

2021 CHARLES C. SHEPARD SCIENCE AWARDS

Wednesday, October 20, 2021 - 1:00PM to 3:30PM



**Climate Change
as a Public
Health Threat:
Why Equity Matters**

Keynote Speaker: Dr. Robert Bullard
"Father of Environmental Justice"

Charles C. Shepard • Biography



The preeminent science awards of CDC/ATSDR, inaugurated in 1986, are named in honor of Charles C. Shepard, MD, the internationally recognized microbiologist who was chief of the Leprosy and Rickettsia Branch at CDC for more than 30 years, until his death on February 18, 1985.

Charles Carter Shepard was born in Ord, Nebraska, on December 18, 1914. He attended Stanford University (1932–1935) and then transferred to Northwestern

University, where he received BS, MS, and MD degrees. In 1941, he joined the Commissioned Corps of the Public Health Service. From 1942 through 1948, he worked at the National Institutes of Health (NIH) in Bethesda, Maryland.

While on sabbatical during 1948 through 1949, he worked in the laboratory of Arne Tiselius in Uppsala, Sweden, and learned the new physical separation techniques that would revolutionize immunology and biochemistry. He returned to Bethesda for a year before moving to the Rocky Mountain Laboratory, National Institute of Allergy and Infectious Diseases, NIH, in Hamilton, Montana, to study various pathogenic bacteria and their phages at the biochemical and ultrastructural levels. In 1953, he came to CDC, where he continued his outstanding work with rickettsiae and began his distinguished and definitive experiments with mycobacteria, culminating in the cultivation of the leprosy bacillus, *Mycobacterium leprae*, in mice. His landmark article, "The Experimental Disease that Follows the Injection of Human Leprosy Bacilli into Foot-Pads of Mice" (*Journal of Experimental Medicine* 1960;112:445–454), is still considered a classic in microbiology. His achievement made possible the large-scale evaluation of antibiotic efficacy and reduced testing time from several years to only months. It also paved the way for leprosy vaccine studies.

Dr. Shepard made significant early contributions to the diagnosis, natural history, and epidemiology of Rocky Mountain spotted fever; Q fever; and scrub, murine, and epidemic typhus. He was also codiscoverer (with Joseph McDade) of the Legionnaires' disease bacterium (*Legionella pneumophila*) after the now famous outbreak of virulent pneumonia in Philadelphia in 1976.

Dr. Shepard received numerous awards, among them the Gorgas Medal (1962), the Kimble Methodology Award (1962), the Philip R. Edwards Award (1964), the World Leprosy Day Award (1970), and the first CDC Medal of Excellence (1977).

He also received the HEW Distinguished Service Medal (1978), the Raol Folleraux Award (1978), and the Richard and Hinda Rosenthal Award (1979). He was active in multiple professional organizations, including the Armed Forces Epidemiologic Board Commission on Rickettsial Diseases, the WHO Immunology of Leprosy Program, the WHO Advisory Panel on Leprosy, the Heiser Program for Research in Leprosy, and the Leprosy Research Council, which he chaired. He was also involved in many editorial activities, having served on the board of directors of the *International Journal of Leprosy* and as a frequent reviewer for numerous prestigious journals.

Although Dr. Shepard's contributions to science and public health were prodigious, perhaps his greatest legacy is the influence he has had on the CDC scientists who have followed in his footsteps and have continued to find inspiration in the scientific integrity and excellence he has come to represent.

Keynote Speaker



Robert D. Bullard, PhD, MA

Robert D. Bullard is often described as the “father of environmental justice.” From 2011–2016, he served as the dean of the Barbara Jordan-Mickey Leland School of Public Affairs at Texas Southern University. Professor Bullard currently is distinguished professor of urban planning and environmental policy. Before his arrival at Texas Southern he was founding director of the Environmental Justice Resource Center at Clark

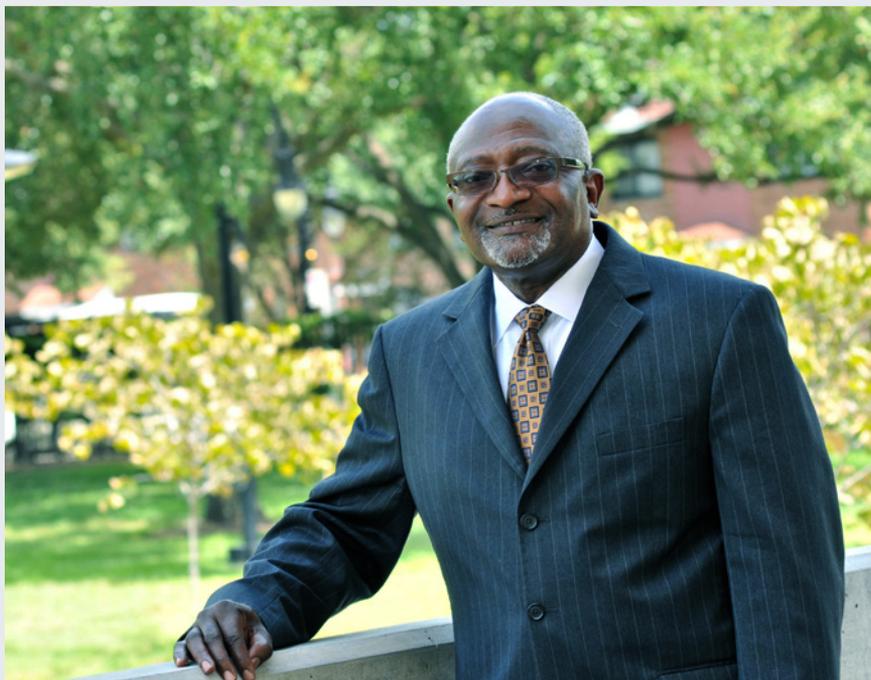
Atlanta University. He received his PhD from Iowa State University. He is an award-winning author of 18 books that discuss sustainable development, environmental racism, urban land use, industrial facility siting, community reinvestment, housing, transportation, climate justice, disasters, emergency response, community resilience, smart growth, and regional equity. He is cofounder of the HBCU Climate Change Consortium. Dr. Bullard is a proud U.S. Marine Corps veteran.

He was featured by CNN in July 2007 as one of its People You Should Know, Bullard: Green Issue is Black and White. In 2008, *Newsweek* named him one of 13 Environmental Leaders of the Century. And that same year, Co-op America (Now Green America) honored him with its Building Economic Alternatives Award. In 2010, *The Grio* named him one of “100 Black History Makers in the Making,” and the website Planet Harmony celebrated him as one of “Ten African American Green Heroes.”

His book, *Dumping in Dixie: Race, Class and Environmental Quality*, is a standard text in the environmental justice field. Some of his other books are *Just Sustainabilities: Development in an Unequal World*; *Highway Robbery: Transportation Racism and New Routes to Equity*; *The Quest for Environmental Justice: Human Rights and the Politics of Pollution*; *Growing Smarter: Achieving Livable Communities, Environmental Justice, and Regional Equity*; and *The Black Metropolis in the Twenty-First Century: Race, Power, and the Politics of Place*. He is also coauthor of *In the Wake of the Storm: Environment, Disaster and Race After Katrina* and *Toxic Wastes and Race at Twenty: 1987–2007*. His most recent books are *Race, Place and Environmental Justice after Hurricane Katrina*; *Environmental Health and Racial Equity in the United States*, and *The Wrong Complexion for Protection*.

In 2013, Dr. Bullard was honored with the Sierra Club's John Muir Award. He was the first African American to win the award. The following year, the club named its new Environmental Justice Award after Dr. Bullard. In 2015, the Iowa State University Alumni Association named him its Alumni Merit Award recipient, an award that was also given to George Washington Carver in 1937. In 2017, the Children's Environmental Health Network presented him with the Child Health Advocate Award. In 2018, the Global Climate Action Summit named Dr. Bullard one of 22 Climate Trailblazers. In 2019, Apolitical named him one of the world's 100 Most Influential People in Climate Policy, Washington State University honored him with the William Julius Wilson Award for the Advancement of Justice, and Climate One named him the recipient of the Stephen H. Schneider Award for Outstanding Climate Science Communication.

In 2020, WebMD presented Dr. Bullard with its Health Heroes Trailblazer Award, and the United Nations Environment Program honored him with its Champions of the Earth Lifetime Achievement Award, the UN's highest environmental honor, recognizing outstanding leaders from government, civil society, and the private sector whose actions have had a transformative effect on the environment.



CHARLES C. SHEPARD SCIENCE PUBLICATION AWARD NOMINEES



Nominated by the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry (CDC/ATSDR) for the 2021 Charles C. Shepard Science Awards, the nominated articles were judged on scientific merit and the significance of their effect on the CDC/ATSDR mission. The following is a complete citation and brief description of each article, listed by category and in alphabetical order by the first author's last name.



Assessment

Ibraheem S. Al-Tarawneh, Steven J. Wurzelbacher, and Stephen J. Bertke

Comparative Analyses of Workers' Compensation Claim of Injury Among Temporary and Permanent Employed Workers in Ohio

American Journal of Industrial Medicine 2020;63(1):3–22

The authors compared injury rates in temporary and permanent workers using workers' compensation data. Injury and illness rates for the temporary services industry are underestimated by the Bureau of Labor Statistics because they are counted at the host employer site, rather than at the temporary agency. But in workers' compensation systems, injury and illness claims for temporary employees are linked to the temporary agency. Findings suggest temporary workers had higher rates of injury than permanent workers performing similar work.

Melissa M. Arons, Kelly M. Hatfield, Sujan C. Reddy, Anne Kimball, Allison James, Jesica R. Jacobs, Joanne Taylor, Kevin Spicer, Ana C. Bardossy, Lisa P. Oakley, Sukarma Tanwar, Jonathan W. Dyal, Josh Harney, Zeshan Chisty, Jeneita M. Bell, Mark Methner, Prabasaj Paul, Christina M. Carlson, Heather P. McLaughlin, Natalie Thornburg, Suxiang Tong, Azaibi Tamin, Ying Tao, Anna Uehara, Jennifer Harcourt, Shauna Clark, Claire Brostrom-Smith, Libby C. Page, Meagan Kay, James Lewis, Patty Montgomery, Nimalie D. Stone, Thomas A. Clark, Margaret A. Honein, Jeffrey S. Duchin, John A. Jernigan, Public Health-Seattle, King County, and the CDC COVID-19 Investigation Team

Presymptomatic SARS-CoV-2 Infections and Transmission in a Skilled Nursing Facility

The New England Journal of Medicine 2020;382(22):2081–2090

Early field observations suggested COVID-19 spread rapidly in nursing homes despite CDC-recommended infection control measures that focused on testing and isolating symptomatic residents. This paper presented strong evidence for the role of presymptomatic shedding in driving COVID-19 transmission. Findings led to a fundamental change in CDC's approach to COVID-19 case detection and prevention strategy.

Kristina L. Bajema, Ryan E. Wiegand, Kendra Cuffe, Sadhna V. Patel, Ronaldo Iachan, Travis Lim, Adam Lee, Davia Moyses, Fiona P. Havers, Lee Harding, Alicia M. Fry, Aron J. Hall, Kelly Martin, Marjorie Biel, Yangyang Deng, William A. Meyer, III, Mohit Mathur, Tonja Kyle, Adi V. Gundlapalli, Natalie J. Thornburg, Lyle R. Petersen, and Chris Edens

Estimated SARS-CoV-2 Seroprevalence in the U.S. as of September 2020

JAMA Internal Medicine 2021;181(4):450–460

Because seroprevalence surveys yield more accurate estimates of cumulative infection, this study used residual blood serum from commercial laboratories to estimate SARS-CoV-2 prevalence. The authors tested nearly 178,000 samples, finding that less than 10% of U.S. residents had detectable SARS-CoV-2 antibodies. Findings suggest that before vaccine availability, most U.S. residents had not been infected with the virus, highlighting the importance of continued public health prevention measures to limit its spread and the urgent need for effective vaccines.

Stephen R. Benoit, Israel Hora, Francisco J. Pasquel, Edward W. Gregg, Ann L. Albright, and Giuseppina Imperatore

Trends in Emergency Department Visits and Inpatient Admissions for Hyperglycemic Crises in Adults with Diabetes in the U.S., 2006–2015

Diabetes Care 2020;43(5):1057–1064

Diabetic ketoacidosis (DKA) and hyperglycemic hyperosmolar state (HHS) are preventable metabolic complications of diabetes, which affects more than 30 million U.S. residents. This paper reports national trends in DKA and HHS among U.S. adults. It is the first comprehensive report to assess DKA and HHS trends in emergency department and inpatient settings, removing the potential bias associated with changes in hospital admission thresholds. Findings suggest DKA and HHS prevalence is increasing for all ages and both sexes.

Robert Douglas Daniels and Stephen J. Bertke

Exposure-response Assessment of Cancer Mortality in Styrene-exposed Boatbuilders

Occupational and Environmental Medicine 2020;77(10):706–712

Styrene is a benzene derivative used in about 15,000 industrial plants, mostly to manufacture polystyrene plastics and resins. Based on animal studies, but limited evidence in humans, styrene is also a suspected carcinogen. This paper uses statistical methods and exposure data to examine relationships between styrene exposure and cancer risk in a cohort of U.S. boatbuilders. Findings suggest certain workplace styrene exposures pose a cancer risk that can be reduced through improved risk management practices.

Karrie F. Downing, Naomi K. Tepper, Regina M. Simeone, Elizabeth C. Ailes, Michelle Gurvitz, Sheree L. Boulet, Margaret A. Honein, Penelope P. Howards, Anne M. Valente, and Sherry L. Farr

Adverse Pregnancy Conditions Among Privately Insured Women with and Without Congenital Heart Defects

Circulation: Cardiovascular Quality and Outcomes 2020;13(6):e006311

About 1.4 million adults in the United States have a congenital heart defect (CHD). This paper examines CHDs as a risk factor during pregnancy for adverse cardiac and obstetric conditions. Women with CHDs were found to have significantly higher prevalence of 25 cardiac and obstetric conditions during pregnancy compared to women without CHDs. The authors also examined how frequently the use of cardiac-related medications can harm embryos and fetuses and how effective echocardiograms can be for pregnant women.

Heather C. Hamner and Latetia V. Moore

Dietary Quality Among Children from 6 Months to 4 Years, NHANES 2011–2016

The American Journal of Clinical Nutrition 2020;111(1):61–69

Evidence suggests that early dietary patterns can have a lasting effect on health. However, there are limited measures for assessing dietary quality among children under 2 years of age. This paper characterizes dietary quality among U.S. children ages 6 months to 4 years, overall and by select sociodemographic characteristics. Findings suggest the effectiveness of emphasizing healthy eating even early in children's lives. Also, efforts may need to focus on children from households with lower incomes and education levels.

S. Jane Henley, Cheryl C. Thomas, Denise Riedel Lewis, Elizabeth M. Ward, Farhad Islami, Manxia Wu, Hannah K. Weir, Susan Scott, Recinda L. Sherman, Jiemin Ma, Betsy A. Kohler, Kathleen Cronin, Ahmedin Jemal, Vicki B. Benard, and Lisa C. Richardson

Annual Report to the Nation on the Status of Cancer, Part II: Progress Toward Healthy People 2020 Objectives for 4 Common Cancers

Cancer 2020;126(10):2250–2266

This paper measured progress toward Healthy People 2020 goals related to four common cancers (lung, colorectal, female breast, and prostate), which make up almost half of all cancer deaths. The authors also examined differences by sociodemographic characteristics such as sex, race, ethnicity, educational attainment, and health insurance status. Despite progress during the past decade, findings suggest the need to reduce disparities in cancer screening and in certain risk behaviors such as smoking, physical inactivity, and excessive alcohol consumption.

Megan G. Hofmeister, Jian Xing, Monique A. Foster, Ryan J. Augustine, Cole Burkholder, Jim Collins, Shannon McBee, Erica D. Thomasson, Douglas Thoroughman, Mark K. Weng, and Philip R. Spradling

Factors Associated with Hepatitis A Mortality During Person-to-Person Outbreaks: A Matched Case-Control Study—United States, 2016–2019

Hepatology 2020;74(1):28–40

Hepatitis A is a vaccine-preventable disease, but beginning in 2016, the United States has experienced outbreaks unprecedented since before hepatitis vaccines were developed. The authors conducted a matched case-control study analyzing secondary data to identify and assess factors associated with death resulting from hepatitis A. The study identified patient characteristics that can guide clinical decision making and inform new Advisory Committee on Immunization Practices hepatitis A vaccination recommendations.

Jean Y. Ko, Melissa L. Danielson, Machell Town, Gordana Derado, Kurt J. Greenlund, Pam Daily Kirley, Nisha B. Alden, Kimberly Yousey-Hindes, Evan J. Anderson, Patricia A. Ryan, Sue Kim, Ruth Lynfield, Salina M. Torres, Grant R. Barney, Nancy M. Bennett, Melissa Sutton, H. Keipp Talbot, Mary Hill, Aron J. Hall, Alicia M. Fry, Shikha Garg, Lindsay Kim, and the COVID-NET Surveillance Team

Risk Factors for Coronavirus Disease 2019 (COVID-19)-Associated Hospitalization: COVID-19-Associated Hospitalization Surveillance Network and Behavioral Risk Factor Surveillance System

Clinical Infectious Diseases 2021;72(11):e695–e703

Early studies identified people with COVID-19 as usually older with underlying medical conditions. However, why these characteristics were more common remained unclear. This paper investigated risk factors associated with COVID-19-associated hospitalization by combining two data sources—the Coronavirus Disease 2019-Associated Hospitalization Surveillance and the Behavioral Risk Factor Surveillance System to derive population estimates. It provided seminal evidence for informing the COVID-19 risk categorizations. Findings informed risk communication as part of the COVID-19 emergency response.

Ryan F. LeBouf, Brie Hawley Blackley, Alyson R. Fortner, Marcia Stanton, Stephen B. Martin, Caroline P. Groth, Tia L. McClelland, Matthew G. Duling, Dru A. Burns, Anand Ranpara, Nicole Edwards, Kathleen B. Fedan, Rachel L. Bailey, Kristin J. Cummings, Randall J. Nett, Jean Cox-Ganser, and M. Abbas Virji

Exposures and Emissions in Coffee Roasting Facilities and Cafes: Diacetyl, 2,3-Pentanedione, and Other Volatile Organic Compounds

Frontiers in Public Health 2020;8:561740

Inhaling diacetyl has been associated with obliterative bronchiolitis, a severe lung disease that can scar the airways. The authors investigated the health effects of exposure to diacetyl, 2,3-pentanedione, and other volatile organic compounds at 17 coffee roasting and packaging facilities, including 10 cafés. Findings suggest grinding and flavoring coffee were the main tasks associated with elevated exposures. They further concluded that controlling emissions at grinding machines and flavoring areas might be the best way to reduce worker exposures.

Nilay McLaren, Adriana Lopez, Sarah Kidd, John X. Zhang, W. Allan Nix, Ruth Link-Gelles, Adria Lee, and Janell A. Routh

Characteristics of Patients with Acute Flaccid Myelitis, United States, 2015–2018

Emerging Infectious Diseases 2020;26(2)212–219

Acute flaccid myelitis (AFM) is a life-threatening neurologic condition that mostly affects children and can lead to permanent paralysis. In 2014, an unusual AFM cluster in children was identified in Colorado. The authors compared the characteristics of AFM cases in peak and nonpeak years to determine causes. Their findings suggest rates of enterovirus (EV) infections, specifically enterovirus D-68, were greater during peak years and supports EV-D68 as a leading trigger of a new biennial epidemiologic pattern for AFM.

Stephanie C. Melkonian, Hannah K. Weir, Melissa A. Jim, Bailey Preikschat, Donald Haverkamp, and Mary C. White

Incidence of and Trends in the Leading Cancers with Elevated Incidence Among American Indian and Alaska Native Populations, 2012–2016

American Journal of Epidemiology 2021;190(4)528–538

In this paper, excess incidence of cancers was found in American Indian/Alaska Native populations for three of the leading causes of cancer death (female breast, colorectal, and lung and bronchus) as well as liver, stomach, and kidney cancers across most regions. The authors corrected for racial misclassification by comparing information with the Indian Health Service patient registration database. This approach to understanding health disparities by region can help identify social determinants of health, including access to care and built environments.

Martha L. Ospina, Van T. Tong, Maritza Gonzalez, Diana Valencia, Marcela Mercado, Suzanne M. Gilboa, Andrea J. Rodriguez, Sarah C. Tinker, Angelica Rico, Christina M. Winfield, Lissethe Pardo, Jennifer D. Thomas, Greace Avila, Julie M. Villanueva, Sara Gomez, Denise J. Jamieson, Franklyn Prieto, Dana Meaney-Delman, Oscar Pacheco, and Margaret A. Honein

Zika Virus Disease and Pregnancy Outcomes in Colombia

The New England Journal of Medicine 2020;383(6):537–545

Congenital Zika virus infection causes serious defects of the brain and eye among newborns. The authors used data from two national surveillance systems in Colombia to characterize Zika virus disease (ZVD) and pregnancy outcomes, including brain and eye defects, during the 2015–2016 Zika virus outbreak. The paper described the geographic distribution of ZVD and Zika-associated brain and eye abnormalities. Findings describe the effect of the outbreak on pregnancy and birth outcomes in Colombia.

Lakshmi Panagiotakopoulos, Natalie L. McCarthy, Naomi K. Tepper, Elyse O. Kharbanda, Heather S. Lipkind, Gabriela Vazquez-Benitez, David L. McClure, Victoria Greenberg, Darios Getahun, Jason M. Glanz, Allison L. Naleway, Nicola P. Klein, Jennifer C. Nelson, and Eric S. Weintraub

Evaluating the Association of Stillbirths After Maternal Vaccination in the Vaccine Safety Datalink

Obstetrics and Gynecology 2020;136(6):1086–1094

The Advisory Committee on Immunization Practices recommends pregnant women receive vaccines against influenza, tetanus, diphtheria, and pertussis during each pregnancy. This matched case-control study used data from the Vaccine Safety Datalink, a collaboration between CDC and eight healthcare systems, to determine whether vaccines given in pregnancy were associated with stillbirth. The authors' findings should reassure healthcare providers to continue recommending Tdap and influenza vaccines during pregnancy.

Amanda B. Payne, Jason M. Mehal, Christina Chapman, Dana L. Haberling, Lisa C. Richardson, Christopher J. Bean, and W. Craig Hooper

Trends in Sickle Cell Disease-related Mortality in the United States, 1979 to 2017

Annals of Emergency Medicine 2020;76(3S):S28–S36

Sickle cell disease (SCD) is an inherited blood disorder associated with complications such as stroke, pulmonary disease, and impaired renal function that increase the risk of early death. This paper used national death certificate data to investigate trends in SCD-related deaths in the United States. Understanding which SCD complications are associated with the highest proportion of SCD-related deaths will help develop new clinical and public health strategies to improve health outcomes among people who have SCD.

Audrey F. Pennington, Lyudmyla Kompaniyets, April D. Summers, Melissa L. Danielson, Alyson B. Goodman, Jennifer R. Chevinsky, Leigh Ellyn Preston, Lyna Z. Schieber, Gonza Namulanda, Joseph Courtney, Heather M. Strosnider, Tegan K. Boehmer, William R. MacKenzie, James Baggs, and Adi V. Gundlapalli

Risk of Clinical Severity by Age and Race/Ethnicity Among Adults Hospitalized for COVID-19—United States, March–September 2020

Open Forum Infectious Diseases 2020;8(2):ofaa638

Identifying demographic factors that increase risk of clinical severity for COVID-19 helps allocate prevention resources and prioritize vaccine delivery. The authors used electronic health record data from more than 180,000 patients diagnosed with COVID-19 to describe the risk of severity by age and race/ethnicity among adults hospitalized in the United States. They also explored whether the effect of age on clinical severity differs by race/ethnicity. Findings suggest the association between age and severity differs by race/ethnicity.

Jin Qin, Mona Saraiya, Gladys Martinez, and George F. Sawaya

Prevalence of Potentially Unnecessary Bimanual Pelvic Examinations and Papanicolaou Tests Among Adolescent Girls and Young Women Aged 15–20 Years in the United States

JAMA Internal Medicine 2020;180(2):274–280

Early screening tests often detect cancers when treatment is likely to work best, but almost all such tests have some risk of adverse effects. This study showed that the bimanual pelvic examination (BPE) and Pap tests of women younger than 21 years pose such risks. The authors found that many young women had received unnecessary BPEs and Pap tests. Results suggest clinical practices like pelvic examinations and Pap tests during routine STI screenings continue even though guidelines have changed.

Laura A. S. Quilter, Alex de Voux, Rachel M. Amiya, Erin Davies, Robin R. Hennessy, Roxanne P. Kerani, Robbie Madera, James Matthias, Victoria M. Pearson, Jaime K. Walters, Craig Wilson, Sarah Kidd, and Elizabeth Torrone

Prevalence of Self-reported Neurologic and Ocular Symptoms in Early Syphilis Cases

Clinical Infectious Diseases 2021;72(6):961–967

Syphilis rates in the United States continue to increase, with more than 129,000 cases reported in 2019 alone. And although neurologic and ocular complications of syphilis are rare, their numbers are likely to increase along with the increasing rate of syphilis infections. This paper characterizes the burden of self-reported neurologic and ocular symptoms among early syphilis cases in five U.S. jurisdictions. Findings can be used to target public health action such as healthcare provider education, training, and clinic protocols.

John Rossow, Belinda Ostrowsky, Eleanor Adams, Jane Greenko, Robert McDonald, Snigdha Vallabhaneni, Kaitlin Forsberg, Stephen Perez, Todd Lucas, Karen A. Alroy, Kara Jacobs Slifka, Maroya Walters, Brendan R. Jackson, Monica Quinn, Sudha Chaturvedi, Debra Blog, and the New York *Candida auris* Investigation Workgroup

Factors Associated with *Candida auris* Colonization and Transmission in Skilled Nursing Facilities with Ventilator Units, New York, 2016–2018

Clinical Infectious Diseases 2021;72(11):e753–e760

High-acuity long-term care facilities are central to the transmission of *Candida auris* in the United States. But why some residents become infected by this multidrug-resistant fungus while others do not remains unclear. This paper proposes a new approach to contact tracing that will help prevent invasive infections. The authors found that roommates are at no greater risk of transmission than others on the ward, and patients on wards without infected patients were not at meaningful risk.

J. Erin Staples, Daniel M. Pastula, Amanda J. Panella, Ingrid B. Rabe, Olga I Kosoy, William L. Walker, Jason O. Velez, Amy J. Lambert, and Marc Fischer

Investigation of Heartland Virus Disease Throughout the United States, 2013–2017

Open Forum Infectious Diseases 2020;7(5):ofaa125

Heartland virus (HRTV) was discovered in the blood of two hospitalized patients in Missouri suspected of having a tick-borne illness. This paper describes how the authors characterized the epidemiology, clinical features, risk factors, and geographic distribution of this new pathogen. They also developed and validated tests to identify new infections, uncovering additional cases. Findings have been used to update CDC guidance for who should receive HRTV testing and what tests should be used.

William Stephens, Grete E. Wilt, Erica Adams Lehnert, Noelle-Angelique M. Molinari, and Tanya Telfair LeBlanc

A Spatial and Temporal Investigation of Medical Surge in Dallas–Fort Worth During Hurricane Harvey, Texas 2017

Disaster Medicine and Public Health Preparedness 2020;14(1):111–118

2020 saw a record number of storms make landfall in the United States, all during a global pandemic. This study investigated how well emergency departments in Dallas–Fort Worth area hospitals coped with the surge in emergency department visits during Hurricane Harvey in 2017. Accurate means of assessing the impact of public health emergencies on hospitals will improve the preparedness of coastal states during similar large public health contingencies. The authors' assessment validates a methodology needed in public health.

Elizabeth A. Swedo, Steven A. Sumner, Sietske de Fijter, Luke Werhan, Kirkland Norris, Jennifer L. Beauregard, Martha P. Montgomery, Erica B. Rose, Susan D. Hillis, and Greta M. Massetti

Adolescent Opioid Misuse Attributable to Adverse Childhood Experiences

The Journal of Pediatrics 2020;224:102–109.e3

Youth have not been spared the harm of the opioid epidemic. In fact, overdose deaths among adolescents are at an all-time high. This study describes the nature of adverse childhood experiences (ACEs) in the adolescent population and their relationship to opioid abuse. ACEs—such as neglect, experiencing or witnessing violence, or having a family member attempt or die by suicide—were found to be an important risk factor for adult opioid misuse.

Adam S. Vaughan, Linda Schieb, and Michele Casper

Historic and Recent Trends in County-level Coronary Heart Disease Death Rates by Race, Gender, and Age Group, United States, 1979–2017

PLOS One 2020;15(7):e0235839

Heart disease is the leading cause of death and disability in the United States. Using national vital statistics mortality data, the authors examined 39 years (1979–2017) of changing county-level coronary heart disease (CHD) death rates by age group, race, and gender. The study details the national surveillance of cardiovascular disease and documents health inequities. Findings point to the need for greater surveillance of CHD, including its incidence, risk factors, and corresponding social determinants.

Angela K. Werner, Emilia H. Koumans, Kevin Chatham-Stephens, Phillip P. Salvatore, Christina Armatas, Paul Byers, Charles R. Clark, Isaac Ghinai, Stacy M. Holzbauer, Kristen A. Navarette, Melissa L. Danielson, Sascha Ellington, Erin D. Moritz, Emily E. Petersen, Emily A. Kiernan, Grant T. Baldwin, Peter Briss, Christopher M. Jones, Brian A. King, Vikram Krishnasamy, Dale A. Rose, Sarah Reagan-Steiner, and the Lung Injury Response Mortality Working Group

Hospitalizations and Deaths Associated with EVALI

The New England Journal of Medicine 2020;382(17):1589–1598

In July 2019, Wisconsin and Illinois identified cases of severe lung injury later called “e-cigarette, or vaping, product use-associated lung injury” (EVALI). Once considered safer than tobacco products, e-cigarettes suddenly posed a public health challenge. People were being hospitalized and dying without knowing who was at risk. The authors found that about half of hospitalized patients with fatal cases initially presented in outpatient settings without being admitted for EVALI, highlighting the importance of early treatment.

**Katherine N. Yoon, Lee A. Greenawald, Dana R. Rottach, Jonisha P. Pollard,
and Patrick L. Yorio**

**A General Framework to Test and Evaluate Filtering Facepiece Respirators
Considered for Crisis Capacity Use as a Strategy to Optimize Supply**

Journal of the International Society for Respiratory Protection 2020;36(1):36–51

During the COVID-19 pandemic, N95 filtering facepiece respirators (FFRs) are the main source of protection for healthcare workers. Testing and evaluation of N95 FFRs are primarily done by the National Institute for Occupational Safety and Health. This paper discusses how to assess N95 FFR quality during crises. Using the framework presented in this paper, any entity with a supply of N95 FFRs could sample, test, and evaluate their quality before distributing them to workers.

Benjamin Zablotsky, Jessica Rast, Matthew D. Bramlett, and Paul T. Shattuck

**Health Care Transition Planning Among Youth with ASD and Other Mental,
Behavioral, and Developmental Disorders**

Maternal and Child Health Journal 2020;24(6):796–804

Youth with autism spectrum disorder are a population of additional need given their increased use of healthcare services and higher healthcare expenditures. But resources dedicated to healthcare transition planning are scarce, especially for youth who are most at risk of being deprived of these services. A successful transition from pediatric to adult medicine is crucial to ensuring continuity of care. Findings emphasize the barriers impeding these youth from receiving help transitioning successfully into adult medicine.

Data Methods and Study Design

Andrew F. Auld, Katherine Fielding, Tefera Agizew, Alice Maida, Anikie Mathoma, Rosanna Boyd, Anand Date, Sherri L. Pals, George Bicego, Yuliang Liu, Ray W. Shiraishi, Peter Ehrenkranz, Christopher Serumola, Unami Mathebula, Heather Alexander, Salome Charalambous, Courtney Emerson, Goabaone Rankgoane-Pono, Pontsho Pono, Alyssa Finlay, James C. Shepherd, Charles Holmes, Tedd V. Ellerbrock, and Alison D. Grant

Risk Scores for Predicting Early Antiretroviral Therapy Mortality in Sub-Saharan Africa to Inform Who Needs Intensification of Care: A Derivation and External Validation Cohort Study

BMC Medicine 2020;18(1):311

Sub-Saharan Africa has the highest rates of death caused by early antiretroviral therapy and accounts for about two-thirds of the 690,000 annual HIV-related deaths. One reason for high mortality is lack of testing for CD4, a type of white blood cell. The authors developed two mortality risk scores: one for where CD4 testing is available, the other for where it is not. Their scores help differentiate three risk groups and could help identify patients most in need of urgent care.

Daniel A. Bowen, Jing Wang, Kristin Holland, Brad Bartholow, and Steven A. Sumner

Conversational Topics of Social Media Messages Associated with State-level Mental Distress Rates

Journal of Mental Health 2020;29(2):234–241

Although effective suicide prevention strategies and treatment exist, rates of suicide and nonfatal self-harm have increased more than 30% since 1999. This study used Twitter data (more than 400 million tweets) to estimate state-level mental distress rates as measured through CDC's Behavioral Risk Factor Surveillance System and assessed the utility of social media conversations. The study illustrates the value of innovative data sources and methods such as natural language processing.

**Timothy Dignam, James Hodge, Stella Chuke, Carlos Mercado,
Adrienne S. Ettinger, and W. Dana Flanders**

Use of the CUSUM and Shewhart Control Chart Methods to Identify Changes of Public Health Significance Using Childhood Blood Lead Surveillance Data

Environmental Epidemiology 2020;4(2):e090

CDC and partners encourage the control or removal of lead before children are exposed. This paper describes an alerting algorithm to quickly analyze child blood lead surveillance data and notify health departments to areas that might require public health investigation. The algorithm is being evaluated in real-world conditions by state and local health departments. Findings suggest it can help prevent future lead exposures and major public health crises.

Andrew N. Hill, Ted Cohen, Joshua A. Salomon, and Nicolas A. Menzies

High-resolution Estimates of Tuberculosis Incidence Among Non-U.S.-born Persons Residing in the United States, 2000–2016

Epidemics 2020;33:100419

Currently, 70% of TB cases occur among people born outside the United States. Understanding disease distribution and trends in this key group is critical for TB elimination. This study examined which people born outside the United States are most likely to be diagnosed with TB in the United States. The authors used model-smoothing techniques to create projections into the near future for diverse cohorts.

**Muhammad Jami Husain, Biplab Kumar Datta, Nigar Nargis, Roberto Iglesias,
Anne-Marie Perucic, Indu B. Ahluwalia, Angela Tripp, Sohani Fatehin,
Muhammad Mudabbir Husain, Deliana Kostova, and Patricia Richter**

Revisiting the Association Between Worldwide Implementation of the MPOWER Package and Smoking Prevalence, 2008–2017

Tobacco Control 2020; doi: 10.1136/tobaccocontrol-2020-055758

The authors examined implementation and prevalence data from the use of the MPOWER package—a collection of six strategies for reducing tobacco use worldwide—to evaluate policies considering different results for various categories of countries. A decade after the introduction of the WHO's MPOWER package, the authors found that the countries with higher initial tobacco control preparedness and higher smoking burden were able to significantly reduce adult daily smoking prevalence.

**Katherine E. Irimata, Yulei He, Bill Cai, Hee-Choon Shin, Van L. Parsons,
and Jennifer D. Parker**

**Comparison of Quarterly and Yearly Calibration Data for Propensity Score
Adjusted Web Survey Estimates**

Survey Methods: Insights from the Field 2020; doi: 10.13094/SMIF-2020-00018

Web surveys and Internet panels have become popular for collecting health data due to lower cost and expedited collection. However, web survey estimates might yield more nonresponse bias compared with traditional household surveys. This paper describes a web-based data collection mechanism, the Research and Development Survey used by the National Center for Health Statistics. Different calibration approaches using the National Health Interview Survey as a reference dataset were explored. Findings suggest flexibility in selecting reference datasets.

**Xiaoyue Ma, Jesse D. Blanton, Max Francois Millien, Alexandra M. Medley,
Melissa D. Etheart, Natael Fenelon, and Ryan M. Wallace**

Quantifying the Risk of Rabies in Biting Dogs in Haiti

Scientific Reports 2020;10(1):1062

As one of the world's deadliest infectious diseases, rabies is typically transmitted through the bite of rabid animals. This study uses various methods, including multiple logistic regression, survival analysis, and cost-effectiveness economic analysis, to reach conclusions about how to integrate bite-center risk assessments, field-level animal assessments, and decision making to improve outcomes for dog bite victims. Findings have resulted in the adoption of this approach in eight countries and have influenced recommendations for 30,000 dog-bite investigations.

**Michael V. Maciosek, Brian S. Armour, Stephen D. Babb, Steven P. Dehmer,
Elizabeth S. Grossman, David M. Homa, Amy B. LaFrance, Robert Rodes,
Xu Wang, Zack Xu, Zhuo Yang, and Kakoli Roy**

**Budgetary Impact from Multiple Perspectives of Sustained Antitobacco
National Media Campaigns to Reduce the Harms of Cigarette Smoking**

Tobacco Control 2021;30:279–285

Antitobacco media campaigns have been shown to reduce the harms of cigarette smoking. This study uses a microsimulation model to project the health and budgetary effects of a national antitobacco media campaign from health insurance payers' perspectives. The impacts are projected over 10 and 20 years for campaigns lasting 1, 5, and 10 years. Results suggest 1- 5- and 10-year campaigns all yield net savings within 10 years. And multiyear campaigns yield higher savings than 1-year campaigns.

**Kevin A. Matthews, Anne H. Gaglioti, James B. Holt, Anne G. Wheaton,
and Janet B. Croft**

Estimating Health Service Utilization Potential Using the Supply-concentric Demand-accumulation Spatial Availability Index: A Pulmonary Rehabilitation Case Study

International Journal of Health Geographics 2020;19(1):30

CDC must constantly develop new ways to determine where to assign the location of Medicare claims and other health-related data. This paper introduces a way to measure spatial availability to health care called the Supply-concentric Demand-accumulation method. It measures spatial availability as the demand in the provider's nearest population centers satisfied by the number of services the provider delivered. The study shows how Medicare claims data can be used to identify underserved populations for specific healthcare procedures.

**Stephanie L. Sansom, Katherine A. Hicks, Justin Carrico, Evin U. Jacobson,
Ram K. Shrestha, Timothy A. Green, and David W. Purcell**

Optimal Allocation of Societal HIV Prevention Resources to Reduce HIV Incidence in the United States

American Journal of Public Health 2021;111(1):150–158

As the federal Ending the HIV Epidemic initiative continues to be refined, this paper and its estimates show how spending allocations influence HIV transmission and incidence. The authors developed a way to estimate spending on HIV prevention, based on their model of HIV disease progression and transmission. Their combined spending estimate allowed the authors to find the optimal allocation of all HIV prevention funding to guide the nation's goal of Ending the HIV Epidemic in the United States.

Allan W. Taylor, Dianna M. Blau, Quique Bassat, Dickens Onyango, Karen L. Kotloff, Shams El Arifeen, Inacio Mandomando, Richard Chawana, Vicky L. Baillie, Victor Akelo, Milagritos D. Tapia, Navit T. Salzberg, Adama Mamby Keita, Timothy Morris, Shailesh Nair, Nega Assefa, Anna C. Seale, J. Anthony G. Scott, Reinhard Kaiser, Amara Jambai, Beth A. Tippet Barr, Emily S. Gurley, Jaume Ordi, Sherif R. Zaki, Samba O. Sow, Farzana Islam, Afruna Rahman, Scott F. Dowell, Jeffrey P. Koplan, Pratima L. Raghunathan, Shabir A. Madhi, Robert F. Breiman, and the CHAMPS Consortium

Initial Findings from a Novel Population-based Child Mortality Surveillance Approach: A Descriptive Study

The Lancet Global Health 2020;8:e909–e919

More than 5 million children die annually before they reach age 5. By combining postmortem pathology, molecular, and microbiology data collection with clinical data and parental interviews, Child Health and Mortality Prevention Surveillance (CHAMPS) generates comprehensive evaluations of conditions leading to death. The CHAMPS findings in this study present a more accurate picture of how and why children die in low-resource settings.

Kristin VanderEnde, Arend Voorman, Sara Khan, Abhijeet Anand, Cynthia J. Snider, Ajay Goel, and Steve Wassilak

New Analytic Approaches for Analyzing and Presenting Polio Surveillance Data to Supplement Standard Performance Indicators

Vaccine: X 2020;4:100059

Acute flaccid paralysis (AFP) is a neurologic condition that affects the nervous system and spinal cord. AFP surveillance is a critical part of the Global Polio Eradication Initiative (GPEI). The quality of AFP surveillance affects the promptness of identifying new poliovirus transmission and progress toward polio eradication. This paper describes two ways to analyze and present AFP surveillance data that can be used for monitoring and evaluation within the GPEI or within a country's ministry of health.

Oliver Wirth, Anne M. Foreman, Jonathan E. Friedel, and Michael E. Andrew

Two Discrete Choice Experiments on Laboratory Safety Decisions and Practices

Journal of Safety Research 2020;75:99–110

Society's increasing reliance on developments in laboratory science creates potential for increased risks for laboratory workers. This study features the application of the "discrete choice experiment" that analyzes choice patterns among realistic scenarios. Findings suggest lab workers' willingness to report safety concerns and comply with safety policies on personal protective equipment were influenced by their perceptions of risk and severity of risks to health and safety. Other personal and social factors had lesser influences.

Laboratory Science

Sridhar V. Basavaraju, Monica E. Patton, Kacie Grimm, Mohammed Ata Ur Rasheed, Sandra Lester, Lisa Mills, Megan Stumpf, Brandi Freeman, Azaibi Tamin, Jennifer Harcourt, Jarad Schiffer, Vera Semenova, Han Li, Bailey Alston, Muyiwa Ategbale, Shanna Bolcen, Darbi Boulay, Peter Browning, Li Cronin, Ebenezer David, Rita Desai, Monica Epperson, Yamini Gorantla, Tao Jia, Panagiotis Maniatis, Kimberly Moss, Kristina Ortiz, So Hee Park, Palak Patel, Yunlong Qin, Evelene Steward-Clark, Heather Tatum, Andrew Vogan, Briana Zellner, Jan Drobeniuc, Matthew R. P. Sapiano, Fiona Havers, Carrie Reed, Susan Gerber, Natalie J Thornburg, and Susan L Stramer

Serologic Testing of U.S. Blood Donations to Identify SARS-CoV-2-reactive Antibodies: December 2019–January 2020

Clinical Infectious Diseases 2020; doi: 10.1093/cid/ciaa1785

Since the emergence of the SARS-CoV-2 pandemic, scientists have sought to determine when and where the virus first entered the United States. This paper describes the laboratory evaluation of U.S. blood donations in nine states between December 2019 and January 2020. This analysis provides compelling evidence of introduction of SARS-CoV-2 into the United States as early as December 2019, before the first recognized U.S. case and before the WHO was notified of this novel coronavirus.

Kim M. Gernert, Sandra Seby, Matthew W. Schmerer, Jesse C. Thomas, IV, Cau D. Pham, Sancta St. Cyr, Karen Schlanger, Hillard Weinstock, William M. Shafer, Brian H. Raphael, Ellen N. Kersh, and the Antimicrobial-resistant *Neisseria gonorrhoeae* Working Group

Azithromycin Susceptibility of *Neisseria gonorrhoeae* in the USA in 2017: A Genomic Analysis of Surveillance Data

The Lancet Microbe 2020;1(4):e154–e164

Gonorrhoea cases have been rising in the United States since 2009. CDC's Gonococcal Isolate Surveillance Project (GISP) has also recorded the increased resistance to antibiotics of the bacterium *Neisseria gonorrhoeae*, which causes gonorrhoea. In this study, the authors showed that a single strain of gonorrhoea spread throughout all communities and that it was not multiple strains with new resistance mechanisms that were responsible for the increased antibiotic resistance.

Jonathan C. Guito, Joseph B. Prescott, Catherine E. Arnold, Brian R. Amman, Amy J. Schuh, Jessica R. Spengler, Tara K. Sealy, Jessica R. Harmon, JoAnn D. Coleman-McCray, Kirsten A. Kulcsar, Elyse R. Nagle, Raina Kumar, Gustavo F. Palacios, Mariano Sanchez-Lockhart, and Jonathan S. Towner

Asymptomatic Infection of Marburg Virus Reservoir Bats Is Explained by a Strategy of Immunoprotective Disease Tolerance

Current Biology 2021;31(2):257–270.e5

How does the Egyptian fruit bat avoid becoming sick while harboring the Marburg virus, which is deadly for humans? This work explores how bat immunity can be used to develop successful human therapies. Using novel tools to measure immune gene regulation in experimentally infected bats with Marburg, the authors show that bats activate antiviral genes that clear the virus but prevent disease-causing inflammation. Findings have broad applicability to other known and unknown bat-borne viruses.

Jennifer Harcourt, Azaibi Tamin, Xiaoyan Lu, Shifaq Kamili, Senthil K. Sakthivel, Janna Murray, Krista Queen, Ying Tao, Clinton R. Paden, Jing Zhang, Yan Li, Anna Uehara, Haibin Wang, Cynthia Goldsmith, Hannah A. Bullock, Lijuan Wang, Brett Whitaker, Brian Lynch, Rashi Gautam, Craig Schindewolf, Kumari G. Lokugamage, Dionna Scharton, Jessica A. Plante, Divya Mirchandani, Steven G. Widen, Krishna Narayanan, Shinji Makino, Thomas G. Ksiazek, Kenneth S. Plante, Scott C. Weaver, Stephen Lindstrom, Suxiang Tong, Vineet D. Menachery, and Natalie J. Thornburg

Severe Acute Respiratory Syndrome Coronavirus 2 from Patient with Coronavirus Disease, United States

Emerging Infectious Diseases 2020;26(6):1266–1273

Beginning in December 2019, the speed of the SARS-CoV-2 outbreak presented a critical need for reference reagents. The public health community needed to understand the virus, and researchers needed to develop vaccines. This paper represents the first full characterization of the SARS-CoV-2 reference strain for the United States. The authors describe isolation of SARS-CoV-2 and its genomic sequence and replication characteristics. Their data enabled a better understanding of the virus and how it spreads.

**T. O. Khaliullin, E. R. Kisin, S. Guppi, N. Yanamala, V. Zhernovkov,
and A. A. Shvedova**

Differential Responses of Murine Alveolar Macrophages to Elongate Mineral Particles of Asbestiform and Non-asbestiform Varieties: Cytotoxicity, Cytokine Secretion and Transcriptional Changes

Toxicology and Applied Pharmacology 2020;409:115302

Inhaling airborne fibers causes physical and economic harm worldwide. Unfortunately, there is little agreement between regulators and scientists about how to regulate anything but asbestos fibers. Immune response to inhaling airborne fibers is controlled primarily by alveolar macrophages, a type of lung cell that ingests or absorbs foreign particles. This paper describes a model of alveolar macrophage-like cells, obtained from the livers of fetal mice. Findings could eliminate discrepancies between agencies on how to count non-asbestos particles in workplace air.

Luke Kingry, Sarah Sheldon, Stephanie Oatman, Bobbi Pritt, Melissa Anacker, Jenna Bjork, David Neitzel, Anna Strain, Jon Berry, Lynne Sloan, Laurel Respicio-Kingry, Elizabeth Dietrich, Karen Bloch, Abelardo Moncayo, Ganesh Srinivasamoorthy, Bin Hu, Alison Hinckley, Paul Mead, Kiersten Kugeler, and Jeannine Petersen

Targeted Metagenomics for Clinical Detection and Discovery of Bacterial Tick-borne Pathogens

Journal of Clinical Microbiology 2020;58(11):e00147-20

Tick-borne diseases are a growing public health threat in the United States. About 60 million Americans are exposed to ticks each year. This paper describes the development and use of a new multi-agent molecular method for detecting bacteria that cause Lyme disease and other tick-transmitted infections, including previously unrecognized pathogens. The single, multi-agent test will fill a diagnostic gap by improving testing efficiency, simplifying test selection, and decreasing the likelihood that the correct diagnosis may be missed.

Jennifer L. Konopka-Anstadt, Ray Campagnoli, Annelet Vincent, Jing Shaw, Ling Wei, Nhien T. Wynn, Shane E. Smithee, Erika Bujaki, Ming Te Yeh, Majid Laassri, Tatiana Zagorodnyaya, Amy J. Weiner, Konstantin Chumakov, Raul Andino, Andrew Macadam, Olen Kew, and Cara C. Burns

Development of a New Oral Poliovirus Vaccine for the Eradication End Game Using Codon Deoptimization

NPJ Vaccines 2020;5(1):26

When the global poliovirus eradication program began, it was assumed the Sabin and Salk vaccines would achieve the goal. However, it became clear that the Sabin polio strains could rarely revert and reacquire transmissibility. This paper describes the development of new vaccine development methods for eradication. The work paves the way for development of vaccines using the same technology to target other pathogens. The new vaccines have potential for public health impact by eradicating poliovirus disease and death.

Chol Seung Lim, Dale W. Porter, Marlene S. Orandle, Brett J. Green, Mark A. Barnes, Tara L. Croston, Michael G. Wolfarth, Lori A. Battelli, Michael E. Andrew, Donald H. Beezhold, Paul D. Siegel, and Qiang Ma

Resolution of Pulmonary Inflammation Induced by Carbon Nanotubes and Fullerenes in Mice: Role of Macrophage Polarization

Frontiers in Immunology 2020;11:1186

Chronic inflammation, fibrosis, and cancer in the lung and pleura from inhaling micro- and nano-scaled particles threaten workers globally. Acute inflammation can help clear particles from the lungs, but it can also amplify collateral tissue damage. The authors analyzed alterations of inflammatory and fibrotic responses to inhaled nanoparticles. Findings suggest timely resolution of inflammation helps repair lung structure and function after injury. Meanwhile, unresolved inflammation can lead to overzealous wound healing, progressive fibrosis, and tumor growth.

Ivana Massud, Susan Ruone, Maria Zlotorzynska, Richard Haaland, Patrick Mills, Mian-Er Cong, Kristen Kelley, Ryan Johnson, Angela Holder, Chuong Dinh, George Khalil, Yi Pan, Colleen F. Kelley, Travis Sanchez, Walid Heneine, and J. Gerardo Garcia-Lerma

Single Oral Dose for HIV Pre- or Post-exposure Prophylaxis: User Desirability and Biological Efficacy in Macaques

EBioMedicine 2020;58:102894

CDC and WHO recommend daily pre-exposure prophylaxis (PrEP) for HIV prevention, but inadequate adherence to the daily regimen reduces effectiveness and public health impact. However, as efforts to scale up PrEP around the world accelerate, non-daily dosing may benefit users who may not require or prefer daily PrEP. Using animal models and pharmacologic assessments, the authors identify a novel HIV prevention strategy for clinical development.

Heather P. McLaughlin, Julia V. Bugrysheva, Andrew B. Conley, Christopher A. Gulvik, Blake Cherney, Cari B. Kolton, Chung K. Marston, Elke Saile, Erin Swaney, David Lonsway, Amy S. Gargis, Thiphasone Kongphet-Tran, Christine Lascols, Pierre Michel, Julie Villanueva, Alex R. Hoffmaster, Jay E. Gee, and David Sue

Rapid Nanopore Whole-genome Sequencing for Anthrax Emergency Preparedness

Emerging Infectious Diseases 2020;26(2):358–361

State public health laboratories test hundreds of suspicious threat letters for anthrax every year. The 2001 anthrax attacks showed the importance of rapid testing and high-confidence laboratory results in informing response decisions. The authors unveiled a new, same-day laboratory approach to detect genetic changes related to antibiotic resistance and evidence of bioengineering in *Bacillus anthracis* using a portable whole-genome sequencer and custom bioinformatic analysis pipeline that strengthens anthrax emergency preparedness.

Fernanda S. Nascimento, Joel Barratt, Katelyn Houghton, Mateusz Plucinski, Julia Kelley, Shannon Casillas, Carolyne Cody Bennett, Cathy Snider, Rashmi Tuladhar, Jenny Zhang, Brooke Clemons, Susan Madison-Antenucci, Alexis Russell, Elizabeth Cebelinski, Jisun Haan, Trisha Robinson, Michael J. Arrowood, Eldin Talundzic, Richard S. Bradbury, and Yvonne Qvarnstrom

Evaluation of an Ensemble-based Distance Statistic for Clustering MLST Datasets Using Epidemiologically Defined Clusters of Cyclosporiasis

Epidemiology and Infection 2020;148:e172

Outbreaks of the foodborne parasitic infection cyclosporiasis have been rising. Controlling these outbreaks requires identifying suspect foods, but identification requires time for disease to develop and be diagnosed. A genetic typing scheme that could identify linked cases would help public health actions. The authors employed an “ensemble approach” using two algorithms to analyze complex genotyping data and identify genetically related cases. This type of analysis can be performed quickly on hundreds to thousands of specimens.

Dongxia Wang, Jakub Baudys, Jonathan L. Bundy, Maria Solano, Theodore Keppel, and John R. Barr

Comprehensive Analysis of the Glycan Complement of SARS-CoV-2 Spike Proteins Using Signature Ions-triggered Electron-transfer/Higher-energy Collisional Dissociation (ETHcD) Mass Spectrometry

Analytical Chemistry 2020;92(21):14730–14739

This paper describes an advanced mass spectrometry-based laboratory method to comprehensively characterize the glycan shield of the spike protein ectodomain and subunits from SARS-CoV, SARS-CoV-2, and MERS-CoV produced in a variety of cell types. Improved profiling of site-specific glycosylation in coronavirus spike proteins provides insight into the mechanisms of their protein–protein interactions with cellular receptors and antibodies. Vaccine development relies on accurate interpretation of interactions between vaccine agents and targeted spike proteins.

Prevention and Control

Ryusuke Ae, Joseph Y. Abrams, Ryan A. Maddox, Lawrence B. Schonberger, Yosikazu Nakamura, Masanari Kuwabara, Nobuko Makino, Yuri Matsubara, Koki Kosami, Teppei Sasahara, and Ermias D. Belay

Corticosteroids Added to Initial Intravenous Immunoglobulin Treatment for the Prevention of Coronary Artery Abnormalities in High-risk Patients with Kawasaki Disease

Journal of the American Heart Association 2020;9(17):e015308

Although it has been over 50 years since Kawasaki Disease (KD) was first described, its cause is still unknown, and a sizable percentage of patients do not respond to the standard treatment. KD is an acute, febrile inflammation of blood vessels that can damage the walls of the coronary arteries. Using Japanese surveillance data, this paper shows a protective effect of combination treatment with corticosteroids, a finding that supports routine use of such treatment as a secondary preventive measure.

Fatma Romeh M. Ali, Linda Neff, Xu Wang, S. Sean Hu, Anna Schechter, Margaret Mahoney, and Paul C. Melstrom

Tobacco-free Pharmacies and U.S. Adult Smoking Behavior: Evidence from CVS Health's Removal of Tobacco Sales

American Journal of Preventive Medicine 2020;58(1):41–49

This study assesses the effect of CVS Health ending tobacco sales on smoking rates among U.S. adults. The study compared quit attempts and daily vs. non-daily smoking between smokers living in counties with CVS stores and counties without CVS stores, before and after CVS's removal of tobacco sales. For the two years after CVS ended tobacco sales, the authors found increased quit attempt rates among smokers living in counties with high CVS store density compared to counties without CVS stores.

Andrew F. Auld, Tefera Agizew, Anikie Mathoma, Rosanna Boyd, Anand Date, Sherri L. Pals, Christopher Serumola, Unami Mathebula, Heather Alexander, Tedd V. Ellerbrock, Goabaone Rankgoane-Pono, Pontsho Pono, James C. Shepherd, Katherine Fielding, Alison D. Grant, and Alyssa Finlay

Effect of Tuberculosis Screening and Retention Interventions on Early Antiretroviral Therapy Mortality in Botswana: A Stepped-wedge Cluster Randomized Trial

BMC Medicine 2020;18(1):19

About 690,000 HIV-related deaths occur globally each year, and tuberculosis (TB) is the most common cause of these deaths. This paper provides evidence to enable prevention and control of the HIV and TB pandemics. The Botswana XPRES clinical trial showed that strengthening health systems to improve the use of intensified TB case finding and retention in HIV-TB care cascades was associated with about 23% lower 6-month antiretroviral therapy mortality.

Rachel M. Burke, Holly C. Groom, Allison L. Naleway, Eric M. Katz, Bianca Salas, Claire P. Mattison, Judy Donald, Laura Tsaknaridis, Christianne Biggs, Michael D. Bowen, Jacqueline E. Tate, Umesh D. Parashar, Mark Schmidt, and Aron J. Hall

Rotavirus Vaccine Is Effective Against Rotavirus Gastroenteritis Resulting in Outpatient Care: Results from the Medically Attended Acute Gastroenteritis (MAAGE) Study

Clinical Infectious Diseases 2021;72(11):2000–2005

Diarrheal illness is a leading cause of child death worldwide, and rotavirus is one of the most common causes of diarrheal illness. Vaccination is effective at preventing sickness and death from rotavirus disease globally. The authors randomly sampled patients complaining of acute gastroenteritis, gave them questionnaires, and took stool samples for testing. They linked results to vaccination records for each patient, enabling assessment of rotavirus vaccine effectiveness. Findings suggest rotavirus vaccine is effective against milder disease, which is more common than severe illness.

Christine L. Dubray, Anita D. Sircar, Valery Madsen Beau de Rochars, Joshua Bogus, Abdel N. Direny, Jean Romuald Ernest, Carl R. Fayette, Charles W. Goss, Marisa Hast, Kobie O'Brian, Guy Emmanuel Pavilus, Daniel Frantz Sabin, Ryan E. Wiegand, Gary J. Weil, and Jean Frantz Lemoine

Safety and Efficacy of Co-administered Diethylcarbamazine, Albendazole and Ivermectin During Mass Drug Administration for Lymphatic Filariasis in Haiti: Results from a Two-armed, Open-label, Cluster-randomized, Community Study

PLOS Neglected Tropical Diseases 2020;14(6):e0008298

About 60 million people are infected with lymphatic filariasis (LF) in 32 endemic countries. This paper describes the results of a large field investigation of the feasibility, safety, and efficacy of a new, triple-drug regimen vs. the standard, two-drug regimen for annual mass drug administration for the elimination of LF in Haiti. The authors collected symptom and laboratory data and used real-time analysis tools to ensure validity. The WHO is already recommending that endemic countries consider the triple-drug strategy.

Kevin L. Dunn, Duane Hammond, Kevin Menchaca, Gary Roth, and Kevin H. Dunn

Reducing Ultrafine Particulate Emission from Multiple 3D Printers in an Office Environment Using a Prototype Engineering Control

Journal of Nanoparticle Research 2020;22(5):112

Three-dimensional printing is still a new technology, and information about printers' safety and health effects remains largely unstudied. Most early studies indicate inhalation of 3-D printer emissions can result in adverse respiratory and cardiovascular health effects such as asthma. This paper describes a CDC/NIOSH-designed engineering intervention to reduce 3-D printer emissions and reduce exposure to volatile organic compounds and ultrafine particles (UFP). Findings showed a 98% reduction in UFP emissions can be achieved when using this low-cost retrofit engineering control.

Maxim Gakh, Gregory Sunshine, Alexa Limeres, and Lainie Rutkow

Governors' Use of Executive Orders and Proclamations in Hurricane Response, 2006–2018

Health Security 2020;18(6):489–495

This paper assesses how governors' emergency orders can decrease the impact of natural disasters. The legal assessment used a systemic approach, informed by the literature and the guidance of a law librarian to identify and analyze executive orders and proclamations during a 12-year span. A review of the dataset that met the inclusion criteria was conducted by three researchers using a standardized codebook resulting in a final dataset for analysis. Findings will help states to prepare for and respond to hurricanes.

Isaac Ghinai, Tristan D. McPherson, Jennifer C. Hunter, Hannah L. Kirking, Demian Christiansen, Kiran Joshi, Rachel Rubin, Shirley Morales-Estrada, Stephanie R. Black, Massimo Pacilli, Marielle J. Fricchione, Rashmi K. Chugh, Kelly A. Walblay, N. Seema Ahmed, William C. Stoecker, Nausheen F. Hasan, Deborah P. Burdsall, Heather E. Reese, Megan Wallace, Chen Wang, Darcie Moeller, Jacqueline Korpics, Shannon A. Novosad, Isaac Benowitz, Max W. Jacobs, Vishal S. Dasari, Megan T. Patel, Judy Kauerauf, E. Matt Charles, Ngozi O. Ezike, Victoria Chu, Claire M. Midgley, Melissa A. Rolfes, Susan I. Gerber, Xiaoyan Lu, Stephen Lindstrom, Jennifer R. Verani, Jennifer E. Layden, and the Illinois COVID-19 Investigation Team

First Known Person-to-person Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in the USA

The Lancet 2020;395(10230):1137–1144

This paper developed a risk stratification for contacts that has since been used to define close contacts, a definition critical for COVID-19 contact investigations. The authors effectively characterized the public health response to the first known COVID-19 transmission in the United States. Findings have already had major public health impact in helping to set the stage for the vast mobilization that U.S. jurisdictions have had to mount to conduct case investigation and contact tracing.

E. Rickamer Hoover, Nicole Hedeem, Amy Freeland, Anita Kambhampati, Daniel Dewey-Mattia, Kristi-Warren Scott, Aron Hall, and Laura Brown

Restaurant Policies and Practices Related to Norovirus Outbreak Size and Duration

Journal of Food Protection 2020;83(9):1607–1618

Norovirus is the leading cause of foodborne illness in the United States. It sickens 20 million people and leads to \$2 billion in lost productivity and health-care expenses annually. This study analyzed foodborne outbreak surveillance data and found that restaurant characteristics, policies, and practices were linked with outbreak size and duration. Restaurants with smaller outbreaks had the following characteristics: managers received food safety certification, managers and workers received food safety training, food workers wore gloves, and restaurants had cleaning policies.

Omoye E. Imoisili, Elizabeth A. Lundeen, David S. Freedman, Lindsay S. Womack, Jessica Wallace, Simon J. Hambidge, Steven Federico, Rachel Everhart, Delia Harr, Jillian Vance, Lyudmyla Kompaniyets, Carrie Dooyema, Sohyun Park, Heidi M. Blanck, and Alyson B. Goodman

Body Mass Index and Blood Pressure Improvements with a Pediatric Weight Management Intervention at Federally Qualified Health Centers

Academic Pediatrics 2021;21(2):312–320

Childhood obesity is a serious problem in the United States, putting children and adolescents at risk for poor health throughout their lifetimes. This paper presents an analysis of electronic health record data used to evaluate the real-world effectiveness of a pediatric weight management program (Mind, Exercise, Nutrition, Do It! [MEND]) that was used by federally qualified health centers in Denver. Findings suggest the program can improve childhood overweight and obesity prevalence in the United States.

Sarah Mbaeyi, Tracy Pondo, Amy Blain, David Yankey, Caelin Potts, Amanda Cohn, Susan Hariri, Nong Shang, and Jessica R. MacNeil

Incidence of Meningococcal Disease Before and After Implementation of Quadrivalent Meningococcal Conjugate Vaccine in the United States

JAMA Pediatrics 2020;174(9):843–851

Meningococcal disease, a serious bacterial infection caused by *Neisseria meningitidis*, can lead to high rates of death and disability. Adolescents and young adults have an increased risk and are the primary source of transmission. In this analysis, the authors reveal the first impact of adolescent vaccination, showing a twofold to threefold faster rate of decline in incidence in vaccinated age groups, an association with state-level coverage rates and potential impact on unvaccinated age groups through herd protection.

Jareen Meinzen-Derr, Susan Wiley, Wendy Grove, Mekibib Altaye, Marcus Gaffney, Ashley Satterfield-Nash, Alonzo T. Folger, Georgina Peacock, and Coleen Boyle

Kindergarten Readiness in Children Who Are Deaf or Hard of Hearing Who Received Early Intervention

Pediatrics 2020;146(4)e20200557

Without appropriate opportunities to learn and develop, children who are deaf or hard of hearing can fall behind their hearing peers in speech, language, cognitive, and social-emotional development. This paper reports on outcomes from a CDC-funded study to better understand the long-term effects of early intervention on kindergarten readiness among children who are deaf or hard of hearing. Findings suggest intervention before 6 months establishes healthy trajectories of early childhood development, thereby reducing the risk for later academic struggles.

Laura C. Steinhardt, Thomas L. Richie, Reuben Yego, Dorcas Akach, Mary J. Hamel, Julie R. Gutman, Ryan E. Wiegand, Elizabeth L. Nzuu, Allan Dungani, Natasha Kc, Tooba Murshedkar, L. W. Preston Church, B. Kim Lee Sim, Peter F. Billingsley, Eric R. James, Yonas Abebe, Simon Kariuki, Aaron M. Samuels, Kephass Otieno, Tony Sang, S. Patrick Kachur, David Styers, Kelly Schlessman, Ginnie Abarbanell, Stephen L. Hoffman, Robert A. Seder, and Martina Oneko

Safety, Tolerability, and Immunogenicity of *Plasmodium falciparum* Sporozoite Vaccine Administered by Direct Venous Inoculation to Infants and Young Children: Findings from an Age De-escalation, Dose-Escalation, Double-blind, Randomized Controlled Study in Western Kenya

Clinical Infectious Diseases 2020;71(4):1063–1071

Malaria control has required combinations of partially effective interventions— insecticide-treated nets and use of insecticides to kill the mosquitoes, combined with malaria case management and preventive therapies. This paper assesses the safety, tolerability, and effectiveness of a malaria vaccine in children and infants. Findings provided extensive safety information on the vaccine in children and infants, using a range of doses. The vaccine was safely delivered intravenously in all age groups.

Steven J. Wurzelbacher, Michael P. Lampl, Stephen J. Bertke, and Chih-Yu Tseng

The Effectiveness of Ergonomic Interventions in Material Handling Operations

Applied Ergonomics 2020;87:103139

This paper describes a large, multisite, quasi-experimental study to assess the impact of a range of workplace ergonomic engineering interventions on reported pain symptoms and safety incidents. The study supports the use of engineering controls and workplace changes to prevent future musculoskeletal symptoms and injuries. Findings suggest the use of ergonomic material handling equipment can reduce occupational hazards in these settings, especially when supported through insurer–employer partnerships.

Health Equity Science

Genevieve Bergeron, Nneka Lundy De La Cruz, L. Hannah Gould, Sze Yan Liu, and Amber Levanon Seligson

Association Between Racial Discrimination and Health-related Quality of Life and the Impact of Social Relationships

Quality of Life Research 2020;29(10):2793–2805

Public health is typically focused on causes of illness and disease rather than promoting or protecting health. New York City's Department of Health and Mental Hygiene runs neighborhood health action centers in three of the city's unhealthiest neighborhoods, which also had long histories of segregation and discrimination. The authors examined data from the 2017 Social Determinants of Health Survey and found that social programming within these action centers moderated the effects of racial discrimination on mental health.

Sherry Everett Jones, J. Michael Underwood, Sanjana Pampati, Vi Donna Le, Sarah DeGue, Zewditu Demissie, Susan Hocevar Adkins, and Lisa C. Barrios

School-level Poverty and Persistent Feelings of Sadness or Hopelessness, Suicidality, and Experiences with Violence Victimization Among Public High School Students

Journal of Health Care for the Poor and Underserved 2020;31(3):1248–1263

Poverty has been shown to affect multiple negative experiences and outcomes among youth, including mental health and well-being, suicide, and violence victimization. This study examines the association between school-level poverty estimates and negative behavioral outcomes among a nationally representative sample of public high school students. Findings suggest students attending high-poverty schools are at increased risk for negative behaviors and experiences, thereby pointing to schools and communities as important environments for intervention.

Leora R. Feldstein, Sarah D. Bennett, Concepción F. Estivariz, Gretchen M. Cooley, Lauren Weil, Mallick Masum Billah, M. Salim Uzzaman, Rajendra Bohara, Maya Vandenant, Jucy Merina Adhikari, Eva Leidman, Mainul Hasan, Saifuddin Akhtar, Andreas Hasman, Laura Conklin, Daniel Ehلمان, A. Alamgir, and Meerjady Sabrina Flora

Vaccination Coverage Survey and Seroprevalence Among Forcibly Displaced Rohingya Children, Cox's Bazar, Bangladesh, 2018: A Cross-sectional Study

PLOS Medicine 2020;17(3):e1003071

The Rohingya people are stateless and have long faced violence, discrimination, and other human rights abuses. They have also experienced many health-related inequities, including limited access to health services. This activity targeted a disadvantaged population during an unsettled time in their lives in refugee camps. By identifying immunity gaps and providing specific recommendations for how to close those immunity gaps, this paper discusses the prevention and control of vaccine-preventable diseases among children living in Rohingya refugee camps.

Kaori Fujishiro, Leslie A. MacDonald, and Virginia J. Howard

Job Complexity and Hazardous Working Conditions: How Do They Explain Educational Gradient in Mortality?

Journal of Occupational Health Psychology 2020;25(3):176–186

This paper examines how education and occupation contribute to the black-white difference in all-cause mortality. The authors show that education's protective effects through occupation differ by race and gender: white men with higher education avoid hazardous jobs, black men and white women with higher education gain more complex and engaging jobs, but black women with higher education do not gain health benefits from jobs. Findings suggest that encouraging higher education alone may not reduce health inequity.

Charleigh J. Granade, Russell F. McCord, Alexandra A. Bhatti, and Megan C. Lindley

State Policies on Access to Vaccination Services for Low-income Adults

JAMA Network Open 2020; 3(4):e203316

People with health insurance are more likely to receive preventive health services than the uninsured, but adults with public insurance generally have lower rates of vaccination coverage than the privately insured. Adult Medicaid beneficiaries often cannot receive the full slate of Advisory Committee on Immunization Practices-recommended vaccines at no cost. The authors evaluated adult Medicaid beneficiaries' access to immunization services to determine whether Medicaid benefits contribute to inequities in adult vaccination. Findings support a universal vaccination program for low-income adults.

**William L. Jeffries, IV, Stephen A. Flores, Cherie R. Rooks-Peck,
Deborah J. Gelaude, Lisa Belcher, Philip M. Ricks, and Gregorio A. Millett**

**Experienced Homophobia and HIV Infection Risk Among U.S. Gay, Bisexual,
and Other Men Who Have Sex with Men: A Meta-analysis**

LGBT Health 2021; 8(1):1–10

HIV disproportionately affects black, Latino, and younger men who have sex with men (MSM). This paper quantifies associations between types of homophobia and HIV infection risk. The authors used rapid review and meta-analytic techniques to examine the relationship between experienced homophobia and HIV infection risk among gay, bisexual, and other MSM in the United States. Findings suggest experienced homophobia is associated with increased odds of having any sexual risk behavior, unprotected anal sex, and poor HIV clinical care engagement.

**Samuel M. Jenness, Jordan A. Johnson, Karen W. Hoover, Dawn K. Smith,
and Kevin P. Delaney**

**Modeling an Integrated HIV Prevention and Care Continuum to Achieve
the Ending the HIV Epidemic Goals**

AIDS 2020;34(14):2103–2113

Surveillance data were used to model the sexual networks and disparities between black and Hispanic men who have sex with men (MSM) and their white counterparts. The model shows the effects of combinations of interventions and how reducing disparities can help reduce HIV incidence among white MSM, even when the interventions are focused solely on black MSM. Findings also quantify the level of intervention needed to End the HIV Epidemic in the United States.

**Xu Ji, Shanna Cox, Scott D. Grosse, Wanda D. Barfield, Brian S. Armour,
Elizabeth A. Courtney-Long, and Rui Li**

**Association of Smoke-free Laws with Preterm or Low Birth Weight
Deliveries—A Multistate Analysis**

Health Services Research 2021;56(1):61–72

Few studies have quantified the association between smoke-free laws and adverse birth outcomes in the United States. Research has shown variation in smoke-free law coverage, with racial/ethnic minorities less likely to be covered by local smoke-free laws. In the states for which this analysis was conducted, authors estimated that at least 610 preterm delivery hospitalizations (and associated costs) could have been averted among non-Hispanic black mothers after state smoke-free laws took effect.

Emily Mosites, Brian Lefferts, Sara Seeman, Gerald January, Jennifer Dobson, David Fuente, Michael Bruce, Timothy Thomas, and Thomas Hennessy

Community Water Service and Incidence of Respiratory, Skin, and Gastrointestinal Infections in Rural Alaska, 2013–2015

International Journal of Hygiene and Environmental Health 2020;225:113475

The lack of water access faced by Alaska Native (AN) communities in rural Alaska is a critical health disparity. This paper investigates access to water as an underlying contributor to health equity in rural AN communities by evaluating how the types of water service and levels of water service coverage affect numerous health outcomes in this population. The authors also highlight the type of interventions needed to improve the health of the community by focusing on infectious disease outcomes.

Cynthia A. Pate, Xiaoting Qin, Cathy M. Bailey, and Hatice S. Zahran

Cost Barriers to Asthma Care by Health Insurance Type Among Children with Asthma

Journal of Asthma 2020;57(10):1103–1109

Asthma is one of the most prevalent chronic conditions among children and has been identified as the most common reason for potentially preventable pediatric hospital stays. Using data from the federally developed Asthma Call-back Survey, the authors found that having no health insurance, partial year coverage, and public insurance were associated with cost barriers to asthma care. Furthermore, among children with health insurance, more black children were found to have reported a cost barrier to seeing a doctor.

Yinan Peng, Robert A. Hahn, Ramona K. C. Finnie, Jamaica Cobb, Samantha P. Williams, Jonathan E. Fielding, Robert L. Johnson, Ann Elizabeth Montgomery, Alex F. Schwartz, Carles Muntaner, Veronica Helms Garrison, Beda Jean-Francois, Benedict I. Truman, Mindy T. Fullilove, and the Community Preventive Services Task Force

Permanent Supportive Housing with Housing First to Reduce Homelessness and Promote Health Among Homeless Populations with Disability: A Community Guide Systematic Review

Journal of Public Health Management and Practice 2020;26(5):404–411

Housing First programs offer stable housing and services to people experiencing homelessness so they can stay off streets and reduce their exposure to viral infections and other dangers. By living in a regular place with improved access to medical care, they can better manage their chronic conditions such as opioid addiction and diabetes. This review examined Housing First programs' effectiveness in advancing health equity. Findings suggest these programs improved housing stability and promoted health equity for people experiencing chronic homelessness.

Whitney L. Rostad, Katie A. Ports, Shichao Tang, and Joanne Klevens

Reducing the Number of Children Entering Foster Care: Effects of State Earned Income Tax Credits

Child Maltreatment 2020;25(4):393–397

With families enduring financial insecurity from the COVID-19 pandemic, economic support to keep from needlessly removing children from their families has never been more important. This study examined associations between nonrefundable and refundable state-level earned income tax credits (EITC) and the number of children entering foster care, an indicator of maltreatment. Based on 2017 data, the authors found that 668 fewer children might enter foster care per year on average if states without an EITC adopted a refundable EITC.

Lia C. Scott, Shelton Bartley, Nicole F. Dowling, and Lisa C. Richardson

Finding “Bright Spots:” Using Multiple Measures to Examine Local-area Racial Equity in Cancer Mortality Outcomes

American Journal of Epidemiology 2021;190(4):673–680

Much work in cancer prevention has focused on places and populations with different outcomes. Using new measures for health equity that allow for more flexibility than previous work, this study examines positive deviance—places where outcomes are equal. It also shows another way to inform policy planning and evaluate evidence-based interventions used in “bright spot” communities that achieve equitable and optimal outcomes. Importantly, the measures and methods are broadly applicable for other health conditions.

Makram Talih, Ramal Moonesinghe, and David T. Huang

Measuring the Magnitude of Health Inequality Between 2 Population Subgroup Proportions

American Journal of Epidemiology 2020;189(9):987–996

In health disparity studies, estimates of the direction and magnitude of differences between population subgroups depends greatly on analytic choices, such as whether estimates are based on absolute versus relative differences between the groups compared. Developing a standard measurement unit in this study helped to harmonize disparity measures in Healthy People and other population health programs. The measurement unit enables comparisons among various inequalities and eliminates the need to subjectively judge health disparity measures.

**John K. Weiser, Yunfeng Tie, Linda Beer, Robyn Neblett Fanfair,
and Roy Luke Shouse**

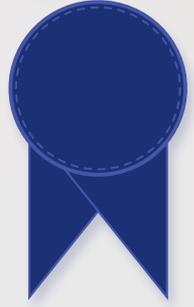
**Racial/Ethnic and Income Disparities in the Prevalence of Comorbidities
that Are Associated with Risk for Severe COVID-19 Among Adults Receiving
HIV Care, United States, 2014–2019**

Journal of Acquired Immune Deficiency Syndromes 2021;86(3):297–304

CDC lists HIV as an underlying medical condition associated with increased risk for severe COVID-19, even though people with HIV (PWH) who are on effective HIV treatment have the same risk for COVID-19 as people who do not have HIV. This paper reports that over one-third of PWH have additional underlying illnesses associated with severe COVID-19 and that there are substantial disparities in the distribution of those comorbidities by race and income.



LIFETIME SCIENTIFIC ACHIEVEMENT



The following current or former CDC/ATSDR employees were nominated for the Lifetime Scientific Achievement Award, which recognizes individuals for a body of work contributing to public health. Nominees are judged on their work's scientific merit, its effect on public health and the CDC/ATSDR mission, and on their leadership and recognition by peers.



Alexander Crosby, MD, MPH

National Center for Injury Prevention and Control

Dr. Alexander Crosby began his esteemed 30-year CDC career as an Epidemic Intelligence Service (EIS) officer working in injury and violence prevention, culminating as a chief medical officer and senior medical advisor in the Division of Injury Prevention at the National Center for Injury Prevention and Control (NCIPC). Violence and injury were not universally recognized as public health problems in the 1990s when Dr. Crosby began his work at CDC. He contributed to seminal works establishing these topics as public health problems, which led to their expansion into primary research areas for the agency and ultimately to NCIPC's creation.

Dr. Crosby is a world-renowned suicidologist, having contributed to more than 100 peer-reviewed articles, government reports, and book chapters during his tenure. His scholarship and advancement of the science of suicidology reach far beyond his publications alone and include an ongoing commitment to teach and mentor students and young professionals. He has provided his expertise on numerous workgroups, panels, task forces, and other groups focused on preventing suicide.

Dr. Crosby helped write the self-directed violence surveillance definitions for the field in 2011, which the Department of Veterans Affairs used to develop their surveillance definition and applied to clinical settings. As surveillance branch chief, he worked to expand the National Violent Death Reporting System (NVDRS) from a handful of states to 50 states, Washington, DC, and Puerto Rico. NVDRS is a large-scale, state-based surveillance system that links information from death certificates, coroner or medical examiner reports, and law enforcement reports, and is the only surveillance system of its kind to yield comprehensive information on such deaths.

During his career in the Public Health Service Commissioned Corps, Dr. Crosby has served as an Epidemic Intelligence Service officer, team lead, branch chief, and medical advisor to two division directors, all at the National Center for Injury Prevention and Control. As a Commissioned Corps officer, he has responded to numerous public health emergencies, led investigative teams, and studied adolescent suicide clusters, civil unrest, school-associated violence, sniper attacks, firearm-related injuries due to celebratory shooting, the public health response to Hurricane Rita in the Gulf Coast, and the COVID-19 pandemic. Dr. Crosby is a consummate public health champion.

Robert Fontaine, MD, MSc

Center for Global Health

The limited number of trained epidemiologists and limited application of scientific data challenge global public health practice and problem solving. As a result, much public health decision making is not based on evidence, and the world is not prepared for the next pandemic. Dr. Robert Fontaine's collaborative scientific work has tackled these deficits by effectively using field epidemiology to solve hundreds of challenging problems by building epidemiologic capacity around the world through the establishment and oversight of field epidemiology training programs (FETPs). His career in field epidemiology, beginning as an officer in the Epidemic Intelligence Service (EIS) in 1973, and spanning over 48 years, has focused on using data from outbreak investigations, surveillance systems, and applied epidemiological research to identify and solve public health problems.

Amplifying the global impact of his contributions, Dr. Fontaine's investigations and consultations have often been conducted while mentoring FETP residents and junior staff. While serving overseas for over 20 years, developing new FETPs in Saudi Arabia (1987), Jordan (1998), and China (2004–2012) and supporting programs in Asia and Central America from CDC headquarters, he has directly mentored more than 250 trainees in 2-year FETPs and instructed over 850 short courses. Many of those he has mentored have gone on to mentor others, thus propagating generations of new mentors. His lectures and curriculum development work have influenced thousands more. In each setting, Dr. Fontaine has used and shown FETP residents and staff to use the scientific method to solve countless tangible health problems.

Much of Dr. Fontaine's work has been done while living abroad or helping global partners from headquarters. It involved resource-limited environments, collaboration across cultures and languages and in countries with different values, priorities, and health challenges from those in the United States. He has persevered to develop thousands of epidemiologists, strengthen use of science in public health systems, and improve health for millions.

Dr. Fontaine's leadership of the discipline can be seen in his consistent application of field epidemiology to various public health problems over an extended period. Through his field investigations, service in the field abroad to support field epidemiology training, and regular consultation, he has influenced the discipline of field epidemiology and its practitioners around the world.

David Freedman, PhD, MSPH

National Center for Chronic Disease Prevention and Health Promotion

Dr. David Freedman is an internationally recognized expert in the predictors of childhood health and growth. He has worked in these areas for nearly 40 years, mostly at CDC. During this time, he has produced a large body of work that has scientific, clinical, and programmatic relevance. Dr. Freedman is the first author of more than 100 articles published in various scientific, medical, and public health journals, and he has coauthored nearly 80 more such articles. He is also the author of 19 book chapters, editorials, commentaries, and government publications discussing anthropometric measurement, screening measures for obesity, and cardiovascular risk factors. The significance of his scientific and public health work is, in part, shown by the 37,857 citations that his publications have received.

Although the effects of adult obesity on health have long been appreciated, this is less true for childhood obesity. Dr. Freedman's work has contributed enormously to the recognition that obesity during childhood affects one's health throughout one's life. In one of his first research projects after graduate school, Dr. Freedman performed the data analyses and prepared a manuscript that demonstrated the importance of these childhood risk factors. This pathology study showed that aortic fatty streaks at death were strongly related to antemortem levels of LDL cholesterol, triglycerides, and systolic blood pressure.

Dr. Freedman is a servant leader and has shared his extensive technical expertise to advance the work of other researchers and practitioners. He has used his expertise in obesity to support the COVID-19 response. Obesity is a risk factor for more severe outcomes from COVID-19, and Dr. Freedman has mentored agency staff on the use of electronic health record data and obesity variables to help answer questions related to obesity among children and adults.

Through his publications, leadership, mentoring, and technical assistance, Dr. Freedman has significantly advanced the disciplines of childhood obesity and cardiovascular disease prevention. He has contributed to the understanding of cardiovascular disease risk factors among children, the measurement of obesity in children, and the tracking of obesity and cardiovascular risk factors from childhood to adulthood. Dr. Freedman's scientific research on the consequences of childhood obesity and associated comorbidities has resulted in the widespread acceptance that the initial stages of cardiovascular disease begin in childhood.

Stuart Nichol, PhD

National Center for Emerging and Zoonotic Infectious Diseases

From his early days as a postdoctoral fellow at the University of California San Diego, to his fruitful leadership of the Molecular Biology Section at CDC's Viral Special Pathogens Branch, including service as branch chief, Dr. Stuart Nichol has left an outsized imprint at CDC and within the field of virology. He is known in the scientific community as one of the world's premiere experts on the study of high-consequence RNA viruses, and his research and leadership have greatly expanded our understanding and recognition of these viruses and helped hone methods to control their spread.

Dr. Nichol has 40 years of experience in BSL-3 and BSL-4 high-containment laboratory work. His work has increased our understanding of RNA virus threats to human and animal health, used virology and One Health approaches to understand the emergence of these threats, and improved CDC's ability to systematically approach laboratory-based surveillance, disease control, and disease prevention strategies for a deadly set of disease agents.

At CDC, most career scientists are focused on narrow slices of work. Unusually, Dr. Nichol has a far-ranging vision and talent, seeing how all the pieces (laboratory, field work, animal work, research) fit to illuminate the puzzle. From the laboratory, to the field, to WHO in Geneva, to the CDC Emergency Operations Center, Dr. Nichol is engaged in all aspects of CDC's response to high-consequence viruses, and he is sought for his expert opinion on everything from building new programs to ensuring CDC engagement in global partnerships.

With over 400 peer-reviewed publications, 15 patents granted or applied for, and more than 40 years of experience conducting the highest quality research and mentoring new generations of virologists, Dr. Nichol is highly regarded among his peers. Within the scientific community, his leadership is evident in the many requests for his contributions on scientific journal editorial boards. During his career, he has participated in the editorial boards of the *Journal of General Virology*, *Virus Research*, *Virology*, *Infection*, *Genetics and Evolution*, and the *Journal of Virology*. He has twice been asked by the American Society of Virology to give the prestigious Ho Wang Lee lecture and has participated with the U.S. National Academies of Sciences to develop multiple scientific meetings.

Mark A. Pallansch, PhD

National Center for Immunization and Respiratory Diseases

During his 37-year CDC career, Dr. Mark Pallansch has made significant scientific contributions to eradicate polio and understand the threat of other enteroviral and respiratory pathogens. He has developed innovative molecular techniques, spearheaded the use of lab and other technology at CDC, and shared knowledge from CDC, the World Health Organization (WHO), and other scientific entities to laboratories and other responders. He has been instrumental in setting up global public health laboratory and surveillance networks for polio, and he has used those lessons to inform work against a spectrum of infectious disease threats.

Dr. Pallansch has served as a subject-matter expert for decades at WHO. When he was awarded the Edelman Award in 2014, Dr. Bruce Aylward, WHO assistant director-general of polio, emergencies, and country collaboration noted that Dr. Pallansch's "work has been fundamental to so much of what's happened in the polio eradication program over the last few years, and it has helped to support many of our decisions over the last decade and to bring the world much, much closer to one where future generations will never know the terror of this disease."

Dr. Pallansch is a leader in preventing viral diseases and recognized for his dedication to polio eradication. He translates his findings into not only an enormous body of peer-reviewed published research but also actionable guidance. The world knows how to eliminate polio—vaccination, sanitation, effective treatment, and strong surveillance—but political, economic, and logistical challenges have often prevented successful application. As an expert in epidemiologic and laboratory research, Dr. Pallansch brings the knowledge to navigate these challenges.

Dr. Pallansch is coauthor of the Global Action Plan that established the Global Polio Laboratory Network, which evolved into the Global Polio Eradication Initiative (GPEI), a public-private partnership among the WHO, Rotary International, CDC, the United Nations Children's Fund (UNICEF), Bill & Melinda Gates Foundation, and Gavi, the vaccine alliance, with six countries to eradicate polio worldwide. He has won Shepard Awards for the best manuscript on original research published by a CDC or ATSDR scientist in a reputable, peer-reviewed journal five times, in 1988, 2004, 2012, 2016, 2019. He has authored and coauthored more than 300 publications—270 peer-reviewed journal manuscripts and 36 book chapters.

Andrew Vernon, MD, MHS

National Center for HIV, Viral Hepatitis, STD, and TB Prevention

Throughout his career, Dr. Andrew Vernon has advanced the relationship of clinical and translational research to public health practice. Beginning his career as an Epidemic Intelligence Service (EIS) officer with CDC in 1978, he worked on HIV/AIDS, child health, malaria prophylaxis in pregnancy, and a new, high-potency measles vaccine. Since 2004, he has served as branch chief in the Clinical Research Branch (CRB), Division of TB Elimination. In this capacity, his contribution to public health has been massive. CRB directs CDC's Tuberculosis Trials Consortium (TBTC), which has grown into a multinational collaboration of researchers from CDC, domestic and international public health departments, academic medical centers, and Department of Veterans Affairs medical centers. TBTC's mission is to conduct research on the diagnosis, clinical management, and prevention of TB infection and disease. Dr. Vernon's work plays a major role in assessing the pipeline of anti-TB drug candidates and diagnostics.

The CDC-based TBTC that Dr. Vernon oversees has conducted 10 major studies and more than a dozen pharmacokinetic and other sub-studies, enrolling more than 16,000 people worldwide during the past 15 years. TBTC activities have greatly influenced the conduct of TB research around the world. Under his direction, TBTC has developed an extensive system for clinical monitoring and quality assurance and has influenced scientific approaches to treatment regimens for TB disease and latent TB infection.

As Division of TB Elimination clinical research branch chief, Dr. Vernon has customarily managed about 20 staff with an annual budget of \$11 million. Activities include the multinational TBTC, Data Coordinating Center with web-based data portals for FDA registration quality data, laboratory and drug delivery quality assurance innovations, and resulting guidelines updates.

Dr. Vernon's work and influence has not been limited to TBTC. From 2001 to 2007, he chaired The International Union Against TB and Lung Diseases Clinical Trials Steering Committee. Between 2007 and 2016, he served as an associate editor for the *International Journal of TB and Lung Disease*. His capacity to recognize how a concept may be translated to the benefit of patients and his mentorship have helped his peers enhance their work and enabled younger colleagues to build the knowledge and skills to become the next generation of investigators to further improve clinical care and treatment.

David Weissman, MD

National Institute for Occupational Safety and Health

Dr. David Weissman joined NIOSH in 1997. Although he has made many individual contributions since then, perhaps his most important has been to provide outstanding leadership and support to investigators in NIOSH's Respiratory Health Division (RHD) since becoming its director in 2005. In that role, he has been a true servant-leader, often working in the background to facilitate research that has had great impact on the division, NIOSH, and the field of occupational safety and health, especially occupational respiratory disease prevention.

Dr. Weissman's efforts have primarily focused on occupational respiratory disease. This causes a significant disease burden in the United States and internationally. NIOSH researchers have estimated that in the United States in 2012 there were between 399,799 and 553,566 new cases of noncancer occupational respiratory diseases such as asthma, COPD, and dust-induced interstitial lung disease (pneumoconiosis). Another area where Dr. Weissman has supported participation of RHD and made personal contributions has been in support of CDC emergency responses. He has personally contributed to many responses, including the anthrax attacks of 2001, respiratory aspects of the 2005 Hurricane Katrina, the 2009 H1N1 pandemic, the e-cigarette, or vaping, product use-associated lung injury (EVALI) outbreak of 2019-2020, and the current COVID-19 pandemic.

Dr. Weissman has had important leadership roles in his discipline. These include leadership roles in the American Thoracic Society (ATS). At the national level, he served on the Program Committee for the ATS Assembly on Environmental and Occupational Health from 2005 to 2014. He has been engaged in several ATS workgroups leading to an influential statement on occupational spirometry and a call for improved interoperability standards for pulmonary function equipment. At the state level, he served as West Virginia's state representative to ATS Council of Chapter Representatives, 1994-2001, and President, West Virginia Thoracic Society, 2002-2005. He was also on the board of directors for the American Lung Association of West Virginia, 2002-2005. He has managed CDC-NIOSH programs in respiratory health and in the healthcare and social assistance industry sector since 2005, leading large groups of scientists and stakeholders in setting research priorities that have influenced CDC-NIOSH funding and research decisions. His leadership of the Interagency Asbestos Working Group also influenced federal approaches to asbestos.

PREVIOUS WINNERS



2020

ASSESSMENT

Kathleen P. Hartnett, Aaron Kite-Powell, Megan T. Patel, Brittani L. Haag, Michael J. Sheppard, Taylor P. Dias, Brian A. King, Paul C. Melstrom, Matthew D. Ritchey, Zachary Stein, Nimi Idaikkadar, Alana M. Vivolo-Kantor, Dale A. Rose, Peter A. Briss, Jennifer E. Layden, Loren Rodgers, and Jennifer Adjemian

Syndromic Surveillance for E-Cigarette, or Vaping, Product Use-associated Lung Injury

The New England Journal of Medicine 2020;69(9):236-240

Lyna Z. Schieber, Gery P. Guy, Jr., Puja Seth, Randall Young, Christine L. Mattson, Christina A. Mikosz, and Richard A. Schieber

Trends and Patterns of Geographic Variation in Opioid Prescribing Practices by State, United States, 2006–2017

JAMA Network Open 2019;2(3):e190665

DATA METHODS AND STUDY DESIGN

David S. Campo, Vishal Nayak, Ganesh Srinivasamoorthy, and Yury Khudyakov

Entropy of Mitochondrial DNA Circulating in Blood is Associated with Hepatocellular Carcinoma

BMC Medical Genomics 2019;12(Suppl 4):74

LABORATORY SCIENCE

Patricia A. Jorquera, Vasilii P. Mishin, Anton Chesnokov, Ha T. Nguyen, Brian Mann, Rebecca Garten, John Barnes, Erin Hodges, Juan De La Cruz, Xiyan Xu, Jackie Katz, David E. Wentworth, and Larisa V. Gubareva

Insights into the Antigenic Advancement of Influenza A(H3N2) Viruses, 2011–2018

Scientific Reports 2019;9(1):2676

PREVENTION AND CONTROL

Meng-Yu Chen, Charles E. Rose, Yan Ping Qi, Jennifer L. Williams, Lorraine F. Yeung, Robert J. Berry, Ling Hao, Michael J. Cannon, and Krista S. Crider

Defining the Plasma Folate Concentration Associated with the Red Blood Cell Folate Concentration Threshold for Optimal Neural Tube Defects Prevention: A Population-based, Randomized Trial of Folic Acid Supplementation

The American Journal of Clinical Nutrition 2019;109(5):1452–1461

LIFETIME SCIENTIFIC ACHIEVEMENT

Jim Pirkle, MD, PhD

Dr. Pirkle was recognized for improving the understanding of human exposure to harmful chemicals and helping to establish biomonitoring as an integral part of evidence-based decision making in public policy.

2019

ASSESSMENT

Samir K. Saha, Stephanie J. Schrag, Shams El Arifeen, Luke C. Mullany, Mohammad Shahidul Islam, Nong Shang, Shamim A. Qazi, Anita K. M. Zaidi, Zulfiqar A. Bhutta, Anuradha Bose, Pinaki Panigrahi, Sajid B. Soofi, Nicholas E. Connor, Dipak K. Mitra, Rita Isaac, Jonas M. Winchell, Melissa L. Arvay, Maksuda Islam, Yasir Shafiq, Imran Nisar, Benazir Baloch, Furqan Kabir, Murtaza Ali, Maureen H. Diaz, Radhanath Satpathy, Pritish Nanda, Bijaya K. Padhi, Sailajanandan Parida, Aneeta Hotwani, M. Hasanuzzaman, Sheraz Ahmed, Mohammad Belal Hossain, Shabina Ariff, Imran Ahmed, Syed Mamun Ibne Moin, Arif Mahmud, Jessica L. Waller, Iftexhar Rafiqullah, Mohammad A. Quaiyum, Nazma Begum, Veeraraghavan Balaji, Jasmin Halen, A. S. M. Nawshad Uddin Ahmed, Martin W. Weber, Davidson H. Hamer, Patricia L. Hibberd, Qazi Sadeq-Ur Rahman, Venkat Raghava Mogan, Tanvir Hossain, Lesley McGee, Shalini Anandan, Anran Liu, Kalpana Panigrahi, Asha Mary Abraham, and Abdullah H. Baqui

Causes and Incidence of Community-acquired Serious Infections Among Young Children in South Asia (ANISA): An Observational Cohort Study

The Lancet 2018;392(10142):145–159

DATA METHODS AND STUDY DESIGN

Diba Khana, Lauren M. Rossen, Holly Hedegaard, and Margaret Warner

A Bayesian Spatial and Temporal Modeling Approach to Mapping Geographic Variation in Mortality Rates for Subnational Areas with R-INLA

Journal of Data Science 2018;16(1):147–182

LABORATORY SCIENCE

Markus H. Kainulainen, Jessica R. Spengler, Stephen R. Welch, JoAnn D. Coleman-McCray, Jessica R. Harmon, John D. Klena, Stuart T. Nichol, César G. Albariño, and Christina F. Spiropoulou

Use of a Scalable Replicon-particle Vaccine to Protect Against Lethal Lassa Virus Infection in the Guinea Pig Model

The Journal of Infectious Diseases 2018;217(12):1957–1966

PREVENTION AND CONTROL

Khalequ Zaman Concepción F. Estívariz, Michelle Morales, Mohammad Yunus, Cynthia J. Snider, Howard E. Gary, Jr, William C. Weldon, M. Steven Oberste, Steven G. Wassilak, Mark A. Pallansch, and Abhijeet Anand

Immunogenicity of Type 2 Monovalent Oral and Inactivated Poliovirus Vaccines for Type 2 Poliovirus Outbreak Response: An Open-label, Randomised Controlled Trial

The Lancet Infectious Diseases 2018;18(6):657–665

LIFETIME SCIENTIFIC ACHIEVEMENT

Rima Khabbaz, MD

Dr. Khabbaz was recognized for her leadership at the forefront of public health efforts to prevent and control emerging infectious diseases.

2018

ASSESSMENT

A. Danielle Iuliano, Katherine M. Roguski, Howard H. Chang, David J. Muscatello, Rakhee Palekar, Stefano Tempia, Cheryl Cohen, Jon Michael Gran, Dena Schanzer, Benjamin J. Cowling, Peng Wu, Jan Kyncl, Li Wei Ang, Minah Park, Monika Redlberger-Fritz, Hongjie Yu, Laura Espenhain, Anand Krishnan, Gideon Emukule, Liselotte van Asten, Susana Pereira da Silva, Suchunya Aungkulanon, Udo Buchholz, Marc-Alain Widdowson, and Joseph S. Bresee, for the Global Seasonal Influenza-associated Mortality Collaborator Network

Estimates of Global Seasonal Influenza-associated Respiratory Mortality: A Modelling Study

The Lancet 2018;391:1285–1300

DATA METHODS AND STUDY DESIGN

Ellsworth M. Campbell, Hongwei Jia, Anupama Shankar, Debra Hanson, Wei Luo, Silvina Masciotra, S. Michele Owen, Alexandra M. Oster, Romeo R. Galang, Michael W. Spiller, Sara J. Blosser, Erika Chapman, Jeremy C. Roseberry, Jessica Gentry, Pamela Pontones, Joan Duwve, Paula Peyrani, Ron M. Kagan, Jeannette M. Whitcomb, Philip J. Peters, Walid Heneine, John T. Brooks, and William M. Switzer

Detailed Transmission Network Analysis of a Large Opiate-driven Outbreak of HIV Infection in the United States

The Journal of Infectious Diseases 2017;216(9):1053–1062

LABORATORY SCIENCE

Amrita Kumar, Jin Hyang Kim, Priya Ranjan, Maureen G. Metcalfe, Weiping Cao, Margarita Mishina, Shivaprakash Gangappa, Zhu Guo, Edward S. Boyden, Sherif Zaki, Ian York, Adolfo García-Sastre, Michael Shaw, and Suryaprakash Sambhara

Influenza Virus Exploits Tunneling Nanotubes for Cell-to-Cell Spread

Scientific Reports 2017; doi: 10.1038/srep40360

PREVENTION AND CONTROL

Rahi Abouk, Scott D. Grosse, Elizabeth C. Ailes, and Matthew E. Oster

Association of U.S. State Implementation of Newborn Screening Policies for Critical Congenital Heart Disease with Early Infant Cardiac Deaths

JAMA 2017;318(21):2111–2118

LIFETIME SCIENTIFIC ACHIEVEMENT

Steven L. Cochi, MD, MPH

Dr. Cochi was recognized for helping to shape national and international immunization policy and strategies to reduce the burden of vaccine-preventable diseases and helping to develop the Global Polio Eradication Initiative.

2017

ASSESSMENT

Katherine E. Fleming-Dutra, Adam L. Hersh, Daniel J. Shapiro, Monina Bartoces, Eva A. Enns, Thomas M. File, Jr., Jonathan A. Finkelstein, Jeffrey S. Gerber, David Y. Hyun, Jeffrey A. Linder, Ruth Lynfield, David J. Margolis, Larissa S. May, Daniel Merenstein, Joshua P. Metlay, Jason G. Newland, Jay F. Piccirillo, Rebecca M. Roberts, Guillermo V. Sanchez, Katie J. Suda, Ann Thomas, Teri Moser Woo, Rachel M. Zetts, and Lauri A. Hicks

Prevalence of Inappropriate Antibiotic Prescriptions Among U.S. Ambulatory Care Visits,

JAMA 2016;315(17):1864–1873

DATA METHODS AND STUDY DESIGN

Samuel S. Shepard, Sarah Meno, Justin Bahl, Malania M. Wilson, John Barnes, and Elizabeth Neuhaus

Viral Deep Sequencing Needs an Adaptive Approach: IRMA, the Iterative Refinement Meta-assembler

BMC Genomics 2016;17:801

LABORATORY SCIENCE

Sabine M. G. van der Sanden, Weilin Wu, Naomi Dybdahl-Sissoko, William C. Weldon, Paula Brooks, Jason O'Donnell, Les P. Jones, Cedric Brown, S. Mark Tompkins, M. Steven Oberste, Jon Karpilow, and Ralph A. Tripp

Engineering Enhanced Vaccine Cell Lines to Eradicate Vaccine-preventable Diseases: The Polio End Game

Journal of Virology 2016;90(4):1694–1704

PREVENTION AND CONTROL

Philip J. Peters, Pamela Pontones, Karen W. Hoover, Monita R. Patel, Romeo R. Galang, Jessica Shields, Sara J. Blosser, Michael W. Spiller, Brittany Combs, William M. Switzer, Caitlin Conrad, Jessica Gentry, Yury Khudyakov, Dorothy Waterhouse, S. Michele Owen, Erika Chapman, Jeremy C. Roseberry, Veronica McCants, Paul J. Weidle, Dita Broz,

Taraz Samandari, Jonathan Mermin, Jennifer Walthall, John T. Brooks, and Joan M. Duwve, for the Indiana HIV Outbreak Investigation Team

HIV Infection Linked to Injection Use of Oxymorphone in Indiana, 2014–2015

The New England Journal of Medicine 2016;375(3):229–2394

LIFETIME SCIENTIFIC ACHIEVEMENT

Patrick J. Lammie, PhD

Dr. Lammie was recognized for his wide-ranging research and work to control and eliminate neglected parasitic diseases, particularly lymphatic filariasis.

2016

ASSESSMENT

Alexandra M. Oster, Joel O. Wertheim, Angela L. Hernandez, Marie Cheryl Bañez Ocfemia, Neeraja Saduvala, and H. Irene Hall

Using Molecular HIV Surveillance Data to Understand Transmission Between Subpopulations in the United States

Journal of Acquired Immune Deficiency Syndromes 2015;70:444–451

DATA METHODS AND STUDY DESIGN

Jacek Skarbinski, Eli Rosenberg, Gabriela Paz-Bailey, H. Irene Hall, Charles E. Rose, Abigail H. Viall, Jennifer L. Fagan, Amy Lansky, Jonathan H. Mermin

Human Immunodeficiency Virus Transmission at Each Step of the Care Continuum in the United States

JAMA Internal Medicine 2015;175(4):588–596

LABORATORY SCIENCE

David S. Campo, Guo-Liang Xia, Zoya Dimitrova, Yulin Lin, Joseph C. Forbi, Lilia Ganova-Raeva, Lili Punkova, Sumathi Ramachandran, Hong Thai, Pavel Skums, Seth Sims, Inna Rytsareva, Gilberto Vaughan, Ha-Jung Roh, Michael A. Purdy, Amanda Sue, and Yury Khudyakov s

Accurate Genetic Detection of Hepatitis C Virus Transmissions in Outbreak Settings

The Journal of Infectious Diseases 2015;213(6):957–965

PREVENTION AND CONTROL

Concepción F. Estívariz, Abhijeet Anand, Howard E. Gary Jr., Mahmudur Rahman, Jannatul Islam, Tajul I. Bari, Steven G.F. Wassilak, Susan Y. Chu, William C. Weldon, Mark A. Pallansch, James D. Heffelfinger, Stephen P. Luby, Khalequ Zaman

Immunogenicity of Three Doses of Bivalent, Trivalent, or Type 1 Monovalent Oral Poliovirus Vaccines with a 2-Week Interval Between Doses in Bangladesh: An Open-label, Non-inferiority, Randomised, Controlled Trial

The Lancet Infectious Diseases 2015;15:898–904

LIFETIME SCIENTIFIC ACHIEVEMENT

Rear Admiral Kenneth G. Castro, MD

Dr. Castro was recognized for his leadership, expertise, and pioneering body of scientific work in HIV/AIDS and tuberculosis.

2015

ASSESSMENT

Shelley S. Magill, Jonathan R. Edwards, Wendy Bamberg, Zintars G. Beldavs, Ghinwa Dumyati, Marion A. Kainer, Ruth Lynfield, Meghan Maloney, Laura McAllister-Hollod, Joelle Nadle, Susan M. Ray, Deborah L. Thompson, Lucy E. Wilson, and Scott K. Fridkin, for the Emerging Infections Program Healthcare-Associated Infections and Antimicrobial Use Prevalence Survey Team

Multistate Point-prevalence Survey of Health Care-associated Infections

The New England Journal of Medicine 2014;370(13):1198–1208

DATA METHODS AND STUDY DESIGN

Krista S. Crider, Owen Devine, Ling Hao, Nicole F. Dowling, Song Li, Anne M. Molloy, Zhu Li, Jianghui Zhu, and Robert J. Berry

Population Red Blood Cell Folate Concentrations for Prevention of Neural Tube Defects: Bayesian Model

The BMJ (clinical research edition) 2014;349:g4554

LABORATORY SCIENCE

Hua Yang, Jessie C. Chang, Zhu Guo, Paul J. Carney, David A. Shore, Ruben O. Donis, Nancy J. Cox, Julie M. Villanueva, Alexander I. Klimov, and James Stevens

Structural Stability of Influenza A(H1N1)pdm09 Virus Hemagglutinins

Journal of Virology 2014;88(9):4828–4838

PREVENTION AND CONTROL

The RTS,S Clinical Trials Partnership

Efficacy and Safety of the RTS,S/AS01 Malaria Vaccine During 18 Months After Vaccination: A Phase 3 Randomized, Controlled Trial in Children and Young Infants at 11 African Sites

PLoS Medicine 2014;11(7):e1001685

LIFETIME SCIENTIFIC ACHIEVEMENT

Patricia M. Griffin, MD

Dr. Griffin was recognized for her expertise in foodborne and enteric infections and her contributions to the science of food safety.

2014

ASSESSMENT

Nadira K. Sultana, Samir K. Saha, Hassan M. Al-Emran, Joyanta K. Modak, M. A. Yushuf Sharker, Shams El-Arifeen, Adam L. Cohen, Abdullah H. Baqui, and Stephen P. Luby

Impact of Introduction of the *Haemophilus Influenzae* Type b Conjugate Vaccine into Childhood Immunization on Meningitis in Bangladeshi Infants

JAMA 2013;315(17):1864–1873

DATA METHODS AND STUDY DESIGN

Matthew W. Wheeler and A. John Bailer

An Empirical Comparison of Low-dose Extrapolation from Points of Departure (PoD) Compared to Extrapolations Based upon Methods that Account for Model Uncertainty

Regulatory Toxicology and Pharmacology 2013;67:75–82

LABORATORY SCIENCE

James M. Smith, Rachna Rastogi, Ryan S. Teller, Priya Srinivasan, Pedro M. M. Mesquita, Umadevi Nagaraja, Janet M. McNicholl, R. Michael Hendry, Chuong T. Dinh, Amy Martin, Betsy C. Herold, and Patrick F. Kiser

Intravaginal Ring Eluting Tenofovir Disoproxil Fumarate Completely Protects Macaques from Multiple Vaginal Simian-HIV Challenges

Proceedings of the National Academy of Sciences of the United States of America 2013;110(40):16145–16150

PREVENTION AND CONTROL

Tim McAfee, Kevin C. Davis, Robert L. Alexander Jr., Terry F. Pechacek, and Rebecca Bunnell

Effect of the First Federally Funded U.S. Antismoking National Media Campaign

The Lancet 2013;382(9909):2003–2011

LIFETIME SCIENTIFIC ACHIEVEMENT

Nancy J. Cox, PhD

Dr. Cox was recognized for her global leadership, expertise, mentorship, and scientific innovation in the epidemiology of influenza viruses and immunization.

2013

ASSESSMENT

Rachel M. Smith, Melissa K. Schaefer, Marion A. Kainer, Matthew Wise, Jennie Finks, Joan Duwve, Elizabeth Fontaine, Alvina Chu, Barbara Carothers, Amy Reilly, Jay Fiedler, Andrew D. Wiese, Christine Feaster, Lex Gibson, Stephanie Griese, Anne Purfield, Angela A. Cleveland, Kaitlin Benedict, Julie R. Harris, Mary E. Brandt, Dianna Blau, John Jernigan, J. Todd Weber, and Benjamin J. Park, for the Multistate Fungal Infection Outbreak Response Team

Fungal Infections Associated with Contaminated Methylprednisolone Injections—Preliminary Report

The New England Journal of Medicine 2012; doi: 10.1056/NEJMoa1213978

DATA METHODS AND STUDY DESIGN

Joseph Y. Abrams, John R. Copeland, Robert V. Tauxe, Kashmira A. Date, Ermias D. Belay, Rajal K. Mody, and Eric D. Mintz

Real-Time Modeling Used for Outbreak Management During a Cholera Epidemic, Haiti, 2010–2011

Epidemiology and Infection 2012; doi: 10.1017/S0950268812001793

LABORATORY SCIENCE

Yen T. Duong, Maofeng Qiu, Anindya K. De, Keisha Jackson, Trudy Dobbs, Andrea A. Kim, John N. Nkengasong, and Bharat S. Parekh

Detection of Recent HIV-1 Infection Using a New Infection Limiting-Antigen Avidity Assay: Potential for HIV-1 Incidence Estimates and Avidity Maturation Studies

PLoS ONE 2012;7(3):e33328

PREVENTION AND CONTROL

Yan T. Novak, Jean Ludovic Kambou, Fabien V. K. Diomandé, Tiga F. Tarbangdo, Rasmata Ouédraogo-Traoré, Lassana Sangaré, Clement Lingani, Stacey W Martin, Cynthia Hatcher, Leonard W. Mayer, F. Marc LaForce, Fenella Avokey, Mamoudou H. Djingarey, Nancy E. Messonnier, Sylvestre R. Tiendrébéogo, and Thomas A. Clark

Serogroup A Meningococcal Conjugate Vaccination in Burkina Faso: Analysis of National Surveillance Data

The Lancet Infectious Diseases 2012;12(1):757–764

LIFETIME SCIENTIFIC ACHIEVEMENT

Larry J. Anderson, MD

Dr. Anderson was recognized for his innovative research on respiratory syncytial virus and its disease burden in the United States.

2012

ASSESSMENT

Concepción F. Estívariz, Hamid Jafari, Roland W. Sutter, T. Jacob John, Vibhor Jain, Ashutosh Agarwal, Harish Verma, Mark A. Pallansch, Ajit P. Singh, Sherine Guirguis, Jitendra Awale, Anthony Burton, Sunil Bahl, Arani Chatterjee, and R. Bruce Aylward

Immunogenicity of Supplemental Doses of Poliovirus Vaccine for Children Aged 6–9 Months in Moradabad, India: A Community-based Randomized Controlled Trial

The Lancet Infectious Diseases 2012;12(2):128–135 (published online 2011)

DATA METHODS AND STUDY DESIGN

Alula Hadgu, Nandini Dendukuri, and Liangliang Wang

Evaluation of Screening Tests for Detecting *Chlamydia trachomatis* Bias Associated with the Patient-infected-status Algorithm Epidemiology

Epidemiology 2012;23(1):72–82 (published online 2011)

LABORATORY SCIENCE

Brian H. Bird, Louis H. Maartens, Shelley Campbell, Baltus J. Erasmus, Bobbie R. Erickson, Kimberly A. Dodd, Christina F. Spiropoulou, Deborah Cannon, Clifton P. Drew, Barbara Knust, Anita K. McElroy, Marina L. Khristova, César G. Albariño, and Stuart T. Nichol

Rift Valley Fever Virus Vaccine Lacking the NSs and NSm Genes Is Safe, Nonteratogenic, and Confers Protection from Viremia, Pyrexia, and Abortion

Journal of Virology 2011;85(24):12901–1290949

PREVENTION AND CONTROL

Timothy R. Sterling, M. Elsa Villarino, Andrey S. Borisov, Nong Shang, Fred Gordin, Erin Bliven-Sizemore, Judith Hackman, Carol Dukes Hamilton, Dick Menzies, Amy Kerrigan, Stephen E. Weis, Marc Weiner, Diane Wing, Marcus B. Conde, Lorna Bozeman, C. Robert Horsburgh, and Richard E. Chaisson, for the TB Trials Consortium PREVENT TB Study Team

Three Months of Rifapentine and Isoniazid for Latent Tuberculosis Infection

The New England Journal of Medicine 2011;365(23):2155–2166

LIFETIME SCIENTIFIC ACHIEVEMENT

Henry Falk, MD, MPH

Dr. Falk was recognized for his expertise and global leadership in environmental health science and public health policy and practice.

2011

ASSESSMENT AND EPIDEMIOLOGY

Stacy M. Holzbauer, Aaron S. DeVries, James J. Sejvar, Christine H. Lees, Jennifer Adjemian, Jennifer H. McQuiston, Carlota Medus, Catherine A. Lexau, Julie R. Harris, Sergio E. Recuenco, Ermias D. Belay, James F. Howell, Bryan F. Buss, Mady Hornig, John D. Gibbins, Scott E. Brueck, Kirk E. Smith, Richard N. Danila, W. Ian Lipkin, Daniel H. Lachance, P. James B. Dyck, and Ruth Lynfield

Abattoir Workers Exposed to Porcine Brain

PLoS One 2010;5(3):e9782

LABORATORY AND METHODS

Robert D. Gilmore, Jr., Rebekah R. Howison, Gabrielle Dietrich, Toni G. Patton, Dawn R. Clifton, and James A. Carroll

The bba64 Gene of *Borrelia burgdorferi*, the Lyme Disease Agent, Is Critical for Mammalian Infection via Tick Bite Transmission

The Proceedings of the National Academy of Sciences of the United States of America 2010;107(16):7515–7520

PREVENTION AND CONTROL

Charles S. Chasela, Michael G. Hudgens, Denise J. Jamieson, Dumbani Kayira, Mina C. Hosseinipour, Athena P. Kourtis, Francis Martinson, Gerald Tegha, Rodney J. Knight, Yusuf I. Ahmed, Deborah D. Kamwendo, Irving F. Hoffman, Sascha R. Ellington, Zebrone Kacheche, Alice Soko, Jeffrey B. Wiener, Susan A. Fiscus, Peter Kazembe, Innocent A. Mofolo, Maggie Chigwenembe, Dorothy S. Sichali, and Charles M. van der Horst, for the Breastfeeding, Antiretroviral, and Nutrition Study Group

Maternal or Infant Antiretroviral Drugs to Reduce HIV-1 Transmission

The New England Journal of Medicine 2010;362(24):2271–2281

LIFETIME SCIENTIFIC ACHIEVEMENT

Kathleen Kreiss, MD

Dr. Kreiss was recognized as a world-renowned expert in occupational respiratory disease. She has improved workplace safety by encouraging the use of safer materials and better work practices and controls.

2010

ASSESSMENT AND EPIDEMIOLOGY

Fatimah S. Dawood, Seema Jain, Lyn Finelli, Michael W. Shaw, Stephen Lindstrom, Rebecca J. Garten, Larisa V. Gubareva, Xiyan Xu, Carolyn B. Bridges, and Timothy M. Uyeki

Emergence of a Novel Swine-origin Influenza A (H1N1) Virus in Humans

The New England Journal of Medicine 2009;360:2605–2615

LABORATORY AND METHODS

Joseph U. Igietseme, Qing He, Kahaliah Joseph, Francis O. Eko, Deborah Lyn, Godwin Ananaba, Angela Campbell, Claudiu Bandea, and Carolyn M. Black

Role of T Lymphocytes in the Pathogenesis of Chlamydia Disease

The Journal of Infectious Diseases 2009;200:926–934 51

PREVENTION AND CONTROL

Sandra L. Decker

Changes in Medicaid Physician Fees and Patterns of Ambulatory Care

Inquiry 2009;46(3)291–304

Manish Patel, Cristina Pedreira, Lucia Helena De Oliveira, Jacqueline Tate, Maribel Orozco, Juan Mercado, Alcides Gonzalez, Omar Alespin, Juan José Amador, Jazmina Umaña, Angel Balmaseda, Maria Celina Perez, Jon Gentsch, Tara Kerin, Jennifer Hull, Slavica Mijatovic, Jon Andrus, and Umesh Parashar

Association Between Pentavalent Rotavirus Vaccine and Severe Rotavirus Diarrhea Among Children in Nicaragua

JAMA 2009;301(21):2243–2251

LIFETIME SCIENTIFIC ACHIEVEMENT

Polly Marchbanks, PhD, MSN

Dr. Marchbanks was recognized for her global leadership and research, particularly in the area of contraception.

2009

ASSESSMENT AND EPIDEMIOLOGY

H. Irene Hall, Ruiguang Song, Philip Rhodes, Joseph Prejean, Qian An, Lisa M. Lee, John Karon, Ron Brookmeyer, Edward H. Kaplan, Matthew T. McKenna, and Robert S. Janssen, for the HIV Incidence Surveillance Group

Estimation of HIV Incidence in the United States

JAMA 2008;300:520–529

LABORATORY AND METHODS

Tracie L. Williams, Leah Luna, Zhu Guo, Nancy J. Cox, James L. Pirkle, Ruben O. Donis, and John R. Barr

Quantification of Influenza Virus Hemagglutinins in Complex Mixtures Using Isotope Dilution Tandem Mass Spectrometry

Vaccine 2008;26:2510–2520

PREVENTION AND CONTROL

Larissa Roux, Michael Pratt, Tammy O. Tengs, Michelle M. Yore, Teri L. Yanagawa, Jill Van Den Bos, Candace Rutt, Ross C. Brownson, Kenneth E. Powell, Gregory Heath, Harold W. Kohl III, Steven Teutsch, John Cawley, I-Min Lee, Linda West, and David M. Buchner

Cost Effectiveness of Community-based Physical Activity Interventions

American Journal of Preventive Medicine 2008;35:578–588

LIFETIME SCIENTIFIC ACHIEVEMENT

Stephen B. Thacker, MD, MSc

Dr. Thacker was recognized for his leadership and his work in fostering scientific communication and training of future leaders in public health. He has overseen the Epidemic Intelligence Service program since 1989, and under his direction, the first CDC plan for surveillance was completed in 1985.

2008

ASSESSMENT AND EPIDEMIOLOGY

Earl S. Ford, Umed A. Ajani, Janet B. Croft, Julia A. Critchley, Darwin R. Labarthe, Thomas E. Kottke, Wayne H. Giles, and Simon Capewell

Explaining the Decrease in U.S. Deaths from Coronary Disease, 1980–2000

The New England Journal of Medicine 2007;356:2388–2398

LABORATORY AND METHODS

Terrence M. Tumpey, Christopher F. Basler, Patricia V. Aguilar, Hui Zeng, Alicia Solórzano, David E. Swayne, Nancy J. Cox, Jacqueline M. Katz, Jeffery K. Taubenberger, Peter Palese, and Adolfo García-Sastre

A Two-amino Acid Change in the Hemagglutinin of the 1918 Influenza Virus Abolishes Transmission

Science 2007;315:655–659

PREVENTION AND CONTROL

R. Louise Floyd, Mark Sobell, Mary M. Velasquez, Karen Ingersoll, Mary Nettleman, Linda Sobell, Patricia Dolan Mullen, Sherry Ceperich, Kirk von Sternberg, Burt Bolton, Bradley Skarpness, and Jyothi Nagaraja, for the Project CHOICES Efficacy Study Group

Preventing Alcohol-exposed Pregnancies: A Randomized Controlled Trial

American Journal of Preventive Medicine 2007;32:1–10

LIFETIME SCIENTIFIC ACHIEVEMENT

Vincent Castranova, PhD

Dr. Castranova was recognized for his leadership in laboratory-based occupational health research. His contributions to the understanding of the biology of lung cells have been translated into the practical study of lung diseases and development of prevention programs.

2007

ASSESSMENT AND EPIDEMIOLOGY

Wolfgang Hladik, Shelia C. Dollard, Jonathan Mermin, Ashley L. Fowlkes, Robert Downing, Minal M. Amin, Flora Banage, Esau Nzaro, Peter Kataaha, Timothy J. Dondero, Philip E. Pellett, and Eve M. Lackritz

Transmission of Human Herpesvirus 8 by Blood Transfusion

The New England Journal of Medicine 2006;355:1331–1338

LABORATORY AND METHODS

Mary A. Hoelscher, Sanjay Garg, Dinesh S. Bangari, Jessica A. Belser, Xiuhua Lu, Iain Stephenson, Rick A. Bright, Jacqueline M. Katz, Suresh K. Mittal, and Suryaprakash Sambhara

Development of Adenoviral-vector-based Pandemic Influenza Vaccine against Antigenically Distinct Human H5N1 Strains in Mice

The Lancet 2006;368:1495–1502

PREVENTION AND CONTROL

Cynthia G. Whitney, Tamar Pilishvili, Monica M. Farley, William Schaffner, Allen S. Craig, Ruth Lynfield, Ann-Christine Nyquist, Kenneth A. Gershman, Marietta Vazquez, Nancy M. Bennett, Arthur Reingold, Ann Thomas, Mary P. Glode, Elizabeth R. Zell, James H. Jorgensen, Bernard Beall, and Anne Schuchat

Effectiveness of Seven-valent Pneumococcal Conjugate Vaccine Against Invasive Pneumococcal Disease: A Matched Case-control Study

The Lancet 2006;368:1495–1502

LIFETIME SCIENTIFIC ACHIEVEMENT

Roger I. Glass, MD, PhD, MPH

Dr. Glass was recognized for his leadership and accomplishments in viral gastroenteritis. His work led to the recognition of rotavirus as a problem in the United States and to development of a rotavirus vaccine to be used worldwide.

2006

ASSESSMENT AND EPIDEMIOLOGY

Lee Warner, Maurizio Macaluso, Harland D. Austin, David K. Kleinbaum, Lynn Artz, Michael E. Fleenor, Ilene Brill, Daniel R. Newman, and Edward W. Hook III

Application of the Case-crossover Design to Reduce Unmeasured Confounding in Studies of Condom Effectiveness

American Journal of Epidemiology 2005;161:765–773

Katherine M. Flegal, Barry I. Graubard, David F. Williamson, and Mitchell H. Gail

Excess Deaths Associated With Underweight, Overweight, and Obesity

JAMA 2005;293:1861–1867

LABORATORY AND METHODS

Terrence M. Tumpey, Christopher F. Basler, Patricia V. Aguilar, Hui Zeng, Alicia Solórzano, David E. Swayne, Nancy J. Cox, Jacqueline M. Katz, Jeffery K. Taubenberger, Peter Palese, and Adolfo García-Sastre

Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus

Science 2005;310(5745):77–80

PREVENTION AND CONTROL

Stephen P. Luby, Mubina Agboatwalla, Daniel R. Feikin, John Painter, Ward Billhimer, Arshad Altaf, and Robert M. Hoekstra

Effect of Handwashing on Child Health: A Randomised Controlled Trial

The Lancet 2005;366:225–233

LIFETIME SCIENTIFIC ACHIEVEMENT

Robert V. Tauxe, MD, MPH

Dr. Tauxe was recognized for his leadership in the prevention and control of foodborne diseases in the United States and internationally. His work and that of his colleagues have resulted in dramatic changes in foodborne disease surveillance, outbreak detection, practices, and policies.

2005

ASSESSMENT AND EPIDEMIOLOGY

Barbara Lopes Cardozo, Oleg O. Bilukha, Carol A. Gotway Crawford, Irshad Shaikh, Mitchell I. Wolfe, Michael L. Gerber, and Mark Anderson

Mental Health, Social Functioning, and Disability in Postwar Afghanistan

JAMA 2004;292:575–584

LABORATORY AND METHODS

Justin M. Hettick, Michael L. Kashon, Janet P. Simpson, Paul D. Siegel, Gerald H. Mazurek, and David N. Weissman

Proteomic Profiling of Intact Mycobacteria by Matrix-assisted Laser Desorption/Ionization Time-of-flight Mass Spectrometry

Analytical Chemistry 2004;76:5769–5776

PREVENTION AND CONTROL

Marc Bulterys, Denise J. Jamieson, Mary Jo O’Sullivan, Mardge H. Cohen, Robert Maupin, Steven Nesheim, Mayris P. Webber, Russell Van Dyke, Jeffrey Wiener, and Bernard M. Branson, for the Mother-Infant Rapid Intervention at Delivery (MIRIAD) Study Group

Rapid HIV-1 Testing During Labor: A Multicenter Study

JAMA 2004;292:219–223

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

William H. Hannon, Barbara W. Adams, and Robert F. Vogt

National Center for Environmental Health/Agency for Toxic Substances and Disease Registry

Newborn Screening Quality Assurance Program

LIFETIME SCIENTIFIC ACHIEVEMENT

James M. Hughes, MD

Dr. Hughes was recognized for his expertise in infectious diseases and bioterrorism and response. His leadership in addressing emerging and reemerging global threats has brought global prominence to CDC and improved public health infrastructures nationwide.

2004

ASSESSMENT AND EPIDEMIOLOGY

Jennita Reefhuis, Margaret A. Honein, Cynthia G. Whitney, Shadi Chamany, Eric A. Mann, Krista R. Biernath, Karen Broder, Susan Manning, Swati Avashia, Marcia Victor, Pamela Costa, Owen Devine, Ann Graham, and Coleen Boyle

Risk of Bacterial Meningitis in Children with Cochlear Implants

The New England Journal of Medicine 2003;349:435–445

LABORATORY AND METHODS

Thomas G. Ksiazek, Dean Erdman, Cynthia S. Goldsmith, Sherif R. Zaki, Teresa Peret, Shannon Emery, Suxiang Tong, Carlo Urbani, James A. Comer, Wilina Lim, Pierre E. Rollin, Scott F. Dowell, Ai-Ee Ling, Charles D. Humphrey, Wun-Ju Shieh, Jeannette Guarner, Christopher D. Paddock, Paul Rota, Barry Fields, Joseph DeRisi, Jyh-Yuan Yang, Nancy Cox, James M. Hughes, James W. LeDuc, William J. Bellini, Larry J. Anderson, and the SARS Working Group

A Novel Coronavirus Associated with Severe Acute Respiratory Syndrome

The New England Journal of Medicine 2003;348:1953–1966

PREVENTION AND CONTROL

Cynthia G. Whitney, Monica M. Farley, James Hadler, Lee H. Harrison, Nancy M. Bennett, Ruth Lynfield, Arthur Reingold, Paul R. Cieslak, Tamara Pilishvili, Delois Jackson, Richard R. Facklam, James H. Jorgensen, and Anne Schuchat, for the Active Bacterial Core Surveillance of the Emerging Infections Program Network

Decline in Invasive Pneumococcal Disease After the Introduction of Protein-polysaccharide Conjugate Vaccine

The New England Journal of Medicine 2003;348:1737–1746

LIFETIME SCIENTIFIC ACHIEVEMENT

Harold W. Jaffe, MD

Dr. Jaffe was recognized as a national and international leader in the disease investigation of HIV/AIDS, which has increased scientific knowledge about HIV/AIDS and improved national and international approaches to prevention and control.

Walter A. Orenstein, MD

Dr. Orenstein was recognized for his leadership in reducing the occurrence of vaccine-preventable diseases in children. His work has been critical to the development of national vaccine policy and global immunization strategies.

2003

ASSESSMENT AND EPIDEMIOLOGY

Polly A. Marchbanks, Jill A. McDonald, Hoyt G. Wilson, Suzanne G. Folger, Michele G. Mandel, Janet R. Daling, Leslie Bernstein, Kathleen E. Malone, Giske Ursin, Brian L. Strom, Sandra A. Norman, Linda K. Weiss, Phyllis Wingo, Michael S. Simon, Ronald T. Burkman, Jesse A. Berlin, and Robert Spirtas

Oral Contraceptives and the Risk of Breast Cancer

The New England Journal of Medicine 2002;346:2025–2032

LABORATORY AND METHODS

Bharat S. Parekh, M. Susan Kennedy, Trudy Dobbs, Chou-Pong Pau, Robert Byers, Timothy Green, Dale J. Hu, Suphak Vanichseni, Nancy L. Young, Kachit Choopanya, Timothy D. Mastro, and J. Steven McDougal

Quantitative Detection of Increasing HIV Type 1 Antibodies After Seroconversion: A Simple Assay for Detecting Recent HIV Infection and Estimating Incidence

AIDS Research and Human Retroviruses 2002;18:295–307

PREVENTION AND CONTROL

Robert E. Quick, Akiko C. Kimura, Angelica Thevos, Mathias Tembo, Isidore Shamputa, Lori Hutwagner, and Eric Mintz

Diarrhea Prevention Through Household-level Water Disinfection and Safe Storage in Zambia

The American Journal of Tropical Medicine and Hygiene 2002;66:584–589

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

Barbara Lopes Cardozo, Bradley A. Woodruff, Muireann Brennan, and Paul B. Spiegel

National Center for Environmental Health International Emergency and Refugee Health Branch

LIFETIME SCIENTIFIC ACHIEVEMENT

William R. Jarvis, MD

Dr. Jarvis was recognized as a leader in the study of nosocomial infections and other threats to the safety of patients and healthcare workers. His research has led to interventions to reduce these risks and to the development of prevention guidelines.

2002

ASSESSMENT AND EPIDEMIOLOGY

Trudy V. Murphy, Paul M. Gargiulo, Mehran S. Massoudi, David B. Nelson, Aisha O. Jumaan, Catherine A. Okoro, Lynn R. Zanardi, Sabeena Setia, Elizabeth Fair, Charles W. LeBaron, Melinda Wharton, John R. Livengood, and Benjamin Schwartz, for the Rotavirus Intussusception Inspection Team

Intussusception Among Infants Given an Oral Rotavirus Vaccine

The New England Journal of Medicine 2001;344:564–572

LABORATORY AND METHODS

Brent S. Davis, Gwong-Jen J. Chang, Bruce Cropp, John T. Roehrig, Denise A. Martin, Carl J. Mitchell, Richard Bowen, and Michel L. Bunning

West Nile Virus Recombinant DNA Vaccine Protects Mouse and Horse from Virus Challenge and Expresses in vitro a Noninfectious Recombinant Antigen that Can Be Used in Enzyme-linked Immunosorbent Assays

Journal of Virology 2001;75:4040–4047

PREVENTION AND CONTROL

Belinda E. Ostrowsky, William E. Trick, Annette H. Sohn, Stephen B. Quirk, Stacey Holt, Loretta A. Carson, Bertha C. Hill, Matthew J. Arduino, Matthew J. Kuehnert, and William R. Jarvis

Control of Vancomycin-resistant Enterococcus in Health Care Facilities in a Region

The New England Journal of Medicine 2001;344:1427–1433

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

Ronald M. Davis, Gary A. Giovino, Michael D. Erikson, and the Office on Smoking and Health

National Center for Chronic Disease Prevention and Health Promotion

LIFETIME SCIENTIFIC ACHIEVEMENT

Gerald R. Cooper, MD, PhD

Dr. Cooper was recognized for his leadership in improving laboratory measures of lipids that led to the establishment of the CDC Lipid Standardization Program.

2001

ASSESSMENT AND EPIDEMIOLOGY

Paul B. Spiegel and Peter Salama

War and Mortality in Kosovo, 1998–99: An Epidemiological Testimony

The Lancet 2000;335:2204–2209

LABORATORY AND METHODS

K.B. Chua, William J. Bellini, Paul A. Rota, Brian H. Harcourt, Azaibi Tamin, S.K. Lam, Thomas G. Ksiazek, Pierre E. Rollin, Sherif R. Zaki, Wun-Ju Shieh, Cynthia S. Goldsmith, Duane J. Gubler, John T. Roehrig, B. Eaton, A.R. Gould, Jim Olson, H. Field, P. Daniels, A.E. Ling, Clarence J. Peters, Larry J. Anderson, and Brian W.J. Mahy

Nipah Virus: A Recently Emergent Deadly Paramyxovirus

Science 2000;288:1432-1435

PREVENTION AND CONTROL

Carolyn Buxton Bridges, William W. Thompson, Martin I. Meltzer, Gordon R. Reeve, Walter J. Talamonti, Nancy J. Cox, Heather A. Lilac, Henrietta Hall, Alexander Klimov, and Keiji Fukuda

Effectiveness and Cost-benefit of Influenza Vaccination of Healthy Working Adults: A Randomized Controlled Trial

JAMA 2000;284:1655-1662

OUTSTANDING SCIENTIFIC CONTRIBUTION TO PUBLIC HEALTH

National Center for Chronic Disease Prevention and Health Promotion

Behavioral Risk Factor Surveillance System

LIFETIME SCIENTIFIC ACHIEVEMENT

Joseph Edward McDade, PhD

Dr. McDade was the first to identify the bacterium *Legionella pneumophila* as the cause of the well-known outbreak of Legionnaires' disease. In the 1980s, he identified the cause of a previously unknown tickborne disease, ehrlichiosis.

2000

ASSESSMENT AND EPIDEMIOLOGY

Nathan Shaffer, Rutt Chuachoowong, Philip A. Mock, Chaiporn Bhadrakom, Wimol Siriwasin, Nancy L. Young, Tawee Chotpitayusunondh, Sanay Chearskul, Anuvant Roongpisuthipong, Pratharn Chinayon, John Karon, Timothy D. Mastro, and R.J. Simonds

Short-course Zidovudine for Perinatal HIV-1 Transmission in Bangkok, Thailand: A Randomised Controlled Trial

The Lancet 1999;353:773-780

1999

Robert S. Janssen, Glen A. Satten, Susan L. Stramer, Bhupat D. Rawal, Thomas R. O'Brien, Barbara J. Weiblen, Frederick M. Hecht, Noreen Jack, Farley R. Cleghorn, James O. Kahn, Margaret A. Chesney, and Michael P. Busch

New Testing Strategy to Detect Early HIV-1 Infection for Use in Incidence Estimates and for Clinical and Prevention Purposes

JAMA 1998;280:42–48

1998

Denise M. Cardo, David H. Culver, Carol A. Ciesielski, Pamela U. Srivastava, Ruthanne Marcus, Dominique Abiteboul, Julia Heptonstall, Giuseppe Ippolito, Florence Lot, Penny S. McKibben, and David M. Bell, for the Centers for Disease Control and Prevention Needlestick Surveillance Group

A Case-control Study of HIV Seroconversion in Health Care Workers after Percutaneous Exposure

The New England Journal of Medicine 1997;337:1485–1490

1997

Jennifer S. Rota, Janet L. Heath, Paul A. Rota, Gail E. King, María L. Celma, Juan Carabaña, Rafael Fernandez-Muñoz, David Brown, Li Jin, and William J. Bellini

Molecular Epidemiology of Measles Virus: Identification of Pathways of Transmission and Implications for Measles Elimination

The Journal of Infectious Diseases 1996;173:32–37

Diana E. Schendel, Cynthia J. Berg, Marshalyn Yeargin-Allsopp, Coleen A. Boyle, and Pierre Decoufle

Prenatal Magnesium Sulfate Exposure and the Risk for Cerebral Palsy or Mental Retardation Among Very Low-birth-weight Children Aged 3 to 5 Years

JAMA 1996;276:1805–1810

1996

Peter M. Strebel, Nicolae Ion-Nedelcu, Andrew L. Baughman, Roland W. Sutter, and Stephen L. Cochi

Intramuscular Injections Within 30 Days of Immunization with Oral Poliovirus Vaccine—A Risk Factor for Vaccine-associated Paralytic Poliomyelitis

The New England Journal of Medicine 1995;332:500–506

1995

Robert D. Brewer, Peter D. Morris, Thomas B. Cole, Stephanie Watkins, Michael J. Patetta, and Carol Popkin

The Risk of Dying in Alcohol-related Automobile Crashes Among Habitual Drunk Drivers

The New England Journal of Medicine 1994;331:513–517

1994

Michael E. St. Louis, Munkolenkole Kamenga, Christopher Brown, Ann Marie Nelson, Tarande Manzila, Veronique Batter, Frieda Behets, Uwa Kabagabo, Robert W. Ryder, Margaret Oxtoby, Thomas C. Quinn, and William L. Heyward

Risk for Perinatal HIV-1 Transmission According to Maternal Immunologic, Virologic, and Placental Factors

JAMA 1993;269:2853–2859

1993

Brian R. Edlin, Jerome I. Tokars, Michael H. Grieco, Jack T. Crawford, Julie Williams, Emelia M. Sordillo, Kenneth R. Ong, James O. Kilburn, Samuel W. Dooley, Kenneth G. Castro, William R. Jarvis, and Scott D. Holmberg

An Outbreak of Multidrug-resistant Tuberculosis Among Hospitalized Patients with the Acquired Immunodeficiency Syndrome

The New England Journal of Medicine 1992;326:1514–1521

1992

Marta Gwinn, Marguerite Pappaioanou, J. Richard George, W. Harry Hannon, Shari C. Wasser, Martha A. Redus, Rodney Hoff, George F. Grady, Anne Willoughby, Antonia C. Novello, Lyle R. Petersen, Timothy J. Dondero, and James W. Curran

Prevalence of HIV Infection in Childbearing Women in the United States

JAMA 1991;265:1704–1708

1991

Edward A. Belongia, Craig W. Hedberg, Gerald J. Gleich, Karen E. White, Arthur N. Mayeno, David A. Loegering, Sandra L. Dunnette, Phyllis L. Pirie, Kristine L. MacDonald, and Michael T. Osterholm

An Investigation of the Cause of the Eosinophilia-myalgia Syndrome Associated with Tryptophan Use

The New England Journal of Medicine 1990;323:357–365

1990

Patricia M. Griffin, Robert V. Tauxe, Stephen C. Redd, Nancy D. Puhr, Nancy Hargrett-Bean, and Paul A. Blake

Emergence of Highly Trimethoprim-sulfamethoxazole-resistant Shigella in a Native American Population: An Epidemiologic Study

American Journal of Epidemiology 1989;129:1042–1051

1989

Chin-Yih Ou, Shirley Kwok, Sheila W. Mitchell, David H. Mack, John J. Sninsky, John W. Krebs, Paul Feorino, Donna Warfield, and Gerald Schochetman

DNA Amplification for Direct Detection of HIV-1 in DNA of Peripheral Blood Mononuclear Cells

Science 1988;239:295–297

1988

Rebeca Rico-Hesse, Mark A. Pallansch, Baldev K. Nottay, and Olen M. Kew

Geographic Distribution of Wild Poliovirus Type 1 Genotypes

Virology 1987;160:311–322

1987

J. Steven McDougal, M. Susan Kennedy, Julie M. Sligh, Sheila P. Cort, Alison C. Mawle, and Janet K. A. Nicholson

Binding of HTLV-III/LAV to T4+ T Cells by a Complex of the 100K Viral Protein and the T4 Molecule

Science 1986(4736);231:382–385

1986

Arthur L. Reingold, Claire V. Broome, Allen W. Hightower, Gloria W. Ajello, Gail A. Bolan, Catherine Adamsbaum, Ellen E. Jones, Catherine Phillips, Hilaire Tiendrebeogo, and Adamou Yada

Age-specific Differences in Duration of Clinical Protection After Vaccination with Meningococcal Polysaccharide A Vaccine

The Lancet 1985;2:114–118

PREVIOUS KEYNOTE SPEAKERS

Following is a list of colleagues who have made keynote speeches at the Shepard Science Awards Ceremony since its inception.

2020

Michelle Ann Williams, SM, ScD

Harvard University T.H. Chan
School of Public Health

"Racism as a Public Health Crisis"

2019

Jon D. Duke, MD, MS

Georgia Tech College of Computing

*"Unlocking Big Data and Analytics
for Public Health"*

2018

Roberta Ness, MD, MPH

The University of Texas

*"Innovation and Creativity in
Modern Public Health"*

2017

John Cacioppo, PhD

University of Chicago Center for
Cognitive & Social Neuroscience

*"Loneliness: Public Health
Implications and Potential
Mechanisms"*

2016

Zulfiqar A. Bhutta, PhD, MBBS

The Hospital for Sick Children

*"Global Child Survival: Challenges
and Opportunities"*

2015

Anthony S. Fauci, MD

National Institute of Allergy and
Infectious Diseases

*"Advances to Public Health
Implementation"*

2014

John E. Wennberg, MD, MPH

The Dartmouth Institute for Health
Policy and Clinical Practice

*"Unwarranted Variation
in Health Care"*

2013

No Keynote Speech

2012

James S. Marks, MD, MPH

Robert Wood Johnson Foundation
Health Group

"Making Science and Health Matter"

2011

Brian Greenwood, MD, CBE

London School of Hygiene & Tropical
Medicine, University of London

"Vaccines for Global Health"

2010

John Holdren, PhD

White House Office of Science and
Technology Policy

*"Science and Technology Policy
for Ensuring the Public's Health"*

2009

Paul Krugman, PhD

Princeton University

Columnist, *The New York Times*

"Health and the Economic Future"

2008

Neal Nathanson, MD

University of Pennsylvania

School of Medicine

"AIDS Vaccine at the Crossroads"

2007

Michael Marmot, PhD, MPH

Institute for Society and Health,

University College, London

"Health in an Unequal World"

2006

Donald M. Berwick, MD, MPP

Institute for Healthcare Improvement

"The 100,000 Lives Campaign:

Lessons from a National

Mobilization"

2005

Harvey V. Fineberg, MD, PhD

National Academy of Medicine

"Science, Policy, and Public Trust"

2004

Shiriki Kumanyika, PhD, MPH

University of Pennsylvania

School of Medicine

"Obesity, Health Disparities, and

Prevention Paradigms: Hard

Questions and Hard Choices"

2003

Jo Ivey Boufford, MD

New York University School of Medicine

"Assuring the Public's Health in the

21st Century: A Research Agenda"

2002

Marc L. Miringoff, PhD

Fordham Institute for Innovation

in Social Policy

"The Social Determinants of Health"

2001

Jeffrey D. Sachs, PhD

Harvard University

"Reinvigorating the Fight Against

Disease in the Developing World"

2000

Lynn R. Goldman, MD, MPH, MS

Johns Hopkins University Bloomberg

School of Public Health

"Health of the World"

1999

Steven N. Blair, PED

The Cooper Institute

Columnist, *The New York Times*

"Physical Inactivity as a

Public Health Problem"

1998

Frederick P. Rivara, MD, MPH

Harborview Injury Prevention

and Research Center

"Injury Control—The Uses of

Science for Prevention"

1997

David R. Cox, MD, PhD

Stanford University School of Medicine

*"The Human Genome Project
and Human Disease"*

1996

Walter E. Massey, PhD

Morehouse College

*"Science—The (Ever-Expanding)
Endless Frontier"*

1995

Nancy S. Wexler, PhD

Columbia University

*"Uncongenial Genealogies:
Prediction and Protection in the
Public Interest"*

1994

Thomas J. Coates, PhD

University of California at San Francisco

*"HIV Prevention Programs
in Research: What Have We
Accomplished, and Where Do
We Need to Go?"*

1993

W. French Anderson, MD

University of Southern California

School of Medicine

*"The Scientific, Ethical, and
Regulatory Issues of Gene Therapy"*

1992

Barry R. Bloom, PhD

Howard Hughes Medical Institute

"Revisiting Mycobacteria"

1991

Lawrence K. Altman, MD

The New York Times

"Science and the Media"

1990

Purnell W. Choppin, MD

Howard Hughes Medical Institute

*"The Role of a Private Medical
Research Organization in Biomedical
Research and Education"*

1989

Joseph L. Goldstein, MD

University of Texas Health Sciences Center

*"Lipoprotein Receptors:
A Genetic Defense Against
and Atherosclerosis"*

1988

David Baltimore, PhD

Hospital Whitehead Institute Massachusetts

Institute of Technology

"Genetics and Modern Disease"

1987

Frank Press, PhD

National Academy of Sciences

"DNA in Washington"

1986

James O. Mason, MD

Centers for Disease Control

"CDC, Science, and the Future"

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of the Charles C. Shepard Science Awards

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