



Research Update

Winter 2021

A semi-annual look at select DLH research activities.

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Jeanine Christian

President, Public Health & Scientific Research



I hope you will enjoy the Winter 2021 edition of the PHSR Research Update, a semi-annual look at select research activities from across our Public Health and Scientific Research operating unit. In the pages that follow, you will see examples of the remarkable breadth of expertise that our researchers provide in support of efforts to improve public health, prevent disease, and prolong life.

Of course, the past year has been remarkably difficult for the scientific community. I am so proud of the leading role PHSR is playing in support of the Federal government's public health and epidemiological response to COVID-19, reckoning with the pandemic's enduring toll on our communities and industries.

Just as the global response to COVID-19 has demonstrated the power of scientific collaboration and ingenuity, the research highlighted here illustrates the good that emerges from scientific curiosity and inquisitiveness. Our researchers saw public health problems, ranging from lack of access to STD testing, to health disparities among at-risk populations, and questions of quality-of-life among breast cancer survivors, and worked with partners in government, academia, and private institutions to examine these issues. Through teamwork, inventiveness, and patience we work towards answers, building a healthier world one study at a time.

Sincerely,

Jeanine Christian

President

Public Health & Scientific Research

Unless another funding source is named, the research activities described below were funded wholly or in part by the federal government.

Recent Publications

Transethnic Associations Among Immune-Mediated Diseases and Single-Nucleotide Polymorphisms of the Aryl Hydrocarbon Response Gene ARNT and the PTPN22 Immune Regulatory Gene

DLH health researcher John McGrath is among the authors of an [article](#) in the *Journal of Autoimmunity* (online November 2019; print February 2020) that showed that some xenobiotic and immune response gene polymorphisms were shown to have associations across a broad spectrum of immune-mediated diseases and ethnicities, and suggested a role for the aryl hydrocarbon receptor nuclear translocator gene in the development of autoimmune diseases, implicating environmental factors metabolized by this pathway in pathogenesis. Other authors of the article include researchers from the National Institute of Environmental Health Sciences and the National Institute on Aging.

How Do Natural Features in the Residential Environment Influence Women's Self-Reported General Health? Results from Cross-Sectional Analyses of a U.S. National Cohort

DLH Senior Research Scientist and Epidemiologist Aimee D'Aloisio is among the authors of an [article](#) in *Environmental Research* (January 2020) that examines the complex relationship between health and human interaction with nature. Findings from this study identified a small but important beneficial association between residential nature and general health. These findings could inform community planning and investments in neighborhood nature for targeted health improvements and potential societal and environmental co-benefits. Other authors include researchers from the US Environmental Protection Agency, University of North Carolina at Chapel Hill, and the National Institute of Environmental Health Sciences.

Association of Powder Use in the Genital Area with Risk of Ovarian Cancer

DLH Senior Research Scientist and Epidemiologist Aimee D'Aloisio is among the authors of an [article](#) in *JAMA* (January 2020) that estimated the association between use of powder in the genital area and ovarian cancer using prospective observational data. The primary analysis examined the association between ever use of powder in the genital area and self-reported incident ovarian cancer. Among women in four US cohorts, there was not a statistically significant association between use of powder in the genital area and incident ovarian cancer. However, the study may have been underpowered to identify a small increase in risk. Other authors of the article include researchers from the National Institute of Environmental Health Sciences, the National Cancer Institute, and the Harvard T.H. Chan School of Public Health.

Racial/Ethnic Disparities in Atrial Fibrillation Treatment and Outcomes among Dialysis Patients in the United States

DLH Epidemiologists Adan Becerra, Julia Ward, and Chyng-wen Fwu are among the authors of an [article](#) published in the *Journal of the American Society of Nephrology* (February 2020), which described a study of how different treatments contribute to racial/ethnic disparities in stroke outcomes among dialysis patients with atrial fibrillation. Data on Medicare patients from the United States Renal Data System showed that increased disparities are partially explained by lower use of oral anticoagulants. Other authors of the article include researchers from the National Institute of Diabetes and Digestive Kidney Diseases.

Everyday and Major Experiences of Racial/Ethnic Discrimination and Sleep Health in a Multiethnic Population of U.S. Women: Findings from the Sister Study

DLH Epidemiologist Lydia Feinstein is among the authors of an [article](#) in *Sleep Medicine* (March 2020) that

investigated associations between perceived racial/ethnic discrimination and poor sleep in a multiethnic population of women living in the U.S. The authors found that racial/ethnic minority women were most likely to experience both everyday and major racial/ethnic discrimination, which were associated with certain poor sleep dimensions among women of all races/ethnicities. Perceived racial/ethnic discrimination and poor sleep occur across all races/ethnicities in the US, although both are most common among racial/ethnic minorities. Other authors include researchers from the National Institute of Environmental Health Sciences, University of Maryland-College Park, Harvard T. H. Chan School of Public Health, and the Department of African and African American Studies at Harvard University.

Long-term Outcomes in a Large Randomized Trial of HIV-1 Salvage Therapy: 96-Week Results of AIDS Clinical Trials Group A5241 (OPTIONS)

DLH Health Analyst Evelyn Hogg is among the co-authors of an [article](#) in the *Journal of Infectious Diseases* (April 2020). Short-term results of the AIDS Clinical Trials Group study A5241, OPTIONS, showed that nucleoside reverse transcriptase inhibitors (NRTIs) can be safely omitted from salvage therapy without compromising efficacy or durability of response as long as the regimen has a cumulative activity of >2 active antiretroviral medications. Younger people and those receiving fewer new antiretrovirals require careful monitoring. Even among individuals with more extensive resistance, most achieve virologic suppression. Other authors include researchers from Massachusetts General Hospital, Alpert Medical School of Brown University, Harvard T. H. Chan School of Public Health, National Institutes of Allergy and Infectious Diseases, University of North Carolina at Chapel Hill, and the University of Cincinnati College of Medicine.

The COronavirus Pandemic Epidemiology (COPE) Consortium: A Call to Action

DLH Vice President, Chief Scientist Sandra Deming-Halverson is a co-author of an [article](#) in *Cancer Epidemiology, Biomarkers & Prevention* (May 2020), which examines the challenges to the real-time collection of population-scale COVID-19 data to inform near-term public health needs as well as future investigations. The COronavirus Pandemic Epidemiology (COPE) consortium was established to address this unprecedented need on behalf of the epidemiology research community. Data collected from nearly 3 million participants, including those in existing research studies in the United States and United Kingdom, are being used to address critical needs in the emergency response, including identifying potential hot spots of disease and clinically actionable risk factors. These COVID-19 data, combined with previously collected data, will position researchers to address key questions related to diet, lifestyle, environmental, and socioeconomic factors on susceptibility to COVID-19, clinical outcomes related to infection, and long-term physical, mental health, and financial after effects. Other authors include researchers from Massachusetts General Hospital/Harvard Medical School, Brigham & Women's Hospital, Cedars-Sinai Hospital, the National Institute of Environmental Health Sciences, and the National Cancer Institute.

Concomitant Use of Gabapentinoids with Opioids Is Associated with Increased Mortality and Morbidity among Dialysis Patients

DLH Epidemiologists Adan Becerra, Julia Ward, and Chyng-wen Fwu are among the authors of an [article](#) published in the *American Journal of Nephrology* (May 2020). Amidst the opioid crisis, appropriate prescription of medications for pain management remains a challenge. The article describes a study that determined that this concomitant prescription is common and is associated with worse outcomes among end-stage renal disease patients. Other authors include researchers from the National Institute of Diabetes and Digestive Kidney Diseases.

Physician Networks and Potentially Inappropriate Opioid Prescriptions

DLH Principal Research Scientist Thomas Flottemesch is among the authors of an [article](#) in the *Journal of*

Addictive Diseases (May 2020) that examines associations between care networks defined by shared patients and problematic opioid prescribing. Greater provider integration is associated with a lower risk of a provider's patients repeatedly having potentially inappropriate prescription fills; however, the association with a provider having any potentially problematic prescription is more ambiguous. Other authors include researchers from the Substance Abuse and Mental Health Services Administration (SAMHSA) and the Agency for Healthcare Research and Quality (AHRQ), US Department of Health and Human Services.

Short-term Perinatal Toxicity Study in Sprague Dawley Rats with the Plasticizer and Emerging Contaminant N-Butylbenzenesulfonamide

DLH Systems Analyst Guanhua Xie is among the authors of an [article](#) in *Toxicology Letters* (May 2020) that explores N-butylbenzenesulfonamide (NBBS), a plasticizer and emerging contaminant that has been detected in a wide array of environmental samples. The current short-term pre- and post-natal (perinatal) study aimed to provide preliminary toxicity and gestational transfer data for NBBS. NBBS was administered via dosed feed to time-mated Sprague Dawley rats from gestation day 6 through postnatal day 28. Preliminary data for NBBS levels indicated that the chemical was transferred from dams to offspring during the gestational period. Other authors include researchers from the National Institute of Environmental Health Sciences.

Evaluation of 2-Methoxy-4-Nitroaniline (MNA) in Hypersensitivity, 14-day Subacute, Reproductive, and Genotoxicity Studies

DLH Research Statistician Shawn Harris is among the authors of an [article](#) in *Toxicology* (May 2020), which studied MNA (2-Methoxy-4-nitroaniline), an intermediate in the synthesis of azo dyes used in textiles and paints. Human exposure occurs primarily in the occupational setting through handling of dye dust, and through use and disposal of MNA-containing products. This study assessed the subacute toxicity, genotoxicity, contact hypersensitivity, and reproductive toxicity of MNA in rodents in an effort to more fully characterize its toxicological profile. Data indicate that MNA is genotoxic, and may induce erythrocyte damage and reactive phagocytosis by macrophages in the liver and spleen. Other authors include researchers from the National Institute of Environmental Health Sciences.

Integrating HIV Pre-Exposure Prophylaxis into Family Planning Care: A RE-AIM Framework Evaluation

DLH Clinical Trials Specialist Preeti Dhillon is among the authors of an [article](#) in *AIDS Patient Care and STDs* (June 2020), which aimed to systematically evaluate the feasibility of integrating HIV prevention services, including pre-exposure prophylaxis (PrEP), into a family planning setting in a high-prevalence community. Staff knowledge and comfort discussing PrEP improved after a staff training program on HIV PrEP. Facilitators included partnering with local experts, continuing education, clinical tools for providers, and patient education materials. In this high HIV prevalence community, nearly all screened women were eligible and 6% initiated PrEP. Other authors include researchers from The Cleveland Clinic Foundation and Whitman-Walker Health.

Male Sex and Obesity Are Associated with Residual Plasma HIV-1 Viremia in Persons on Long-term Antiretroviral Therapy

DLH Health Analyst Evelyn Hogg is among the authors of an [article](#) in the *Journal of Infectious Diseases* (June 2020), which presents the results of examinations of adipose tissue that has been proposed to harbor part of the HIV-1 reservoir, and the influence of host characteristics (including sex and body mass index) on measures of HIV-1 persistence during antiretroviral therapy. Males were more likely than females to have detectable plasma HIV-1 RNA by single-copy assay, and the proportion of participants with detectable residual viremia increased in a stepwise fashion by body mass index category. Sex and obesity are independently associated with residual viremia in people on long-term antiretroviral therapy. Other authors include researchers from the University of Pittsburgh, Harvard T.H. Chan School of Public Health, Office of the Global AIDS Coordinator Department of

Nitrosative Stress and Lipid Homeostasis as a Mechanism for Zileuton Hepatotoxicity and Resistance in Genetically Sensitive Mice

DLH Statistical Analyst Gary Larson is among the authors of an [article](#) in *Toxicological Sciences* (June 2020) that examines Zileuton, an orally active inhibitor of leukotriene synthesis, for maintenance treatment of asthma, for which clinical usage has been associated with idiosyncratic liver injury. Use of a genetically diverse mouse population, the Diversity Outbred, enabled mechanistic study of liver injury caused by zileuton in sensitive patients. Transcriptomic, histopathological, and hormone analysis indicated that disruption in lipid homeostasis and pathways governing nitrosative stress preferentially occurred in sensitive individuals, informing the overall susceptibility mechanism. Other authors of the article included researchers from National Institute of Environmental Health Sciences, the University of Arkansas for Medical Sciences and Arkansas Children's Research Institute, and the National Center for Toxicological Research (US FDA). The work was supported by the FDA, the National Institute of Environmental Health Sciences, and other institutes, through the NIH National Center for Research Resources and National Center for Advancing Translational Sciences.

Butylparaben Multigenerational Reproductive Assessment by Continuous Breeding in Hsd:Sprague Dawley SD Rats Following Dietary Exposure

DLH Senior Statistician Sandra McBride is among the authors of an [article](#) in *Reproductive Toxicology* (July 2020) that explores butylparaben (BP), an antimicrobial agent utilized for decades as a preservative in numerous consumer products. The safety of parabens has recently come under scrutiny based on reports of estrogenic activity and suggested adverse effects upon the reproductive system. BP exposure was not associated with adverse changes in fertility, fecundity, pubertal attainment, or reproductive parameters in some of the rat generations studied. Exposure-dependent increases in liver weights, and incidences of non-neoplastic liver lesions suggest the liver is a target organ of BP toxicity. No findings were observed that would support the mechanism of BP-induced endocrine disruption in perinatally exposed rodents. Other authors include researchers from the National Institute of Environmental Health Sciences.

Racial/Ethnic Disparities in the Relationship Between Traumatic Childhood Experiences and Suboptimal Sleep Dimensions Among Adult Women: Findings from the Sister Study

DLH Senior Research Scientist and Epidemiologist Aimee D'Aloisio is among the authors of an [article](#) published in the *International Journal of Behavioral Medicine* (July 2020). Traumatic childhood experiences (TCEs) are associated with poor adulthood sleep, but racial/ethnic disparities have not been well-studied. The TCE-adulthood sleep relationship among non-Hispanic (NH)-White, NH-Black, and Hispanic/Latina women was investigated, and showed that TCEs were positively associated with poor sleep characteristics among women, and TCEs appear to contribute to short sleep duration and long sleep onset latency disparities. Other authors include researchers from the National Institute of Environmental Health Sciences, the National Institute on Minority Health and Health Disparities, and the Johns Hopkins Bloomberg School of Public Health.

Postnatal Effects of Gestational and Lactational Gavage Exposure to Boric Acid in the Developing Sprague Dawley Rat

DLH Systems Analyst Guanhua Xie was one of several authors who wrote an [article](#) published in *Toxicological Sciences* (July 2020) that explores pre- and postnatal exposure to boron (boric acid) and its association with lower rat pup body weights and low incidence of transient umbilical hernia. These findings demonstrate that postnatal growth in the Sprague Dawley rat is sensitive to boron exposure, and highlights the importance of evaluating the potential toxicity of agents with known human exposures during early life stages. Other authors include researchers from the National Toxicology Program, National Institute of Environmental Health Sciences,

and the Southern Research Institute.

Hispanic/Latino Heritage Group Disparities in Sleep and the Sleep-Cardiovascular Health Relationship by Housing Tenure Status in the United States

DLH health researchers W. Braxton Jackson II and John McGrath are among the authors of an [article](#) in *Sleep Health* (July 2020) that investigates whether sleep-cardiovascular health (CVH) association varies by Hispanic/Latino heritage group and housing tenure status (i.e., homeownership, unassisted housing, government-assisted housing), which is an important social determinant of health. Overall, Hispanic/Latino heritage groups were either less likely or no more likely to report >9 hours' sleep duration and poor sleep quality compared with non-Hispanic-whites. Disparities in CVH were large between Puerto Rican unassisted renters and homeowners who reported >9 hours of habitual sleep compared with their non-Hispanic white housing tenure counterparts who reported 7-9 hours. Hispanic/Latino-white disparities in the sleep-CVH relationship may vary by Hispanic/Latino heritage group and housing tenure. Other authors of the article included researchers from the National Institute of Environmental Health Sciences, Gillings School of Global Public Health (UNC), the National Institute on Minority Health and Health Disparities, and the National Heart, Lung and Blood Institute.

Institutional Pediatric Convulsive Status Epilepticus Protocol Decreases Time to First and Second Line Anti-Seizure Medication Administration

DLH Senior Epidemiologist Lydia Feinstein is a co-author of an [article](#) published in *Seizure* (August 2020), which found the implementation of a paper-based pediatric convulsive status epilepticus treatment protocol may decrease the time to anti-seizure medication administration. The improvements were most evident in the time it took to administer second-line non-benzodiazepine agents. Benzodiazepines continue to be frequently under-dosed even after protocol implementation. Other authors include researchers from Duke University and Stanford University.

Resistance-Guided Treatment of Gonorrhea: A Prospective Clinical Study

DLH Project Managers Akbar Shahkolahi and Toni Waymer are among a group of authors who wrote an [article](#) in *Clinical Infectious Diseases* (August 2020) that looks at a new molecular assay that predicts in vitro ciprofloxacin susceptibility but has not been systematically studied in human infections. Resistance-guided treatment of *Neisseria gonorrhoeae* infections with single-dose oral ciprofloxacin was highly efficacious. A multisite prospective clinical study was conducted on the efficacy of a single oral dose of ciprofloxacin 500 mg in patients with culture-positive gonorrhea. The widespread introduction and scale-up of *gyrA* serine 91 genotyping in *N. gonorrhoeae* infections could have substantial medical and public health benefits in settings where the majority of gonococcal infections are ciprofloxacin susceptible. Other authors include researchers from the University of California Los Angeles, University of California San Diego, and the University of Washington.

Perinatal and Postnatal Exposures and Risk of Young-Onset Breast Cancer

DLH Senior Research Scientist and Epidemiologist Aimee D'Aloisio is one of the authors of an [article](#) published in *Breast Cancer Research* (August 2020) that aimed to evaluate the association between young-onset breast cancer and perinatal exposures and to explore etiologic heterogeneity in the relationship between associated perinatal factors and estrogen receptor status of the tumor. Cases were women who had been diagnosed with ductal carcinoma in situ or invasive breast cancer before the age of 50. Each case had a sister control who was free of breast cancer up to the same age at which her case sister developed the disease. The results suggest that being born to a preeclamptic pregnancy may increase risk for young-onset breast cancer, especially for the ER-negative subtype. Other authors of the article include researchers from the National Institute of Environmental Health Sciences.

Exposure to DDT from Indoor Residual Spraying and Biomarkers of Inflammation Among Reproductive-Aged Women from South Africa

DLH Clinical Trials Specialist Mwenda Kdumu is among the authors of an [article](#) in *Environmental Research* (August 2020) that looks at evidence from animal studies suggesting that DDT and DDE can adversely affect immuno-competence while human data are less conclusive. The study assessed the association of plasma concentrations of DDT and DDE with biomarkers of inflammation among reproductive-aged women residing in homes sprayed with DDT through Indoor Residual Spraying (IRS). Results suggested that increased plasma concentrations of DDT and DDE resulting from exposure to IRS may increase concentrations of pro-inflammatory biomarkers among reproductive-aged women in South Africa. Other authors included researchers from the National Institute of Public Health (Mexico), the University of Pretoria (South Africa), the National Institute of Environmental Health Sciences, and Baylor College of Medicine.

Developing an Environmental Health Sciences COVID-19 Research Agenda: Results from the NIEHS Disaster Research Response (DR2) Work Group's Modified Delphi Method

DLH health researcher Steven Ramsey is among the authors of an [article](#) in the *International Journal of Environmental Research and Public Health* (September 2020). Researchers leveraged the community of practice recently established through the US National Institute of Environmental Health Sciences (NIEHS) Disaster Research Response (DR2) working group, and used a modified Delphi method to identify and prioritize environmental health sciences Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and associated Coronavirus Disease 2019 (COVID-19) research questions. Panelists submitted research questions and brief justifications, and later rated the priority of each question. Twenty-eight interdisciplinary SARS-CoV-2/COVID-19 environmental health sciences research needs were identified and rated as “high priority” by a panel of 26 experts. Prioritizing disaster-specific research questions in the context of a disaster response can help funding organizations prioritize research support, and help researchers focus on projects that matter. Other authors include researchers from the University of Washington School of Public Health and the National Institute of Environmental Health Sciences.

Neighborhood Deprivation, Obesity and Diabetes in Gulf Residents

DLH Data Manager Mark Bodkin co-authored an [article](#) in the *American Journal of Epidemiology* (September 2020), which examines socioeconomic status and cardiovascular disease risk factors among populations in the US Gulf coast region. Results suggest neighborhood deprivation is associated with obesity and diabetes in a region of the US with high baseline prevalence. Other authors of the article include researchers from the National Institute of Environmental Health Sciences, University of Miami, and the University of North Carolina at Chapel Hill.

Pubertal Timing and Breast Cancer Risk in the Sister Study Cohort

DLH Senior Research Scientist and Epidemiologist Aimee D’Aloisio is one of the authors of an [article](#) published in *Breast Cancer Research* (October 2020), which sought to understand why earlier age at menarche is an established risk factor for breast cancer. The article examined how breast cancer risk was associated with pubertal timing and tempo, and examined whether associations between age at thelarche (breast development) and breast cancer risk were modified by birth cohort, race/ethnicity, weight at age 10, and extent of breast cancer family history. Earlier ages at thelarche and menarche may enhance susceptibility to breast carcinogenesis. Age at thelarche is an important risk factor to consider given secular trends towards earlier development. Other authors of the article include researchers from the National Institute of Environmental Health Sciences.

Diverse Human Immunodeficiency Virus-1 Drug Resistance Profiles at Screening for ACTG A5288: A Study of

People Experiencing Virologic Failure on Second-line Antiretroviral Therapy in Resource-limited Settings

DLH Health Analyst Evelyn Hogg is among the co-authors of an [article](#) in *Clinical Infectious Diseases* (October 2020), which concluded that HIV drug resistance profiles are needed to optimize individual patient management and to develop treatment guidelines. Study findings underscore the need for access to resistance testing and newer antiretrovirals for the optimal management of third-line antiretroviral therapy in low- and middle-income countries. Other authors include researchers from Bio Analytical Research Corporation South Africa, Harvard T.H. Chan School of Public Health, Instituto Nacional de Infectologia Evandro Chagas (Brazil), Y.R. Gaitonde Centre for AIDS Research and Education (India), Stellenbosch University (South Africa), Joint Clinical Research Center (Uganda), National Institute of Allergy and Infectious Diseases, University of Washington School of Medicine, and the University of Pittsburgh School of Medicine.

Health-Related Quality of Life Outcomes Among Breast Cancer Survivors

DLH Sister Study Epidemiologist Elizabeth Hodgson was one of several authors who published an [article](#) in *Cancer* (November 2020) that used data from a nationwide cohort of US breast cancer survivors to examine associations between patient characteristics and health-related quality of life (HRQOL). Findings suggest that prognostic and cancer treatment-related factors affect HRQOL in breast cancer survivors and that poor HRQOL may increase the mortality risk. The evaluation of HRQOL is important because it may hold potential as a tool for optimizing survivorship care. Other authors include researchers from the University of North Carolina Gillings School of Global Public Health, the Centers for Disease Control and Prevention, and the National Institute of Environmental Health Sciences.

Measurement of Mitochondrial DNA Copy Number in Dried Blood Spots: A Pilot Study

DLH Senior Study Manager Cynthia Kleeberger is a co-author of an [article](#) in *Mitochondrion* (November 2020), which evaluated the feasibility of mitochondrial DNA (mtDNA) copy number measurement in dried blood spots (DBS), its comparability with measurement in whole blood samples, and stability of mtDNA copy number from DBS over time. Women in this pilot study were participants in the Sister Study. Results suggest that measurement of mtDNA copy number in DBS is feasible and may be a valid alternative to measurement in whole blood samples. Other authors include researchers from the National Institute of Environmental Health Sciences and UNC Chapel Hill.

Performance of a Single-Use, Rapid, Point-Of-Care PCR Device for the Detection of *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, and *Trichomonas vaginalis*: A Cross-Sectional Study

DLH Project Manager Toni Waymer was among the authors of an [article](#) published in *The Lancet: Infectious Diseases* (November 2020), which found that timely detection and treatment are important for the control of *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, and *Trichomonas vaginalis*. The study measured the performance of the Visby Medical Sexual Health Test, a single-use, point-of-care PCR device. This innovative, rapid, easy-to-use, single-use, point-of-care device to detect *C. trachomatis*, *N. gonorrhoeae*, and *T. vaginalis* infections showed excellent sensitivity and specificity, and could represent an important advance in the development of rapid diagnostics for sexually transmitted infections and other infectious diseases. Other authors include researchers from the University of California San Diego and the University of California Los Angeles.

Vitamin D, Calcium, Magnesium, and Potassium Consumption and Markers of Glucose Metabolism in the Hispanic Community Health Study/Study of Latinos

DLH Epidemiologist Sarah Casagrande was among the authors of an [article](#) in the *Journal of the American College of Nutrition* (November 2020) about a cross-sectional study associating vitamin D, calcium, magnesium, and potassium intakes with markers of glucose metabolism in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL). Higher consumption of vitamin D, magnesium, and potassium are associated with optimal

levels of HOMA-IR among participants with normoglycemia and pre-diabetes. Other authors include researchers from the Florida International University, University of Puerto Rico, Duke University School of Medicine, Columbia University Mailman School of Public Health, Gillings School of Global Public Health (UNC), and the National Heart, Lung, and Blood Institute.