

Office of Research

colorado school of public health

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Publication Highlights

HEALTH SYSTEMS, MANAGEMENT & POLICY



High Impact Journal Recognition: JAMA (Impact Factor 157.335)

Changes in Unemployment Among Health Care Workers Following the COVID-19 Pandemic

Matta, Sasmira; Nicholas, Lauren H.

JAMA-Journal of the American Medical Association

An adequate supply of health care workers is critical for delivering high-quality care. Before COVID-19, health care workers were already experiencing increased burnout and turnover, raising concerns about the sustainability of the health care workforce. Given the threat of COVID-19 to the health and well-being of health care workers, the authors examined changes in unemployment among HCWs from January 2015 to April 2022. They found that working in health care and hospital-based health care was associated with less increase in reported unemployment rates from pre-pandemic to pandemic periods compared with other fields and nonhospital health care work. Being in a lower-income HCW profession (therapists, technicians, and aides) was associated with greater increases in reported unemployment from pre-pandemic to pandemic periods compared with physicians. Differences across HCWs may be related to how emergency funding was deployed to health care organizations and which service lines were prioritized.

EPIDEMIOLOGY

A framework for synthesizing intervention evidence from multiple sources into a single certainty of evidence rating: Methodological developments from a US National Academies of Sciences, Engineering, and Medicine Committee

Calonge, Ned; Shekelle, Paul G.; Owens, Douglas K.; Teutsch, Steven; Downey, Autumn; Brown, Lisa; Noyes, Jane

Research Synthesis Methods

Despite research investment and a growing body of diverse evidence there has been no comprehensive review and grading of evidence for public health emergency preparedness and response practices comparable to those in medicine and other public health fields. The National Academies of Sciences, Engineering, and Medicine convened an ad hoc committee to develop and use methods for grading and synthesizing diverse types of evidence to create a single certainty of intervention-related evidence to support recommendations for Public Health Emergency Preparedness and Response Research. A 13-step consensus building method was used. Experts were first canvassed in public meetings, and a comprehensive review of existing methods was undertaken. The authors developed a mixed-methods synthesis review and grading methodology that drew on (and in some cases adapted) those elements of existing frameworks and methods that were most applicable. The NASEM committee's GRADE adaption for mixed-methods reviews will further evolve over time and has yet to be endorsed by the GRADE working group.

BIostatistics & InFORMATICS

Survival prediction models: an introduction to discrete-time modeling

Suresh, Krithika; Severn, Cameron; Ghosh, Debashis

BMC Medical Research Methodology

Prediction models for time-to-event outcomes are commonly used in biomedical research to obtain subject-specific probabilities that aid in making important clinical care decisions. There are several regression and machine learning methods for building these models that have been designed or modified to account for the censoring that occurs in time-to-event data. Discrete-time survival models, which have often been overlooked in the literature, provide an alternative approach for predictive modeling in the presence of censoring with limited loss in predictive accuracy. These models can take advantage of the range of nonparametric machine learning classification algorithms and their available software to predict survival outcomes. Using publicly available data sets, the authors show that some discrete-time prediction models achieve better prediction performance than the continuous-time Cox proportional hazards model. They present a guide for developing survival prediction models using discrete-time methods and assessing their predictive performance with the aim of encouraging their use in medical research settings. These methods can be applied to data sets that have continuous time-to-event outcomes and multiple clinical predictors. They can also be extended to accommodate new binary classification algorithms as they become available. They provide R code for fitting discrete-time survival prediction models in a github repository.

INJURY & VIOLENCE PREVENTION CENTER

Putting it on a map: Geographic visualization to inform suicide prevention in Asian, Native Hawaiian and Pacific Islander Veterans

Spark, Talia L.; Kreisel, Carlee; Brenner, Lisa A.; Hoffmire, Claire A.; Monteith, Lindsey L.
Asian Journal of Psychiatry

In 2020, 1.8% of United States Veterans were characterized as Asian and 0.2% as Native Hawaiian or Pacific Islander; the proportions of Asian and Pacific Islander Veterans are expected to increase over time. Of concern, Asian and Pacific Islander Veterans have experienced an increasing suicide rate. To inform a VA funded project to better understand suicide risk and prevention among these populations, the authors mapped where US Asian and Native Hawaiian or Pacific Islander Veterans live, as doing so is relevant to both research (e.g., for recruitment) and clinical (e.g., for targeted programming) efforts. Specific counties were identified where notable numbers of Asian or Native Hawaiian or Pacific Islander Veterans reside. Most counties were in Western states. Additionally, in 2019, nearly every US county was estimated to have at least one Veteran who identified as Asian, Native Hawaiian, or Pacific Islander. These findings represent a critical step that can inform broader efforts to address and target the needs of these historically understudied and underserved Veteran populations.

LIFECOURSE EPIDEMIOLOGY OF ADIPOSITY & DIABETES CENTER

Body composition trajectories from birth to 5 years and hepatic fat in early childhood

Cohen, Catherine C.; Harrall, Kylie K.; Gilley, Stephanie P.; Perng, Wei; Sauder, Katherine A.; Scherzinger, Ann; Shankar, Kartik; Sundaram, Shikha S.; Glueck, Deborah H.; Dabelea, Dana
American Journal of Clinical Nutrition

Adiposity is an established risk factor for pediatric nonalcoholic fatty liver disease (NAFLD), but little is known about the influence of body composition patterns earlier in life on NAFLD risk. The authors aimed to examine associations of body composition at birth and body composition trajectories from birth to early childhood with hepatic fat in early childhood. They found that participant-specific intercepts at birth for fat-free mass index (FFMI), fat mass index (FMI), percentage body fat (BF%), and BMI were inversely associated with log-hepatic fat in early childhood in models adjusted for offspring demographics and maternal/prenatal variables. Whereas faster velocities for BF% and BMI from birth to similar to 5 y were positively associated with log-hepatic fat, these latter associations of BF% and BMI velocities with childhood hepatic fat were attenuated to the null when adjusted for participant-specific intercepts at birth. The study findings suggest that a smaller birth weight, combined with faster adiposity accretion in the first 5 y, predicts higher hepatic fat in early childhood. Strategies aiming to promote healthy body composition early in life may be critical for pediatric NAFLD prevention.

ENVIRONMENTAL & OCCUPATIONAL HEALTH

Integrating genomic and epidemiologic data to accelerate progress toward schistosomiasis elimination

Lund, Andrea J.; Wade, Kristen J.; Nikolakis, Zachary L.; Ivey, Kathleen N.; Perry, Blair W.; Pike, Hamish N. C.; Paull, Sara H.; Liu, Yang; Castoe, Todd A.; Pollock, David D.; Carlton, Elizabeth J.

eLife

The global community has adopted ambitious goals to eliminate schistosomiasis as a public health problem, and new tools are needed to achieve them. Here, the authors focus on leveraging genomic data to tailor interventions to distinct social and ecological circumstances. They consider two priority questions that can be addressed by integrating epidemiological, ecological, and genomic information: (1) how often do non-human host species contribute to human schistosome infection? and (2) what is the importance of locally acquired versus imported infections in driving transmission at different stages of elimination? These questions address processes that can undermine control programs, especially those that rely heavily on treatment with praziquantel. Until recently, these questions were difficult to answer with sufficient precision to inform public health decision-making. The authors review the literature related to these questions and discuss how whole-genome approaches can identify the geographic and taxonomic sources of infection, and how such information can inform context-specific efforts that advance schistosomiasis control efforts and minimize the risk of reemergence.

CENTER FOR GLOBAL HEALTH

Limitations introduced by a low participation rate of SARS-CoV-2 seroprevalence data

Pluss, Olivia; Campbell, Harlan; Pezzi, Laura; Morales, Ivonne; Roell, Yannik; Quandelacy, Talia M.; Arora, Rahul Krishan; Boucher, Emily; Lamb, Molly M.; Chu, May; Barnighausen, Till; Jaenisch, Thomas
International Journal of Epidemiology

There has been a large influx of COVID-19 seroprevalence studies, but comparability between the seroprevalence estimates has been an issue because of heterogeneities in testing platforms and study methodology. One potential source of heterogeneity is the response or participation rate. The authors conducted a review of participation rates (PR) in SARS-CoV-2 seroprevalence studies collected by SeroTracker and examined their effect on the validity of study conclusions. They identified 90 papers based on screening and were able to calculate the PR for 35 out of 90 papers (39%), with a median PR of 70% and an interquartile range of 40.92; 61% of the studies did not report PR. Many SARS-CoV-2 seroprevalence studies do not report PR. It is unclear what the median PR rate would be had a larger portion not had limitations in reporting. Low participation rates indicate limited representativeness of results. Non-probabilistic sampling frames were associated with higher participation rates but may be less representative. Standardized definitions of participation rate and data reporting necessary for the PR calculations are essential for understanding the representativeness of seroprevalence estimates in the population of interest.

COMMUNITY & BEHAVIORAL HEALTH

Flexibility, adaptation, and roles of patient navigators in oncology during COVID-19

Valverde, Patricia A.; Sheldon, Lisa Kennedy; Gentry, Sharon; Dwyer, Andrea J.; Saavedra Ferrer, Elba L.; Wightman, Patrick D.

Cancer

The impact of COVID-19 on cancer care during the first 6 months of the pandemic has been significant. The National Navigation Roundtable Workforce Development Task Group conducted a national survey to highlight the role of patient navigators (PNs). An anonymous online survey captured how cancer care navigation changed during 2 phases: 1) March 13 to May 31, 2020; and 2) June 1 to September 4, 2020. Almost one-half of PNs expected changes in duties (49%) during phase 1. By phase 2, PNs showed greater confidence in retaining PN work and reduced changes to duties. PNs reported new training on COVID-19 and telehealth during phase 1 and phase 2. Significant decreases in service delays were identified by phase 2 for cancer screening, preventive care, medical treatment, cancer treatment, and cancer survivorship services. PNs reported that the top patient issues were COVID-19 concerns, medical care disruptions, and finances, and there were decreases in medical care disruptions during phase 2. PNs addressed myths related to mask use, COVID-19 spread, disbelief, risk, clinical changes, transmission prevention, and finances/politics. The PN role demonstrated resiliency and adaptability. Both clinical and nonclinical oncology PNs identified key patient needs and can provide connections with patient populations that have been economically and socially marginalized, which is necessary to build trust throughout the pandemic.

COLORADO STATE UNIVERSITY

Partnerships and Community Engagement Key to Policy, Systems, and Environmental Achievements for Healthy Eating and Active Living: a Systematic Mapping Review

Cunningham-Sabo, Leslie; Tagtow, Angela; Mi, Sirui; Engelken, Jessa; Johnston, Kiaya; Herman, Dena R. Preventing Chronic Disease

Policy, systems, and environmental (PSE) change approaches frequently address healthy eating and active living (HEAL) priorities. However, the health effects of PSE HEAL initiatives are not well known because of their design complexity and short duration. Planning and evaluation frameworks can guide PSE activities to generate collective impact. The authors applied a systematic mapping re-view to the Individual plus PSE Conceptual Framework for Action (I+PSE) to describe characteristics, achievements, challenges, and evaluation strategies of PSE HEAL initiatives. Independent reviewers examined 437 titles and abstracts; 52 peer-reviewed articles met all inclusion criteria. They found that PSE HEAL initiatives reported successes in multiple areas, such as partnership development, individual behavior, environmental or policy changes, and provision of technical assistance. Challenges were related to partnership engagement and community buy-in. These two areas are essential for the success of PSE HEAL initiatives and need to be adequately evaluated so improvements can be made.

CANCER CENTER

Retirement behavior of cancer survivors: role of health insurance

Bradley, Cathy J.; Owsley, Kelsey M.

Journal of Cancer Survivorship

Workers who rely on employment for health insurance may be unable to reduce work during and following treatment for a serious health condition, potentially harming their health in retirement. In this study, the authors examine the influence of retiree and employment-contingent insurance on the retirement and health of workers diagnosed with cancer. Following a cancer diagnosis, women with retiree health insurance were 18.6 percentage points less likely to work relative to women with employer health insurance, but no retiree insurance. Employed women with cancer but without employment-contingent health insurance increased weekly hours worked by 34% relative to similar non-cancer controls. Men and women with a cancer diagnosis and without employment-contingent health or retiree insurance were also less likely to work. Among those who stopped working, respondents with cancer and employment-contingent health insurance reported better health status than respondents without employment-contingent health insurance. Cancer survivors with employer and retiree health insurance leave the workforce earlier and report better health status when they stop working than those without equivalent insurance. Implications for cancer survivors Policies to support health insurance outside of employment may allow cancer survivors to retire earlier and may have positive health benefits.

CENTER FOR HEALTH, WORK & ENVIRONMENT

Factors linked to participant attrition in a longitudinal occupational health surveillance program

Hubbell, Zachariah; Howard, Sara; Golden, Ashley; Stange, Bill; Cragle, Donna; Dally, Miranda; McInerney, John; Newman, Lee S.

American Journal of Industrial Medicine

For occupational medical screening programs focused on long-term health surveillance, participant attrition is a significant barrier to success. This study investigates demographic, medical history, and clinical data from National Supplemental Screening Program (NSSP) examinees for association with likelihood of return for a second exam (rescreening). Individuals were less likely to return for rescreening if they had a history of any cancer; cardiovascular problems; diabetes or kidney disease; or if they used insulin. Age at time of first exam and job site category significantly influenced likelihood of return. Workers categorized as “guests” were more likely to return. Participants were less likely to return if they had an abnormal urinalysis, abnormal pulmonary function, pneumoconiosis, aortic atherosclerosis, or hearing loss at their initial exam. Participants who received a chest X-ray at their initial screening were more likely to return. The discovery of several strong demographic, medical, and job associations reveals the importance for medical screening programs to understand and address factors that influence participant retention and, consequently, the effectiveness of long-term health surveillance activities.

CENTERS FOR AMERICAN INDIAN & ALASKA NATIVE HEALTH

Measure of Socialization of American Indian Children (MOSAIC): Understanding the Roots of Ethnic-Racial Identity

Tuitt, Nicole; Asdigian, Nancy L.; Mousseau, Alicia; Ivanich, Jerreed; Zacher, Tracy; Skinner, Leslie; Richards, Francine Red Willow; Robe, Lisa Bear; Keane, Ellen; Boland, Sarah; Whitesell, Nancy Rumbaugh
Cultural Diversity & Ethnic Minority Psychology

Strong ethnic-racial identity has the potential to be a strong factor in promoting healthy development among American Indian youth, but there has been little scientific study of the roots of identity among American Indian youth. Limitations in research can be at least partly attributed to a lack of valid measures that reflect both the developmental phase of early adolescence and the cultural contexts of American Indian communities. The Measure of Socialization of American Indian Children (MOSAIC) was created as part of a larger study developing a family-based and culturally grounded substance use prevention program for young American Indian (AI) adolescents. The MOSAIC was designed to measure ethnic-racial socialization (ERS) for use with AI families to support better understanding of the roots of ethnic-racial identity among AI youth and their relationship to risk for substance use in early adolescence. The authors found that four dimensions emerged, related to socialization practices to support spirituality, language, pride, and preparation for bias. The original MOSAIC measure was refined based on these analyses and prepared for testing in an independent sample. Dimensions of ERS common to measures developed for other populations emerged as relevant for AI families, with adaptations to reflect the unique context of this population. Further work is needed to confirm the structure of the MOSAIC in both this AI community and with other diverse indigenous populations.

ROCKY MOUNTAIN PUBLIC HEALTH TRAINING CENTER

Training Public Health Professionals on Adaptive Challenges-An Innovative Approach Using Remote Learning Modalities

Walter, Elaine J. Scallan; Mousavi, Christine T.; Elnicki, Jill; Davis, Sarah
Journal of Public Health Management and Practice

Remote learning opportunities increase access to public health training. Innovative approaches are needed to promote active engagement and learning when tackling more complex, adaptive challenges that are nuanced, lack quick and easy solutions, and require a transformation of values and beliefs. The Rocky Mountain Public Health Training Center's (RM-PHTC's) training framework considers the complexity of the challenge (technical to adaptive) when selecting the learning modality. Remote learning opportunities on adaptive challenges are addressed using virtual workshops, online courses, ECHO (Extension for Community Healthcare Outcomes) series, and communities of practice that include a combination of multiple sessions, cohort-based learning, peer learning, practice-based application, and live, interactive sessions. The specific modality chosen depends on the audience and amount of content delivery. Remote learning opportunities increase access for public health professionals in rural areas and encourage knowledge exchange region-wide. The RM-PHTC's training framework matches learning opportunities that address adaptive challenges with modalities that include elements that encourage the sharing of ideas and cocreation of solutions.