accuracy of 4 FIT tests, one automated (AUTO) and 3 POC, for detecting advanced neoplasia (advanced adenomas and carcinomas) using colonoscopy as a gold standard. Methods. We are enrolling subjects ages 50 to 85 at 3 academic medical centers in Iowa, Texas, and North Carolina who were scheduled for a screening or surveillance colonoscopy. Each subject completed 4 different FIT tests on a single stool specimen. Based on colonoscopy results, we calculated sensitivity, specificity, and predictive values. We used PROC GLIMMIX models in SAS to compare sensitivity and specificity across the different tests, accounting for the within-patient correlation. Results: We currently have 641 subjects who completed FIT and colonoscopy. Mean age is 61.2 (±7.5) years, 63% women, 63% non-Hispanic white, and 31% Hispanic. We found advanced neoplasia, including 5 carcinomas, in 68 subjects. The sensitivities for detecting these neoplasia were 3%, 22%, 28%, and 16% (AUTO), respectively. Corresponding positive predictive values were 18%, 21%, 33%, and 24% (AUTO). Specificities were 97%, 89%, 90%, and 94% (AUTO), respectively, and corresponding negative predictive values were 89%, 91%, 92%, and 90% (AUTO). We found statistically significant differences in sensitivity ($P < 0.01$) and specificity ($P < 0.01$) across tests. Conclusions: Early data suggest that FIT products may vary in their sensitivity and specificity for detecting advanced colorectal neoplasia. This variability could have important impacts on the effectiveness of efforts to limit the burden of colorectal cancer by increasing population-based screening rates through fecal blood testing.

Detecting Effective Tobacco Control Messages via Linguistic Analysis and Item Response Theory

Kim SJ, Fuemmeler BF

Current health communication research on tobacco control often examines the persuasion effects of messages in an experimental setting, which produces small effect sizes and limits the external validity of how well the tested messages will perform in real word settings. In the new media landscape, (anti)smoking and (anti)vaping messages are posted, shared, and disseminated across media platforms by a broader set of users. Tracking the persuasion effects of each message can be challenging with the experimental approaches. Novel analytic methods are needed to evaluate the effective strategies for tobacco control communication. We apply linguistic analysis and item-response theory to antismoking/antivaping messages to detect their persuasion effects on cognitive and emotional outcomes at an individual message level. Methods: We recruited respondents from social media and crowdsourcing platforms ($n = 6,566$). The eligible current smokers were randomly assigned to one of the 80 antismoking and antivaping messages, or 16 food advertisements (the control group). We measured attitudes toward vaping/smoking, emotional arousal, and intention to quit smoking or vape. We mined text data from each stimulus message to examine their lin-

guistic characteristics and its links to the persuasion outcomes. Results: Majority of participants were White (86%) and female (55%). Antismoking messages were more likely to reveal anxiety ($P = 0.01$) and dangers or concerns ($P < 0.01$), compared to the control messages; and express high expertise and confidence compared to antivaping messages ($P = 0.04$). We report linguistic properties of each message and their relationship to antismoking attitudes, emotional arousal, intention to quit cigarettes, and intention to vape. Visualized patterns of message effectiveness demonstrate text/image-based antivaping messages, compared to video-based antivaping messages, unintentionally increased participants' favorable attitudes toward e-cigarettes. Conclusions: These message-level analyses can help identify best candidate messages that generate positive persuasion outcomes, which, in turn, can inform the selection of messages for health education and campaigns.

Caregiver Intention To Restart Vaccinations After Childhood Cancer Treatment

Warner EL, Mann K, Kaddas HK, Martel L, Pannier S, Knackstedt B, Fair D, Fluchel M, Kepka D, Kirchhoff AC

Timely vaccination after childhood cancer treatment is vital for protecting against vaccine-preventable diseases during survivorship. However, caregiver intention for restarting vaccinations, such as getting catch-up or booster vaccines, after cancer treatment is unknown. Methods: We surveyed primary caregivers ages 18 or older with a child who had completed cancer treatment in the prior 3–24 months ($N = 129$; participation rate = 60.3%). Participants were asked about demographics, their child's vaccination status, and healthcare factors (e.g., provider recommendations, barriers). We examined the influence of whether the oncology care team recommended catch-up or booster vaccines on caregiver intention to restart vaccines using multivariable generalized linear models. Vaccine barriers were examined by intention in chi- square tests. Results: Caregivers were primarily aged 30–49 years (82.0%), mothers (81.2%), college graduates (44.8%), married (89.1%), and Non-Hispanic (90.3%). In total, 67% of caregivers intended to restart vaccines for their child and 49.6% reported that they had a discussion with the cancer care team about catch-up or booster vaccines. Caregivers who discussed vaccines with their child's cancer care team were much more likely to report intention to restart vaccination (Relative Risk (RR) = 1.82, 95% CI 1.37–2.45). The most common barrier to restarting vaccines after cancer was not knowing which vaccines to get, which was common across both groups (intend to restart = 31% vs. did not intend = 40.5%, $P = 0.29$). Of caregivers, 93.1% who intended to restart vaccines felt vaccines were safe compared to 79.5% of those who did not ($P = 0.02$). Conclusions: Caregivers of childhood cancer survivors need guidance for restarting vaccinations after cancer treatment, including information

on safety and which vaccines their child needs. Provider recommendations positively influence caregiver's intention to restart vaccines. Clinical guidelines are needed to support providers in making tailored vaccination recommendations after cancer treatment.

Recruiting for an Online Survey through Social Media: Testing Variations in Messaging, Compensation, and Platform

Selvan P, Kearney M, Massey PM, Leader AE

To test three recruitment strategies for parents on social media (Facebook and Twitter) to complete a brief survey about the human papillomavirus (HPV) vaccine. Methods: We created three campaigns with ads on Facebook and promoted tweets on Twitter that invited parents of children ages 9–15 to complete a brief survey about the HPV vaccine. Iterative, yet varied, campaigns were conducted to determine the ideal social media platform, compensation amount, and messaging. Ads depicted vaccine-eligible children (11–12 years of age) of various ethnicities. Ad messaging was adapted from social media toolkits at the CDC and the HPV Roundtable. Parents who clicked on our ad were first screened for eligibility. Those who were eligible then completed a 20-item survey via Qualtrics that included questions about HPV, the vaccine, and social media use. Survey compensation was either $5 or $10. At the end of the survey, we provided information about HPV and the vaccine. The campaign was available in English and Spanish. Results: The first campaign was launched on both Facebook and Twitter and offered $5 compensation. The Facebook component yielded 18,527 impressions; two adults were confirmed eligible by the screener and both completed the survey (100% screener to completion rate). Cost per survey was $349.45. The Twitter component received 143,661 impressions and yielded 18 completed surveys, with a screener to completion rate of 26% and a cost of $42.99 per survey. For the second campaign, we dropped Facebook and focused solely on Twitter, offering $10 compensation. We received 50,475 impressions that yielded 55 completed surveys (screener to completion rate = 71%) costing $4.78 each. The final campaign tested simpler messaging on Twitter with $10 compensation, and received 8,897 impressions, 38 survey completions (screener to completion rate = 88%), and cost $1.19 per survey. Conclusions: While Facebook is widely used among Americans, our findings may suggest that Twitter is more engaging and cost-effective. Recent Facebook policy changes may explain the differences seen in cost and survey completion. Understanding the reach and effectiveness of the different platforms will help ensure the success of an intervention using social media.

Acceptability and Feasibility of a Mindfulness-Based Intervention Program for HCT Cancer Caregivers

Malkhasyan L, Lau P, Schmidt J, Jim H, Pidala J, Vinci C

High levels of stress have been reported amongst allogeneic HCT cancer caregivers and few treatment programs exist to provide stress management skills to this population. A pilot study was conducted to determine the feasibility and acceptability of a six-session mindfulness-based program designed specifically to meet the needs of allogeneic HCT cancer caregivers. Method: Participants completed questionnaires at baseline, end of treatment, and at a one month follow-up. Feasibility criteria consisted of participant accrual, retention, and homework completion. Measures of acceptability included the Client Satisfaction Questionnaire (CSQ; scale of 1–4 [1 = Poor; 4 = Excellent]) and three questions developed for this study to capture overall usefulness of the program; the usefulness of the program in managing stress; and likelihood of continued usage of mindfulness-based strategies (scale of 1–6 [1 = Not very useful; 6 = Very Useful]). Results: Twenty-one caregivers (mean age 57.95; 79% female) were enrolled and completed baseline questionnaires. Of these, 19 attended at least one treatment session, 15 attended at least 4, and 13 attended all sessions. Thirteen completed the post-treatment questionnaires and 14 completed follow-up questionnaires. Participants reported engaging in at least one mindfulness practice daily on 58% of the days enrolled in the study. Results from the CSQ found the program to be highly satisfactory (M = 3.68; SD = 0.28), with higher scores indicating greater satisfaction. Participants responded positively to questions related to overall usefulness of the program (M = 5.36; SD = 0.93), usefulness of the program to help manage stress (M = 5.14; SD = 0.95), and likelihood of continuation of strategy use in the future (M = 5.50; SD = 1.16). At the one month follow up, 100% of participants endorsed still using some of the skills learned during the program. Discussion: These pilot study results found the mindfulness intervention to be both feasible and acceptable. Limitations include: small sample size, homogenous population, and lack of a control group. Larger, future studies are warranted to determine the efficacy of this intervention in relation to a comparison treatment condition.

Impact of the Built Environment on Physical Activity in Rural Cancer Survivors

Mama SK, Bhuiyan N, Lengerich EJ, Schmitz KH

Cancer survivors (CS) residing in rural areas are less likely to meet physical activity (PA) recommendations and are more likely to report poor health than those residing in urban areas. Ecologic models suggest that the built environment affects PA, thereby influencing cancer survivorship. The purpose of this study was to examine the impact of the home and neighborhood environment on PA in rural CS. Methods: CS were recruited to a cross-sectional

BLOOD CANCER DISCOVERY

Caregiver Intention To Restart Vaccinations After Childhood Cancer Treatment

EL Warner, K Mann, HK Kaddas, et al.

Updated version	Access the most recent version of this article at: http://cebp.aacrjournals.org/content/28/3/622.2

E-mail alerts	Sign up to receive free email-alerts related to this article or journal.
Reprints and Subscriptions	To order reprints of this article or to subscribe to the journal, contact the AACR Publications Department at pubs@aacr.org.
Permissions	To request permission to re-use all or part of this article, use this link http://cebp.aacrjournals.org/content/28/3/622.2. Click on "Request Permissions" which will take you to the Copyright Clearance Center's (CCC) Rightslink site.