phenotypes with the highest comorbidity burden were less likely to be adherent to imaging surveillance compared to patients in the healthiest phenotype. Other predictors of non-adherence included non-White race, squamous cell histology, or SBRT treatment. In contrast, female sex and higher socioeconomic status increased a patient's likelihood of being adherent.

Conclusions: Patients with lung cancer and a comorbidity phenotype characterized with high comorbidity burden and high prevalence of metabolic diseases are less likely to be adherent to imaging surveillance. Comorbidity phenotypes provide a more nuanced understanding of how comorbid conditions cluster within lung cancer patients.

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WeCanWork: Providing New Employment Support in Oncology Settings

Brown CE, Tenney L, Goering M, Dye-Robinson A, Newman LS, Bradley CJ

Purpose: The Well-Being and Cancer at Work (WeCanWork) study developed and evaluated a referral pathway for oncology clinics to refer patients to receive an occupational medicine (OM) consultation to discuss work-related and employment concerns, to benefit both patient care and work outcomes. OM providers are trained to help patients address work related needs, including assessment of impairment, return-to-work recommendations, and assistance in navigating employer systems.

Methods: We enrolled employed cancer patients at an academic-based integrated health system. Aim 1: designed to learn about the employment, financial distress, and well-being of men undergoing cancer treatment. Aim 2: conducted focus groups with oncology providers to learn about the work-related concerns they see in their practice and how they address those, and with OM providers to understand how they were equipped to advise cancer survivors. Aim 3: built a referral pathway for oncology teams to connect patients with an OM provider. We identified and executed implementation strategies, including educating oncology providers about OM, generating buy-in, and addressing implementation barriers to enhance adoption and fidelity.

Results: Aim 1: 3-months post-diagnosis, 82% of men remained working, with an average reduction in weekly hours worked of 5 hours (SD = 11.7). Those with employer-based health insurance 16% (p=0.08) and less education 24% (p=0.01) were and less likely to reduce their working hours. Aim 2: themes emerged around psychosocial support, resource navigation, referrals to specialists, completion of employment and disability forms, and patient education. Oncology care team members showed interest in referring their patients for specific return-to-work guidance and support. Aim 3: as of October 2025, 32 OM consultations were completed, with 28% of patients attending a second consultation. Interviews with providers from OM and oncology have shown high levels of engagement and acceptability, with agreement that the that the consultation provided a needed resource to patients and is feasible to implement.

Conclusions: Opportunities for improvement include streamlining the referral process, identifying pathways for expansion to other clinics, and sustainability.

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Evaluation of an Online Cognitive-Behavioral Stress Management (CBSM) Program for Firefighter Cancer Survivors

Brown EH, Herbach E, Beaver CC, Skinner WJ, Van Mossel A, Penedo FJ, Caban-Martinez AJ, Kobetz EN, Solle NS

Purpose: Although the carcinogenic risks of firefighting are well established, few interventions support firefighters in navigating life after a cancer diagnosis. This study evaluated the acceptability and use of a 10-week online Cognitive-Behavioral Stress Management (CBSM) program tailored to firefighters to enhance coping skills, reduce stress, and inform survivorship approaches.

Methods: We conducted a convergent parallel mixed-methods study combining quantitative data with qualitative open-ended survey responses from 33 firefighters diagnosed with cancer. The intervention was delivered to seven virtual groups between June 2023 and August 2025. Participants completed all 10 CBSM sessions, and surveys were administered post-intervention. Acceptability and use were assessed on an 8-point Likert scale (1=strongly disagree, 8=strongly agree) via the Usefulness, Satisfaction, and Ease of Use (USE) questionnaire and a supplemental feedback form. We averaged scores for usefulness, ease of use, ease of learning, and satisfaction. Quantitative data were summarized using descriptive statistics. Qualitative data from open-ended questions in both instruments were analyzed thematically, guided by use and acceptability constructs.

Results: Mean USE scores reflected strong agreement across usefulness (M=5.7, SD=1.7), ease of use (M=6.4, SD=1.4), ease of learning (M=6.8, SD=1.4), and satisfaction (M=5.9, SD=1.5). Feedback form responses indicated most participants (90.9%, n=30) reported appropriate session length, and 97% (n=32) agreed the online program was easy to navigate. Qualitative findings from post-surveys revealed three central themes: (1) Peer Connectedness; (2) Content Relevance; and (3) Participant Engagement. While most preferred an online format, several favored printed materials, highlighting an area for refinement.

Conclusion: The CBSM intervention was acceptable and useful to the firefighter cancer survivors. High ease of learning and perceived usefulness support the relevance of a tailored psychosocial survivorship approach for this occupational group. Peer connectedness and participant engagement underscore the program's potential to enhance coping and reduce stress. These findings support adapting CBSM interventions for other high-risk occupations.

201-T

Feasibility and Acceptability of Time Restricted Eating with and without a Prebiotic in Young Adult Survivors of a Pediatric Cancer

Cares KE, Oliveira M, Bryner A, Man B, Chen Z, Peñalver Bernabé B, Schmidt ML, Fitzgibbon ML, Gabel K

The optimization of treatment for pediatric cancer has increased 5-year survivor rates to over 80%. Currently, there are almost half a million survivors of a pediatric cancer alive in the United States, with numbers increasing worldwide. Despite the success in short term survivorship, pediatric cancer survivors (PCS) are at high risk for long term chronic disease related to cardiometabolic dysregulation at an early age. PCS often have poor diet quality compared to matched controls which may be driving increased adiposity, perturbation in the gut microbiome and chronic systemic inflammation related to increased risk for chronic disease. Time restricted eating (TRE) has emerged as a salient dietary intervention to promote weight loss in individuals with increased adiposity. Prebiotic supplements may enhance the efficacy of this TRE as it relates to cardiometabolic risk marker by promoting satiety via the gut microbiome. Given the accessibility of both TRE and prebiotics, this type of dietary intervention may be ideal for PCS. The purpose of this study was to determine the feasibility and acceptability of 12 weeks of TRE with and without a prebiotic supplement among young adult PCS. Changes in body weight, body composition, and cardiometabolic disease risk markers were explored. Feasibility was measured based on recruitment, retention (80%) and adherence to the eating window (80%) and acceptability was measured based on a validated survey. Body weight, body composition, blood pressure and additional cardiometabolic risk markers were also measured following the intervention. Feasibility was not met based on recruitment (n=13), but retention and adherence exceeded the a priori hypothesis. Acceptability also met the a priori hypothesis. Improvements were observed in some cardiometabolic risk markers including a significant decrease in fat mass and visceral fat mass in both arms following the intervention. Given the positive outcomes related to retention, adherence and acceptability as well as some cardiometabolic risk markers, a larger and longer study in TRE and prebiotics in PCS is warranted. However, innovative recruitment strategies should be implemented such as leveraging social media ads as well as a change in design to include a larger geographical area.

202-T

Exploring Survivors' Care Partner Nutrition Dynamics in Head and Neck Cancer Survivorship: A Pilot Study

Chen X, Mudunkotuwa G, Bur AM, Young K, Gibbs HD, Arthur AE

Purpose: Head and neck cancer (HNC) survivors face high malnutrition risks. Their informal care partners play a key yet overlooked role in post-treatment nutrition. This study examines nutrition dynamics within survivors' care partner dyads to inform future intervention.

Methods: This is a cross-sectional pilot study of 50 HNC dyads. Parallel data were collected from the dyads, including sociodemographic characteristics, fruit and vegetable (FV) intake (EATS All-Day Screener), nutrition status (Mini Nutritional Assessment), skin carotenoid levels (VeggieMeterÂ®), and sarcopenia status (established clinical criteria). Intraclass correlations examined the parallel variables for similarities in nutritional outcomes within dyads. Bivariate linear and logistic regression examined associations between care partners' FV intake and nutrition status with each survivor outcomes.

Results: Dyads were mostly older adults (mean age: survivors 65 and care partners 60 yrs), with survivors primarily male (68%) and partners mostly female (74%). Mean FV intake was 3.11 (SD=4.6) cups/day for partners and 2.65 (SD=2.7) cups/day for survivors. Intraclass correlations showed moderate, significant within-dyad agreement in carotenoid levels (ICC=0.287, p=0.02) and weak, non-significant agreement in fruit intake and nutrition status. No statistically significant associations were observed (p>0.05) in regression models. However, positive directional trends were noted between care partners' FV intake and nutritional status with survivors' skin carotenoid levels and nutritional status (all ß>0).

Conclusions: Care partners' FV intake and nutrition status were not significantly associated with the survivors' skin carotenoid, nutrition status, or sarcopenia status. While some behavioral measures show little concordance within dyads, physiological carotenoid levels exhibit a modest but statistically significant alignment. The null findings in regression models may reflect limited statistical power due to the small sample. However, within-dyad agreement and exploratory trends suggest dyadic factors may influence survivor nutrition outcomes. Further investigation is needed in larger samples. Dyadic nutrition interventions combining individualized and collaborative strategies may hold promise.

203-T

Sleep Disturbances Among Survivors of Adolescent and Young Adult Cancer in a US Population Survey

Choi E, Milam J, Miller K, Berkman A, Kagramanov D, Xiao Q, Hildebrandt M, Freyer D, Roth M

Purpose: Survivors of adolescent and young adult (AYA) cancer may be at elevated risk for sleep disturbances, yet few studies have comprehensively examined these outcomes. This study aimed to compare the prevalence of sleep disturbances between survivors of AYA cancer and matched controls using a nationally representative dataset.

Methods: We analyzed data from the 2013-2018 National Health Interview Survey. Survivors of AYA cancer (diagnosed between ages 15-39) were matched 1:1 with cancer-free controls using propensity scores based on age at survey, sex, and race/ethnicity, with exact matching on survey year. Sleep disturbances included insomnia-like symptoms (endorsing ≥1 of the following: trouble falling asleep ≥3 nights/week, trouble staying asleep ≥3 nights/week, or sleep medication use ≥3 times/week), short sleep duration (<7 hours/night), and not feeling rested (≥1 day/week). Multivariable logistic regression models adjusted for sociodemographic characteristics (age, sex, race/ethnicity, marital status, education, poverty, insurance), chronic health conditions, health behaviors (alcohol use, smoking, physical activity), mental distress, and fatigue.

Results: A total of 3,475 survivors and 3,475 matched controls were included. The mean age at survey was 52 years; 74.5% were female and 81.1% were non-Hispanic White. Among survivors, the mean age at diagnosis was 29.2 years, and the mean time since diagnosis was 22.8 years. Survivors reported significantly higher rates of insomnia-like sleep disturbances than controls (52.9% vs. 37.6%; adjusted OR [aOR]=1.44, p<.001). Specifically, survivors had increased odds of trouble falling asleep (33.8% vs. 21.8%; aOR=1.45, p<.001), trouble staying asleep (42.4% vs. 30.0%; aOR=1.32, p<.001), and not feeling rested (34.0% vs. 23.8%; aOR=1.37, p<.001). Frequent sleep medication use (17.3% vs. 11.2%; OR=1.19, p=0.07) and short sleep duration (39.2% vs. 33.8%; OR=1.15, p=0.06) did not differ significantly between groups.

Conclusions: Survivors of AYA cancer experience substantially elevated rates of sleep disturbances compared to matched controls. These findings underscore the need for systematic sleep assessment and targeted interventions in survivorship care to improve sleep health in AYA survivors.

204-T

National Cancer Survivorship Standards in Action: Caregiver Experiences Across Stage, Phase, and Geography

Feather AR, Webster MW, Stanek M, Andreae L, Back-Haddix S, Blair C, Burris JL, McLouth LE

Purpose: To evaluate caregiver-specific survivorship care at an NCI-designated cancer center and examine caregiver concerns, inquiry by oncology teams, and communication patterns by cancer stage, treatment phase, and geographic residence.

Methods: A convergent, cross-sectional mixed-methods study was conducted with caregivers of survivors receiving outpatient cancer care. Caregivers (N=77) completed a survey assessing emotional, physical, social, and caregiving-task concerns; frequency of care team inquiry; and communication of concerns. Group differences by survivor stage, treatment phase, and caregiver rurality were examined using chi-square and Fisher's exact tests. N=8 caregivers completed semi-structured interviews analyzed using directed content analysis to identify themes aligned with survivorship care standards.

Results: Caregivers (N=77; M age=55; 65% female; 60% rural) provided an average of 36 hours/week of care. Emotional concerns were most common (66%), followed by physical (32%) and caregiving-task concerns (22%). Over half reported that the care team never asked about these concerns, and among those with concerns, ≤14% raised them with providers; <6% reported sharing physical, social, or non-medical caregiving concerns. Nonrural caregivers were more likely than rural caregivers to report care team inquiry about social (23% vs 9%, p=.02) and medical-task concerns (30% vs 20%, p=.02). No group differences emerged for communication of concerns. Qualitatively, caregivers described limited awareness of survivorship services, infrequent direct inquiry into caregiver needs, and logistical and coordination challenges, but noted supportive provider interactions and integrated services as facilitators. They recommended proactive assessment, tailored information, and caregiver-focused resources.

Conclusions: Caregivers frequently experience emotional, physical, and practical concerns that are rarely assessed or communicated in oncology visits, with lower inquiry observed for rural caregivers. Findings highlight a persistent gap between caregiver needs and survivorship care delivery, emphasizing the need for routine caregiver identification and structured assessment to align practice with national survivorship standards.

205-T

Non-Surgeons Are More Likely to Note Barriers to Surgery Than Surgeons When Treating Patients With Early-Stage Non-Small Cell Lung Cancer (NSCLC)

Gorbatov ML, Arizpe A, David EA, Farias AJ

Purpose: Disparities exist in referral patterns for the treatment of early-stage NSCLC. We determined whether physician specialties differ in their ratings of multiple factors that impact a patient's ability to complete surgery or radiation and therefore, the influence of physician specialty on treatment.

Methods: We conducted a population-based survey of all physicians who treated at least one early-stage NSCLC patient in 2022 identified in the Los Angeles Cancer Registry. Our sample included 113 surgeons, medical oncologists, radiation oncologists, and pulmonologists. Physicians rated how much of a factor on a scale from 1 (not a factor) to 5 (very large factor) they perceived clinical (older age, comorbidities), sociodemographic (race/ethnicity, work leave, English proficiency, transportation), health system (insurance, translation, appointment access), and psychosocial (social support, trust, treatment worth) domains impact patients' ability to complete surgery and radiation. Mean domain scores were compared by specialty, and multivariable regression models estimated adjusted mean differences between specialties.

Results: Clinical domains were rated as the most important barriers to completing surgical treatment by physicians (mean score: 3.5). Non-surgeon specialists, particularly radiation oncologists, reported higher perceived barriers across all domains (mean range= 2.2-4.1), compared to surgeons who reported the lowest (1.6-3.1). In multivariable analyses, radiation oncologists reported that all domains were significantly greater barriers to surgical treatment compared to surgeons (Clinical ß= 0.97, 95% CI: 0.47-1.48; Sociodemographic ß=0.58, 0.11-1.06; Health system ß=0.66, 0.13-1.18; and Psychosocial ß=0.95, 0.45-1.45). Medical oncologists (ß=0.77, 0.32-1.22) only reported significantly greater perceived psychosocial barriers compared to surgeons. There were no significant differences across specialties for radiation treatment barriers.

Conclusions: Specialty-based differences in perceived barriers to completing surgery, particularly from non-surgeons, may hinder referral for surgery. Our results underscore that differences in provider perceptions may contribute to disparities in guideline-concordant treatment for patients with early-stage NSCLC.

206

Care Transitions in a Rural Cancer Center: Perspectives of Recent Cancer Survivors

Gunn C, St. Angelo M, Purvis L, Sykes C, Kuhn E

Purpose: To characterize cancer survivors' self-reported experiences with transitioning from active cancer treatment to survivorship care at a rural cancer center.

Methods: We invited adults diagnosed with a solid tumor between 1/1/2022 and 12/31/2024 and received cancer treatment at Dartmouth Cancer Center to complete a survey about their cancer survivorship care. The survey was conducted online and paper copies were provided upon request. Survey topics included treatment status, care satisfaction, and referrals to and use of survivorship services.

Results: The mean age at first cancer diagnosis for the 149 participants was 62.5 (range: 22-85) and 56% were female. Participants mostly identified as White (93%) and non-Hispanic (91%) and 61% lived in a rural area (RUCA code 7-10). A minority (19%) were still undergoing treatment. In terms of perceptions of transitions between curative treatment and survivorship care, 52% of participants reported being very prepared to transition from active treatment, 35% reported being somewhat prepared, and 6% reported not being prepared. While 79% (117 of 149) of respondents reported they were extremely satisfied with their cancer care, a smaller proportion (64%, 77 of 121) were extremely satisfied with the survivorship care they received. About half of participants (52%) reported that they were referred to at least one survivorship service: 51% reported 1 referral, 33% 2 referrals (range (1-7). Among those referred for services, 81% received at least one survivorship service. Physical therapy, nutrition, and genetic counseling were the most referred and most received services. When asked about services that would have been helpful, but were not received, the most common responses were complementary care (19%), nutrition or diet support (17%), follow-up communication about care (15%), and counseling or mental health services (13%).

Conclusions: This survey revealed variation in how prepared cancer survivors felt in transitioning to survivorship care and the care they received. With about half of survivors reporting having received referrals and fewer receiving those services, there are opportunities to support continuity of care during this transition.

207

Digital Health Literacy and Interest in Digital Survivorship Services at a Rural Cancer Center

Gunn C, St. Angelo M, Purvis L, Sykes C, Kuhn E

Purpose: To assess digital health literacy and interest in digital survivorship services at a rural cancer center.

Methods: We surveyed adults diagnosed with solid tumors in calendar years 2022-2024 who received cancer treatment at Dartmouth Cancer Center about their cancer survivorship care. The survey was conducted either online or via mailed paper copy. Digital health literacy was measured using the Digital Health Readiness Questionnaire (DHRQ) and grouped in quartiles. Participants were asked about their use of the health system's online patient portal and their interest in specific digital health programs at Dartmouth Cancer Center. We tested for associations between DHRQ scores and interest in digital services using Chi-Square tests.

Results: The mean age of the 149 participants was 62.5 (range: 22-85); 56% were female. Most lived in rural areas (61%) and identified as White (93%) and non-Hispanic (91%). The median DHRQ score was 61 (theoretical range: 15-75). The majority (95%) reported having an active patient portal account, though fewer (47%) reported using it often/always to manage survivorship care. We asked participants about their interest in 3 digital health interventions: an online platform to screen for and treat depression among cancer patients, a support service offering technology coaching and health system navigation, and a virtual peer support network. Interest was similar across programs: 47%, 45%, and 44% reported interest in digital mental health services, digital health navigation, and digital peer support, respectively. Digital health literacy scores were not associated with interest in any of the digital services or with patient portal use. Associations between DHRQ score and interest in online peer support approached statistical significance (p=0.052). Participants in the lowest quartile reported less interest in this service than those in higher quartiles.

Conclusions: Despite perceptions that rural populations lack interest and access to digital services, this survey found relatively high engagement with electronic patient portal use and interest in digital health services for survivorship. Augmenting in-person survivorship services with digital programming could improve the reach of survivorship care among rural populations.

208

Social Risks, Financial Hardship, and Mortality among Black Cancer Survivors: Results from the Detroit Research on Cancer Survivors (ROCS) Cohort

Hastert TA, Ruterbusch JJ, Akcasu N, Schwartz AG

Purpose: To estimate associations between social risks, material financial hardship (MFH), behavioral financial hardship (BFH), and all-cause, cancer-specific, and other causes of mortality.

Methods: We analyzed data from 2,489 participants in the Detroit Research on Cancer Survivors (ROCS) cohort who enrolled within 2 years of diagnosis. Black adults ages 20-79 with breast, colorectal, lung, or prostate cancer diagnosed since 2013, endometrial cancer or other cancers (ages 20-49) diagnosed since 2016, and identified through a population-based cancer registry were eligible. Participants self-reported social risks (food insecurity, utility shut-offs, housing instability, cost or transportation-related barriers to care, neighborhood safety concerns), MFH (borrowing, debt, income loss, using assets) and BFH (limiting care due to cost) at ROCS enrollment. Cox proportional hazards models estimated hazard ratios (HR) and 95% confidence intervals (CI) for associations with all-cause, cancer-specific, and other cause mortality.

Results: Overall, 36.6% of participants reported any social risks, 41.7% reported MFH, and 20.3% reported BFH. Adjusting for age, sex, and cancer site, reporting any social risk was associated with higher all-cause mortality (HR: 1.31, 95% CI: 1.11-1.55), driven by non-cancer mortality (HR: 1.85, 95% CI: 1.41-2.42) but not cancer-specific mortality (HR: 1.02, 95% CI: 0.82-1.27). MFH was associated with higher all-cause (HR: 1.21, 95% CI: 1.02-1.44), and cancer-specific mortality (HR: 1.37, 95% CI: 1.10-1.70) but not mortality due to other causes (HR: 0.99, 95% CI: 0.74-1.32). BFH was associated with higher all-cause mortality (HR: 1.31, 95% CI: 1.08-1.60), with similar but non-significant associations for both cancer-specific (HR: 1.25, 95% CI: 0.97-1.61) and other mortality (HR: 1.34, 95% CI: 0.97-1.85). Associations attenuated when further controlling for individual socioeconomic factors.

Conclusions: Financial hardship was associated with cancer-related mortality, while social risks were associated with non-cancer mortality. Although associations attenuated when controlling for socioeconomic factors, understanding these differential relationships is critical for addressing the impact of financial and related challenges on cancer outcomes.

209-T

The Impact of Environmental Contaminants, Air Pollution, and Social Deprivation on Childhood Leukemia Survival in California

Hernandez F, Stewart E, Morimoto LM, Kang AY, Winestone LE, Metayer C

Purpose: Despite advances in leukemia treatment, disadvantaged children experience worse outcomes. We evaluated the impact of intertwined socioeconomic and pollution burdens on childhood leukemia survival, focusing on ambient air pollution, a known carcinogen.

Methods: Participant data were obtained from the California Childhood Leukemia Study (1995-2015) and linked by diagnosis residence to the CalEnviroScreen (CES) 3.0 database, which characterizes neighborhood pollution burden and area-based population vulnerabilities across California. Five-year survival analyses were performed using Kaplan-Meier estimators and Cox proportional hazards ratio (HR) models with 95% confidence intervals (CI), adjusting for individual socio-demographic and clinical prognostic factors.

Results: Among 1,210 children with acute lymphoblastic leukemia (ALL), 124 died within 5 years of diagnosis. Living in areas with medium/high CES composite scores for both pollution and population/social burdens were associated with decreased ALL survival compared to low CES scores (HR = 2.19; 95% CI: 1.19–3.91), with the population/social burden component appearing to drive this association (HR = 1.85; 95% CI: 1.06–3.21). Survival did not substantially differ by low versus medium/high scores for the specific air pollution indicators particulate matter (PM2.5) and ozone; however, HRs were higher among children with ALL molecular subtypes associated with unfavorable prognosis (e.g., high-hyperdiploidy negative, CDKN2A, and IKZF1 deletions). For acute myeloid leukemia (AML), among 178 cases with 49 deaths, living in areas with medium/high population/social burden scores was associated with an increased risk of death (HR = 2.21; 95% CI: 0.99–4.94).

Conclusion: Higher cumulative burden from environmental contaminants and social deprivation had a negative impact on childhood ALL and AML survival. The score for population characteristics was the main driver of these observations for ALL. Medium/high scores for PM2.5 and ozone were possibly associated with reduced survival of specific ALL subtypes, adding to the body of evidence suggesting a harmful effect of chemical pollutants on leukemia survival.

210

Provider and Staff Perceptions of Digital Technology Tools for Addressing Social Drivers of Health with Cancer Patients

Hull PC, Chih M-Y, Alexander J, Scales J, Sullivan A, McLouth L, Faiola A, Brown K, McCann C, Mullett T

Purpose: The purpose of this analysis was to examine provider and staff perceptions of the Comprehensive Connected Cancer Care (C4) Program.

Methods: The C4 Program aims to address cancer patients' social drivers of health (SDOH) needs through a hybrid model combining a patient navigator and two digital technology tools: a) mobile app for patients to complete psychosocial distress screenings at home and receive personalized recommendations of services for SDOH needs and b) navigator dashboard to monitor/assist patients. The C4 Program addresses the Commission on Cancer (CoC) Standards for psychosocial distress screening and barriers to care. We conducted key informant interviews with five providers/staff (oncology, nursing, social work, psych-oncology administration, administrative leadership). Interview questions were selected from the Consolidated Framework of Implementation Research (CFIR) interview guide. We conducted thematic analysis of interview transcripts.

Results: We summarized the providers/staff perceptions for each relevant CFIR Construct/Theme. 1) Intervention source: CoC Standards are perceived as reflecting best practices in cancer care and essential for guiding care quality and consistency. 2) Evidence Strength & Quality: Perceived effectiveness is based more on clinical experience than published data. 3) Relative Advantage: App/dashboard provided advantages over current distress screening methods. 4) Adaptability: Interoperability with EHRs promotes sustainability. 5) Trialability: App/dashboard have been well-received during the pilot stage. 6) Complexity: App/dashboard are perceived as user-friendly. 7) Design Quality and Packaging: Visual interfaces and supplemental material handouts are perceived as well-designed. 8) Cost: Minimal financial barriers; personnel time and print materials may incur costs.

Conclusions: Oncology providers/staff expressed positive perceptions of the C4 hybrid model of patient navigator plus digital tools. Ongoing research is needed to: 1) augment interoperability of the digital tools with EHRs, 2) identify necessary adaptations to use C4 across multiple healthcare systems, and 3) assess the effectiveness of the C4 Program to reduce patients' SDOH barriers to care and improve patient outcomes.

211-T

Timing of Mental Disorders in Relation to Cancer Survival in Cancer Patients: Evidence from a Novel Application of Inverse Probability Weighting Analysis

Li M, Deng Z, Jung M, Baiocchi M, Spiegel D, Chung BI, Langston ME, Bondy ML

Purpose: To evaluate whether mental disorders identified before cancer diagnosis, shortly after diagnosis (within one year), or later (2-5 years post-diagnosis) are associated with cancer-specific mortality, and whether having both pre- and post-diagnosis disorders displays the highest mortality.

Methods: We conducted a cohort study of 22,281 UK Biobank cancer patients linked to national cancer and death registries. Mental disorders (e.g., anxiety and depressive disorders) were identified from inpatient and outpatient diagnostic records and psychiatric prescriptions, then classified by exposure period. We applied a novel period-specific longitudinal inverse probability weighting method to preserve early-period information and improve time-specific effect estimation, while incorporating treatment and death censoring weights to address confounding and survival bias. Weighted Cox models estimated hazard ratios (HR) and 95% confidence intervals (CI) for time-specific associations across all cancers and by site (prostate, breast, colorectal, lung, and lymphoma). Additional models assessed HRs for interactive pre- and post-diagnosis disorder groups (pre only, post only, and both vs. none).

Results: Over a median follow-up of 5.3 years, 6,134 cancer-specific deaths occurred. Mental disorders at all three periods (prevalence: 26.9%, 13.2%, and 14.9%) were associated with higher overall cancer mortality: pre-diagnosis (HR [95% CI]: 1.19 [1.11–1.27]), first year post-diagnosis (1.38 [1.26–1.51]), and years 2–5 (2.19 [1.97–2.43]). The strongest and most consistent associations (HR ≈ 2) were observed in years 2-5 across cancer sites. Site-specific analyses also showed significant associations for pre-diagnosis (HR 1.57) and first-year post-diagnosis (HR 1.64) disorders in lymphoma, and for first-year disorders in colorectal cancer (HR 1.58). Patients with post-diagnosis disorders, regardless of pre-diagnosis history, had higher cancer mortality than those with pre-diagnosis disorders only or none.

Conclusions: Mental disorders during 2-5 years post-diagnosis were most strongly associated with cancer-specific mortality across most cancer sites. Findings highlight the need for systematic mental-health screening and intervention as a core part of cancer survivorship care.

212-T

Cardiovascular Risk After Minimally Invasive Versus Open Esophagectomy: Observations from SEER–Medicare

Liu K, Chang CE, Zhou H, Rao J, Zhang ZF, Hashibe M

Purpose: Minimally invasive esophagectomy (MIE) is increasingly adopted for esophageal cancer, but its long-term cardiovascular effects remain unclear.

Methods: Using SEER–Medicare data (2000-2019), we identified esophagectomy type from CPT/HCPCS codes. Outcomes included incident heart failure, ischemic heart disease, and stroke/transient ischemic attack; a composite endpoint captured the first of these events. Cox proportional hazards models adjusted for demographics, comorbidity, tumor, and contextual factors were used to estimate hazard ratios (HRs). We examined associations overall and by time since surgery, histology, and tobacco use disorder/obesity.

Results: Among 2,300 patients (286 MIE; 2,014 open), MIE was not associated with composite CVD risk (adjusted HR=1.01, 95% CI: 0.70–1.46) or with heart failure, ischemic heart disease, or stroke individually. In time-stratified analyses, MIE was linked with increased heart failure risk during 5-10 years post-surgery (HR=3.35, 95% CI: 1.31– 8.52),, particularly in patients without tobacco use disorder and those with adenocarcinoma. Overall survival appeared slightly better for MIE patients, consistent with adoption in later years. Results were robust to additional adjustment for chemotherapy and radiotherapy.

Conclusions: In this large, population-based cohort of older U.S. esophageal cancer survivors, surgical approach was not associated with long-term composite CVD risk. An exploratory increase in heart failure risk 5-10 years after MIE may be linked with survival bias and warrants validation in datasets with detailed treatment dosimetry to support risk-adapted cardiovascular surveillance in survivorship care.

213-T

Awareness of Multi-Cancer Early Detection Tests and Perceived Value to U.S. Cancer Survivors

Liu S, Murphy CC, Wesevich A, Pruitt SL, Thompson E, Tiro JA

Purpose: Describe awareness and perceived value of multi-cancer early detection (MCED) tests among U.S. adults by history of cancer and to examine correlates of awareness and perceived value among cancer survivors.

Methods: Using the 2024 Health Information National Trends Survey (HINTS 7), we identified adults with and without self-reported cancer history. We examined the prevalence of MCED awareness (ever vs. never heard) and its perceived value (somewhat/very vs. a little/not at all valuable) by cancer history. Among survivors, we used chi-square tests to identify correlates of awareness and perceived value.

Results: Among 6,652 survey participants (58.9% non-Hispanic White, 48.5% female), 1,051 (9.8%) were cancer survivors. Common cancer types included non-melanoma skin (24.5%), prostate (12.5%), and breast (11.1%) cancer. On average, survivors were older than those without cancer (mean age 68.3 vs. 53.3, $p<0.001$). MCED awareness (19.6% vs. 16.2%, $p=0.09$) and perceived value (76.1% vs. 72.8%, $p=0.06$) did not differ by cancer history. Among survivors, MCED awareness was highest among Hispanic survivors (47.3%; 95% CI: 29.7–65.5) and those believing cancer prevention isn't possible (31.8%; 95% CI 21.9-43.7). Other survivors with high awareness included those without insurance (51.4%; 95% CI 19.6-82.1), dissatisfied with their internet connection (29.3%; 95% CI 14.3-50.8), and reporting healthcare mistrust (47.6%; 95% CI 14.9-82.5). In contrast, perceived value of MCEDs was highest among non-Hispanic Black survivors (89.0%; 95% CI 80.1–94.6), those who had ever looked for cancer information (81.0%; 95% CI 77.4-84.1), or reported trusting the healthcare system (82.6%, 95% CI 77.1-87.1). Reporting good health status (83.2%; 95% CI 77.7-87.6) and feeling confident in ability to take good care of one's health (78.3%; 95% CI 73.9-82.2) were also associated with perceiving MCED tests to be valuable.

Conclusion: About 1 in 5 cancer survivors have heard of MCEDs, and most survivors perceive these tests as valuable. As MCED tests become increasingly available in clinical settings, raising awareness among survivors is critical, along with educating survivors on MCED benefits and harms.

214-T

Bridging the Cancer Care Divide: Community-Based Survivorship and Early Detection Support for Young Adults in Rural India

Manna A

Purpose: To evaluate the impact of a community-based cancer survivorship and early detection program on young adults in rural Eastern India, addressing cancer disparities through integrated advocacy, education, and home-based care.

Methods: A prospective, community-based observational study was conducted from January 2022 to June 2025 in the Moyna and Tamluk blocks of East Medinipur District, West Bengal, India. The intervention included (1) awareness sessions on early cancer symptoms, (2) risk assessment and screening camps for breast and cervical cancers, and (3) structured survivorship and palliative care home visits led by trained oncology social workers. Data were collected using standardized forms assessing demographics, cancer type, stage at diagnosis, access to treatment, adherence, and quality-of-life indicators (EORTC QLQ-C30). Quantitative data were analyzed using descriptive statistics and paired t-tests to evaluate pre- and post-intervention changes.

Results: A total of 512 young adults (aged 18-39 years) participated, 76% female. The intervention led to a 41% increase in early-stage diagnosis rates for breast and cervical cancers and a 32% improvement in treatment adherence compared to baseline. Participants reported significant improvements in emotional well-being ($p<0.01$) and symptom management ($p<0.05$). Notably, the proportion of patients receiving regular follow-up care increased from 18% to 67% after the introduction of the structured home-visit model.

Conclusions: Community-anchored, social-work–driven interventions can significantly improve early detection, survivorship care, and quality of life for young adults with cancer in underserved rural settings. Integrating such models into national cancer control strategies could help reduce global disparities and improve outcomes in low-resource environments.

215-T

Risk of Second Primary Cancer among Survivors of Non-Hodgkin Lymphoma

Mayberry SA, Murphy CC, Shahan K, Awan F, Rathod AB, Uribe D, Wesevich A, Tiro JA, Pruitt SL

Purpose: Estimate the risk of second primary cancer (SPC) among survivors of non-Hodgkin lymphoma (NHL).

Methods: Using Surveillance, Epidemiology, and End Results (SEER) data, we identified 267,577 patients diagnosed with NHL between 2000 and 2022 as their first or only cancer. We then identified if a SPC was diagnosed ≥ 3 months after NHL. SPC excluded lymphoid cancers. We estimated SPC risk using standardized incidence ratios (SIR), overall and for specific SPC types. We also examined SIRs by sex and considered viral etiology. Competing risk regression estimated cumulative incidence of SPC accounting for competing risk of death over the 22-year period.

Results: Of 264,483 (98.85%) NHL patients surviving ≥ 3 months, 26,347 (9.96%) developed SPC for an overall SIR of 1.15 (95% CI: 1.14, 1.17). Compared to the general population, NHL survivors had increased risk for both hematologic (SIR: 2.29, 95% CI: 2.18, 2.40) and solid (SIR: 1.08, 95% CI: 1.07, 1.09) tumors, with highest risk for non-lymphocytic leukemia (SIR: 3.56, 95% CI: 3.37, 3.76). Excluding hematologic tumors, highest SIRs were observed for Kaposi Sarcoma (SIR: 4.55, 95% CI: 3.50, 5.83), thyroid (SIR: 2.40, 95% CI: 2.24, 2.57), salivary gland (SIR: 2.25, 95% CI: 1.91, 2.63), and anal (SIR: 1.99, 95% CI: 1.71, 2.30) cancers. SIRs by sex revealed SPC type-specific differences. Kaposi Sarcoma SIR was only significant in males (SIR: 5.23, 95% CI: 4.00, 6.72), potentially related to immune suppression or viral etiology. Additionally, males had higher anal tumor risk (SIR: 2.81, 95% CI: 2.30, 3.41) compared to females (SIR: 1.43, 95% CI: 1.14, 1.79), and 90% of anal tumors in males were HPV-associated. These sex differences align with competing risk regressions showing higher SPC incidence in males compared to females, adjusting for histology, age, and competing risk of death (sub-distribution hazard ratio: 1.28, 95% CI: 1.26, 1.32).

Conclusion: NHL survivors experience elevated SPC risk, varying by sex and type, with excess risk potentially linked to viral etiology. Next step analyses will identify clinical and demographic factors related to SPC. Findings underscore the importance of targeted surveillance and risk-based follow-up strategies for NHL survivors at highest risk of developing second cancers.

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Longitudinal Changes in Social Health Among Young Adult Cancer Survivors

Miller KA, Stal J, Cho J, Bae D, Belcher BB, Kaslander JN, Marin P, Cairns M, Hewus M, Freyer DR, de la Haye K, Milam JE, In GK

Purpose: Young adult cancer survivors (YACS; diagnosed ages 18–39) face social challenges that impact health and quality of life. This study explored changes in loneliness, social support, and social participation during the first year post-diagnosis in YACS.

Methods: YACS were recruited within three months of diagnosis from two comprehensive cancer centers and a public safety-net hospital. Self-reported measures of loneliness, social support (emotional, informational, and instrumental), and social participation were collected at four time points (baseline, 6, 9, and 12 months post-diagnosis) using validated instruments. Latent growth mixture modeling (LGMM) was used to identify patterns and associations with social health trajectories.

Results: Among 173 YACS (66.7% female; mean age 33.62 [SD=6.02] years) with prototypical AYA cancer types (e.g., breast, thyroid, testicular), LGMM revealed distinct trajectories. Loneliness had two patterns: high and increasing (34.1%) and low and decreasing (65.9%). Emotional support showed three patterns: low and stable (20.3%), moderate and decreasing (19.2%), and high and stable (60.5%). Informational support had two patterns: high and increasing (57.8%) and low and decreasing (42.2%). Instrumental support had two patterns: low and decreasing (41.0%) and high and stable (59.0%). Social participation showed two patterns: low and increasing (74.0%) and high and stable (26.0%). YACS with low and decreasing loneliness were more likely to have high and stable emotional support, high and increasing informational support, and high and stable instrumental support; each was associated with high and stable social participation.

Conclusions: Findings highlight heterogeneity in social health among YACS, as distinct patterns emerged for each social construct. In the year following diagnosis, YACS who experienced declines in loneliness also reported stable, high support from their social network, which was associated with consistently strong participation in social roles. Results underscore the importance of dedicated AYA resources to address the unique needs of this population, including specialized survivorship services to optimize social adaptation and long-term outcomes.

217-T

Beyond Survival: Smoking After Head and Neck Cancer Diagnosis Lowers Quality of Life

Mohebbi E, Carr AL, Guthrie GM, Patil S, Lee G, Clementi E, Zhu CH, Rapley N, Giurintano JP, Witek ME, Fan R, Wolf G, Graves KD, Ahn PH, Rozek LS

Purpose: Head and neck squamous cell carcinoma (HNSCC) profoundly affects patients' quality of life (QoL). While treatment advances have improved survival, behavioral factors such as smoking remain key determinants of long-term recovery. This study examined the longitudinal association between post-diagnosis smoking behavior and QoL outcomes over five years among 619 newly diagnosed HNSCC patients.

Methods: Patients with incident HNSCC were prospectively enrolled at an academic medical center. QoL was assessed annually using the SF-36 questionnaire, covering several domains like physical functioning, emotional well-being, pain, and general health. Participants were categorized by tumor subsite (oral cavity, n=226; pharynx, n=286; larynx, n=107) and postdiagnosis smoking behavior (never, quitters, intermittent, and continued smokers). Multivariable linear regression models, adjusted for gender, age, BMI, comorbidity, cancer type, stage, treatment modality, and alcohol drinking, were applied to estimate longitudinal changes in QoL by different time points.

Results: Never smokers and quitters showed significant QoL improvements over time, whereas continued and intermittent smokers exhibited minimal or no gains. Among quitters, mean QoL increased from 48.09 at baseline to 51.42 at two years ($P = 0.04$), and among never smokers from 53.11 to 59.29 ($P < 0.0001$). In contrast, continued smokers showed stable trajectories (45.18 to 46.34, $P = 0.57$). Subsite analyses indicated the largest QoL gains among pharyngeal [adjusted ß = 3.56; 95% CI: 1.69-5.43] and oral cavity cancers [adjusted ß = 2.56; 95% CI: 0.52-4.60], while laryngeal cancer patients exhibited no significant changes. Across all HNSCC subsites, continued smokers reported persistently worse pain, social functioning, and general health than quitters.

Conclusions: Post-diagnosis smoking cessation is strongly associated with improved QoL trajectories in HNSCC survivors, independent of tumor site and treatment modality. Patients who quit smoking after diagnosis experience meaningful gains in physical and emotional health, while continued smoking is associated with worsening QoL. Integrating structured smoking cessation interventions into survivorship care is critical to optimizing long-term outcomes in HNSCC.

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The Prevalence of Non-Cancer Conditions and Associations with Health-Related Quality of Life Among Patients with Early-Onset Cancers

Mossman B, Zhang X, Ahn J, Potosky A, Suntum T, Kadan-Lottick NS, Conley CC

Purpose: Little is known about non-cancer health conditions in the growing population of patients with early-onset cancer (EOC; diagnosed <50 years). Among patients with EOC, we examined the prevalence of reported conditions and their associations with health-related quality of life (HRQOL).

Methods: We analyzed the 1203 patients who were 6-13 months post-cancer diagnosis at 21-49 years of age who completed cross-sectional surveys in the Measuring Your Health Study from 4 US SEER sites. Participants self-reported their sociodemographic and clinical information and HRQOL via the PROMIS fatigue, pain interference, depression, and physical functioning short forms. We identified three subgroup profiles of participants (low, moderate, or high HRQOL) via latent profile analysis, and then compared the mean number of non-cancer conditions across HRQOL subgroups using the Kruskal-Wallis test. Stepwise multinomial logistic regression was used to identify the conditions associated with subgroup membership while adjusting for relevant sociodemographic and clinical variables.

Results: Patients (N=1203; 35% Non-Hispanic White, 81% female, 72% age 40-49) were most frequently diagnosed with breast (51%), cervical/uterine (15%), or colorectal (14%) cancer. Patients most commonly reported endocrine/metabolic (37%; e.g., obesity), psychological (33%; e.g., anxiety), cardiovascular (16%; e.g., high blood pressure), pulmonary (16%; e.g., asthma), musculoskeletal (15%; e.g., arthritis), and sleep (12%; e.g., sleep apnea) conditions. We identified 21%/46%/33% of participants in the "low"/"moderate"/"high" HRQOL subgroups. Relative to "high" HRQOL, those with "moderate" or "low" HRQOL had a significantly higher total average number of comorbid conditions (Mhigh=1.75, Mmoderate=2.13, Mlow=2.91, p<.001). In the adjusted multivariable model, participants more likely to be in the "low" (vs. "high") HRQOL subgroup were those with psychological (OR=4.8, p<.001), musculoskeletal (OR=4.1, p<.001), and sleep (OR=3.6, p<.001) conditions.

Conclusions: Despite their young age, patients with EOC have considerable non-cancer health conditions that impact their quality of life and the complexity of their care. Future research should investigate how to best meet their care coordination needs.

219-T

Risk of Mortality Among Breast Cancer Survivors in the United States Across the Continuum of Cardiovascular Disease Risk

Mszar R, Cartmel B, Dziura J, Dinan MA, Irwin ML, Ferrucci LM

Purpose: Breast cancer survivors are at high risk for atherosclerotic cardiovascular disease (ASCVD); however, less is known about mortality outcomes across the continuum of cardiovascular risk.

Methods: Using data from the National Health Interview Survey (2005-2018) linked to the National Death Index (through December 31, 2019), we included women aged ≥18 years with self-reported breast cancer. Individuals were first categorized by the presence or absence of ASCVD (history of myocardial infarction, stroke, coronary heart disease, or angina). Among those without ASCVD, individuals were further classified based on number of ASCVD risk factors (0-1, 2-3, or ≥4) – hypertension, diabetes, obesity, smoking status, physical inactivity, and suboptimal sleep duration. We calculated multivariable adjusted hazard ratios (aHRs) and 95% confidence intervals (CI) using Cox proportional hazards regression to assess the risk of all-cause, cancer-, and cardiovascular-specific mortality in the four ASCVD categories.

Results: Among 6,491 breast cancer survivors (median age=69.0 years), representing 3.1 million survivors annually, 16.0% had ASCVD. Over a mean follow-up of 6.0 years, compared to individuals with 0-1 risk factors, those with ASCVD had the highest risk of all-cause mortality (aHR=2.36, 95% CI=1.89-2.94), followed by those with ≥4 risk factors (aHR=1.70, 95% CI=1.35-2.14) and 2-3 risk factors (aHR=1.36, 95% CI, 1.10-1.70). We also observed elevated cancer-specific mortality (ASCVD: aHR=1.40, 95% CI=0.96-2.04; ≥4 risk factors: aHR=1.65, 95% CI=1.18-2.31; 2-3 risk factors: aHR=1.49, 95% CI=1.06-2.10) and cardiovascular-specific mortality (ASCVD: aHR=3.33, 95% CI=2.16-5.12; ≥4 risk factors: aHR=1.44, 95% CI=0.90-2.30; 2-3 risk factors: aHR=1.64, 95% CI=1.02-2.64) for those with ASCVD and ≥4 and 2-3 risk factors compared to individuals with 0-1 risk factors.

Conclusions: Nearly 1 in 6 breast cancer survivors had ASCVD, representing approximately half a million individuals annually. As increasing cardiovascular risk profiles were associated with a greater risk of all-cause, cancer-, and cardiovascular-specific mortality, efforts are needed to manage cardiovascular risk factors and prevent ASCVD for the growing population of breast cancer survivors.

220-T

Elevated Fall Risk Among Breast Cancer Survivors With Dementia: Insights From a Matched Real World EHR Cohort Study

Namoos A, Zanjani F

Purpose: Cognitive decline is a known contributor to fall risk in older adults, yet little is known about how dementia impacts fall outcomes in cancer survivors. Given the rising number of older breast cancer survivors (BCS), understanding how dementia influences fall risk is critical for survivorship care.

Methods: We used the TriNetX Research U.S Network to conduct a retrospective cohort study of female BCS aged 65 or older with stage I–III disease. Patients with prior falls or stage 0/IV disease were excluded. Dementia status was defined by diagnosis codes occurring on or after cancer diagnosis. Fall outcomes were captured using ICD-10 codes. The analytic window was limited to data from the last 5 years (2019 to 2024). Propensity score matching was applied (1:1) to balance baseline differences between survivors with (n = 1,602) and without dementia (n = 1,602). Cox proportional hazards models and Kaplan-Meier survival analyses were used to estimate fall risk. Covariates included demographics, frailty, neurological and psychiatric comorbidities, and polypharmacy.

Results: After matching, dementia remained independently associated with higher fall risk (HR = 1.43; Among 3,204 matched breast cancer survivors aged 65 and older (1,602 with dementia and 1,602 without), the cumulative incidence of falls was significantly higher in those with dementia (17.8%) compared to those without dementia (6.5%), yielding an absolute risk difference of 11.3%. Dementia was independently associated with increased fall risk (adjusted HR = 1.43, 95% CI: 1.25–1.63, $p < 0.001$), and unadjusted models showed a sixfold higher hazard of falling (HR = 6.57, 95% CI: 5.69–7.59, $p < 0.0001$). Fall-free survival was substantially lower among survivors with dementia (48% vs 79%, $p < 0.0001$). Racial and ethnic disparities were observed, with fall incidence among Black survivors with dementia reaching 22.5% compared to 15.1% in White survivors, and Hispanic survivors experiencing a higher adjusted fall risk (HR = 1.54, p = 0.047). Additional independent predictors of falls included sarcopenia (HR = 7.24, p = 0.050), opioid use (HR = 2.34, p = 0.020), type 2 diabetes with neurological complications (HR = 1.82, $p < 0.001$), prior fall history (HR = 1.77, p = 0.016), depression (HR = 1.66, $p < 0.001$

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Fall Risk Trajectories in Breast Cancer Survivors Using GLP-1 Versus SGLT2 Therapies: A Real-World EHR Cohort Study

Namoos A, Fummeler B, Sheppard V, Gal T

Purpose: GLP-1 receptor agonists and SGLT2 inhibitors are increasingly prescribed to breast cancer survivors for metabolic comorbidities. However, their impact on functional outcomes such as falls, particularly in older women, remains understudied. Falls represent a major survivorship concern, especially among patients experiencing sarcopenia, neuropathy, or polypharmacy. This study compared the cumulative fall risk among breast cancer survivors initiating GLP-1 or SGLT2 therapies and identified key clinical covariates contributing to fall risk.

Methods: We conducted a retrospective cohort study using the TriNetX US Research Network. The sample included female breast cancer survivors aged 55 to 65 years with stage I to III disease, excluding those with stage 0 or IV. Two cohorts were identified: one initiating GLP-1 receptor agonists and the other SGLT2 inhibitors on or after their breast cancer diagnosis between 2015 and 2025. Fall outcomes were assessed using ICD-10 codes at 6 months, 1 year, 3 years, and 5 years following drug initiation. Cox proportional hazards models were used to estimate adjusted risk of first and repeated falls. Covariates included age, race and ethnicity, sarcopenia, neuropathy, diabetes complications, depression, opioid use, orthostatic hypotension, hypoglycemia, dementia, and prior fall history..

Results: At baseline, both cohorts included female BC survivors aged 55–65, with similar mean index ages (GLP-1: 56.6; SGLT2: 56.9). The SGLT2 group had more Black (28 percent vs 22 percent) and Hispanic (12 percent vs 9 percent) patients. Falls were assessed at 6M, 1Y, 3Y, and 5Y post-medication start. Among GLP-1 users, cumulative first-fall risk rose from 1.37 percent at 6M to 8.20 percent at 5Y; repeated falls increased from 0.29 to 2.48 percent. SGLT2 users showed higher early fall risk: 14.1 percent (first) and 3.7 percent (repeat) at 6M, plateauing at 10.6 and 2.2 percent by 5Y. In adjusted Cox models, key predictors of falls included sarcopenia (HR=7.24, p=0.050), opioid use (HR=2.34, p=0.020), T2D with neuro complications (HR=1.82, p<0.001), prior falls (HR=1.77, p=0.016), depression (HR=1.66, p<0.001), neuropathy (HR=1.51, p=0.015), and orthostatic hypotension (HR=1.73, p=0.069). Hispanic ethnicity was also associated with greate

222-T

Integrating Machine Learning with the Hester Davis Scale: A Pilot Comparison of Traditional and Data-Driven Fall Prediction in Patients with Breast Cancer.

Namoos A, Thomson N, Olex A, Gal T

Purpose: The Hester Davis Scale (HDS) is widely used for inpatient fall risk assessment but was developed for neuroscience populations. Our previous work demonstrated that in oncology patients, the published threshold of ten failed to identify fall events, while a recalibrated threshold of five provided balanced sensitivity and specificity (AUC = 0.79). This pilot study extends that previous analysis by comparing the predictive performance of the recalibrated HDS with machine learning (ML) models trained on the same scale components.

Methods: We analyzed 921 patients with breast cancer aged 50 years or older who received care between 2022 and 2024. Fall occurrence within one year of diagnosis was used as the binary outcome. The predictive performance of the traditional HDS and three ML models - Logistic Regression, Random Forest, and Gradient Boosting - was evaluated using HDS component scores with and without demographic variables. Model discrimination was assessed on a stratified test set using sensitivity, specificity, and the area under the receiver operating characteristic (ROC) curve (AUC).

Results: The recalibrated HDS (Sum ≥ 5) achieved sensitivity = 0.857, specificity = 0.643, and AUC = 0.799, confirming strong discriminative performance in this oncology cohort.

Among ML approaches, Gradient Boosting incorporating HDS components and demographic features achieved the highest overall discrimination (AUC = 0.879), with specificity = 0.960 and sensitivity = 0.429, indicating a high-precision but conservative model. Logistic Regression (HDS + demographics) matched the HDS sensitivity (0.857) but showed lower specificity (0.540, AUC = 0.711), while Random Forest provided intermediate performance (AUC = 0.751). Across models, incorporating demographic factors modestly improved AUC values compared with models using HDS components alone.

Conclusion: The recalibrated Hester Davis Scale demonstrates strong baseline predictive ability in oncology patients, effectively balancing sensitivity and specificity. Machine learning models slightly improved overall discrimination, particularly with Gradient Boosting, but introduced variability in sensitivity depending on threshold selection. These findings suggest that ML-based recalibration of traditional clinical t

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The PROMIS Women Education Program: A Culturally and Religiously Adapted Intervention to Promote Cervical Cancer Prevention Among Muslim Women in Virginia

Namoos A, Sheppard V

Purpose: Muslim women in the United States experience suboptimal participation in cervical cancer screening and HPV vaccination due in part to cultural, religious, and structural barriers. Few interventions have been designed to address these disparities. The PROMIS Women Education Program was developed to promote cervical cancer prevention among Muslim women in Virginia through a culturally and religiously tailored approach.

Methods: The program followed the ORBIT model for behavioral intervention development. Phase I included formative qualitative research using focus groups (n=10) and stakeholder interviews with religious leaders (n=5) to adapt existing evidence-based educational materials to align with Islamic principles and sociocultural values. Guided by the PEN-3 and Health Belief Models, materials were refined through input from a Community Advisory Board (CAB) and trained Peer Researchers. Phase II involved a single-arm pilot trial (n=20) evaluating a 90-minute, in-person educational session. Pre- and post-intervention surveys measured changes in knowledge, intention to screen, and program satisfaction.

Results: Formative analysis revealed key barriers including limited awareness of cervical cancer and HPV, misconceptions about sexual transmission, preference for female healthcare providers, and modesty-related concerns. These findings informed development of culturally grounded intervention materials: a 7-chapter guidebook, three educational brochures, and three short videos featuring Quranic verses and testimonials from Muslim women.During the pilot, participants demonstrated a 65% mean increase in cervical cancer prevention knowledge scores and a 95% post-intervention intention to undergo Pap screening or HPV vaccination, compared to an estimated 10% baseline intention. All participants rated the program as highly acceptable (100%), and 90% reported that the information "aligned with their religious and cultural beliefs". Feasibility indicators were strong, with 100% recruitment completion, 90% retention, and all participants recommending the program to peers.

Conclusions: The PROMIS program demonstrated high feasibility, acceptability, and promising preliminary efficacy for increasing cervical cancer prevention knowledge and screening intentio

Cancer Survivorship

224-T

Change in dietary trace elements, fiber intake, and PROs after an 8-week whole-food, plant-based (WFPB) diet RCT in women with metastatic breast cancer (MBC).

Ndeke JM, Campbell EK, Blanchard L, Spath KM, Mattick LJ, McGuire JJ, Guido JJ, Peppone LJ, Campbell TM

Purpose: To test whether changes in trace elements (copper, zinc, copper/zinc ratio [Cu:Zn]) and dietary fiber intake with a WFPB diet are associated with improvements in quality of life and symptomatic toxicities such as fatigue and cognitive functioning.

Methods: Single-center pilot RCT (WFPB n=19; control n=10). Women in the WFPB arm received three prepared WFPB meals/day plus a snack/day, along with nutrition education and weekly group support sessions. Three-day food records were collected at baseline and week 8 and analyzed using NDSR to determine nutrient intake. Within-arm changes were assessed using paired tests and between-arm differences with two-sample tests. Correlations between nutrient changes and patient-reported outcomes (PRO) were analyzed within the WFPB arm using Spearman or Pearson tests as appropriate based on variable distribution (two-sided Îffl=.05).

Results: Compared with control, women on the WFPB diet showed significantly greater dietary improvements, including higher copper intake (+0.97 mg; p<.001) and markedly higher total (+22.9 g; p<0.0001) and soluble fiber (+4.2 g; p<.001) consumption. Within the WFPB arm, increases in copper were associated with higher EORTC global health (r=0.48; p=.04), lower worst fatigue (r=−0.52; p=.03), and improved C30 quality of life (r=0.54; p=.02). Cu:Zn showed even stronger relationships with global health (r=0.58; p=.01), reduced fatigue across all BFI indices (r=−0.51 to −0.70; all p≤0.03), and less diarrhea (r=−0.69; p<.01). In correlation with final PRO scores, higher copper and Cu:Zn came with better cognitive functioning (COG-pci, r=0.62; p=.006), improved role functioning (r=0.55; p=.02), and fewer attention and concentration problems (r=−0.58 to −0.64; all p≤0.01). Likewise, total fiber correlated with enhanced global cognition (r=0.69; p=.002), less symptoms (r=−0.55; p=.02), and less fatigue (r=−0.48; p=.046), and soluble fiber to better role functioning (r=0.61; p=.007).

Conclusions: An 8-week WFPB diet in women with MBC produced substantial increases in copper and dietary fiber, associated with improvements in fatigue, cognition, and overall quality of life. These findings suggest symptomatic and functional benefits from diet modulation and support further investigation in a larger trial.

225-T

Recruitment of older adults with myeloid neoplasms to a mobile health exercise intervention based on consent method

Ndeke JM, Nafis L, Hayward E, Phillips S, Jensen-Battaglia M, Wang Y, Mortaz S, Sharma CF, Mendler J, Liesveld J, Huselton E, Rodenbach R, Janelsins M, Mustian K, Loh KP

Purpose: In response to COVID-19, we implemented a verbal/remote consent option in a pilot randomized trial testing a mobile health exercise program in older patients with myeloid neoplasms (GO-EXCAP 2), and we aimed to understand consent and enrollment rates based on different consent methods.

Methods: We approached patients aged ≥60 yrs from April 2022 to October 2025, in-person or verbally by phone. We compared consent and enrollment rates based on verbal/in-person methods and age groups, using chi-square and Cochran-Mantel-Haenszel tests (alpha=0.05), and described reasons for nonconsent and non-enrollment.

Results: We approached 178 patients; 112 (66%) were males, 55 (30.9%) were aged 60-69, 80 (47%) aged 70-79, and 40 (23%) aged ≥80. About 55% (98/178) were approached in person and 45% verbally. Overall, 114 (64%) patients consented. In the in-person group, 62% (61/98) consented, of whom 69% (42/61) subsequently enrolled and six were pending pre-enrollment baseline assessment. In the verbal group, 66% (53/80) consented, of whom 74% (39/53) enrolled. There was no statistically significant difference in consent and enrollment between in-person and verbal groups, overall (P=.58 for both) and when controlling for gender (P=.57 and P=.76, respectively) and age group (P=.48 and P=.89). Across age groups, those aged 60-69 and 70-79 vs. ≥80 were more likely to consent (64%, 74%, 50%, respectively; p=.04), with a similar trend for in-person consent (73%, 57%, 43%; p=.07). In contrast, those age 70-79 had the highest verbal consent rate (55%, 84%, 58%; p=.04). Enrollment rates were higher for younger age groups regardless of modality: overall (88%, 76%, 44%; p<.01), verbal consent (88%, 56%, 46%; p=.02), and in-person consent (88%, 73%, 60%; p=.23). Common reasons for nonconsent included lack of interest (23/64), feeling overwhelmed/time commitment (20/64). Feeling overwhelmed/time commitment was the top reason for non-enrollment (10/27).

Conclusion: Consent and enrollment rates were comparable between in-person and verbal methods. Patients aged ≥80 yrs were less likely to consent or enroll. Incorporating verbal consent in minimal-risk studies may enhance trial accessibility for older adults, though strategies are needed to improve participation in the oldest-old.

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Connecting young adult cancer survivors to community-based peer support

O'Neill SC, Casperson M, Whitmore S, Lieber S, Covey A, Chavez Ochoa J, Wernli KJ

Purpose: Young adult cancer survivors are a vulnerable population and experience several unmet needs in the transition to survivorship after the completion of cancer treatment. Current NCCN guidelines for young adult survivors recommend oncologists refer patients to peer support services, but resources are often missing in the local community. Therefore, we are piloting an identification and referral process to national organizations with active peer support programs for young adult cancer survivors. We report on feasibility of recruitment, participant characteristics, and intervention needs defined by quality of life and loneliness.

Method: Data are from the baseline survey of a pilot study testing the acceptability, feasibility and effect of community-based peer support for young adult cancer survivors. Eligible patients were diagnosed with Stage I-IIII solid tumors (breast, colorectal, thyroid and melanoma skin cancer), aged 18-39, and had completed active treatment in the past 6 months. Survey ascertained demographics, PROMIS-29, and UCLA Loneliness Scale (20 item scale, values range from 20-80, with increasing values representing higher perceptions of loneliness). Descriptive statistics and frequencies were used to describe participants.

Results: Of the 27 patients screened as eligible for participation, 22 responded to study outreach and 16 consented . Participants (M age=35, range 30-39) were primarily White (70%), 12% Latine, married/partnered (75%), 81% female, and college educated (87%). 31% reported caring for minor children. Most had been diagnosed with breast (37%) or thyroid (37%) cancer, with lower numbers of colorectal (13%) and melanoma (13%) skin cancer. Overall, mean loneliness score was 36 (SD 12). Loneliness was associated with higher anxiety (.70, p=.005), depression (r=.84, p<.001, fatigue (r=.64, p<.01), and pain (r=.56, p<.04) and inversely related to Physical Functioning (r=-.71, p=.004) and social ability (r=.55, p<.04).

Conclusion: Our pilot study findings suggest a relationship between loneliness and quality of life measures. Potential interventions, including community-based peer support programs, could mitigate loneliness and improve quality of life for young adult cancer survivors.

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Changes in Objective and Self-Reported Physical Function and Physical Activity During a Videoconference Exercise Intervention for Cancer Survivors

Parker H, Lancioni E, Anderson H, Leach H

Purpose: This study examined the relationship between changes in objective physical function (Î"OPF) and self-reported physical function (Î"SRPF) following a 12-week exercise intervention among cancer survivors and evaluated whether changes in physical activity (Î"PA) modified this relationship.

Methods: Participants completed virtual exercise sessions 2x/week and three PA behavior change discussion sessions. OPF was measured using the 30-second sit-to-stand test. SRPF was measured using the Functional Wellbeing subscale (0-28 points) of the Functional Assessment of Cancer Therapy General (FACT-G) questionnaire. PA (lightPA and moderate-to-vigorous PA (MVPA)) was measured via activPAL accelerometer. Paired t-tests and Wilcoxon signed rank tests compared pre- and post-intervention values. Linear regressions tested whether Î"OPF predicted Î"SRPF with Î"lightPA and Î"MVPA as moderators.

Results: Cancer survivors (N=47; 58.7ÂffI10.6yrs; 83% female; stage I/II (51%); Breast (30%), Ovarian (19%) or other (51%) cancer) were included in analyses. OPF improved (Î"3.2(0.26), p=0.00), and light PA decreased (Î"-0.2(0.03), p=0.000). There was no change in SRPF (Î"-0.4 (0.3), p=0.03) nor MVPA (Î"-0.9(0.3), p=0.05). Î"OPF was weakly correlated with Î"SRPF (r=0.14), and Î"OPF did not predict Î"SRPF (-0.3(0.3), p=0.3). Î"lightPA significantly predicted Î"SRPF (1.6(0.7), p=0.02) and Î"OPF (1.4(0.4), p=0.003). There was a moderating effect of Î"lightPA such that those who had greater Î"lightPA had a stronger association between Î"SRPF and Î"OPF (0.2(0.1), p=0.03).

Conclusions: We did not observe a relationship between Î"SRPF and Î"OPF, but Î"lightPA was associated with both Î"SRPF and Î"OPF. Increasing light PA may strengthen the alignment between how survivors feel and how they function. Ultimately, encouraging even modest increases in light PA may help translate physical gains into meaningful improvements in perceived well-being among cancer survivors.

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Sleep Duration among Post-Treatment Adult Cancer Survivors in Community Oncology Care: Secondary Analyses from the AH-HA Trial (WF-1804CD)

Price SN, Dressler EV, Smith S, Foraker RE, Klepin HD, Nightingale CL, Wells BJ, Hundley WG, Weaver KE

Purpose: Despite high rates of sleep disturbance among cancer survivors, sleep duration (a key component of Life's Essential 8 [LE8] for cardiovascular health [CVH]) remains under-assessed in survivorship care. This study examined the prevalence, stability, and correlates of LE8 sleep duration scores among survivors in the Automated Heart Health Assessment (AH-HA) trial (WF-1804CD; NCT03935282), conducted in community oncology with the Wake Forest NCI Community Oncology Research Program (NCORP) Research Base.

Methods: AH-HA used a group-randomized design to evaluate an EHR-embedded CVH assessment tool in NCORP practices. Sleep duration was added mid-trial to 6- and 12-month assessments but was not addressed by the intervention. Participants self-reported typical sleep duration in a 24-hour period, categorized as short (<7h), ideal (7-9h), or long (>9h). Durations were converted to LE8 scores (0-100), with higher scores reflecting healthier duration and penalizing both insufficient and excessive sleep duration. Bivariate correlates of LE8 sleep scores (p<.3) were considered for inclusion in mixed effects general linear models predicting 12-month LE8 sleep scores and changes in sleep scores from 6 to 12 months.

Results: Among 424 survivors (97% female, 86% non-Hispanic white), mean LE8 sleep score at 12 months was 88.0 (SD=19.9); 64.9% reported ideal duration, 24.8% short, and 10.4% long. Between 6 and 12 months, 19.8% improved, 13.5% worsened, and 66.7% remained unchanged. Non-White race/ethnicity (75.5 vs. 83.8, p=.02) and at-risk vs ideal diet (76.2 vs. 83.2, p=.04) were associated with lower LE8 sleep scores at 12 months. Mental health provider visits (reported by 7%) were associated with greater odds of sleep score improvement (OR= 4.05, p=.02); primary care visits (reported by 80%) were not associated with improvement.

Conclusions: Nonideal sleep duration is common and persistent among survivors, underscoring the need for routine sleep screening in oncology follow-up and attention to potential disparities in sleep health. Mental health care visits offer promising touchpoints for sleep health interventions, while primary care encounters may be underutilized opportunities to address sleep as part of cardiovascular health management in survivorship.

229-T

Referral Patterns and Utilization of Outpatient Oncology Nutrition Services in a Comprehensive Cancer Center

Puklin LS, McGowan C, Li F, Battaglia T, Irwin ML, Ferrucci LM

Purpose: Most individuals treated for cancer experience nutrition-related symptoms that can adversely impact nutritional status, treatment tolerance, quality of life, and survival. Comprehensive Cancer Centers are required to provide oncology nutrition services, yet little is known about uptake and utilization. We characterized referrals and encounters with outpatient registered dietitians (RDs) at Yale Cancer Center and identified factors associated with referrals up to one-year after cancer diagnosis.

Methods: We obtained tumor registry and electronic health record data for first primary adult (ï‚³18 years) cancer cases at Yale Cancer Center from 2019-2024. We used multivariable logistic regression to assess characteristics associated with outpatient oncology nutrition service referral within one year after diagnosis.

Results: Among 30,392 cancer cases, 53.1% were female, mean age at diagnosis was 64.1ï‚ffl13.9 years, and 77.4% were non-Hispanic White. The most common cancers were breast (18%), lung and bronchus (10.5%), and prostate (9.7%), and 32.7% were stage I. Within one year of diagnosis, 3,491 (11.5%) patients were referred to an RD, with the majority (93.8%) of those referred seeing an RD. After adjusting for clinical and demographic factors, patients with head and neck cancer were more likely to be referred compared to breast cancer patients (Odds Ratio [OR]=3.9, 95% Confidence Interval [CI]=3.2-4.7), yet only 28.1% of head and neck cancer patients had referrals. Compared to stage 0, stage III patients were more likely to be referred (OR=3.5, 95% CI=2.6-4.9), yet only 18.7% had referrals. Those receiving surgery, chemotherapy, and radiation were more likely to be referred versus those receiving no treatment (OR=6.1, 95% CI=4.8-7.9), yet only 21.9% had referrals. Older age, no insurance, and current smoker were less likely to have an RD referral.

Conclusion: Factors indicative of higher nutritional need (head and neck, advanced stage, and multimodal treatment) were more likely to be referred to an RD; however, referral rates remained low even in these subgroups. As most patients with referrals saw an RD, systems-level approaches to improve identification and referral of patients are needed to ensure equitable access to outpatient oncology nutrition.

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Lifestyle Patterns, Health-Related Quality of Life, and Cancer-Related Fatigue Among Black Breast Cancer Survivors: A Population-Based Study

Sarkar S, Zeinomar N, Wang T, Omene C, Demissie K, Hong CC, Bandera EV, Qin B

Background: African American/Black breast cancer survivors (BCS) experience a higher burden of poor health-related quality of life (HRQoL) and cancer-related fatigue than White BCS. Although lifestyle factors may contribute to these disparities, the extent to which adherence to cancer-related lifestyle recommendations is associated with HRQoL or fatigue among Black BCS remains largely unexplored.

Purpose: To evaluate whether adherence to the 2018 World Cancer Research Fund/American Institute for Cancer Research (WCRF/AICR) recommendations is associated with a lower risk of poor HRQoL or cancer-related fatigue in the Women's Circle of Health Follow-Up Study, a population-based cohort of Black BCS in New Jersey.

Methods: Pre-diagnosis lifestyle factors (adiposity, physical activity, dietary quality, and alcohol intake) were assessed during baseline home visits. Lifestyle Pattern Score (LPS; range 0-7) was calculated using established WCRF/AICR scoring criteria, with higher scores indicating greater adherence. HRQoL and fatigue were assessed ~2 years post-diagnosis using the validated FACT-B and FACIT-F instruments, respectively. HRQoL scores were dichotomized at the median (low vs. high), and clinically significant fatigue was defined as FACIT-F≤30. Robust Poisson regression was used to estimate risk ratios (RRs) and 95% confidence intervals (CIs), adjusting for sociodemographic and treatment factors.

Results: Among 688 women (mean age at diagnosis: 55 years), the mean LPS was 2.96 (SD: 1.10). Compared with the lowest tertile of LPS (≤2.25), women in the highest tertile (≥3.50) had a 19% lower risk of poor HRQoL (RR: 0.81, 95% CI: 0.67, 0.98; p=0.01 per 1-point LPS increase). Women in the highest tertile of LPS also had a suggested lower risk of fatigue (prevalence: 21.7%) compared with the lowest tertile (RR=0.79, CI: 0.54,1.14; p=0.38 per 1-point LPS increase), although this association was not statistically significant. Findings were consistent in sensitivity analyses adjusting for smoking status or tumor characteristics. Associations were not modified by age, menopausal status, or tumor characteristics.

Conclusions: In this population-based study of Black BCS, higher adherence to cancer-related lifestyle recommendations was associated with better HRQoL.

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Change in Alcohol Consumption and All-Cause Mortality Among Postmenopausal Women Diagnosed with Breast Cancer

Rees S, Bodelon C, Charkraborty S, Millen AE, Wang Y, Faw K, Gapstur SM, Teras LR, Shams-White MM, Patel AV, Freudenheim JL

Purpose: To examine the association between change in alcohol consumption from before to after breast cancer diagnosis with all-cause mortality in older breast cancer patients.

Methods: We conducted a prospective analysis among postmenopausal women (median age= 70 yrs, IQR=65-75), diagnosed with invasive localized or regional breast cancer, who were consuming alcohol pre-diagnosis, and enrolled in the Cancer Prevention Study-II Nutrition Cohort in 1992/1993 (N=1,922). Change in alcohol consumption was examined after diagnosis (median time= 2 yrs, IQR=1-4) and was categorized as stable (reference), quit, reduced, or increased consumption. Among women who quit drinking, we stratified by self-reported perceived health/major comorbidities status. Cox proportional hazards regression was used to estimate hazard ratios (HR) and 95% confidence intervals (CI), adjusting for age-at-diagnosis, education, pre-diagnosis alcohol intake, time between surveys, body mass index, smoking, major comorbidities (CVD or diabetes), breast cancer stage, and estrogen receptor status.

Results: During median follow-up of 15.4 yrs, 734 deaths were identified. After breast cancer diagnosis, alcohol consumption for 53.4% of women remained stable, 14.8% quit, 19.7% reduced, and 12.0% increased. Compared to stable consumption, quitting after diagnosis was associated with higher all-cause mortality (HR:1.25, CI:1.01,1.56). The magnitude of the association was stronger for women who quit and reported health concerns (HR:1.38, CI:1.00,1.91) and similar in women who quit without reported health concerns (HR:1.25, CI:0.97,1.61). Reduced (HR:1.09, CI:0.88-1.35) or increased consumption (HR:1.04, CI:0.89-1.10) were not associated with mortality. Effect estimates were similar in strata of pre-diagnosis alcohol intake (<1 drink/day and ≥ 1 drink/day) for quit, reduced, or increased consumption.

Conclusions: In this observational cohort, we did not find evidence of a decrease in mortality for alcoholic beverage reduction or cessation after breast cancer diagnosis compared to stable consumption; this finding may be impacted by residual confounding or reverse causality. Further analyses are needed to assess potential differences in associations across strata of follow-up time.

232-T

Survivorship Experiences and Health-Related Quality of Life Impacts among Young Gynecologic Cancer Survivors: A Qualitative Study

Rodriguez VE, Chase DM, Karlan BY

Purpose: Young women under 50 years old diagnosed with gynecologic cancers are at greater risk for physical and psychosocial effects after treatment. Despite a growing population of young survivors, limited research has explored the unique survivorship experiences and health-related quality of life among young gynecologic cancer survivors.

Methods: Participants were recruited at UCLA Health. Eligibility criteria include women who were aged 18-49 at the time of diagnosis with stage I-IV cervical, ovarian, or uterine/endometrial cancer, had completed treatment at least 6 months prior, and were within 10 years of diagnosis. Participants completed an online survey via REDCap, with an option to participate in a follow-up qualitative interview (target N=30). Semi-structured interviews were conducted in English via Zoom, lasting approximately 60 minutes. Interviews were audio-recorded, transcribed, and analyzed using thematic analysis through an inductive and iterative coding process.

Results: To date, 20 young gynecologic cancer survivors (9 ovarian, 6 cervical, and 5 uterine/endometrial) participated in interviews. The mean age at diagnosis was 36 years (SD=6.9), 60% were diagnosed 3-5 years ago, 35% 6-10 years ago, and 5% less than 2 years ago. Survivors described multidimensional disruptions to quality of life with three key themes emerging. First, reproductive loss and disrupted identity emerged as a central concern, with participants expressing grief, altered self-perception, and challenges to femininity and intimacy following fertility loss and surgical menopause. Second, survivorship was characterized as a lifelong process, marked by chronic physical symptoms, emotional distress, and persistent fear of recurrence. Finally, survivors identified significant gaps in age-appropriate support, particularly around sexual health, emotional health, and long-term monitoring. Many survivors actively championed their needs, turning to peer-led networks and self-directed research for support.

Conclusions: Findings highlight that beyond clinical recovery, survivors face challenges with identity, reproductive health, and emotional well-being. These insights should inform interventions and care practices to better support young women after gynecologic cancer.

233-T

Concerns about the health of their children among Hispanic and non-Hispanic AYAs with cancer one-year post-diagnosis

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Purpose: Adolescent and young adult (AYA) cancer survivors (diagnosed 18-39 years) report reproductive concerns throughout survivorship, including worries about the health of their future children. We aimed to describe these concerns and their impact among ethnically diverse survivors of AYA cancer.

Methods: AYAs were recruited from two comprehensive cancer centers and a safety-net hospital to complete a longitudinal self-report survey. Concerns regarding the health of their future children were evaluated within two years post-diagnosis using the three-item Child's Health Subscale (CHS), a subset of the Reproductive Concerns after Cancer Scale. Descriptive statistics and group comparisons were examined, stratifying by ethnicity and sex.

Results: The sample included 80 AYAs (53% Hispanic, 74% female) diagnosed at a mean age of 34 years (SD=6). The most common cancer types were thyroid (19%) and breast (16%). Overall, 45% reported worry about passing on a genetic risk for cancer to their children, 48% reported worry about how their family history might affect their child's health, and 39% feared their children would have a high chance of getting cancer. Hispanic AYAs reported significantly higher mean CHS scores than non-Hispanic AYAs (2.3 vs. 1.9, p=.021, respectively [range: 1-3x, where higher scores reflect greater concern). Among female participants, Hispanic AYAs reported significantly higher mean CHS scores than non-Hispanic AYAs (2.3 vs. 1.8, p=.019, respectively). No significant differences were found between sex and CHS scores.

Conclusion: Nearly half of AYAs in this cohort reported concerns about their future child's health, with Hispanic AYAs expressing particularly elevated reproductive concerns throughout survivorship. While systematic screening and counseling for reproductive concerns throughout survivorship may alleviate persistent distress, clinician attention to patient demographics is essential when assessing and addressing these concerns as ethnicity and sex may shape patient perceptions and information needs. Counseling on the risk for adverse outcomes in offspring, delivered responsively to the patient's sex and ethnicity, is needed to support informed family-building decisions.

234-T

Psychosocial Outcomes among Young Adult Cancer Survivors in an mHealth Physical Activity Intervention: Results from the IMPACT Randomized Clinical Trial

Skinner SR, Nezami BT, LaRose JG, Lanoye A, Tate DF, Valle CG

Purpose: Young adult cancer survivors (YACS) demonstrate low engagement in physical activity (PA) and high psychosocial burden, such as distress and anxiety, compared to their young adult peers. Digital behavioral interventions can enhance health and psychosocial outcomes, but there is limited understanding of their effects among YACS. This secondary analysis of the IMPACT mHealth PA intervention trial examines changes in psychosocial outcomes at 6 and 12 months.

Methods: YACS aged 18-39, post-treatment, within 10 years of diagnosis, and not meeting PA guidelines of ≥150 minutes/week of moderate-to-vigorous PA (measured by accelerometer) were recruited and randomized to a comprehensive mHealth PA intervention or a digital self-help comparison group. Psychosocial outcomes (health-related QOL [HRQOL; SF-36], depressive symptoms [CES-D], cognitive function [FACT-Cog], well-being [FACT-G], and mood states [POMS-B]) were assessed at baseline, 6, and 12 months. A linear model with generalized estimating equations for repeated measures with exchangeable correlation structures was used to evaluate changes within and between groups.

Results: The sample (N=280) had an average age of 33.4 years (SD=4.8), body mass index (BMI) of 30.1 (SD=8.3) kg/m2 and was predominantly non-Hispanic white (77%) women (82%). HRQOL improved from baseline to 12 months in both groups (intervention: +4.27 [95%CI: 1.46,7.07] vs. self-help: + 3.96 [95% CI: 1.21,6.71]), with no between-group differences (p=0.88). Change in depressive symptoms did not differ between groups (p=0.33) but increased in the self-help group from baseline to 12 months (+1.88 [95%CI: 0.37,3.38]). Improvements in cognitive function from 6 to 12 months were greater in the intervention vs. self-help group (mean difference: +3.00 [95%CI: 0.23,5.77]; p=0.03). There were no significant within- or between-group changes in well-being or mood states.

Conclusion: This mHealth PA intervention demonstrated potential for improving cognitive function among YACS. Both groups improved HRQOL, which may relate to the increase in PA over 12 months observed in both the intervention and self-help groups. Future digital interventions should examine various PA intervention strategies to further enhance psychosocial outcomes among YACS.

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Investigating the Role of Coping on Psychosocial Stress and Insomnia in Breast Cancer Survivors at Increased Cardiovascular Risk

Bolden BL, He J, Turner A, Omeaku P, Scott A, Sutton AL

Purpose: The purpose of this study was to examine the associations between psychosocial stress, coping styles, and insomnia, and to evaluate whether coping moderates the relationship between stress and insomnia among BC survivors at increased risk of CVD.

Methods: This secondary analysis utilized data from an ongoing prospective cohort of survivors treated with anthracyclines and/or trastuzumab. Binary logistic regression models estimated associations between self-reported psychosocial stress, coping, sociodemographic factors, and insomnia. Survivors' ratings of insomnia were assessed using the Insomnia Severity Index. Moderation was assessed by comparing logistic regression models with and without psychosocial stress and coping interaction terms using likelihood ratio tests. All hypothesis tests are two-sided, and a p-value < 0.05 was considered statistically significant.

Results: Among 105 BC survivors (median age at diagnosis = 53 years [IQR 43-61]), most were White (82.9%), married or partnered (69.5%), college-educated (74.2%), and privately insured (68.6%). Subthreshold or clinical insomnia was reported by 70.5% of participants. Psychosocial stress scores were moderate. In unadjusted logistic regression analyses, higher perceived stress and avoidant coping were significantly associated with higher odds of reporting insomnia. In multivariable models adjusting for age, income, trastuzumab use, and stress, both perceived stress (adjusted OR = 1.12; 95% CI: 1.01–1.25; p = 0.034) and avoidant coping (adjusted OR = 14.68; 95% CI: 2.46–126.78; p = 0.007) remained significantly associated with increased odds of insomnia, while trastuzumab use was associated with reduced odds of insomnia (adjusted OR = 0.14; 95% CI: 0.03–0.56; p = 0.007). Likelihood ratio tests showed no evidence of moderation by avoidant, problem-focused, or emotional coping.

Conclusions: Study findings underscore the need to assess stress and maladaptive coping strategies during survivorship. Future research should explore specific behavioral targets to mitigate sleep disturbances and reduce cardiometabolic risk in BC survivorship.

236-T

Cancer risk among solid organ transplant recipients associated with a pretransplant cancer diagnosis

Tao J, Pfeiffer RM, Ahmed S, Luo Q, Shing JZ, Qiao B, Insaf T, Aguilar DR, Israni A, Lynch CF, Morton, LM, Engels, EA

Purpose: About 20% of cancer survivors in the US develop subsequent cancers. Solid organ transplant recipients (SOTRs) are immunosuppressed and have an elevated risk of cancer. We examined the risk of posttransplant cancers among SOTRs in relation to specific pretransplant cancers.

Methods: Our study used data from the Transplant Cancer Match Study and Surveillance, Epidemiology, and End Results (SEER) program. We applied Poisson regression, adjusting for sex, transplanted organ, and attained age, to estimate incidence rate ratios (IRRs) for associations between 18 specific pretransplant types and 33 posttransplant cancer types among SOTRs. Given that SIRs of second cancers in SEER approximate IRRs of cancer among individuals with and without a prior cancer, we compared IRRs in SOTRs with SEER SIRs to assess whether transplantation affected subsequent cancer risk.

Results: During 1987-2019, there were 520,424 US SOTRs. Seven pretransplant cancers were significantly associated with risk of the same posttransplant cancer: breast (IRR=3.71; 95%CI=3.04-4.48), melanoma (10.42, 7.43-14.15), lung (4.96,3.63-6.58), kidney (2.34, 1.94-2.80), bladder (3.80, 2.49-5.51), liver (1.73, 1.39-2.14), and colon and rectum (2.39, 1.62-3.38). Other significant associations included liver followed by lung cancer (IRR=1.63, 95%CI=1.48-1.80), liver followed by prostate cancer (1.71, 1.53-1.92), bladder followed by lung cancer (2.60, 1.96-3.36), kidney followed by thyroid cancer (2.85, 1.87-4.15), and intrahepatic bile duct (IBD) followed by pancreatic cancer (8.54, 3.65-16.66). IRRs among SOTRs were significantly higher than SIRs among general population for breast after breast cancer, lung after bladder cancer, and pancreatic after IBD cancer. IRRs were significantly lower than SIRs for liver after liver cancer, and kidney after kidney cancer.

Conclusion: SOTRs with a pretransplant cancer have elevated risk of posttransplant cancer, particularly of the same type. For SOTRs with pretransplant kidney, liver, or lung cancers, removal of the affected organ at transplantation may mitigate the risk of posttransplant cancer. Targeted screening for posttransplant melanoma and breast and lung cancers is warranted for SOTRs with the same type of pretransplant cancer.

237-T

Patterns of Cannabis Use in Cancer Survivors vs. the General Population: Evidence from the All of Us Research Program

Ireland J, Zgierska AE, Chinchilli V, Raup-Konsavage W, Truica CI, Thompson CL

Purpose: To examine whether cancer survivors differ from individuals without cancer in patterns of cannabis use, and to identify demographic and lifestyle factors associated with use.

Methods: We analyzed survey data (2016-2023) from All of Us, a nationwide longitudinal cohort capturing psychosocial and behavioral data from over 500,000 participants. Cannabis use prevalence was compared between individuals with and without a cancer history, stratified by age at survey (18-44, 45-64, >65 years). Multivariable logistic regression was used to estimate odds of weekly cannabis use in the past 3 months by cancer history, controlling for sociodemographic, behavioral, and mental health factors, and state cannabis laws.

Results: The analytic sample included 163,216 adults (mean age 54.0 ±16.9 years) whose cancer history and cannabis use could be ascertained. Of these, 25,225 reported a history of cancer and were older on average than those without cancer (64.0 ±12.7 vs. 52.2 ±17.0 years; p<0.001). Overall, 10.2% reported recent (past-3 month) cannabis use, including 17.3% among those aged 18–44 years. While individuals without a cancer history had higher overall rates of recent use (10.7% vs. 7.8%; p<0.001), age-stratified analyses showed the reverse pattern among younger and middle-aged adults. In multivariable models, cancer history was associated with higher odds of weekly cannabis use (OR = 1.18, 95% CI 1.07–1.30; p<0.001). Among those cancer survivors, strong associations were observed for smoking (OR = 4.0 for occasional vs. never smokers), state cannabis law (OR = 4.0 for recreational vs. illegal), race (OR = 0.2 for Asians vs. Whites), and alcohol use (OR = 2.4 for heavy drinkers vs. non-drinkers). Additional positive associations were found for depression, anxiety, African American race, and male sex, whereas age, education, employment, and income were inversely associated.

Conclusions: In this large, diverse cohort, after adjusting for confounders, a history of cancer was associated with an increased likelihood of weekly cannabis use. However, other factors were stronger predictors of recent cannabis use than a history of cancer. Further research is needed to determine reasons for this association, such as those with cancer seeking symptom relief.

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Biological Correlates of Cancer-related Fatigue in Older Male Cancer Survivors

Tundealao S, An J, Lu S, Arap W, Saraiya B, Guest DD, Harding EM, Amorim F, Heidt E, Arana-Chicas E, Chen C, Boyce T, Blair CK, Lin Y, Handorf E, Stroup A, Kang Y, Cole S, Irwin MR, Kinney AY

Purpose: Older male cancer survivors often experience chronic fatigue. Although the pathogenesis of cancer-related fatigue (CRF) remains unclear, circulatory inflammatory markers and gene expression profiles may provide insights into the underlying biological mechanisms of persistent CRF. We examined the potential biological correlates of CRF in older male cancer survivors

Methods: This was a secondary analysis of baseline data collected from a randomized controlled trial that examined the effects of Tai Chi Qigong on fatigue and inflammation biology among 113 older male cancer survivors (≥ 55 years). Fatigue was assessed using the Functional Assessment of Chronic Illness-Fatigue Scale. Blood samples were collected for circulatory inflammation biomarker (CRP, IL-6, IL-8, IL-10, IFN-Î³, and TNF-ÎffI), and for genome-wide transcriptional profiling, with genes spanning adrenergic, immune, metabolite-detecting, mitochondrial, energy, transcription factors, RNA/DNA processing, and repair pathways identified. Pearson's correlation and multivariable linear regression were used to assess these relationships while adjusting for sociodemographic and clinical factors. FDR was used to adjust for multiple testing.

Results: Worse fatigue was significantly associated with higher levels of CRP (p=0.011), IL-6 (p=0.002), and TNF-ÎffI (p=0.010). Fatigue was also significantly correlated with increased expression of 1 immune-related gene [CXCR4 (p=0.023)], 1 mitochondrial-related gene [HSPA2 (p=0.001)], and decreased expression of 4 immune-related genes [IRF-7 (p=0.009), LY6E (p=0.029), TGM2 (p=0.018), and COMMD9 (p=0.034)], 1 neuropeptide [OPRL1 (0.036)], 1 transcription factor gene [ETS1 (p=0.037)], and 3 RNA/DNA processing genes [SNORD89 (p<0.001), TFIP11 (p=0.017), UNG (p=0.003)]

Conclusion: In older male cancer survivors, worse CRF was associated with inflammatory profiles and coordinated transcriptional shifts involving immune activation, neuro-immune signaling, mitochondrial dysfunction, and impaired nucleic acid processing. Taken together, these patterns are consistent with systemic inflammatory activation, perturbations in circadian regulation, disruptions in cellular energy metabolism and RNA/DNA maintenance, offering a coherent biological context for CRF in this population

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Uninsurance Associates with Unmet Financial, Medical, and Social Needs among Young Adults with Cancer: Preliminary Results from the CHAT-S Health Insurance Literacy Study

Turner CA, Rogers KN, Chevrier A, Stefanou M, Vaca Lopez PL, Kaddas HK, van Thiel Berghuijs KM, Tovar I, Killela M, Warner EL, Perez GK, Fair DB, Lewis MA, Park ER, Kirchhoff AC

Purpose: We examine how uninsurance history is associated with financial status, medical care patterns, and social needs among a currently insured sample of young adult cancer survivors.

Methods: We surveyed YA cancer survivors enrolled in a health insurance literacy navigation trial. Eligible participants were currently insured, diagnosed ages 26-39 years and had completed treatment within the past 3 years. We assessed uninsurance, or any history of being uninsured as an adult (yes/no). Three outcomes were evaluated: 1) Financial toxicity (FT): Comprehensive Score of Financial Toxicity (11 items; range 0-44, scores ≤21=FT); 2) Ten items on skipping medical care in the last 12 months due to worry about the cost (yes/no); and 3) Four items on unmet social needs (food insecurity, unstable transportation, and unstable housing, yes/no). The proportion reporting FT, skipping care, and unmet needs were calculated by history of being uninsured vs. always insured; chi-squared were performed.

Results: Of 212 participants, 70% were female with a mean age of 35 years (SD=4); 63% had at least a college degree. Forty-two percent had experienced uninsurance in adulthood; 50% had high FT, 77% reported skipping medical care due to cost, and 36% had at least one unmet social need. Compared to participants who were always insured, those who had experienced uninsurance were significantly more likely to report high FT (61% vs. 42%, p<0.01) and to forgo recommended medical care, including skipping tests or treatments (28% vs. 16%, p=0.03), not seeing a provider for a medical problem (44% vs. 23%, p<0.01), not filling prescriptions (31% vs. 15%, p<0.01), and taking fewer pills than prescribed (25% vs. 11%, p<0.01). Survivors who had been uninsured also reported more unmet social needs than those who were continuously insured (50% vs. 27%, p<0.01).

Conclusions: Among insured YA cancer survivors, those with a history of uninsurance were more likely to report high FT, missed medical care, and unmet social needs. Future research should investigate the prevalence and impact of insurance gaps on FT, healthcare, and social needs to inform strategies for addressing these risks in cancer survivorship among YA.

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Inflammatory Biomarker Trajectories and Cardiovascular Healthcare Utilization in Breast Cancer Survivors Treated with Immune Checkpoint Inhibitors: Preliminary Findings from the IMPACT-BC Study

Vélez-Torres LN, Jordan JH

Purpose: Immune checkpoint inhibitor (ICI) therapy for breast cancer (BC) has improved outcomes but is linked to cardiovascular (CV) complications, including myocarditis and accelerated atherosclerosis. We aimed to evaluate longitudinal changes in eosinophil counts (EOS) and the systemic immune-inflammation index (SII) following ICI therapy in BC survivors and their relationship with CV-related healthcare utilization.

Methods: This retrospective study included BC patients treated at Virginia Commonwealth University Massey Comprehensive Cancer Center from 2015 to 2024. Preliminary analyses included 100 patients (50 ICI, 50 matched controls). The ICI group comprised 40 triple-negative BC (TNBC), 4 HER2+, and 6 hormone receptor–positive (HR+); the control group comprised 14 TNBC, 17 HER2+, and 19 HR+. EOS and SII (platelets — neutrophils / lymphocytes) were measured at baseline, early (0–180 days), and late (181-730 days). Group—time effects were tested with linear mixed models; within-group Î" changes vs baseline by Wilcoxon tests. Associations with a symptom-driven CV composite score (CV-related emergency visits, CV imaging, cardiology visits, or new CV medications) were analyzed using Spearman ρ and Cox models.

Results: Eosinophils showed a significant group—time interaction (p=0.043): lower at baseline (p=0.006) but higher early after ICI (p=0.030). SII also differed (p=0.004), declining earlier in ICI (p=0.013). Î"EOS rose significantly in ICI (p<0.001 early; p=0.026 late), while Î"SII declined in controls (p=0.002). Neither Î"EOS nor Î"SII correlated with the CV composite (|ρ|≤0.19, FDR>0.05)..

Conclusions: ICI therapy was associated with early eosinophil elevation and SII reduction, reflecting transient immune activation without corresponding increases in symptom-driven CV healthcare use. The CV composite score may not accurately capture subclinical cardiotoxicity. Future work will correlate CBC-derived inflammatory biomarkers with CV imaging biomarkers to better define inflammation-related CV risk during ICI therapy. If validated, these CBC-derived measures represent a widely available, inexpensive, and routinely collected approach to early assessment of cardiotoxicity risk in cancer patients.

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Childhood cancer survivor preferences for caregiver involvement in HINT-2: A health insurance navigation intervention in the Childhood Cancer Survivor Study

Warner EL, Foor A, Mitchell CO, Troubh Z, McGrath C, Barreto E, Perez-Lougee GK, Armstrong G, Nathan P, Snyder C, Brinkman T, Park ER, Kirchhoff AC

Purpose: The Health Insurance Navigation Tools (HINT-2) study aims to improve health insurance literacy of childhood cancer survivors through a patient navigation intervention; a promising approach for mitigating cancer-related financial hardship. No efficacious health insurance interventions exist that include caregivers, who often handle insurance and financial issues for survivors. The goal of this study was to determine survivors' preferences for having a caregiver participate with them in HINT-2.

Methods: Following participation in the HINT-2 randomized controlled trial, we conducted semi-structured follow-up interviews from 6/2025-10/2025 with adult survivors, stratifying by intervention arm (asynchronous videos vs. live navigator sessions on Zoom) and caregiver endorsement, derived from a 12-month follow-up survey question. Caregivers rated interest in involvement in HINT-2 on a scale of 1 (no interest) to 10 (high interest), with 7-10=yes and 1-6=no. The interview script evaluated satisfaction with the interventions, opportunities for improvement, and preferences on caregiver involvement. Rapid qualitative content analysis was applied to 19 interviews to establish a structured codebook; coding discrepancies were minor and resolved through weekly discussions.

Results: Participants were 67% female, 100% were policy holders; 58% endorsed caregiver involvement in HINT-2. Mean age was 35.6 years (standard deviation: 5.6 years) and the majority were 0-4 years from diagnosis (36.8%). Intervention feedback emphasized positive interactions with the patient navigator and the high quality of asynchronous videos. Barriers, while few, included concerns with session length (navigator arm) and desiring instantaneous answers to questions (video arm). Participants, particularly those in the navigator arm, desired involvement of caregivers who were policy holders or managing finances, and felt caregivers could be helpful when the survivor was younger or had limited health insurance experience. Caregiver involvement was not seen as beneficial when the caregiver had separate insurance and/or finances, in both the video and navigator arms.

Conclusions: Caregiver involvement in financial hardship interventions may be beneficial for some but not all survivors, influenced by

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"It's like a big team": Assessing alignment between an NCI Cancer Center's health system processes and the NCI Standards for Cancer Survivorship Care.

Webster MA, Feather AR, Back-Haddix S, Blair C, Stanek M, Andreae L, McLouth L, & Burris JL

Purpose: As cancer detection and treatment rates improve nationally, there is an ever-increasing need to address the diverse physical, psychological, social, functional, and practical concerns of cancer survivors throughout their care. The NCI's National Standards for Cancer Survivorship Care define guidance for health systems in providing quality survivorship care. This mixed-methods study aims to describe the extent to which survivorship care at an NCI Comprehensive Cancer Center aligns with the health system processes outlined in the national standards.

Methods: Survey participants (N=150) were survivors purposefully sampled by treatment status, cancer stage, and geographic residence. Survey data evaluated how well providers assessed, listened to, and managed participants' concerns across key domains of survivorship care and were analyzed using descriptive statistics. A subset of participants (N=17) completed semi-structured interviews to assess participants' experiences of survivorship care which were analyzed using directed content analysis.

Results: Greater than 70% of participants reported that their providers regularly assessed and listened to physical, emotional, and practical effects of cancer, while fewer reported regular assessment of social, financial, and insurance concerns. Among participants reporting concerns in these domains, most concerns were adequately managed with the exception being practical concerns. In qualitative interviews, few participants were aware of survivorship-care specific services. Participants' suggestions for improving survivorship care centered on increasing awareness of supportive health services and improving care navigation assistance.

Conclusions: Survivorship care processes broadly aligned with NCI standards but there was room for improvement in health system processes to increase care coordination as well as to increase awareness and access to survivorship-specific services and other supportive health services for survivors. The NCI standards for survivorship care could be strengthened by providing actionable steps for cancer centers and indicating prioritization of standards to help direct resources and funding.

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A time-restricted diet mHealth intervention among men with PCa on Androgen Deprivation Therapy: A feasibility RCT study

Wen KY, Zarrabi K, Smith R, Mille P, Tester W, Kelly W.

Androgen deprivation therapy (ADT) is a common and effective treatment for prostate cancer (PCa) but is associated with distressing side effects, including weight gain, fatigue, insulin resistance, and reduced health-related quality of life (HRQoL). This pilot RCT evaluated the feasibility and preliminary impact of a 3-month time-restricted diet (TRD) intervention, facilitated through interactive text messaging and remote health coaching. Participants were randomized in a 2:1 ratio to either the TRD group or a healthy diet (HD) control group that received general dietary text messages without changes to meal timing. The primary outcome was feasibility and acceptability of the TRD intervention. Secondary outcomes included changes in weight and HRQoL from baseline to 3 months, compared between groups using Wilcoxon rank-sum tests.

A total of 40 participants were enrolled (27 TRD, 13 HD), with a mean age of 70 and 55% African American. Text message response compliance (logging meal timing and meal content) was 45–85% across all participants. Within the TRD group, average adherence to coaching sessions was 82%, and adherence to the suggested fasting window averaged 70%. Satisfaction surveys and post-intervention interviews indicated high feasibility, usability and engagement with the program. Qualitative feedback from participants highlights the importance of personalized coaching continuity and responsive, tailored messaging to support adherence and engagement with time-restricted eating interventions. At 3 months, compared to the HD control group, the TRD group showed a non-significant trend toward greater weight loss ($p = 0.37$) and BMI reduction ($p = 0.35$). Fatigue scores remained unchanged in both groups ($p = 0.93$). HRQoL, measured by the FACT-P, declined in the HD group but improved in the TRD group, showing a trend toward benefit ($p = 0.06$). Limitations include the small sample size and the absence of insulin resistance measures, limiting interpretation of metabolic effects.

Conclusions: This pilot RCT demonstrated the feasibility and acceptability of a remotely supported TRD intervention for men with PCa undergoing ADT. The integration of text messaging and health coaching showed promise in supporting program adherence.

Cancer Health Disparities

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Community Health Worker–Supported HPV Self-Sampling to Improve Cervical Cancer Screening in Five Underserved Ethnic Groups

Wen KY, Slamon R, Torres CJ, Smith R, Liang J, Canete K, Juon HS, Dayaratna S.

Purpose: Cervical cancer remains a preventable disease, yet persistent disparities in screening and follow-up contribute to disproportionate burden among underserved women, particularly those from immigrant and minority communities. Barriers such as limited access to gynecologic services, stigma, language challenges, medical mistrust, and competing life demands hinder participation in clinic-based Pap testing. HPV self-sampling presents a promising, patient-centered strategy to expand screening access; however, real-world evidence on culturally tailored implementation and device acceptability across diverse populations is limited.

Methods: This ongoing mixed-methods study evaluates the feasibility, acceptability, and usability of HPV self-sampling supported by Community Health Workers (CHWs) in partnership with community-based organizations. We aim to recruit 100 medically underserved women eligible for cervical cancer screening, with 20 participants from each of five ethnic groups: Black/African American, Hispanic/Latina, Chinese, Korean, and Vietnamese. Participants receive education and navigation from trained CHWs and are provided one of two self-sampling devices (Evalyn Brush or Copan FLOQSwab). CHWs deliver culturally and linguistically tailored guidance, assist with sample collection logistics, and support navigation to clinical care.

Results: Primary outcomes include completion of HPV self-sampling. Secondary outcomes include self-reported comfort, confidence, cultural acceptability, and usability. Participants with positive results are linked to follow-up evaluation at our institution's colposcopy clinic, ensuring a direct, supported pathway to diagnostic care. Qualitative interviews capture perspectives on self-sampling, trusted messengers, and the role of community partnerships in screening participation.

Conclusions: Preliminary experience suggests strong enthusiasm for self-collection, As the study is underway, conference presentation results will characterize feasibility, device perception, participant satisfaction, and thematic insights across the five ethnic communities. Implementation lessons related to community engagement, language tailoring, and navigation workflows will also be presented.

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Burden of hospitalizations in four adolescent and young adult (AYA) cancer survivor in California and Utah, 2006-2020

Wernli KJ, Haupt EC, Smitherman AB, Osuji T, Shen E, Chawla N, Casperson M, Kirchhoff AC, Laurent C, Ruddy KJ, Keegan THM, Kaddas HK, Abrah£o R, Chao C, Sauder CAM, Figueroa Gray M, Chubak J, Nichols HB, Kushi L, Hahn EE

Purpose: We describe hospitalization rates in adolescent and young adult (AYA,15-39 years) cancer survivors 2-5 years (Y2-Y5) from diagnosis to understand acute care use in early survivorship.

Methods: The observational study includes four cohorts of AYA cancer survivors diagnosed 2006-2020 at two healthcare systems [Kaiser Permanente Southern California (n=7889) and Northern California (n=7338)] and at two state-based registries [California (n=47,302) and Utah (n=7935)]. Hospitalizations were ascertained from electronic health records or statewide hospital discharge data. Hospitalization rates were restricted to non-pregnancy-related indications. We estimated factors associated with hospitalizations by cohort using a Poisson model adjusting for patient demographics at diagnosis and cancer clinical factors (i.e., type, stage, treatment).

Results: Across cohorts, most patients were women (~64%), mean age was 31 years, and most were non-Hispanic White (range 35.1-81.2%) or Hispanic (range 14.3-40.6%). Overall, 21-24% of AYA survivors had >1 hospitalization (95th percentile 2-3 hospitalizations). Unadjusted hospitalization rates declined from Y2 [range 155.1-243.4 per 1000 person-years (PY)] to Y5 (range 105.8-132.0 PY) (p-trend<0.0001). Factors associated with increased hospitalization were [range of relative risks (RR)]: non–Hispanic Black race/ethnicity (RR 1.46-1.66 vs non-Hispanic White); public insurance (RR 1.57-1.93 vs commercial/military); regional (RR 1.58-1.95) or distant disease stage (RR 3.01-5.08) vs local; receipt of chemotherapy (RR 1.51-1.81 vs none), and cancer type – breast (RR 1.50-1.97), cervical (RR 2.30-3.31), colorectal (2.75-3.66), acute lymphoblastic leukemia (RR 2.74-5.19), acute myeloid leukemia (2.11-5.05), and sarcoma (RR 2.70-4.96) vs thyroid. Only Hodgkin lymphoma (RR 0.49 vs thyroid) was associated with lower risk of hospitalizations.

Conclusion: The burden of hospitalization across health systems and states declines as time from diagnosis elapses. However, certain subgroups are at higher risk of any hospitalization, due to social determinants of health and cancer clinical factors. Strategies to identify high-risk AYAs in early survivorship are needed to mitigate unanticipated hospitalizations and associated costs.

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Feasbility and Acceptability of Remote Surveillance for HPV-positive Oropharyngeal Squamous Call Cancer: An Intervention Pilot Study

Windon MJ, McLouth L, Brenner C, Christian A, Mahairas A, Kuhs KL

Purpose: Follow-up for human papillomavirus-positive oropharyngeal cancer (HPV(+)OPC) after treatment is critical to detect and treat recurrence and provide supportive care. However, follow-up exams are insensitive for recurrence, costly, and require travel – issues particularly relevant for patients in rural regions like Appalachia. Urine-based circulating tumor HPVDNA (ctHPVDNA) assays are a novel, highly sensitive and specific biomarker for recurrence, and can be collected at home. We piloted a mechanism for remote surveillance in a cohort of HPV(+)OPC survivors combining telemedicine and urine ctHPVDNA assay home collection.

Methods: A single-institutional, prospective intervention pilot study was performed at the University of Kentucky Markey Cancer Center. Adult patients with HPV(+)OPC from 1-3.5 years after treatment underwent a one-time telemedicine visit and home ctHPVDNA urine specimen collection in addition to standard surveillance visits. Feasibility metrics, select items from the Theoretical Framework of Acceptability scale, and a semi-structured qualitative interview were used to determine feasibility and acceptability. Categorical thematic analysis were performed. Data collection for this study is ongoing.

Results: 10 of 10 (100%) participants successfully completed the study. 8/10 (80%) found remote surveillance to be acceptable or very acceptable, acknowledged remote surveillance makes it easier to get care, and felt confident or very confident in remote surveillance for cancer detection. 9/10 (90%) found that remote surveillance took either no effort at all or a little effort. An average of 5.6 minutes were spent on urine collection, and visits ranged from 8-15 minutes. Many patients preferred remote to overcome challenges of time off work, parking, wait times, driving distance and out of pocket costs, and understood how it would make surveillance easier. However, participants said they wanted to be able to come in person for any urgent concern, and two preferred in-person.

Conclusion: CtHPVDNA-informed remote surveillance for (HPV(+)OPC) is feasible and acceptable, justifying the evaluation of remote surveillance in a clinical trial with the endpoint of adherence to guideline-recommended surveillance schedules.

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Using Strategic Outreach to Generate Awareness to Drive Change: Iowa's Collaborative Response to Increasing Cancer Incidence

Wells Sittig K, Charlton ME, Kahl AR, Schmidt ME, Swan A, Evett S, Askelson NM

Purpose: Given that Iowa has the second highest cancer incidence rate and is one of only two states in the US with a rising incidence rate, University of Iowa Health Care Holden Comprehensive Cancer Center Community Outreach and Engagement (COE), the Iowa Cancer Consortium (ICC), and the Iowa Cancer Registry (ICR) have focused efforts on generating awareness of Iowa's high cancer rate among Iowans.

Methods: Holden Comprehensive Cancer Center COE, the ICC, and the ICR are generating awareness of Iowa's high cancer incidence rates through collaborative programs and efforts. These efforts include the 99 Counties Project, which presents county-level data on cancer incidence, mortality, and risk factors for each of Iowa's 99 Counties, and shares strategies and resources to help alleviate the cancer burden; Iowa Cancer Consortium Workgroups & the Iowa Cancer Summit, which allow opportunities for cancer prevention and control partners across the state to network, present to, and learn from one another; Holden's Collaborative Webinar Series; Holden's Community Advisory Board; and community-led efforts supported by these entities including the Black Hawk County Cancer Steering Committee and Project Health.

Results: These efforts have resulted in extensive media coverage to help build awareness across the state. The attention has also resulted in the governor allocating 1 million dollars to assist in understanding what is driving Iowa's high cancer rates and the introduction of many cancer-related bills related to access to care, breast cancer, cancer research funding, immunizations, tobacco control, radon, tanning bed restrictions for minors, patient assistance, rural health, benefit expansion, and investigational treatments.

Conclusions: Raising awareness among Iowans on cancer rates, risk factors, and prevention strategies is crucial to increase state funding, policies to decrease the burden of cancer, and the number of Iowans taking action to decrease the risk of cancer.

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Building a 'Third Space' to Advance Cancer Control: Results of a Large-Scale Planning and Social Network Intervention to Nurture Community-Cancer Center Partnerships and Accelerate Translation of Evidence to Impact

Bouchard EG, Clark Robinson N, Johnson D, Hailey K, Saad-Harfouche F, and the Roswell Park COE Team

Purpose: Community engagement enhances impact across the research continuum – from prioritizing questions that solve pivotal problems to translation of findings to real world practice and access. In 2023 Roswell Park opened 'Michigan' - a dedicated Community Outreach and Engagement Center. 907 Michigan draws from social network theory, planning, and design and was designed as a large-scale cancer control intervention with the goals of: (1) fostering interorganizational ties, (2) building bi-directional communication and trust, (3) and increasing resource access. We evaluated the engagement, relational, and cancer control impact of 907 Michigan.

Methods: We evaluated data from reservation logs and sign in sheets to capture objective data and administered surveys using validated tools to community partners (N = 109) to assess relational and cancer control impact.

Results: From October 2023 to September 2025 907 had 14,544 visitors, and held 700 events, 428 of which were led by community partners (for e.g. social services, housing) and 272 were led by the cancer center (for e.g., cancer screening education, research town hall). 64.7% of community partners identified as Black, 49.1% were 40-64 years old, 5.7% were cancer patients, 9.7% were survivors, and 8.5% were caregivers. 92.6% of partners reported being very likely to recommend the center. 76.6% said the center shaped their overall impression of Roswell Park. 82.9% said the center "increased my knowledge about cancer-related topics" to a great extent, 73.2% said it "improved my access to cancer information", 70.7% said it "improved the services offered by my organization", and 65.9% said it "improved the cancer-related resources I extend to people receiving services from my own organization". Related to cancer control outcomes, 83% of partners advanced to bring cancer education to their organizations, 69% partnered for cancer screening/mobile screening initiatives, 33% partnered on survivorship initiatives, and 36% engaged as research advocates.

Conclusions: 907 Michigan is an innovative intervention that has demonstrated impact. Spatial composition and operational design elements that foster the formation of network ties and increasing resource access can be replicated in other settings and contexts.

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Community-engaged Development of HPV Vaccination Workshops to Advance Cancer Prevention among Communities who are Underserved/Undersupported in New York City

Chebli P, Herrera V, Elsayed M, Lightfoot MD, Yepes C, Foster V, Kwon SC

Purpose: To co-develop, with community and clinical partners, a series of culturally tailored workshops to promote HPV vaccination and cancer prevention among Arabic- and Spanish-speaking communities in New York City.

Methods: Our prior formative research identified limited knowledge and cultural stigma surrounding HPV and the vaccine, as well as recommendations to deliver in-language education in trusted community settings by trusted messengers. Building on these findings and evidence-based recommendations, and guided by community-based participatory research (CBPR) and social marketing principles, we are collaborating with community-based organizations (CBOs) and clinical partners to co-design and evaluate workshops for young adults, parents, and lay health workers (LHWs) from CBOs that serve Arabic- and Spanish-speaking families. Workshops cover how vaccines work, HPV transmission, HPV vaccination, cancer prevention, and include experiential learning opportunities through case scenarios. Workshops will be delivered in Arabic and Spanish in CBO settings. Evaluation will include pre/post surveys assessing HPV vaccination knowledge, attitudes, and behavior intent, and post-workshop debrief sessions to refine content and delivery for future implementation.

Results: Workshops are planned for Winter 2026. Our target sample size is 70 young adults, 70 parents, and 20 LHWs, half from each community. Survey data will be analyzed using paired statistical tests and qualitative data will be analyzed using deductive content analysis informed by social marketing constructs. We hypothesize that participation will increase knowledge, positive attitudes, and behavior intent toward HPV vaccination in all participant groups. Qualitative feedback will inform adaptations to the workshops to better address cultural and contextual factors influencing vaccine uptake.

Conclusions: Community-driven interventions grounded in CBPR and social marketing can play a critical role in promoting HPV vaccination and cancer prevention in underserved/undersupported communities. Engaging trusted community and clinical partners in co-developing educational content offers a promising pathway to optimize cancer outcomes through culturally relevant prevention strategies.

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Perceived Benefits and Risks of Artificial Intelligence in Healthcare Decision-Making from Marginalized Communities: A Thematic Analysis

Jamison NK, Davis N, Caviness-Ashe N, Heard D, Orrin, Braden K, Webb A, Sodeke S, Rivers D, Dean-Colomb W, Carter V, Nolan T, Matthews R, Rivers B

Purpose: This study explored perceptions of the benefits and risks of using artificial intelligence (AI) in healthcare decision-making within marginalized communities.

Methods: Focus groups were conducted with adult participants recruited from community and clinical settings affiliated with a safety-net healthcare system. Using semi-structured vignettes depicting AI-assisted scenarios, including clinical trial recruitment through electronic medical records (EMR), AI-enabled medication reminders, and AI-facilitated biospecimen donation, participants discussed perceived advantages, concerns, and implications for patient care. Transcripts were analyzed thematically using an inductive coding approach to identify recurring patterns and meanings across discussions.

Results: Six major themes emerged: (1) Efficiency and Streamlined Processes, highlighting perceived benefits of AI in reducing time and administrative burden; (2) Data Completeness and Reliability Concerns, reflecting doubts about accuracy and outdated EMR data; (3) Digital Literacy and Accessibility Barriers, emphasizing challenges for older adults and those with limited technological skills; (4) Privacy, Surveillance, and Data Sharing Anxiety, revealing discomfort with constant monitoring and uncertainty about data use; (5) Trust, Cultural Memory, and Historical Context, underscoring medical mistrust rooted in historical exploitation of Black communities; and (6) The Need for Human Oversight and Emotional Connection, reinforcing that AI should complement, not replace, human judgment and empathy.

Conclusions: Participants viewed AI as a valuable tool to enhance efficiency and support healthcare delivery, but their acceptance depended on transparent data practices, culturally sensitive communication, and sustained human involvement. Findings suggest that equitable integration of AI into healthcare decision-making requires addressing privacy concerns, improving digital literacy, and rebuilding trust among historically marginalized populations.

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Bringing Science and Research Opportunities to Colorado Communities

Lowery J, Waxmonsky J, Villarreal-Hernandez K, Pacheco D, Gonzalez S, Gerena T, Caballero C, Garcia S, Soto Mendoza A, Lewis L, Olowu K, Borrayo E.

Purpose: To educate community members about science, share research findings, and enhance participation in research in groups that are under-represented in health research including older adults and rural residents.

Methods: The University of Colorado (CU) Cancer Center, Office of Community Outreach and Engagement (COE) partnered with the CU Multidisciplinary Center on Aging to bring Research Roadshows to communities across Colorado. We selected locations for the shows using county-level data reflecting differences in cancer burden and other health outcomes. The target audience is people aged 50+. We collaborated with local community organizations to co-plan and promote the shows, and to identify areas of concern based on recent community health assessments. We recruited research teams from the cancer center and other departments to attend and provide interactive activities to educate and engage participants in their science and areas of research. COE provided cancer education, free cancer screening resources and bilingual staff that enhanced engagement among underserved populations.

Results: We hosted three Roadshows in 2025 in Pueblo, Greeley and Steamboat Springs that represent rural communities, diverse populations and areas with unmet health needs. In total, 27 research teams attended one or more Roadshows. Researchers engaged participants in their science with interactive activities such as doing a gait assessment to personalize an exercise program for a study to reduce fatigue after cancer treatment, testing new balance training technology to improve balance and coordination, watching videos to learn how screening can prevent colon cancer, and trying novel technology to reduce PTSD symptoms. Across all three shows, 305 community members attended. Four shows are planned for 2026 in two rural and two urban counties.

Conclusions: Our COE partnership with the CU Multidisciplinary Center on Aging and local community organizations to host Research Roadshows provided an opportunity for us to educate and engage communities in our science and research. Using a data-driven approach to inform where we host the Roadshows and what we focus on in terms of education and research opportunities, helps to ensure that we are responsive to the communities that we serve.

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Method to Engage Invested Partners to Co-create Feasible and Sustainable Approaches to Design and Implement Cancer Prevention and Control Tools.

Pérez Jolles M, Glasgow RE, Gomes R, Huebschmann AG, Kessler ER

Purpose: A core tenet of implementation science is early planning for implementation with invested partners. For health systems, aligning workflows and strategies to local contexts and ensuring that the purpose of an intervention meets local priorities are critical planning steps. We describe a participatory engagement method to design and adapt cancer prevention and control tools (interventions) to promote health equity and aligned workflows and strategies – termed Co-creation for health equity (CO-4 Health Equity). We illustrate this novel method with primary care (prevention) and oncology (treatment) case examples.

Methods: The CO-4 Health Equity method included a set of parallel online workshop sessions with clinic providers/staff and patient partners. Through four to five sessions, participants identified and refined the intervention's core purposes (functions) to ensure alignment with clinic priorities. Sessions focused on refining and adapting concrete forms (how) to meet those functions, such as clinical workflows and implementation strategies. We used similar co-creation methods in primary care and oncology settings.

Results: In primary care and oncology, patients and clinical partners with diverse roles across clinics participated in 45–90-minute co-creation workshops. Sessions with clinic partners (n = 13 primary care; n = 15 oncology) and patients (n = 5 primary care; n = 7 oncology) were held separately and included summaries of patient recommendations and vice versa. Sessions focused on: 1) refining the core goals of each tool (e.g., identifying patients' priority cancer risk factors); 2) refining and adapting the workflows and strategies for intervention delivery; 3) user testing of tool prototypes; and 4) consensus-building on options for clinical workflows. We used the iPRISM webtool for implementation planning and developed matrices to track responses to partner recommendations.

Conclusions: This CO-4 Health Equity methodology leverages input from invested partners to refine and adapt workflows and strategies to guide successful implementation of cancer prevention and control tools in health systems. Future directions include further testing CO-4 Health Equity to support the equitable translation of other innovations to improve cancer

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Building the pipeline together: Co-creating a community-informed cancer research education and training program for middle and high school students

Saavedra TF, Thompson QT, Johnson-Minns L, Nelson TE, Revanna CM, Winn RA

Purpose: Cancer centers face challenges in establishing early education and training pipelines that effectively engage underrepresented middle and high school students. To address this gap, VCU Massey Comprehensive Cancer Center partnered with Burlington Capital Properties Resident Services to co-develop a community-informed education and training program designed to introduce youth to cancer research and foster sustained interest in biomedical and oncology careers.

Methods: During a 2024 district walk in Henrico County, residents informed Massey leaders of limited STEM opportunities for local youth. In response, Massey and Burlington Capital developed the Exploring CONNECTions Program, aligning its name and structure with an existing community-led summer initiative to ensure local relevance. The co-designed one-month, weekly program incorporated interactive sessions on cancer biology, prevention, clinical research, and lab experiences led by researchers, clinicians, and staff emphasizing translational science, health equity, and workforce representation. Since 2024, two cohorts have participated (N=45). Pre- and post-program surveys evaluated cancer-related knowledge, awareness, and career interest, complemented by open-ended qualitative feedback.

Results: All students self-identified as Black (grades 6-12; 56% middle school). Fifty-three percent (n=24) of participants completed the surveys. Interest in pursuing a STEM career increased by 20% post-program. Students reported enhanced confidence in foundational research skills, including microscopy, group collaboration, scientific inquiry, and problem-solving. Qualitative analysis yielded three themes: 1) increased understanding of cancer and career pathways, 2) strong appreciation for hands-on activities, and 3) heightened awareness of family health risks and prevention actions.

Conclusions: Partnering with catchment area residents and community organizations can uniquely position cancer centers to engage youth and increase future oncology workforce representation. Investing cancer center resources can strengthen community trust and early interest in cancer research. Continued community feedback and engagement are essential to refining the program's curriculum, mentorship, and long-term impact.

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Utilizing Community Engagement Studios To Increase Clinical Research Participation From Underserved Communities: A Case Study

Gary M, Crandon L, Howard TL, Bollinger P, Bonilla N, Shannon J, Dayger C, Sayar Z, Sawyer SD, Krinshpun S, Jurdi A, Aleshin A, Mitchell BL

Purpose: Here, we describe: (1) a social media-based recruitment strategy developed from community feedback and (2) efforts to increase enrollment rates into the ongoing prospective PROCEED-CRC study (NCT06620627), which collects blood samples from enrolled participants within 120 days prior to screening colonoscopies in the average-risk population, through distinct decentralized recruitment channels.

Methods: To develop a social media marketing strategy geared towards Black and African American populations, three community engagement studios (CES) were conducted by OHSU, an academic community engagement expert, 2 of which included members of the Touch4Life network, a patient advocacy group focusing on decreasing cancer disparities in Black, Indigenous, and people of color populations. PROCEED-CRC implemented 3 recruitment strategies: pharmacy fulfillment, primary care and gastrointestinal clinics (PCP/GI), and social media.

Results: Findings from the first CES were reviewed with the Touch4Life leadership and CES participants. A subsequent CES was designed to provide feedback on social media advertising strategies. Following the second CES, marketing materials were adjusted to include images of representative groups vs. individuals and to emphasize more positive language. In the PROCEED-CRC study, enrollment rates were highest for Black and African American participants in the pharmacy fulfillment channel (17%), followed by PCP/GI (16%), and social media (14%). Conversely, social media was the most effective recruitment method among low-income participants (24%), followed by pharmacy fulfillment (13%), and PCP/GI (5%).

Conclusions: We found a bidirectional flow of information deepened our relationship within the community and understanding of community perspectives on the study design. Early collaboration between industry-sponsored researchers, community experts, and patient advocacy groups is an ideal model for gaining insights into specific communities and fostering relationships that can improve access to clinical studies. Continued exploration of recruitment strategies geared to underserved communities is needed to identify approaches to increase enrollment rates.

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Co-Designing a Culturally Tailored Breast Cancer Prevention Program for Asian American Women

Sheng JS, Lor M, Nguyen CC, Kong R, Chang AC, Cadmus-Bertram L

Purpose: This study outlines the development of a collaborative effort between researchers and an Asian American Community Advisory Board (CAB) to culturally adapt and co-create the Breast Cancer Awareness and Risk Education for Asian Americans (CARE) program. CARE aims to increase breast cancer knowledge, promote early detection, and encourage physical activity as a modifiable risk-reduction strategy for Asian American women.

Methods: The CARE program was adapted and co-designed using a community-engagement framework with input from a 14-member, multi-ethnic CAB representing seven Asian American subgroups. CAB meetings were conducted in a hybrid format, audio-recorded, and complemented by voluntary â€œhomework,â€ meeting notes, and written materials shared by members. Both hardcopy and online binders ensured accessibility to all documents.

Results: Five ~90-minute hybrid CAB meetings and a 4-hour in-person internal mock review were conducted before pilot testing. Program content, co-developed with CAB guidance, covers three core topics: Breast Cancer 101, Breast Cancer Screening, and Physical Activity. Delivery methods were culturally tailored and include interactive activities, hands-on demonstrations, PowerPoint slides, pictographs, videos, brochures, infographics, and action cards. Key themes from CAB feedback included enhancing self-efficacy, providing information in multiple formats, tailoring content to different learning needs, and creating a comprehensive resource list.

Conclusion: This study demonstrates that an iterative, community-engaged process can produced culturally tailored program content. CAB members' insights were instrumental in shaping program structure, teaching methods, and resources. Preliminary feedback indicates strong engagement and perceived value. Next steps involve further refinement and pilot testing to assess feasibility, acceptability, and potential for broader implementation across diverse Asian American communities.

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Impacting the Community Through Cancer Research Dissemination

Wilhite NP, McAfee CR, Hull PC

Purpose: An essential component of bidirectional community engagement is the dissemination of research findings back to the community. Many researchers do not prioritize community research dissemination because they are not trained in plain language communication. However, its importance is gaining momentum nationwide as many grant funding mechanisms require communication dissemination plans and lay abstracts as part of funding requirements. University of Kentucky Markey Cancer Center (MCC) Community Outreach and Engagement (COE) developed a Toolkit for Research Dissemination to the Community, which can be utilized to guide the development and dissemination of materials about cancer research to the lay public.

Methods: Components include a sample dissemination plan for grant proposals, dissemination strategy options, tips for visual presentations and writing, substitutions for frequently used cancer and research terms, and templates for project summary paragraphs and infographics. COE's Community Impact Ambassadors, two from each MCC Research Program, contributed to the development and refinement of the Toolkit. COE created sample summary paragraphs and infographics about Ambassadors' research projects. MCC Community Advisory Board provided feedback on the sample materials' overall appearance, relevance of the graphics used to convey information, and comprehensiveness of the information.

Results: From February 2022 – June 2025, 31 Toolkits were provided to MCC researchers through COE Consultation Requests and 6 Toolkits were provided to trainees. MCC researchers utilized the Toolkit to create 13 plain language abstracts and 20 dissemination plans for 19 internal and 8 external grant proposals. 19 MCC researchers utilized the Toolkit to develop lay audience presentations. From October 2023 to present, we have disseminated the Toolkit externally to 48 cancer centers that have requested the Toolkit for their bidirectional community engagement efforts.

Conclusion: Utilization of the Toolkit can further extend the reach, philanthropy, and impact among cancer centers nationwide, and ensure that the community is prioritized as we work to become a cancer-free catchment area.

Global Cancer Research

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Income Inequality and Its Influence on Cancer Mortality: A 20-Year Longitudinal Study Across 73 Countries

Choi J, Nusloch MG, Bhakta N, Ness KK, Hudson MM, Armstrong GT, Yasui Y, Huang IC

Purpose: This study examined the lagged (or delayed) effects of income inequality on cancer mortality across 73 countries over 20 years to elucidate structural inequities in cancer control.

Methods: We analyzed longitudinal panel data across 73 countries (2000-2019). Annual income inequality was quantified using the Gini coefficient, a measure of income distribution within a population (0=perfect equality; 1=perfect inequality), obtained from the Standardized World Income Inequality Database. Annual age-standardized cancer mortality rates for overall and 25 site-specific cancers were obtained from the World Health Organization (WHO). Cancer sites were categorized into three groups based on mortality-to-incidence ratios (MIR) from GLOBOCAN: high (<0.30), medium (0.30-0.59), and low survival (≥0.60). Covariates included the age-dependency ratio (≤14 and ≥65 vs 15-64) and health system indicators (healthcare expenditure per capita, out-of-pocket expenditure, physician density) from the World Bank and WHO. Generalized Estimating Equations (GEE) with an exchangeable correlation structure were used to examine associations between annual income inequality and cancer mortality, with models fitted separately for each lag period (0-10 years) to estimate lagged effects.

Results: A one-standard deviation increase in the Gini coefficient showed no significant association with overall cancer mortality during the first three lagged years. The association was significant for cancer mortality lagged by 4 years (ß=8.8, 95%CI=1.1-16.5) and peaked at an 8-year lag (ß=11.6, 95%CI=2.1-21.1), corresponding to 9-12 excess deaths per 100,000 population. For low-survival cancers, significant associations were observed in a 0-year lag (ß=3.9, 95%CI=0.7-7.1) and peaked at an 8-year lag (ß=7.1, 95%CI=3.1-11.2). Within this group, both lung (ß=3.3, 95%CI=1.2-5.4) and stomach cancers (ß=2.9, 95%CI=1.6-4.3) peaked at 5 years. No significant associations were observed for cancers with medium or high survival.

Conclusion: Income inequality showed delayed associations with cancer mortality, most pronounced for low-survival cancers that require access to timely care. Strengthening national policies to reduce structural disparities is crucial for improving global cancer outcomes.

Cancer Health Disparities

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Redlining and Rurality as Structural Determinants of Chronic Health Condition Progression Among Childhood Cancer Survivors: A Report from the St. Jude Lifetime Cohort Study

Smith AD, Choi J, Mirzaei S, Horan MR, Srivastava DK, Brandt H, Ness KK, Armstrong GT, Hudson MM, Huang IC

Purpose: To evaluate associations of contemporary redlining bias (denial of mortgage and financial services to specific neighborhoods) and rurality with chronic health condition (CHC) progression in adult survivors of childhood cancer.

Methods: We analyzed data from 2,508 survivors of the St. Jude Lifetime Cohort Study who provided baseline and follow-up (FU) clinical assessments. A total of 177 CHCs were graded using the Common Terminology Criteria for Adverse Events and classified into 48 categories by 13 organ systems. CHC progression was defined as new-onset (none or Grade 1 at baseline to Grade ≥2 at FU) or worsening (Grade 2 to 3-4 or Grade 3 to 4). Global CHC burden was categorized as none, low, moderate, high, or very high, with progression defined as an increase to high or very high burden. Residential addresses at study entry (2007-2020) were geocoded and linked to redlining bias indices (Home Mortgage Disclosure Act) and Rural-Urban Commuting Area codes to define 3-level structural exposures: non-redlined urban (reference), redlined urban, and rural. Logistic regression tested associations between exposures and CHC progression, adjusting for covariates. Interactions between exposures and personal characteristics (age at diagnosis, insurance type) were examined.

Results: Of 2,508 survivors (mean age 31.6±7.6 years), 12.8% lived in redlined urban and 25.2% in rural areas; 35.2% experienced global CHC progression. Compared to survivors in non-redlined urban areas, those in rural (OR=1.4, 95%CI=1.1-1.8) and redlined (OR=1.3, 95%CI=1.0-1.7) areas had higher risks of global CHC progression. Redlined urban residence was associated with a higher risk of new-onset or worsening of cardiovascular dysfunction (OR=3.4, 95%CI=1.7-6.8) while rural residence was associated with arrhythmias (OR=1.7, 95%CI=1.1-2.9). In joint analyses, survivors with public insurance living in redlined urban or rural areas had the greatest risk of global CHC progression (OR=1.9, 95%CI=1.1-3.2; OR=2.5, 95%CI=1.5-4.1).

Conclusions: Redlining and rural residence were significantly associated with CHC progression in childhood cancer survivors. Integrating geographic context and personal vulnerability into survivorship care may help mitigate health inequities.

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Exploring How Husbands Engage in Their Wives' Cervical Cancer Continuum of Care Journey

Mkuu, RS, Rivero-Mendoza, D, Meduri, Y, Collins B, Staras S, Hall, J, Godfrey, D., Shenkman, E, Fisher, C

Purpose: This study explores how husbands in Kenya engage in supporting their wives throughout the cervical cancer continuum of care. Specifically, we examine how men perceive and enact their roles as caregivers and sources of support during this journey.

Methods: We conducted qualitative interviews with 29 male caregivers recruited through convenience sampling. Women receiving cervical cancer treatment at a cancer center in Kenya were given recruitment flyers to share with their spouses, who then contacted the study team if interested. After obtaining informed consent, in-person interviews lasting 45–60 minutes were conducted in Kiswahili or English, based on participant preference. Interviews were audio-recorded and focused on participants' perceptions of their roles in supporting their wives through diagnosis, treatment, and recovery.

Results: Three key themes emerged: Financial Support: Husbands described their role as financial providers, covering both direct and indirect costs associated with treatment. Emotional Encouragement: Participants emphasized the importance of offering emotional support and encouragement throughout their wives' treatment journey. Balancing Responsibilities: Men discussed the challenges of managing caregiving duties alongside daily responsibilities, such as childcare and household tasks.

Conclusion: Findings highlight opportunities to develop culturally sensitive interventions that strengthen spousal support across the cervical cancer care continuum. Tailoring these interventions to reflect sociocultural dynamics may enhance caregiver engagement and improve patient outcomes.

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What do Canadian Parents of School-aged Children Want to know about Human Papillomavirus Vaccination? Results of a Survey on Facebook

Mylène TD, Giguère BG, O'Doherty K, Pucci A

Purpose: We sought to identify the preferred sources of information and preferred educational formats parents of school-aged children eligible for HPV vaccine would consume to inform their decision-making process.

Methods: A bilingual (English and French) survey employing Facebook ads was used to recruit parents of school-aged children aged between 9 and 15 years across Canada to participate in the study. The survey consisted of twenty (20) closed-ended and two (2) open-ended questions. Recruitment on Facebook occurred between March 2021 and February 2022. Participants meeting specific requirements were eligible to participate in the study. The study was approved by the University of Guelph Research Ethics Board.

Results: We surveyed a total of 764 parents across Canada, with a 554 of them meeting the eligibility criteria required participate in the research study. Representation was obtained from nine provinces and two territories. Most respondents indicate healthcare providers as the preferred source of information (17.5%; n=38). Respondents also reported infographics as the preferred promotion format most likely to influence their decision-making (20.8%; n=115). Finally, information on potential side-effects associated with HPV was the main topic respondents sought during their decision-making process.

Conclusions: Infographics can be an important social marketing component for educating parents about the vaccination of school-aged children against HPV. These visual representations should focus on HPV vaccine safety and be combined with healthcare provider recommendations to respond to the information needs of parents.

Lifestyle and Preventive Interventions

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Association of Body Fatness and WHO-defined Disease Risk Level with Tumor-Infiltrating Lymphocytes, CD4+ T cells, and CD8+ T cells in Breast Cancer by Estrogen Receptor and TNBC Status: The Women's Circle of Health Study and Women's Circle of Health Follow-up Study

Akasheh RT, Omilian A, Mahenge C, Qin B, Bandera E, Yao S, Ambrosone C, Khoury T, Cheng TYD

Purpose: to test whether stromal tumor-infiltrating lymphocytes (TILs) in breast cancer were associated with measures of body fatness.

Methods: Pre-treatment hematoxylin and eosin-stained sections of invasive breast cancer were obtained from 1,342 newly diagnosed cases (937 African American/Black and 405 White women) from Women's Circle of Health Study and Follow-Up Study. TILs were scored from 0% to 100%, following the International TILs Working Group recommendations. CD4+ and CD8+ T cells were measured by immunohistochemistry in a subset (n= 782 and 829, respectively). Immune variables were compared across categories of BMI, waist circumference, WHR, and WHO-defined cardiometabolic disease risk levels – derived from BMI and waist circumference. Multivariable linear regression adjusted for age, race, and menopausal status was conducted overall, by estrogen receptor (ER) status, and in triple-negative breast cancer (TNBC).

Results: BMI was not associated with any immune marker in overall and ER-positive tumors. In ER-negative tumors, obesity was associated with reduced CD4+ T cell infiltration: ß = −56.8% (95% CI: −82.1, −3.9) for class I obesity and ß = −63.2% (95% CI: −84.4, −13.9) for class II/III, relative to normal BMI. Waist circumference >88 cm (vs. ≤80 cm) was associated with lower CD8+ T cell fraction ($CD8^+$ / [$CD8^+$ + CD4ß] overall (ß = −47.8%, 95% CI: −72.2, −1.0). High WHR (>0.85 - <1 vs. ≤0.85) predicted reduced CD4+ (ß = −45.7%, 95% CI: −67.0, −11.3) and CD8+ T cell densities (ß = −50.8%, 95% CI: −74.8, −3.0), with stronger CD4+ reductions in ER- negative tumors (ß = −62.1%, 95% CI: −79.4, −30.2). In ER-negative tumors, an extremely high disease risk was associated with markedly reduced CD4+ T cells, CD8+ T cells, and TILs (ß = −73.6%, −91.3%, and −55.5%, respectively) compared to normal risk. Similar associations were noted in TNBC and confirmed in logistic regression models by TILs tertiles.

Conclusion: Obesity and higher WHO-defined cardiometabolic risk are associated with lower $CD4^+$ and $CD8^+$ T cell infiltration in TNBC and ER-negative tumors. These findings may at least in part explain the link between obesity and poorer TNBC outcomes and could inform future studies evaluating immunotherapy responses in women with breast cancer.

262-T

Comparative Analysis of Colorectal Cancer Risk knowledge and Information Trust Among Younger and Older Adults

Arauz NR, Guy MC, Miller CA

Background: Colorectal cancer (CRC) remains a leading cause of cancer-related deaths among adults in the United States, with rising incidence among younger adults. While awareness of screening has improved, public understanding of protective factors such as diet and physical activity, risk factors including alcohol consumption and being overweight, and trust in health information sources remains limited across age groups.

Purpose: This study examines age-related differences in knowledge of CRC protective and risk factors and trust in health information sources among adults in Virginia.

Methods: A secondary analysis was conducted using cross-sectional mail survey data collected between Fall 2024 and Spring 2025. Respondents were categorized into younger (ages 25-44) and older (45+) age groups. Descriptive statistics assessed CRC-related knowledge and trust in health information sources, each measured by a single item on a 1–5 scale. Perceptions of protective and risk factors were measured using Likert-type items ranging from "strongly increases risk" to "strongly decreases risk".Trust in sources such as doctors, family, close friends, government agencies, news media, internet sources, and social media was also assessed using Likert-type items ranging from "not at all" to "extremely". One-way ANOVA tested group differences.

Results: Among 201 participants, 66.2% were female, 65.7% identified as non-Hispanic White, 58.2% held a bachelor's degree or higher, 73.0% were employed and 39.4% earned >$100,000 a year. Older adults rated diet as more protective against CRC than younger adults ($F(1,197) = 4.838$, $p = .029$). No significant differences were found for physical activity, alcohol use, or weight. Older adults reported greater trust in doctors ($F(1,198) = 15.408$, $p < .001$), family members ($F(1,194) = 7.836$, $p = .006$), close friends ($F(1,193) = 5.225$, $p = .023$), and news media ($F(1,193) = 4.402$, $p = .037$). Younger adults reported greater trust in social media ($F(1,197) = 8.852$, $p = .003$). No significant differences were found for trust in government or internet sources.

Conclusion: Findings suggest age-related differences in perceptions of diet as protective and trust in health information. Tailoring CRC messages to age groups may improve public health efforts.

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Vaping, Smoking and Lung Cancer in Adults Under Age 50

Bittoni MA, Sharmake D, Carbone DP, Harris RE

Purpose: Lung cancer is a leading cause of cancer mortality worldwide. While it is well known that cigarette smoking is the dominant risk factor for lung cancer, the inhalation of heated aerosolized vaping oil has replaced cigarette smoking as the major source of nicotine among younger populations, which could be harmful and needs further study. We examined the association between vaping, cigarette smoking, and lung cancer risk in young adults (age<50) in a case-control study conducted at The Ohio State University (OSU) Medical Center.

Methods: Electronic medical records from the James Cancer Hospital were analyzed for patients under 50 years of age with newly diagnosed, pathologically confirmed lung cancer during 2013-2021. A total of 256 lung cancer cases were compared to 2,921 controls without cancer, which were matched to the cases by age, gender, race, and year of ascertainment. Unconditional logistic regression analyses were performed to estimate odds ratios (OR) with 95% confidence intervals for vaping, smoking, and lung cancer in this younger population.

Results: The prevalence of cigarette smoking and vaping differed dramatically between cases and controls. Traditional smokers who did not vape made up 69.9% of cases and 22.3% of controls, OR=5.1 (95% CI: 3.8-6.9, p<0.0001). Most notably, 7.7.3-23.5;8% of cases both vaped and smoked compared to only 1.6% of control, with an OR=13.1 (95% CI: 7.3-23.5, p<0.0001) for those who both smoke and vaped versus those who smoked only (OR=5.1 95% CI: 3.7-6.9, p<0.0001). Thus, young adults who both vaped and smoked had a 13-fold increased risk of lung cancer compared to non-smokers, and approximately 2.6 times higher risk than those who only smoked.

Conclusion: Our findings suggest an increased risk of lung cancer among young adults who both vape and smoke compared to those who only smoke. While smoking alone remains a significant risk factor, the addition of vaping appears to further accelerate carcinogenesis in younger populations, with a potentially synergistic effect that underscores the need for targeted preventive strategies. Further research is needed to elucidate biological mechanisms responsible for the observed heightened lung cancer risk among those who combine vaping with cigarette smoking.

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Feasibility Study of Time Restricted Eating (TRE) During Chemotherapy for Breast Cancer

Chakos K, McLeod A, Alstead M, Lima N, Bryner A, Sanchez Perez J, Cares K, Lehnert E, Cohen S, Gadi VK, Hoskins K, Danciu O, Chen Z, Gabel K

Background: More than 300,000 women are diagnosed with breast cancer annually in the U.S. Current standard care during treatment for breast cancer encourages enough energy intake to avoid lean mass loss, yet most patients struggle with weight gain during treatment. Time restricted eating (TRE) may garner positive effects on treatment outcomes as well as beneficial effects on body weight, glucose regulation and body composition. TRE may have important health implications for patients with breast cancer. However, TRE in patients with breast cancer during chemotherapy treatment is limited.

Purpose: This pilot study aims to assess the feasibility and acceptability of TRE during chemotherapy for stage I-III breast cancer. We also explored preliminary effects on body weight and body composition, cardiometabolic disease risk markers, treatment related side-effects, and cancer related biomarkers.

Methods: We implemented a 12-week single-arm feasibility study of 8-hour TRE among females initiating chemotherapy for stage I-III breast cancer. Retrospective control participants were identified using propensity score matching on age, body mass index (BMI), race/ethnicity, and cancer treatment regimen using medical records from the same medical institutional as the breast cancer patients.

Results: TRE was found to be feasible and acceptable among women receiving chemotherapy for breast cancer, with 89% adherence and 86% retention over the 12-week intervention. Participants in the TRE group, experienced reductions in BMI while maintaining lean mass alongside improvements in emotional well-being. No significant differences were seen in treatment related outcomes or adverse events compared to historical matched controls.

Conclusion: The results from this pilot study suggest TRE may be an acceptable form of intermittent fasting during chemotherapy for breast cancer. The long-term goal of this research is to develop low-cost and accessible interventions to improve long-term health outcomes and quality of life among breast cancer survivors.

265-T

Sexual Health Among Young adults Diagnosed with cancer (SHAYDES) An Exploratory Study – Movement toward a Digital AI-assisted HPV Provider Access Tool

Dozier S, Insalaco M, Bistrovich A, Mahajan S, Clark, V

Purpose: We are developing an AI digital avatar (AIDA) that will provide HPV education and enhance HPV provider access to reduce HPV-related second cancers for the 2.1 million adolescent and young adults diagnosed with cancer (YACs) who have an elevated risk of developing second cancers.

Methods: We have completed 9 of 20 semi-structured one-on-one interviews among YACs ages 18-26, exploring their sexual health needs, prevention of HPV related secondary cancers, and acceptable modalities for an intervention to address these sexual health needs.

Results: By the ninth interview a thematic convergence emerged confirming that HPV conversations and access to HPV vaccine resources are often neglected, also that more accessible, interactive, instantaneous, and mobile phone-based interventions are warranted. As a result, we developed a preliminary AIDA to engage in HPV-related conversations and provide tailored provider information. An AIDA is a computer-generated human, powered by natural language processing, large language models, and computer graphics. Advances in technology now allow these avatars to simulate realistic human interaction and are customizable in appearance, voice, and communication style.

Next, we will pilot AIDA among five YACs. Each participant will engage in an initial start-up phase where they will complete a survey to tailor the AIDA to their preferences (demographics, dialect, tone, and decision-making preference). They will then engage in an interaction with AIDA and be provided with HPV related information and recommendations for HPV providers based on four specific criteria (zip code, insurance, primary care engagement, and student status). Outcomes include feasibility, acceptability, and useability of the AIDA, and qualitative feedback for further refinement.

Conclusion: Provided that YACs find the AIDA acceptable, usable, and feasible this tool has the high potential to increase cancer prevention behaviors, such as HPV vaccination. By further reducing barriers to access through a simplified provider search and interactive HPV education it has potential to enhance knowledge retention, empower patients' decision-making, and ultimately improve YACs' quality of life.

266-T

Young Adult Cancer Survivors Healthy Eating and Active Lifestyles (YACS HEAL): Results of a Pilot Randomized Factorial Trial to Promote Physical Activity and Healthy Eating Among Young Adult Cancer Survivors

Coffman EM, Martin SL, Smitherman AB, Tate DF, Willis EA, Valle CG

Purpose: Improving physical activity (PA) and diet quality are opportunities to improve long-term health and survivorship outcomes for young adult cancer survivors (YACS). This study evaluated the feasibility of YACS HEAL, a theory-based digital behavioral intervention designed to improve moderate-to-vigorous PA (MVPA) and diet quality (Healthy Eating Index (HEI)) among YACS (age 18-39).

Methods: In this 24 pilot factorial trial, YACS were randomized to receive a core digital behavioral intervention and one level each of four candidate intervention components: 1) simplified dietary tracking (daily tracking of green (low-calorie, high-nutrient) vs. red (high-calorie, high-fat, low-nutrient) foods), 2) dietary goals (daily green/red food goals vs. no goals), 3) supportive text messages (yes vs. no), 4) lesson content delivered (once vs. weekly). Primary feasibility measures were accrual, participation, and retention rates. Feasibility was assessed by accrual, participation, and retention rates ≥80%. Mixed models with repeated measures estimated changes in MVPA (Fitbit) and HEI (ASA-24) over time, and tested for statistical differences in changes across condition levels over time.

Results: 220 completed the initial screener, 119 were eligible for additional screening, of which 95 (80%) were ultimately eligible, and 83 (87%) agreed to participate; 72 were randomized. Retention at 6 weeks and 3 months was 85%. Participants were 86% female, 74% non-Hispanic white, 33.5 (SD = 5.2) years old, and 3.2 (SD = 2.6) years post-diagnosis. All a priori feasibility criteria were met. Overall, participants increased MVPA (61.45 min/wk; 95% CI, 9.55-112.95, p<.02) and HEI score (2.49; 95% CI, -0.56-5.54, p=.11), which did not differ by component level.

Conclusion: This study established the feasibility of recruiting and delivering a fully remote factorial trial and its four intervention components. Overall, participants improved their MVPA and diet quality across all components. Findings highlight opportunities to optimize behavioral interventions promoting healthy lifestyles in YACS and will inform the design of future interventions.

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A Conceptual Model for Designing Cancer Prehabilitation Programs: Using a Co-Design Approach to Plan Programs for Treatment Preparation

Harsanyi H, Slot N, Housten AJ, Cao C, Sutcliffe S, Toriola A, Hyndman ME, Yang L

Purpose: Prehabilitation offers a window of opportunity to enhance patient readiness for treatment and prevent post-treatment side-effects, yet few comprehensive programs exist in the oncology setting. Successful implementation depends on aligning program design with the needs and priorities of program end-users. We used a co-design approach to develop a conceptual model for planning and implementing cancer prehabilitation programs.

Method: One-on-one semi-structured qualitative interviews were conducted with a purposive sample of patients and healthcare providers in Alberta, Canada to explore a variety of experiences with and perspectives on cancer prehabilitation. Intervention mapping was used to develop a preliminary conceptual model for program design. The model was refined in a co-design workshop where program adopters and implementors discussed and prioritized prehabilitation components, pathways, and outcomes.

Results: Based on barriers and facilitators identified in interviews with 45 program end-users, the preliminary conceptual model provided recommendations for prehabilitation program design including beginning early in the cancer care continuum and incorporating evidence-based interventions that improve patient-centred outcomes. We convened a planning group, including people living with and beyond cancer (n=11), caregivers of people with cancer (n=2), healthcare providers (n=11), administrators (n=6), and researchers (n=8) to discuss the model. Key features highlighted by the planning group included 1) incorporation of a multifaceted referral pathway to enroll patients near diagnosis and ensure early engagement, 2) personalized delivery of program components addressing both physical and mental health, 3) mechanisms to facilitate continuity between prehabilitation and rehabilitation care, and 4) consideration of multilevel outcomes, including patient, provider, and system-level impacts.

Conclusions: The conceptual model developed in this study is useful to guide the design and implementation of patient-centered, evidence-informed cancer prehabilitation programs. Future work should evaluate intervention efficacy based on end-user prioritized outcomes to encourage the adoption of prehabilitation programs into routine cancer care pathways.

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Physical Activity and Reproductive Factors in Relation to Uterine Cancer Risk: A Prospective Study in the UK Biobank

Harsanyi H, Harper A, Freisling H, Toriola A, Yang L

Purpose: Physical activity and reproductive factors, including parity, age at menarche, and hormone use, are established risk factors for uterine cancer. This study examined whether reproductive factors modify the association between physical activity and uterine cancer risk.

Methods: Females ≥40 years old without a history of cancer from the UK Biobank (2007-2010) provided self-reported data on physical activity and reproductive history. Moderate-to-vigorous physical activity was summarized in metabolic equivalent hours per week (MET-hrs/week) and categorized into high (≥50), moderate (10-50), and low (<10) levels. Reproductive risk strata were defined by age at menarche (≤ vs. >12 years), parity (number of live births [< vs. ≥2]; age at first birth [≤ vs. >10 years from menarche]), age at menopause ≤ vs. >50 years), oral contraceptive and menopausal hormone therapy use (ever vs. never use). Incident cancers were ascertained through May 2022. Multivariable Cox regressions were used to examine the association between physical activity and uterine cancer risk. Additive and multiplicative interactions were assessed using interaction terms within bivariate Cox regression models and Relative Excess Risk due to Interaction (RERI), respectively.

Results: Among 242 721 participants (mean follow-up 12.53 years), 1453 individuals developed uterine cancer. Compared with low physical activity, high (HR=0.85, 95%CI=0.74-0.96) and moderate (HR=0.86, 95%CI=0.74-1.01) physical activity were associated with a lower risk of uterine cancer. The association between physical activity and uterine cancer risk did not differ by age at menarche, age at first birth, age at menopause, and use of oral contraceptive or menopausal hormone therapy (all p>0.05). No significant multiplicative interaction was observed between number of live births and physical activity (p=0.11); however, a sub-additive interaction was detected (RERI=−0.31, p=0.046).

Conclusions: Physical activity was associated with reduced uterine cancer risk across groups with different reproductive risk profiles. This association appears partially attenuated among women with lower parity, suggesting a potential biological interaction that warrants further investigation to inform targeted prevention strategies.

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The association between physical activity and mammography screening utilization: a longitudinal analysis, health retirement study (2004-2016)

Hu N, Alabdullatif N, Arrieta A, Dlugasch L

Purpose: Physical inactivity is a well-known factor associated with an increased risk of breast cancer. However, there is a disparity in physical activity levels among women in the United States. These disparities are associated with differences in women's mammography screening behaviors, which may contribute to disparities in breast cancer incidence and outcomes. This study aims to evaluate the association between physical activity and the utilization of mammography screening. It also assesses whether this association is modified by women's race/ethnicity and age.

Methods: This is a longitudinal study that used the Health and Retirement Study data from 2004 to 2016. A total of 18,157 women aged 40 years and older were included. The 2004 wave was used as the baseline, with follow-up conducted in 2008, 2012, and 2016 (wave 9, 11, and 13 respectively). Mixed-effects logistic regression models were used, and odds ratios were reported.

Results: The study found a significant positive association between physical activity and mammography utilization. After adjusting for confounding variables, women who were physically active had 1.31 times the odds of undergoing mammography screening compared to those who were inactive (95% CI: 1.13–1.51, $p < 0.001$). The association between physical activity and mammography screening utilization was weaker among Hispanic women.

Conclusion: Interventions encouraging physical activity targeting racial/ethnic minorities may contribute to increasing mammography screening utilization and reducing breast cancer disparity.

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Adiposity Shows Minimal Immune Correlates in Adults with Obesity: Cross-Sectional Analyses of PD-L1 and Inflammatory Markers

Kalam F, Akasheh RT, Mahenge CM, Fantuzzi G, Varady KA, Cheng TYD

Purpose: Adiposity relates to inflammation, yet cross-sectional associations using FAT%, VFMI, and FFM (beyond BMI) are not well defined. Aim: To test whether body composition, BMI, percent body fat (FAT%), visceral fat mass index (VFMI), and fat-free mass (FFM) are associated with circulating immune markers (PD-L1, IL-1ra, CCL2/MCP-1, CCL4/MIP-1ß, IFN-Î³, IP-10, IL-8, CD40L) in adults with obesity.

Methods: Adults with obesity from a weight loss trial (n=28) with complete body-composition and biomarker data; mean age 48.6 ±1.7 years; female/male (23/5): 82.1%/17.9%); race/ethnicity: 57.1% African American, 28.6% Hispanic, 10.7% Asian, 3.6% White. Linear regressions were conducted to test the relationships of FAT%, VFMI, and FFM, and BMI with each biomarker, adjusted for age, sex, and race/ethnicity. When both raw and transformed outcomes were available, transformed models were primary; raw results are noted only if suggestive ($P<0.10$).

Results: After multivariable adjustment, most associations between adiposity measures and immune markers were null. For example, the relationship between FAT% and PD-L1 expression was negligible (ß = 0.0185, P = 0.97), as was the association between fat-free mass and PD-L1 (ß = â^'0.285, P = 0.79). MIP-1ß showed no significant association with FAT% across any model. A few borderline trends were observed: higher fat percentage was modestly associated with increased IL-1ra concentrations (ß = 7.34, P = 0.059), and greater VFMI showed a possible positive relationship with IFN-Î³ (ß = 1.75, P = 0.052; P = 0.080). No consistent associations were identified for IP-10, IL-8, CD40L, or MCP-1 with any adiposity measure (FAT%, VFMI, or FFM).

Conclusions: In this cross-sectional analysis, adiposity showed minimal correlation with circulating immune/inflammatory markers. Only borderline signals were observed for IL-1ra and IFN-Î³.

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Trends in GLP-1 receptor agonist use among men with prostate cancer

Morley F, Pinheiro LC, Tamimi RM, Mucci LA, Nanus DM, Kensler KH

Purpose: Given the associations between obesity, type 2 diabetes (T2D) and prostate cancer mortality, we sought to characterize trends in use of GLP-1 receptor agonists among men with incident prostate cancer in a multi-institutional clinical database.

Methods: The TriNetX Linked Network database contains electronic health record and insurance claims data from patients at 39 U.S. academic and non-academic healthcare organizations. Within TriNetX, we identified men with biopsy-confirmed non-metastatic prostate cancer diagnosed from January 1, 2015 through December 31, 2024. Use of GLP-1 receptor agonists was ascertained through RxNorm codes. The prevalence of GLP-1 receptor agonist usage among men with prostate cancer was evaluated over time and the proportion of men still using a GLP-1 medication at 12- and 24-months post-diagnosis was estimated among current users at diagnosis.

Results: 46,740 men met eligibility criteria, of whom 1,410 (3.0%) were currently using or had a history of GLP-1 receptor agonist use at time of prostate cancer diagnosis. The prevalence of current GLP-1 medication use increased from 0.5% in 2015 to 2.7% to 2024. 4.8% of men were former GLP-1 medication users at time of cancer diagnosis in 2024. Current GLP-1 medication users had higher mean body mass index (32.4 vs 28.5 kg/m2) than never users and were more likely to have T2D (50.3% vs. 13.0%). Among current users at diagnosis, the proportion with T2D decreased from 94.4% to 33.8% over the study period, indicating increased usage among non-diabetic individuals. Prescriptions of GLP-1 medications with approval for anti-obesity use (liraglutide, semaglutide, and tirzepatide) comprised 83.1% of all prescriptions in 2024. Among current users at diagnosis, 45.6% and 21.2% continued use at 12- and 24-months post-diagnosis, respectively.

Conclusion: The prevalence of GLP-1 receptor agonist use has rapidly grown among men with prostate cancer over the prior decade, particularly among men without T2D, and many men continue to use these medications during receipt of their initial prostate cancer therapy. Given their broad metabolic effects and increasing usage, further studies are needed to understand how GLP-1 medications may modulate the effects of prostate cancer therapies.

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Free Time for Wellness: Prevalence of Chronic Disease Amongst Mothers in NYC

Laine SS, Houghton LC, Watterson J, Magsamen-Conrad K, Gokal K, Oakley-Girvan I, Hirsch JS, Qian M, Buchsbaum R, Niles C,Van Horn K, Moshier S, Martinez A, Flores A, Vega M

Purpose: In New York City, mothers have limited opportunities for physical activity which results in an unequal distribution of chronic conditions. Free Time for Wellness (FT4W), a co-designed intervention, aims to address the barrier of childcare access to increase physical activity in low-income mothers.

Methods: FT4W is a 3-arm parallel cluster randomized controlled trial in New York City, including 720 participants across 24 site-based neighborhoods. We have recruited 483 participants to date. Site-based neighborhoods are clusters of zip codes within a 1.5-mile radius of the fitness class location. We randomize sites into Arm A (contact control), receipt of free weekly fitness classes; Arm B, receipt of free childcare combined with free weekly fitness classes (intervention arm); and Arm C, receipt of free childcare combined with free weekly fitness classes and peer support activities (enhanced intervention arm), and free monthly groceries. At baseline, we assessed annual household income. Additionally, we inquired about existing chronic conditions, including breast cancer, ovarian cancer, leukemia or lymphoma, melanoma, basal cell skin cancer, squamous cell skin cancer, colon cancer, high cholesterol, high blood pressure, heart attack, stroke, asthma, COPD, emphysema, chronic bronchitis, osteoarthritis, pre-diabetes, or diabetes. We examined the prevalence of chronic conditions relative to the site-based neighborhoods and income level.

Results: 21% of participants reported having a chronic condition, ranging between 23%-38% by site. Compared to participants in High Bridge, located in Upper Manhattan, participants residing in the St. Johns, located in Brooklyn, had two-fold higher odds of having a chronic illness (2.06; 95% CI: 0.9 - 4.5). In terms of household income, 51% made less than $25,000-$34,999. Compared to those that made less than $10,000, participants reporting a greater household income in increments between $10,000-300,000, had decreased odds of a chronic condition (OR:0.59 -1).

Conclusion: Chronic diseases disproportionately burden segments of the population with lower socioeconomic standing. For low-income mothers, the prevalence of long-term health conditions is exacerbated by reduced opportunities for physical activity.

273-T

Investigating greenspace and recreational spaces as modifiers of physical activity and colorectal cancer survival

Lima SM, Dash C, Patil S, Ahn J, Zhang R, Promprasert C, Mabvakure B, Muhsen R, Schwartz A, Ruterbach J, Wenzlaff A, Peluso A, Stoffel E, Hseih MC, Purrington KS, Rozek L

Purpose: Physical activity after colorectal cancer (CRC) diagnosis has been shown to improve survival, but environmental contexts may modify this benefit. We assessed whether greenspace and neighborhood recreational spaces interact with physical activity to influence all-cause survival in a CRC cohort from Michigan and Louisiana, 2018-2023.

Methods: Self-reported moderate and vigorous recreational physical activity was converted to MET-hr/wk and categorized as none, low (<7.5 MET-hr/wk), and high (7.5+ MET-hr/wk). Cases' residential census tracts were linked to tract-level percent greenspace, area deprivation index (ADI), percent park area, and count of recreational spaces (eg parks, courts, gyms). Kaplan-Meier curves were generated by activity level, greenspace tertiles, and total recreational spaces. Cox models estimated hazard ratios (HRs) for physical activity, and cross-product terms tested interactions with greenspace, park area, and recreational spaces.

Results: Among 819 cases, 40.1% reported no moderate/vigorous activity, 34.1% low activity, and 25.0% high activity. Compared to inactive cases, highly active cases lived in neighborhoods that were greener (P=0.013), with lower ADI (P<0.001), and more recreational spaces (P=0.815). Survival probability increased with higher physical activity (P<0.001), greater greenspace (P<0.001), and more recreational spaces (P=0.005). Compared to inactivity, low activity was associated with survival (HR=0.53, 95%CI: 0.38-0.72) with greater benefit for high activity (HR=0.32, 95%CI: 0.20-0.52). The survival benefit of activity increased with greater greenspace, HR (95%CI): 1%=0.51 (0.37-0.70), 5%=0.47 (0.35-0.63), 10%=0.38 (0.17-0.84); park area, HR (95%CI): 1%=0.50 (0.37-0.67), 5%=0.46 (0.34-0.62), 10%=0.42 (0.28-0.63); and recreational spaces, HR (95%CI): 0 spaces=0.55 (0.36-0.84), 1 space=0.52 (0.38-0.71), 5 spaces=0.40 (0.23-0.72), but interactions were not significant.

Conclusions: Physical activity has a significant survival benefit for CRC patients across neighborhood conditions. Interacted results suggest greenspace and neighborhood recreational resources may enhance this effect. This study is in progress with analyses ongoing. We intend to assess proximity to greenspace and recreational spaces in the future.

274-T

Estimating the Causal Effect of a Hypothetical Intervention for Longitudinal Alcohol Use Reduction on Breast Density among Women with Familial Risk for Breast Cancer

Lui, ML, Argov EL, Lee SY, Tehranifar P

Purpose: Using longitudinal data from the Sister Study, we aimed to estimate the causal effect of halving weekly alcohol consumption on mammographic dense area (DA) and percent density (PD) among women with familial risk for breast cancer (BC).

Methods: We used Cumulus-assessed mammographic breast density (MBD), PD and cm2 DA, in a nested case-control study (319 cases and 891 controls) within the Sister Study. We examined the number of alcoholic drinks per week across 3 survey waves (2009, 2012, 2014) and MBD from the most recent pre-diagnostic mammogram. To evaluate the effect on MBD of a hypothetical intervention that halved the number of alcoholic drinks per week, we used a longitudinal modified treatment policy approach with a doubly robust estimator and ensemble SuperLearner, adjusted for: BOADICEA BC risk score, age at baseline mammogram, age started drinking alcohol, lifetime duration of breastfeeding, MBD of baseline mammogram, number of alcoholic drinks per week between ages 20-30 and 30-40 (pre-mammography screening), and time-varying smoking status and BMI. The mean difference was derived from the efficient influence function, providing a bias-corrected and statistically efficient estimate of the causal contrast. We applied sampling weights based on risk of BC in the overall cohort (0.07) and additionally stratified by BOADICEA score (high risk ≥1.67, low risk <1.67).

Results: Reducing alcohol consumption by 50% across 3 time points resulted in a mean PD of 30.0% (95% CI: 28.6-31.4), compared to 30.6% (95% CI: 29.5-31.8) under the natural course model, with a mean difference of -1.0% (p-value = 0.07). For DA, reducing alcohol consumption resulted in a mean DA of 41.8 cm2 (95% CI: 39.8-43.8) compared to 43.7 cm^2 (95% CI: 42.0-45.4), with a mean difference of -3.1cm^2 (p-value = 0.08). When stratified by risk, the decrease was observed only for DA among high-risk women (-1.22 cm^2, p-value=0.06).

Conclusions: Reducing alcohol intake by half over 5 years was estimated to lead to a modest reduction of PD and DA among women with a family history of BC, supporting a potential causal effect of decreasing alcohol consumption on breast density, an established marker of BC risk.

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Effect of the Lifestyle, Exercise, and Nutrition Weight Loss Intervention on Depressive Symptomatology Among Breast Cancer Survivors

Ma Z, Cartmel B, Li F, Irwin ML, Ferrucci LM

Purpose: Women with breast cancer have up to a five-fold higher risk of depression compared with the general population, with close to 25% having depressive symptoms. Depressive symptoms can affect treatment adherence, quality of life, and mortality in breast cancer survivors. Some studies indicate lifestyle interventions can lower depressive symptoms in individuals without cancer; however, few studies have examined changes in depressive symptoms among breast cancer survivors enrolled in lifestyle interventions. The purpose of this secondary analysis was to examine the effect of a 6-month diet-and exercise-induced weight loss intervention versus usual care on depressive symptomatology among breast cancer survivors.

Methods: 151 breast cancer survivors with body mass index(BMI)≥25kg/mÂ² were randomly assigned to a 6-month lifestyle-based weight loss intervention(n=93)or usual care(n=58). Depressive symptoms were measured at baseline and 6-months using the self-administered Center for Epidemiological Studies Depression (CES-D), which generates a score that ranges from 0 to 60, with higher scores indicating greater symptomatology. We used a mixed-effects model to assess the 6-month change in CES-D score between intervention and usual care.

Results: On average women were 58.0ÂffI7.9 years of age, 88.7% were non-Hispanic white, and 49.3% had stage I breast cancer. The baseline prevalence of significant depressive symptomatology based on a CES-D score≥16 was 26%. At 6 months, the weight loss intervention had no statistically significant effect on CES-D score compared to the usual care group(p=0.54). There was a suggestion of a benefit of the intervention on depressive symptomatology among those with a baseline CES-D≥16 compared to those with a CES-D score<16(Least squares(LS) Mean=-3.44; 95% Confidence Interval(CI)=-8.03, 1.15 vs. LS Mean=0.15; 95%CI=-2.41, 2.70; pinteraction=0.18).

Conclusion: While this 6-month lifestyle intervention did not improve depressive symptomatology among all breast cancer survivors, there was a suggested benefit among those with higher baseline depressive symptomatology. Additional studies addressing lifestyle interventions in reducing depressive symptomatology among breast cancer survivors, especially in those with depression, are warranted.

276-T

Insights into Machine Learning/AI CT Body Composition and Overall Survival in Renal, Endometrial, Lung, and Pancreatic Cancers

Mahenge CM, Nguyen XV, Cheng T-YD

Purpose: We aimed to develop an automated deep learning model for computed tomography (CT)-based body composition analysis and assess its prognostic significance in cancer.

Methods: We developed a deep machine learning (ML)/AI pipeline with SliceOmatic software and NVIDIA GPU support to measure the areas and radiodensities of skeletal muscle and adipose tissue. The ML setup included 610 training, 110 validation, and 80 testing images at the 3rd lumber vertebrae. Patients from the TCGA and Clinical Proteomic Tumor Analysis Consortium (CPTAC) cohorts with non-small cell lung cancer, endometrial cancer, pancreatic cancer, and clear cell renal cell carcinoma (ccRCC) (N=497) were included for survival analysis. Body composition categories were established using sex-specific median values and sex-specific survival-based thresholds derived from the Contal and O'Quigley's method. Cox proportional hazards models were used to assess overall survival, adjusting for age, stage, gender, race, ethnicity, and cancer type.

Results: The ML/AI model demonstrated high accuracy (Weighted Dice Mean: Train set, 0.93; Testing set, 0.87) in segmenting body composition components. Subcutaneous adipose tissue (SAT) showed the highest performance (train Dice mean = 0.98, test Dice mean = 0.97), while intramuscular adipose tissue (IMAT) had the lowest performance (train Dice mean = 0.88, test Dice mean = 0.76). In the patient cohort, 51% were ccRCC, 36% were diagnosed at stage I, the average age was 63 years, and 53% were females. When categorized using the Contal and O'Quigley's cutoffs, patients in categories with low muscle/high adiposity (HR=2.00, 95% CI=1.13-5.43) or low muscle/low adiposity (HR=2.69, 95% CI=1.56-4.66) had twice the risk of mortality compared to those with high muscle/high adiposity. Median split provided similar results. Patients with high (vs. low) SAT radiodensity had twice (HR=1.95, 95% CI=1.23-3.11) the risk of mortality.

Conclusion: Our automated deep learning model with high accuracy can precisely and efficiently measure body composition from standard-of-care CT images. These findings highlight the potential of automated body composition analysis as a scalable tool for risk assessment and prognosis in both research and clinical settings.

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Associations Between a Holistic Wellbeing Assessment and Attendance During a Clinical Exercise Oncology Program

Marker RJ, Mullett C, Leach HJ, Zimmaro LA

Purpose: Clinical exercise oncology program (CEOP) participation has consistently been associated with multiple benefits in survivors of cancer, including improved quality of life (QoL). Adequate program attendance, however, is essential. High QoL upon enrollment has been found to predict attendance, though investigations of the influence of specific QoL domains have been limited to health-related areas, overlooking other domains associated with overall wellbeing. This investigation assessed associations between domains of a holistic wellbeing assessment and CEOP attendance.

Methods: Past participants in the three-month BfitBwell Cancer Exercise Program who completed the Anschutz Wellness Evaluation 360 (AWE360) were included in this investigation (n=104). The AWE360 produces scores for eight wellbeing domains: healthy eating and activity, unhealthy food avoidance, sleep quality, perceived wellness, perceived stress, social wellness, financial stress, and occupational wellness. Each is scored 0-100 with higher scores indicating higher wellbeing. Program attendance was assessed as the average number of monthly sessions attended. Additional participant data included age, gender, body mass index (BMI), cancer diagnosis, and employment status. A multiple linear regression model was created with attendance as the dependent variable and AWE360 domains as predictors. BMI and employment status were controlled for due to known associations with CEOP attendance.

Results: Participants were an average of 54Âffl13 years old, 66% women, and 35% had a breast cancer diagnosis. Only financial stress was significantly associated with attendance (ß=0.02, p=0.04). Higher financial stress was associated with lower attendance.

Conclusions: Of the eight wellbeing domains investigated, only financial stress predicted CEOP attendance, rather than more commonly measured health-related domains. The BfitBwell Program is highly subsidized, with a monthly payment of $59 and reduced rates offered as needed, decreasing the likelihood of program cost being a driver of financial stress. This suggests the need for a more holistic approach to promoting survivors' participation in CEOPs and other supportive services.

278-T

Five-year Maintenance and Dietary Outcomes of a Whole-food, Plant-based Diet Intervention RCT among Women with Metastatic Breast Cancer

Mattick LJ, Campbell ER, Blanchard L, Spath KM, Ndeke JM, McGuire JJ, Peppone LJ, Campbell TM

Purpose: We previously demonstrated that an 8-week whole-food, plant-based (WFPB) diet intervention, not designed for long-term behavior change, achieved high adherence and improved fatigue, weight, cardiometabolic, and hormonal outcomes among women with metastatic breast cancer. To inform future trials, we examined their long-term adoption of a WFPB diet.

Methods: Women with metastatic breast cancer on stable treatment were randomized 2:1 to a WFPB diet (n=20) or control (n=10) at the University of Rochester Medical Center. The ad libitum intervention provided daily meals, plus weekly visits with coaching, education, and assessments. Meals included fruits, vegetables, whole grains, legumes, nuts, and seeds, excluding animal products and added oils/solid fats. Five years post-trial, participants completed surveys on WFPB diet maintenance, dietary changes, and barriers to adherence. Three-day food records collected pre-intervention and at 5-year follow-up were analyzed via the Nutrition Data System for Research (NDSR).

Results: At 5-year follow-up, survival was 90% (18/20) in the WFPB arm and 50% (5/10) in the control arm. Twelve of the 18 WFPB participants completed follow-up. Most (75%; 9/12) reported reduced animal product intake and/or greater consumption of whole, unprocessed foods compared to pre-trial. Mean WFPB diet adherence was 4.7 ±2.4 (1-10 scale; 10 = strict adherence). Analysis of food records indicate a decrease in mean daily consumption of total energy (-363.1 kcal ±442.5; p = 0.0273), refined grains (-2.8 servings ±3.1, p = 0.019), and added fats (-2.6 servings ±3.1, p = 0.019) from pre-trial to follow-up (Sign Tests). The most common barrier was household resistance, followed by limited time or cooking skills, missing familiar flavors, fatigue, or residence in a long-term care facility.

Conclusion: Women with metastatic breast cancer who completed an 8-week WFPB diet intervention maintained significant dietary improvements five years later, including lower intake of total energy, refined grains, and added fats. Despite modest sample size, survival was higher in the WFPB arm (90% vs. 50%), supporting further investigation. Addressing barriers such as household resistance, fatigue, and limited time or skills may enhance long-term adherence.

279-T

Impact of Home-Based Cervical Cancer Screening on Other Preventive Health Service Utilization: An Analysis of Flu Vaccine Uptake

Molino AR, Lin J, Zhang S, Henderson V, Mooney SJ, Green BB, Gao H, Tiro JA, Anderson ML, Buist DSM, Winer RL

Purpose: Home-based HPV self-sampling (HPV-SS) is an emerging cervical cancer (CC) screening option in the US. However, introducing a home-based healthcare option might reduce uptake of other recommended, in-person preventive services, particularly among those with a history of screening adherence. We explored whether mailed, home-based HPV-SS impacted flu vaccine uptake among individuals with a history of CC screening adherence.

Methods: We conducted a secondary analysis of STEP, a pragmatic, randomized trial conducted from November 2020-January 2022 within a US integrated healthcare delivery system. Individuals (N=12,928) who were due, but not yet overdue, for CC screening were randomized to either: 1) "Usual Care" (UC) (outreach for in-clinic screening), 2) "Education" (EDU) (UC + educational packet on CC screening), 3) "Opt-in" (UC + EDU + option to request an HPV-SS kit be sent by mail), or 4) "Direct-mail" (UC + EDU + HPV-SS kit mailed directly). Our outcome was flu vaccine uptake within 1 year after randomization. For this analysis, UC and EDU were combined into the reference exposure group. We fit modified Poisson models to obtain risk ratios (RRs) and 95% CIs, and stratified by randomization month to explore variation by flu season proximity.

Results: Overall flu vaccine uptake was 52.5%; prevalence varied slightly by randomization month (March-August: 55.5%, December-February: 50.7%, September-November: 50.1%). There were no significant differences in flu vaccine uptake comparing Direct-mail (RR: 1.01 (95%CI=0.96, 1.07)) and Opt-in (RR: 0.99 (95%CI=0.96, 1.03)) to UC+EDU. Results did not vary significantly by randomization timing.

Conclusions: We found no difference in annual flu vaccine uptake among those given the option for home-based HPV-SS for CC screening. It is unlikely that seasonality impacts this relationship. Future work will explore whether offering HPV-SS impacts uptake of breast and colorectal cancer screening, and, among those offered home-based HPV-SS, whether those who use HPV-SS are more or less likely to receive other recommended preventive services than those who screen in clinic or not at all. These results can help shape messaging on continuing to receive in-person preventive services as HPV-SS availability expands in the US.

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Adiposity and Cancer: Updated Meta-Analysis Incorporating the Largest Evidence Base to Date

Watts EL, Gonzalez-Feliciano A, Gunter MJ, Chatterjee N, Moore SC

Purpose: Global increases in body mass index (BMI) have made obesity a major public health challenge worldwide. Between 2016 and 2018, landmark reviews by the WCRF and IARC established elevated BMI as a risk factor for at least 12 cancers, yet uncertainties remain regarding generalizability beyond Europe and North America, associations with less common or smoking-related cancers, and the relevance of other adiposity measures such as waist circumference. Since these reviews, new large-scale cohorts, particularly in East Asia, and Mendelian randomization studies have greatly expanded available evidence, enabling reassessment of obesity–cancer associations.

Methods: We conducted a systematic review and meta-analysis of prospective cohorts examining BMI and risk of 25 common cancers, searching PubMed, EMBASE, and Scopus through April 23, 2025. Summary risk estimates were calculated using random-effects meta-analysis. We also meta-analyzed Mendelian randomization studies and compared associations for BMI and waist circumference.

Results: Across 226 articles comprising 1.5 million cancer data points, BMI was positively associated with 19 cancer types and inversely associated with three. Positive associations for leukemia, non-Hodgkin lymphoma, bladder cancer, and glioma represent novel findings not reported in prior WCRF or IARC reviews, suggesting obesity may be associated with a broader range of cancers than previously recognized. Regional variation was observed, including stronger associations for postmenopausal breast and ovarian cancers in East Asia, and weaker associations for gallbladder cancer, though many populations remain unrepresented. Mendelian randomization analyses largely supported causality, and associations for BMI and waist circumference were highly similar.

Conclusions: This updated meta-analysis, representing the largest synthesis of evidence to date, highlights the substantial and expanding impact of obesity on cancer risk and underscores the urgent need to address this modifiable risk factor worldwide.

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Informing Prehabilitation for Head and Neck Cancer: Healthcare Providers' Recommendations on Early Nutrition and Physical Activity Interventions

Natori A, Lopez-Pentecost M, MacIntyre J, Garcia Muchacho F, Kaye ER, Samuels S, Penedo FJ, Crane TE

Purpose: Patients with head and neck cancer (HNC) are at high risk of weight loss and malnutrition due to tumor burden, treatment-related functional impairment, and side effects. Early nutrition and physical activity interventions may mitigate these complications; yet evidence-based guidance on their optimal frequency and duration is lacking. This qualitative study explored healthcare providers' perceptions, barriers, facilitators, and recommendations for nutrition and physical activity programs to inform development of a comprehensive multimodal intervention spanning diagnosis through treatment completion.

Methods: Semi-structured Zoom interviews were conducted with seven healthcare providers (three oncologists, two exercise physiologists, and two dietitians) involved in HNC care, recruited via convenience sampling. Data were analyzed using a matrix-based rapid thematic approach to identify key themes.

Results: Providers recognized early referrals as beneficial for optimizing physical function, improving treatment tolerance, and enhancing education before therapy. Physical activity was viewed as a lower priority relative to nutrition. Reported barriers included limited staffing, time constraints, inadequate clinic space, and patient-level challenges such as information overload at diagnosis, transportation, financial strain, and scheduling conflicts. Facilitators included interdisciplinary coordination, physician endorsement, culturally tailored approaches, and technology-enabled communication. Providers advocated for a risk-tiered care model: patients are systematically categorized by premorbid function, treatment intensity, and symptom burden to guide tailored visit frequency and intervention intensity, allowing prioritization of those at highest risk and more efficient resource allocation.

Conclusions: Healthcare providers viewed early nutrition and physical activity interventions as valuable but constrained by system- and patient-level barriers. A risk-tiered model that aligns intervention intensity and follow-up with patients' assigned risk can promote targeted care and efficient use of limited resources. Findings informed the design of HeadStart, an ongoing feasibility trial of a comprehensive nutrition and physical activity protocol for HNC patients.

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Reevaluating the Alcohol–Cancer Link: Long-Term Mortality Outcomes in the REGARDS Study

Pinheiro LC, Jumonville G, Bryan J, Berg KY, Rosenberg SM, Tonorezos E, Chandwani R, Tamimi RM, Phillips E

Purpose: Cancer prevention strategies often focus on behavior change such as promoting increased screening, physical activity, smoking cessation, and healthy diets. Recently, enthusiasm for addressing alcohol as a significant cancer risk factor has gained national attention. Using a population-based cohort of more than 30,000 community-dwelling adults across the United States with nearly 20 years of follow-up, we sought to determine the independent association between moderate and heavy alcohol consumption and cancer mortality.

Methods: We used data from the REGARDS cohort study, which enrolled 30,239 adults 45+ years between 2003-07 and continues to follow them today. REGARDS participants completed a detailed baseline survey and in-home exam upon enrollment. At this time, they self-reported their alcohol consumption, which was categorized as none, moderate (<7 drinks for women in the last week, <14 drinks for men), and heavy (>8 drinks per week for women and >15 drinks per week for men). The primary outcome was time to cancer mortality. We estimated Cox proportional hazard models to determine the independent association between alcohol consumption and cancer mortality, adjusting for potential confounders and using multiple imputation for missing covariates.

Results: Our analytic sample included 26,694 REGARDS participants without a history of cancer at study baseline; mean age 64.4 (SD 9.4) years, 44% were male, 42% were Non-Hispanic Black, and 56% resided in the stroke belt or buckle region. Overall, 63% reported no alcohol use in the previous 7 days, 33% reported moderate alcohol consumption, and 4% reported heavy alcohol use. Over a median follow-up time of 13.3 years (IQR: 7.4 - 16.1), we observed 2,306 cancer deaths. After adjustment for demographics, socio-economic factors, medical history, self-rated health, smoking, and physical inactivity, compared to non-drinkers, heavy drinkers had an increased risk of cancer mortality (1.21; CI 1.01-1.45) and moderate drinkers had a decreased risk of cancer mortality (0.89; 95% CI 0.81-0.97). We found no effect modification by gender.

Conclusions: Our findings contribute to the growing evidence demonstrating that heavy alcohol use is consistently linked with higher cancer mortality. Whether interventions

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Resistance Training Participation Among US Cancer Survivors: Analysis of the 2023 Behavioral Risk Factor Surveillance System

Rolle LD, Wheeler MG, Baumann JD, Vargas Pivato de Almeida D, Yavelberg L, Crane TE

Purpose: To examine resistance training patterns among U.S. cancer survivors compared to adults without cancer history.

Methods: Using the 2023 Behavioral Risk Factor Surveillance System data we assessed 377,274 U.S. adults, including 35,405 cancer survivors (9.4%) and 341,869 participants without cancer history (90.6%). The primary outcome was weekly resistance training frequency assessed through self-reported muscle-strengthening activities. Secondary outcome examined adherence to national resistance training guidelines (≥2 sessions/week). Survey-weighted quasi-Poisson regression models estimated incidence rate ratios (IRR) comparing resistance training frequency between groups, and logistic regression examined guideline adherence. Models were sequentially adjusted for demographics, health behaviors, chronic conditions, and health status indicators.

Results: Cancer survivors engaged in resistance training less frequently than non-cancer participants (1.65 vs. 1.73 sessions/week, p<0.001) and were less likely to meet guidelines (36.7% vs. 40.5%, p<0.001). In demographics-adjusted models, cancer survivors had lower resistance-training frequency (IRR=0.978, 95% CI: 0.961-0.996; p=0.01). Male cancer survivors performed fewer sessions than males without cancer (IRR=0.942, 95% CI: 0.917-0.968; p<0.0001). In age-stratified analyses, the survivor deficit was confined to adults ≥65 years (IRR=0.947, 95% CI: 0.928-0.966; p<0.0001). Males completed more sessions than females in the demographics model (IRR=1.269, 95% CI: 1.259-1.280; p<0.0001) and in the fully adjusted model (IRR=1.222, 95% CI: 1.211-1.233; p<0.0001), with the male-female gap larger among adults <65 years (IRR=1.308, 95% CI: 1.295-1.321; p<0.0001) than among adults ≥65 years (IRR=1.128, 95% CI: 1.112-1.144; p<0.0001).

Conclusions: Cancer survivors initially engaged in less resistance training due to higher chronic disease burden and poorer health status. Cancer treatment complexities impede exercise guideline adherence. Resistance training is critical for maintaining lean mass, particularly among those with chronic conditions. While everyone benefits from increased resistance training, these findings necessitate targeted interventions promoting resistance training among male and older adult survivors.

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Assessing Diet During Chemotherapy for Breast Cancer

Erica Salehi, Brenda Cartmel, Fang-Yong Li, Maura Harrigan, Courtney McGowan, Melinda L. Irwin, Leah M. Ferrucci

Purpose: Recommendations on dietary assessment during chemotherapy are limited, yet intervention studies during treatment are increasing. This study evaluates the feasibility of measuring diet quality via food frequency questionnaire (FFQ) and 24-hour dietary recall during chemotherapy.

Methods: The Lifestyle, Exercise and Nutrition Early after Diagnosis (LEANer) study enrolled and randomized 173 women with stages I-III breast cancer initiating chemotherapy in a year-long diet and exercise intervention (n=87) or usual care (n=86). FFQs and 24-hour dietary recalls were administered at baseline and post-chemotherapy. Due to the Covid-19 pandemic, 24-hour dietary recalls were administered to a subset of participants. We examined differences in diet quality via Healthy Eating Index (HEI)-2015 scores using Paired t-tests for both assessments at baseline and post-chemotherapy.

Results: Among those offered a FFQ at baseline (n=173) and post-chemotherapy (n=166 due to losses to follow-up or withdrawal), 87.3% (151) and 85.5% (142) completed them, respectively. Among those offered a 24-hour dietary recall at baseline (n=39) and post-chemotherapy (n=68), 76.9% (30) and 75.0% (51) completed them, respectively. At baseline (n=27), the FFQ-derived HEI scores (mean 69.0, SD 9.9) were 13 points higher on average (95% CI, 7.4 to 18.2) than recall-derived HEI scores (mean 56.1, SD 16.5). Post-chemotherapy (n=49), FFQ-derived HEI scores (mean 71.8, SD 9.4) were 14 points higher on average (95% CI, 10.0 to 17.4) than recall-derived HEI scores (mean 58.1, SD 15.0). Among those with complete FFQ and recall data at both timepoints (n=19), HEI scores in the intervention arm increased by 13 points via recalls and 4 points via FFQs from baseline to post-chemotherapy (95% CIs, -2.0 to 15.3; -3.0 to 12.0). In the usual care arm, HEI scores decreased by 1 point on recalls and increased by 4 points on FFQs from baseline to post-chemotherapy (95% CIs, -11.3 to 13.3; -4.4 to 12.6).

Conclusion: FFQs and recalls were feasible to administer in a lifestyle intervention, with FFQs having a higher completion rate. Diet quality assessed via FFQ was significantly higher than via recall. Recalls may better reflect short-term symptom-driven reductions in diet quality during chemotherapy.

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Dietary Intake of Vitamin C and Seropositivity of H. Pylori: A Pooled Analysis within the Stomach Cancer Pooling (StoP) Project

Shah D, Shah K, Shah V, Sassano M, Boffetta P

Purpose: While vitamin C has demonstrated both preventative and therapeutic potential against H. pylori through antioxidant properties, urease inhibition, and enhancement of gastric mucosal defense, current evidence on their relationship remains inconsistent. Since H. pylori is a major gastric cancer risk factor, we aim to evaluate association between dietary vitamin C intake and H. pylori seropositivity through a pooled analysis of case-control studies within the Stomach Cancer Pooling (StoP) Project, adjusting for confounders.

Methods: Our analysis included 4,267 cases and 931 controls from the StoP Project. Dietary vitamin C intake was assessed through food-frequency questionnaires and standardized using country-specific food composition databases. Mixed-effects logistic regression models were employed to calculate prevalence risk ratios (PORs) and 95% confidence intervals (CIs), adjusting for demographics (sex, age, race), total caloric and fruit/vegetable intake, lifestyle factors (smoking, alcohol), body mass index (BMI) and education status.

Results: Individuals in the 4th quartile (Q4; 198-474 mg/day) of vitamin C intake, after adjusting for demographics, smoking status, and total energy intake, exhibited no significant difference in the odds of H. pylori seropositivity compared to the Q1 [0-92 mg/day] (POR: 1.00; 95% CI: 0.95–1.04). Further adjustment for alcohol consumption, BMI, and fruits/vegetables intake resulted in an POR of 0.95 (95% CI: 0.89–1.01). When individually stratified by these factors, most showed no significant differences across the three quartiles vs. Q1. However, factors that showed significant differences were Q3 sex [male] (POR: 1.02; 95% CI: 1.00–1.04), Q3 age [>60] (POR: 1.02; 95% CI: 1.00–1.03), Q3 education status [intermediate] (POR: 1.03; 95% CI: 1.01–1.05), Q2 BMI (POR: 0.64; 95% CI: 0.47–0.86) and Q4 BMI [obese] (POR: 1.06; 95% CI: 1.05–1.08).

Conclusions: These analyses suggest that dietary vitamin C intake is not significantly correlated with H. pylori seropositivity, with no potential benefits observed across different intake levels. This observation appears independent of overall fruit/vegetable intake, providing no supporting evidence for vitamin C's specific role in H. pylori seropositivity.

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H. pylori Seropositivity and Dietary Vitamin D Intake Correlation: A Pooled Analysis from the StoP (Stomach Cancer Pooling) Consortium

Shah D, Shah K, Shah V, Sassano M, Boffetta P

Purpose: Although vitamin D has demonstrated antimicrobial properties against H. pylori through multiple mechanisms, evidence on their relationship remains inconsistent. We investigated the association between dietary vitamin D intake and seropositivity of H. pylori (known cause of gastric cancer) through pooled analysis of case-control studies within the Stomach Cancer Pooling (StoP) Project.

Methods: We analyzed data from 3,153 cases and 371 controls from the StoP Project. Dietary vitamin D intake was assessed using validated food-frequency questionnaires and standardized across countries. H. pylori prevalence was confirmed via serologic testing. Mixed-effects logistic regression models calculated prevalence odds ratios (PORs) and 95% confidence intervals (CIs), with sequential adjustment for demographics (sex, age, race), education level, smoking, and total caloric intake (Model 1), with additional adjustment for BMI, alcohol, and fruit/vegetable intake in Model 2.

Results: Compared to participants in 1st quartile, Q1 (0-1.82 Î_g/day) of dietary vitamin D intake, those in Q3 (2.71-3.65 Î¼g/day) demonstrated a modest but statistically significant reduced risk of H. pylori seropositivity after adjusting for demographic factors (POR: 0.96; 95% CI: 0.94–0.98; p<0.001). This inverse association remained significant after sequential adjustment for total caloric and fruit/vegetable intake (POR: 0.95; 95% CI: 0.93–0.98; p<0.001), and persisted with further adjustment for demographics, education and smoking status (POR: 0.95; 95% CI: 0.93–0.97; p<0.001). Dose-response analysis, using fractional polynomial modeling, revealed a non-linear association, with progressively protective effects up to 4-6 Î¼g/day (POR: 0.90; 95% CI: 0.83-0.99, 4Î¼g/day, Model 1; POR: 0.88; 95% CI: 0.80–0.98, 6 Î¼g/day, Model 2). Beyond these, the protective association gradually attenuated, suggesting diminishing benefit with higher intake levels.

Conclusions: Our findings reveal a non-linear relationship, with protective effects at mild-to-moderate intake levels (2.7-6 Î¼g/day), but diminishing benefit beyond that. This suggests vitamin D supplementation may help prevent infection in high-risk groups and adjunctively enhance H. pylori therapy, though optimal dosing plateaus at moderate levels.

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Associations Between Food Insecurity and Dietary Intake and Nicotine Use Among Rural Emerging Adults in the Western United States

Skiba MB, Taren D, Guest DD, Henry KL, Gordon JS, Chirico N, Warner EL, Kinsey A, Yung A, Sussman AL, Buller DB

Purpose: To evaluate the associations between food insecurity, dietary intake, and tobacco/nicotine (NIC) use among emerging adults (EAs) aged 18-26 years living in rural areas of the western United States.

Methods: This analysis used baseline data from 810 rural EAs participating in a randomized trial evaluating a social media-delivered cancer prevention intervention. EAs completed self-report surveys assessing demographics, dietary intake (NCI Dietary Screener Questionnaire), and any nicotine product use (yes/no) in the past 30 days. Dietary intake measures included predicted fruit and vegetable (FV) intake (servings/day), fiber (g/day), added sugar from sugar sweetened beverages (SSB; tsp/day), and red/processed meat (RPM; frequency/week). Food insecurity was categorized as very-low food secure (VLFS), low food secure (LFS), and high food secure (HFS) from a single item measuring worry about running out of food before having money to buy more. Associations between food insecurity and dietary intake or NIC use were examined using linear or logistic regression models, adjusting for significant demographic covariates. Linear trend tests assessed graded relationships across food insecurity levels.

Results: Of EAs (mean age 22.7 ±2.5 years), 62% reported LFS or VLFS. Food insecurity was associated with race, sex, education, and employment and were used as model covariates. A positive linear trend was observed between food insecurity and added sugar from SSB (Î2 = 1.93 tsp; 95% CI: 0.87-3.00; P < .001), with VLFS EAs consuming an average of 13.0 tsp/day from SSB. There were no significant associations between food insecurity and FV, fiber, or RPM intake, although FV and fiber intake were low overall (2.3 ±0.6 servings/day and 15.1 ±3.4 g/day, respectively). The percent of EAs using nicotine was greater with increasing levels of food insecurity: 24% among HFS, 41% among LFS, and 53% among VLFS. Odds increased 2.5 times (OR = 2.46; 95% CI: 1.76-3.56; P < .0001) for each stepwise increase in food insecurity).

Conclusions: Experiencing food insecurity may be a determinant of cancer-preventive health behaviors in rural EAs. VLFS may be an important target for interventions aimed at improving multiple cancer-preventive health behaviors among rural EAs.

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Acceptability of Intermittent Fasting in Breast Cancer Survivors: Preliminary Findings

Marji M, Arays R, Johnson A, Bursac V, Stapleton J

Purpose: There is growing interest in intermittent fasting (IF) as a simple, low-cost lifestyle approach with potential metabolic health benefits. Emerging evidence suggests IF may improve insulin sensitivity, reduce inflammation, and promote weight control; factors linked to better cancer-related outcomes. However, little is known about its acceptability among cancer survivors. Understanding breast cancer survivors' knowledge, perceptions, and willingness to adopt IF is an important first step toward conducting research to explore the potential impact of such dietary changes.

Methods: We conducted a pilot cross-sectional survey among breast cancer survivors receiving care at the University of Kentucky. Enrollment is ongoing, and this analysis shows preliminary data from 33 respondents. Eligible participants were women aged 35–85 years who had completed active treatment and were in remission for at least six months. Surveys were completed via REDCap or on paper with questions on demographics, comorbidities, dietary challenges, knowledge of IF, perceived benefits and risks, and willingness to try IF.

Results: A total of 33 breast cancer survivors (mean age 59.8 ±10.1 ys) completed the survey. Most participants were White (100%), married (67%), and had at least some college education (76%). Common comorbidities included hypertension (45%) and hyperlipidemia (39%). Nearly half (46%) reported at least one dietary challenge since diagnosis, most commonly weight gain (33%) and changes in appetite or taste (24%). Only 39% recalled receiving clear dietary recommendations from their oncology team. Overall, 85% of participants reported awareness of IF, and 52% indicated willingness to try it. Those familiar with IF were more likely to express willingness (57% vs. 20%). The most common concerns were hunger (47%) and fatigue (30%). Provider (78%) and dietitian (81%) recommendations, as well as use of a mobile app (70%), were identified as key facilitators.

Conclusion: Many breast cancer survivors are aware of IF and willing to try it, although concerns about hunger and fatigue remain. Participants emphasized the need for guidance from the clinical team. Future research on the feasibility and safety of IF among cancer survivors should incorporate this perspective.

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Impact of changing prevalence of smoking, obesity, diabetes, and alcohol on US pancreatic cancer incidence 1998-2019

Naudin S, Pfeiffer RM, Shiels MS, Gonzalez-Feliciano AG, Wang M, Genkinger J, Silverman D, Ferrari P, Smith-Warner S, Stolzenberg-Solomon RZ on behalf of the participating cohorts in the Pooling Project of Prospective Studies of Diet and Cancer.

Purpose: Pancreatic cancer rates in the United States (US) have increased in the past two decades. We estimated the proportion of pancreatic cancer cases attributable to smoking, alcohol intake, overweight/obesity, and diabetes, and the impact of changes in these risk factors prevalences on temporal incidence rate trends during 2008-2019.

Methods: Annual population attributable fractions (PAFs) were calculated using pancreatic cancer hazard ratios from the Pooling Project of Prospective Studies of Diet and Cancer (17 cohorts, n=2,511,556 participants, n=15,821 cases) and US exposure prevalence estimates from National Health Interview Survey (1998-2009). Pooled multivariable adjusted HRs and 95% confidence intervals (CI) were calculated for smoking (former, current vs. never), alcohol intake (>1 vs. 0-1 drinks/day), body mass index (BMI, ≥25 kg/m2 vs. <25 kg/m2), and diabetes (yes vs. no). The PAFs were then applied to pancreatic cancer incidence data from the US Cancer Statistics (2008-2019) to estimate average annual percent changes in incidence rates overall, and attributable to each risk factor.

Results: US age-standardized pancreatic cancer rates significantly increased on average 1.0% per year (95% CI 0.9, 1.2) during 2008-2019 among ≥50-year-olds. BMI ≥25 kg/m2 (HR 1.20, 95% CI 1.16, 1.24), diabetes (1.49, 1.41-1.58), former (female: 1.06, 1.00-1.11; male: 0.96, 0.91-1.01) and current (female: 1.67, 1.58-1.77; male: 1.59, 1.49-1.69) smoking (P-interaction_sex=0.04), and alcohol intake (1.12, 1.08-1.17) were associated with elevated risk. During 2008-2019, PAF estimates for BMI ≥25 kg/m2 (10.5% to 11.6%) and diabetes (4.6% to 7.0%) increased, while alcohol intake was stable (1.1%), and ever-smoking (13.6% to 12.4%) decreased. The PAF for ever-smoking was higher among individuals diagnosed at age <65 years (27.4% to 25.1%) than >65 years (7.5% to 6.9%). Despite notable increases in rates of alcohol-, high BMI- and diabetes-attributable pancreatic cancer, these risk factors had little impact on the overall trend in pancreatic cancer rates.

Conclusions: While smoking, high BMI, diabetes, and alcohol intake contributed to pancreatic cancer incidence, trends in these risk factors did not explain recent increases in pancreatic cancer incidence.

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Impact of Computed Tomography (CT) Scan Image-Quantified Adiposity and Muscle on Survival and Toxicities in Patients with Stage IV Non-Small-Cell Lung Cancer (NSCLC) treated with Immune Checkpoint Inhibitors (ICIs).

Wangese I, Mahenge CM, Akasheh RT, Gokun Y, Myers J, Veneman B, Reisinger S, Nguyen X, Presley CJ, Shields PG, Cheng TD

Purpose: Obesity (body mass index [BMI] ≥30 kg/m2) is associated with a higher incidence of toxicities yet better outcomes among patients with lung cancer who receive ICIs. We hypothesized that CT-assessed adiposity better predicts outcomes and toxicities than BMI.

Methods: Eligible patients (Nâ€¯=â€¯88) were those with newly diagnosed stageâ€¯IV NSCLC who received ICI therapy and had an archived CT scan at diagnosis in The Beating Lung Cancer in Ohio Study. Cross-sectional areas and radiodensity (Hounsfield Unit) at the third lumbar vertebra (L3) were annotated for subcutaneous adipose tissue (SAT), visceral adipose tissue (VAT), intramuscular adipose tissue (IMAT), and skeletal muscle tissue using SliceOmatic. Total adipose tissue (TAT) was obtained as the sum of SAT, VAT, and IMAT. Immune-related adverse events (irAEs), defined as events attributed to ICIs that delayed a subsequent treatment cycle, were determined by medical chart review. Body composition variables were analyzed both as continuous measures and binary (high and low) groups by median splits. Mortality and irAE risks were estimated using Cox proportional hazard with robust variances and negative binomial models, respectively, adjusting for age at diagnosis, sex, and partitioned BMI.

Results: Higher SAT area was associated with lower mortality risk (HR = 0.96; 95% CI = 0.92–1.00; p = 0.04, per 10 cm² increase in adiposity area), while TAT showed a borderline association (HR=0.98, 95% CI=0.96-1.00, p=0.085). When radiodensity was examined, higher VAT was associated with a 7% increased mortality (HR = 1.07; 95% CI = 1.02-1.12; p = 0.01, per 10 Hounsfield Unit increase). Similarly, patients in the high SAT radiodensity group had increased mortality risk compared with the low group (HR = 2.38; 95% CI = 1.23– 4.61; p = 0.01). Overall, 61% of patients experienced an irAE. There was no association of irAEs risk with body composition areas and radiodensities (p >0.05). BMI was not associated with either survival outcomes or the incidence of irAEs.

Conclusion: CT-quantified body composition area and radiodensity may provide better utility than BMI in predicting survival in patients with stage IV lung cancer who receive ICI. These findings warrant validation in larger studies.

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Implementing a radon awareness and testing program to reduce lung cancer risk in Colorado

Waxmonsky J, Lowery J, Caballero C, Pacheco D, Gonzalez S, Gerena T, Soto Mendoza A, Villarreal-Hernandez K, Garcia S, Lewis L, Olowu K, Warren A, Borrayo E

Purpose: The University of Colorado Cancer Center, Office of Community Outreach and Engagement (COE) implemented a population-based radon awareness and testing program to reduce radon exposure, the second leading cause of lung cancer that occurs in higher levels in Colorado compared to the national average due to our geography.

Methods: The COE Clear the Air program consists of educational and intervention components. We provide education about radon (in English and Spanish) at community health fairs and workshops, via radio and TV segments. We distribute free radon test kits in-person and via our on-line portal. Test kits are mailed directly to individuals with instructions and prepaid labels to mail kits to a processing lab. We follow up with participants to answer questions, verify they deployed the kit, and remind them when to mail the kit to the lab. We follow up with participants about their results and provide resources for mitigation if needed through our partnership with our state public health department that offers financial assistance for mitigation for those who qualify. We follow up with participants within 5 months to ensure that they were able to install a mitigation system.

Results: To date, we have distributed 1613 radon test kits to individuals living in 54 of 64 counties in Colorado with 242 (21%) kits were deployed and processed, and 120 (35%) had high radon levels (> 4 piCu, Environmental Protection Agency threshold). We have assisted 37 (31%) persons to obtain mitigation resources. We learned that some participants fail to deploy the test kit for various reasons (lost kit, no longer interested) and have encountered challenges in reaching some participants for follow-up, both of which are more common among participants who received a kit at an event. To address this, we are focusing our distribution efforts on promoting our on-line request form.

Conclusions: Radon is an important modifiable risk factor for lung cancer and is prevalent in high levels in Colorado. Mitigation resources are available for persons with financial need. Our program has been well received by communities. We continue to evaluate our program to find more efficient ways to provide education and free radon test kits to reduce the adverse effects of radon.

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Virtual Tai Chi prehabilitation improves side-effects recovery after radical prostatectomy: findings from the PEAK-RP pilot trial

Harsanyi H, Harper A, Slot N, Dickau L, Sutclifee S, Jivan S, Gotto G, Friedenreich CM, Hyndman ME, Yang L

Purpose: This pilot randomized controlled trial evaluated the preliminary efficacy of a virtual Tai Chi prehabilitation intervention on urinary and sexual outcomes in men undergoing radical prostatectomy (RP).

Methods: In a single-centre, single-blind randomized controlled trial, men with localized prostate cancer were randomly assigned to usual care or an 8-week online Tai Chi intervention before RP. The intervention combined twice-weekly supervised sessions and unsupervised home practices. The Expanded Prostate Cancer Index Composite (EPIC-50) measured urinary and sexual functions at baseline, pre-RP, and 6- and 12-weeks post-RP. Mixed linear regression models estimated intervention effects over time, adjusting for a range of covariates.

Results: Of 33 participants enrolled from 2020-2023, 31 (14 intervention, 17 control) completed the trial. The intervention group completed a median of 14 supervised Tai Chi sessions (range: 4-19); and 71% (10/14) of participants attended ≥85% of the planned sessions. At baseline, urinary function was higher in the intervention group compared to control (96.3, 95% CI:92.4-100 vs. 90.7, 95%CI:85.8-95.6), while sexual function did not differ between groups (50.9, 95%CI:35.6-66.2 vs. 57.6, 95%CI:44.8-70.3). Urinary function declined to 58.8 (95%CI:47.8-69.8) and 55.5 (95%CI:47.4-63.6) at 6-week ($p>0.05$) and recovered to 68.5 (95%CI: 59.3-77.8) and 66.5 (55.8-77.4) at 12-week post-RP ($p>0.05$) in the Tai Chi and usual care group, respectively. Meanwhile, sexual function declined to 14.7 (95%CI:6-23.4) and 10.7 (6.5-14.9) at 6-week ($p>0.05$) and recovered to 21 (95%CI: 9.6-32.4) and 13.3 (8.6-18) at 12-week post-RP ($p<0.05$) in the Tai Chi and usual care group, respectively. In multivariable models, Tai Chi group demonstrated higher scores in sexual function ($p = 0.001$) post-RP. Additional analyses are ongoing to explore factors that may influence urinary and sexual functions as well as their recovery trajectory.

Conclusions: This pilot trial indicates that a brief virtual Tai Chi prehabilitation intervention is feasible and may promote early improvements in sexual function recovery following RP. Findings support larger definitive trials to establish efficacy and elucidate underlying behavioural and biological mechanisms.

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Behavioral Insights into Breast Cancer Screening Disparities: A COM-B-Based Analysis of Multilingual Women's Experiences

Yeo S, Llavona-Ortiz JY, Crocker R, Escaron A, Schneider J, Rivelli J, Coronado G

Purpose: This study examined the barriers and facilitators to breast cancer screening (BCS) among English- and Spanish-speaking women, utilizing the Capability-Opportunity-Motivation-Behavior (COM-B) model to identify actionable behavioral determinants and inform tailored intervention strategies.

Methods: We conducted 20 semi-structured interviews with English- and Spanish-speaking women recruited from a Federally Qualified Health Center (FQHC) who were due for BCS or follow-up between March 2020 and December 2021. Participants were purposively sampled to ensure representation of both those who completed and those who missed screening/follow-up during the pandemic. Interviews were conducted in participants' preferred language by trained researchers between July 2023 and February 2024. Audio-recorded interviews were transcribed, translated when needed, and analyzed thematically in Dedoose (v9.0.107). Three coders collaboratively developed and refined a codebook, achieving consistency through iterative coding and discussion. COM-B constructs guided the interpretation of behavioral patterns.

Results: Participants' narratives reflected distinct behavioral types influencing BCS uptake: "I am a procrastinato" (aware of need but delaying action), "I'm not a health person" (low perceived awareness of preventive care), and "I am proactive" (actively seeking healthcare). Facilitators included positive clinician attitudes, health insurance coverage, reminders, small incentives (e.g., gift cards), preexisting health conditions, or family experiences with cancer. Barriers included negative clinician attitudes, scheduling difficulties, limited screening availability, transportation issues, and challenges with system navigation.

Conclusions: Findings underscore the heterogeneity of behavioral drivers for BCS among diverse women. Tailored interventions aligned with behavioral types, such as reminders for proactive individuals and multifaceted motivational or system-level supports for "procrastinators", may enhance screening uptake. Integrating COM-B-informed strategies offers a promising pathway to equitable cancer prevention and early detection in target communities.

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Temporal Trends and Drivers of Cervical Cancer Overscreening Among Adolescent Girls and Young Women in the United States, 2011-2023

Lee S, Lui M, Karr AG, Tehranifar P

Purpose: To examine cervical cancer overscreening among adolescent girls and young women (AGYW) after U.S. cervical cancer screening guidelines advised in 2012 against initiating screening before age 21 years, we described temporal trends and potential drivers of cervical cancer overscreening among AGYW aged 15-20 years from 2011 to 2023 in the U.S.

Methods: We used nationally representative data from the National Survey of Family Growth (NSFG) in the survey waves 2011-2013, 2013-2015, 2017-2019, and 2022-2023 on AGYW aged 15-20 years (n = 5,375). To describe trends over time, we estimated the 1-year prevalence of cervical cancer overscreening for each survey wave, measured by self-reported receipt of Papanicolaou (Pap) tests or Human Papillomavirus (HPV) tests as part of a routine exam. We estimated risk ratios using robust Poisson regression to identify clinical factors associated with overscreening after adjusting for a range of sociodemographic factors and performed g-computation to describe temporal trends of the associations while standardizing over the covariates.

Results: From 2011 to 2023, the prevalence of receiving cervical cancer screening in the past year decreased from 27.67% to 8.09% (Î" = -19.58%) in AGYW aged 15-20 years. Among those screened, the proportion of unindicated screening was 72.27% in 2011-2013 and 54.79% in 2022-2023. Those with a sexual history, human immunodeficiency virus testing, sexually transmitted disease (STD) testing, or pregnancy in the past year were more likely to receive overscreening, compared to those without. By 2022-2023, the prevalence decreased substantially across the clinical factors, but the associations (RR [95%CI]) remained large for a history of sexual intercourse (2.67 [1.17, 6.09]), STD testing (8.98 [2.87, 28.15]), and pregnancy (2.69 [1.23, 5.88]).

Conclusion: The prevalence of cervical cancer screening among AGYW declined substantially after recent guideline changes. However, overscreening, which presents potential harms such as unnecessary diagnostic procedures and overtreatment, remains prevalent among AGYW with a sexual history, STD testing, or recent pregnancy, highlighting the need for targeted de-implementation efforts addressing clinical characteristics that contradict current recommendations.

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