



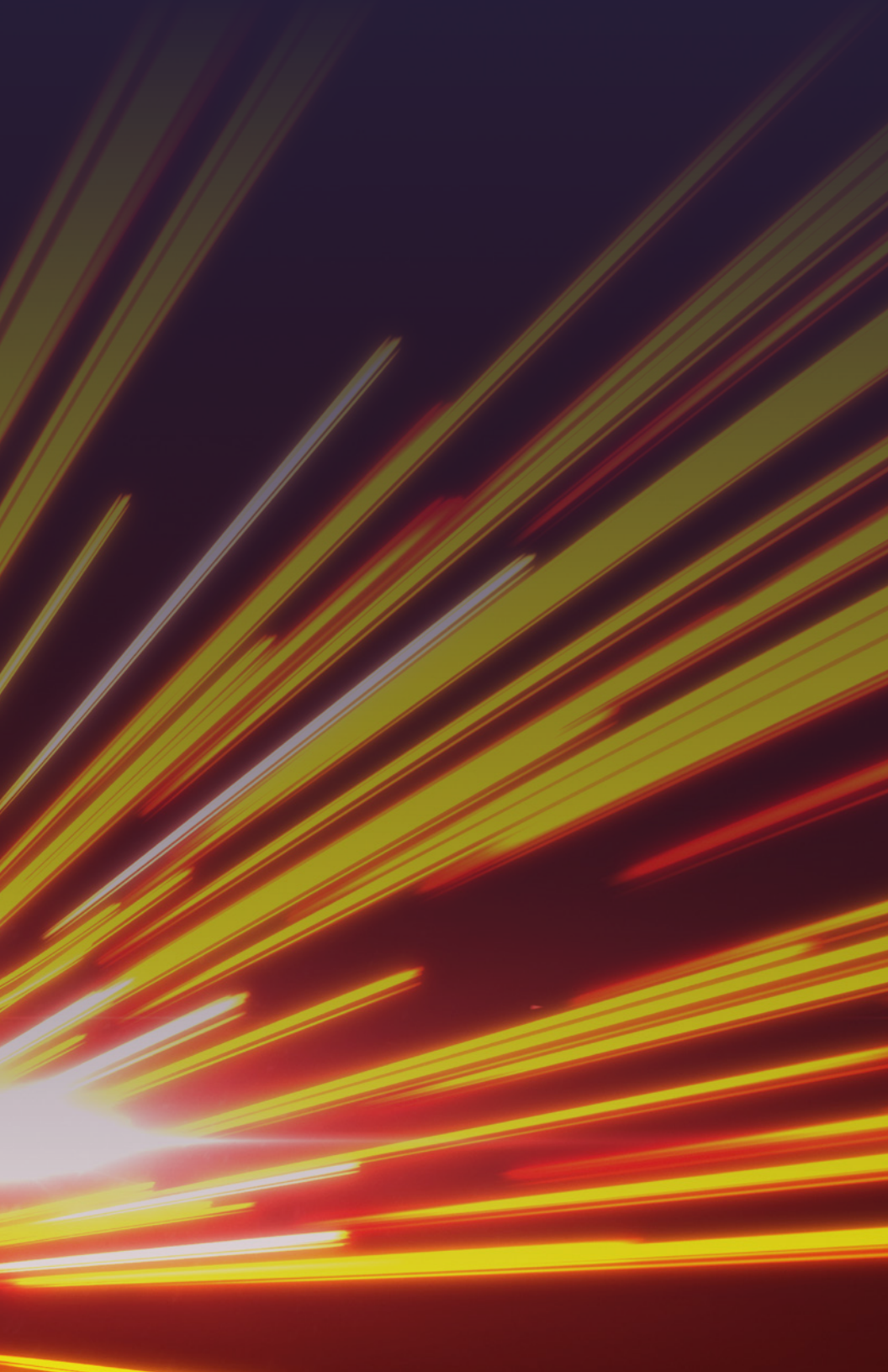
**2022 Charles C. Shepard Science Awards**  
**Thursday, October 27, 2022 · 1:00PM to 4:00PM**

# **Communicating Science *for Action*** *in 2022 and Beyond*

Keynote Speaker:

**Kathleen Hall Jamieson, Ph.D.**

Elizabeth Ware Packard Professor of Communication at the University of Pennsylvania Annenberg School for Communication and Director of the Annenberg Public Policy Center



## 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.



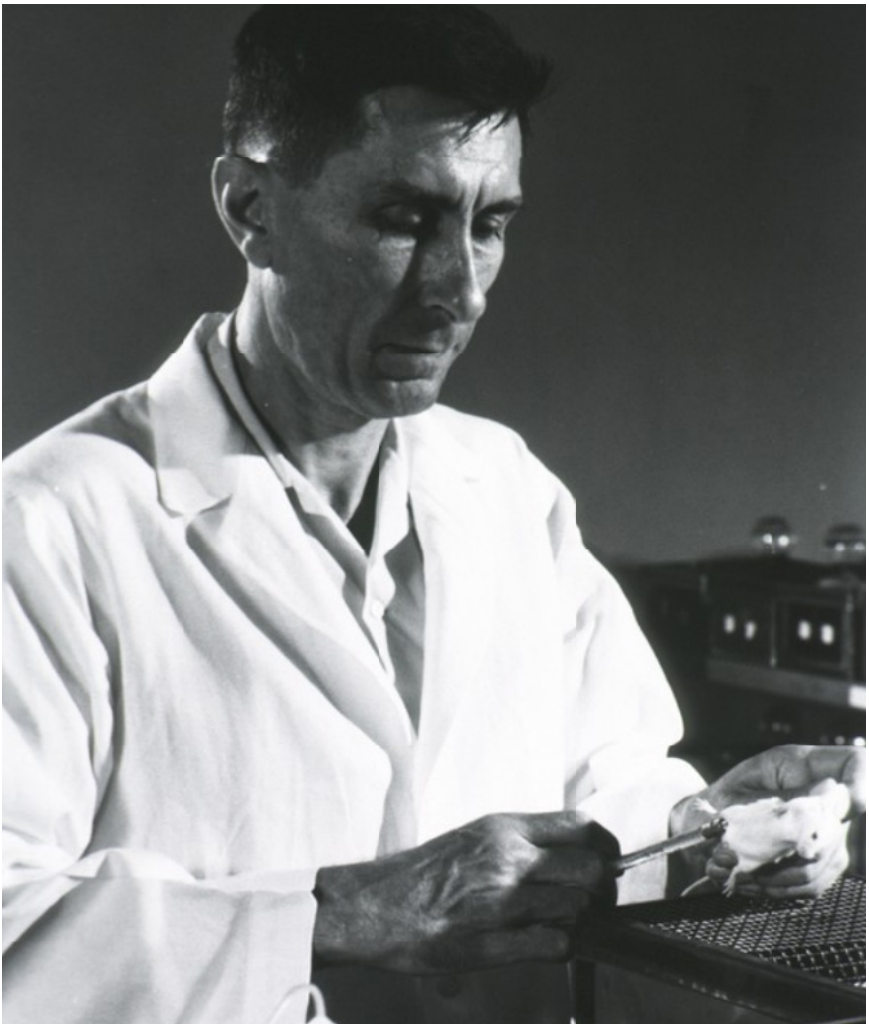
While on sabbatical during 1948 through 1949, he worked in the laboratory of Arne Tiselius in Uppsala, Sweden, and learned the new physical separation techniques that would revolutionize immunology and biochemistry. He returned to Bethesda for a year before moving to the Rocky Mountain Laboratory, National 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

**Kathleen Hall Jamieson** is the Elizabeth Ware Packard Professor at the Annenberg School for Communication of the University of Pennsylvania, program director of the Annenberg Retreat at Sunnylands, and the Walter and Leonore Annenberg Director of the university's Annenberg Public Policy Center (APPC). She has authored or co-authored 17 books, including *Creating Conspiracy Beliefs: How Our Thoughts Are Shaped* (2022) and *Cyberwar: How Russian Hackers and Trolls Helped Elect a President*, which won the Association of American Publishers' 2019 R.R.



Hawkins Award. Six of the books that Jamieson has authored or co-authored have received a total of 12 political science or communication book awards (*Cyberwar*, *Packaging the Presidency*, *Eloquence in an Electronic Age*, *Spiral of Cynicism*, *Presidents Creating the Presidency*, and *The Obama Victory*). She also co-edited *The Oxford Handbook of Political Communication* and *The Oxford Handbook of the Science of Science Communication* and has won teaching awards at each of the three universities at which she has taught. Jamieson is the recipient of the 2022 Warren J. Mitofsky Award for Excellence in Public Opinion Research and the 2020 National Academy of Sciences' Public Welfare Medal for her "nonpartisan crusade to ensure the integrity of facts in public discourse and development of the science of scientific communication to promote public understanding of complex issues." She is a member of the American Philosophical Society and the National Academy of Sciences and a distinguished scholar of the National Communication Association. She also is a fellow of the American Academy of Arts and Sciences, the American Association for the Advancement of Science, the American Academy of Political and Social Science, and the International Communication Association, and a past president of the American Academy of Political and Social Science. Jamieson is the co-founder of FactCheck.org and its SciCheck project. In 2016, her paper "Implications of the Demise of 'Fact' in Political Discourse" received the American Philosophical Society's Henry Allen Moe Prize.

# 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 2022 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

**Guang X. Chen, W. Karl Sieber, James W. Collins, Edward M. Hitchcock, Jennifer E. Lincoln, Stephanie G. Pratt, and Marie H. Sweeney**

**Truck Driver Reported Unrealistically Tight Delivery Schedules Linked to Their Opinions of Maximum Speed Limits and Hours-of-service Rules and Their Compliance with These Safety Laws and Regulations**

*Safety Science* 2021;133:105003

Large truck crashes killed 14 people every day on average in 2019. Large truck and bus crashes cost the U.S. economy an estimated \$163 billion in 2019. The Large Truck Crash Causation study suggests that trucks were to blame for 55 percent of large truck crashes. Among the crashes caused by trucks, an estimated 87 percent were related to human factors rather than mechanical breakdown, equipment failure, bad weather, or poor road conditions.

**Jiajia Chen, Shanna Cox, Elena V Kuklina, Cynthia Ferre, Wanda Barfield, and Rui Li**

**Assessment of Incidence and Factors Associated with Severe Maternal Morbidity After Delivery Discharge Among Women in the U.S.**

*JAMA Network Open* 2021;4(2):e2036148

This paper assessed the incidence, timing, frequency, and characteristics associated with new severe maternal morbidity (SMM) diagnosed after delivery among women in the United States. Findings suggest that focusing on SMM only during delivery would omit more than one in seven SMM cases and informs the importance of quality care in the postpartum period. By assessing incident postpartum SMM, this study clarifies SMM burden and creates new urgencies to improve quality care and follow-up during the postpartum period.

**Emily J. Curren, Manjunath B. Shankar, Marc Fischer, Martin I. Meltzer, J. Erin Staples, and Carolyn V. Gould**

**Cost-effectiveness and Impact of a Targeted Age- and Incidence-based West Nile Virus Vaccine Strategy**

*Clinical Infectious Diseases* 2021; 73(9):1565–1570

The authors analyze costs and benefits of an age- and incidence-based West Nile virus vaccination strategy. Analysis included data sources and measurements to quantify groups and areas according to disease burden and determine the usefulness of targeting these areas to improve cost-effectiveness and impact of the vaccination program. From these results, the investigators give a novel vector-borne disease prevention strategy to decrease the disease burden of WNV disease, reducing death by 60 percent nationally, through targeted vaccination.

**Leora R. Feldstein, Mark W. Tenforde, Kevin G. Friedman, Margaret Newhams, Erica Billig Rose, Heda Dapul, Vijaya L. Soma, Aline B. Maddux, Peter M. Mourani, Cindy Bowens, Mia Maamari, Mark W. Hall, Becky J. Riggs, John S. Giuliano, Jr., Aalok R. Singh, Simon Li, Michele Kong, Jennifer E. Schuster, Gwenn E. McLaughlin, Stephanie P. Schwartz, Tracie C. Walker, Laura L. Loftis, Charlotte V. Hobbs, Natasha B. Halasa, Sule Doymaz, Christopher J. Babbitt, Janet R. Hume, Shira J. Gertz, Katherine Irby, Katharine N. Clouser, Natalie Z. Cvijanovich, Tamara T. Bradford, Lincoln S. Smith, Sabrina M. Heidemann, Sheemon P. Zackai, Kari Wellnitz, Ryan A. Nofziger, Steven M. Horwitz, Ryan W. Carroll, Courtney M. Rowan, Keiko M. Tarquinio, Elizabeth H. Mack, Julie C. Fitzgerald, Bria M. Coates, Ashley M. Jackson, Cameron C. Young, Mary Beth F. Son, Manish M. Patel, Jane W. Newburger, Adrienne G. Randolph, and Overcoming COVID-19 Investigators**

**Overcoming Characteristics and Outcomes of U.S. Children and Adolescents with Multisystem Inflammatory Syndrome in Children (MIS-C) Compared with Severe Acute COVID-19**

*JAMA* 2021;325(11):1074–1087

This paper compares the characteristics and outcomes of children and adolescents with severe COVID-19 and multisystem inflammatory syndrome in children (MIS-C). The comparison of organ involvement in MIS-C with severe acute COVID-19 in children and adolescents, including the timing of resolution of cardiorespiratory dysfunction, helped refine the MIS-C case definition and improved specificity for guiding the use of immune therapies, diagnostic testing, and follow-up for both MIS-C and COVID-19 patients.



**Edward M. Fisher, Michael R. Kuhlman, Young W. Choi, Traci L. Jordan, and Michelle Sunderman**

**Persistence of SARS-CoV-2 on N95 Filtering Facepiece Respirators: Implications for Reuse**

*Journal of Occupational and Environmental Hygiene* 2021;18(12):570–578

This study measured the effect of human saliva and humidity on the survivability of SARS-CoV-2. Findings supported the hypotheses that SARS-CoV-2 persists longer in a nutrient-rich cell culture medium compared to human saliva and is likely to remain active in low humidity similar to other coronavirus strains. Findings also support CDC's recommendations to store used filtering facepiece respirators in a paper bag for five days before reusing to reduce contamination.

**Kristin M. Holland, Christopher Jones, Alana M. Vivolo-Kantor, Nimi Idaikkadar, Marissa Zwald, Brooke Hoots, Ellen Yard, Ashley D'Inverno, Elizabeth Swedo, May S. Chen, Emiko Petrosky, Amy Board, Pedro Martinez, Deborah M. Stone, Royal Law, Michael A. Coletta, Jennifer Adjemian, Craig Thomas, Richard W. Puddy, Georgina Peacock, Nicole F. Dowling, and Debra Houry**

**Trends in U.S. Emergency Department Visits for Mental Health, Overdose, and Violence Outcomes Before and During the COVID-19 Pandemic**

*JAMA Psychiatry* 2021; 78(4):372–379

This study examined data from more than 187 million emergency department visits across the United States to assess trends in six mental health, violence, and injury-related outcomes before and during the COVID-19 pandemic. The authors identified increases in ED visits for suicide attempts and drug overdoses, and increases in rates for mental health conditions, suicide attempts, drug overdoses, and child abuse and neglect from mid-March through October 2020 compared with the same period in 2019.

**Michael A. Johansson, Talia M. Quandelacy, Sarah Kada, Pragati Venkata Prasad, Molly Steele, John T. Brooks, Rachel B. Slayton, Matthew Biggerstaff, and Jay C. Butler**

**SARS-CoV-2 Transmission from People Without COVID-19 Symptoms**

*JAMA Network Open* 2021;4(1):e2035057

The authors used a cost-saving modeling approach to assess the transmission from pre-symptomatic, never symptomatic, and symptomatic people with no symptoms of SARS-CoV-2. They used limited data to develop biologically plausible scenarios in which the proportion of transmission from people who never develop symptoms and the infectious period varied. Findings suggest asymptomatic transmission was a critical component of SARS-CoV-2 transmission dynamics and that COVID-19 intervention strategies needed to include asymptomatic and symptomatic transmission.

**Lyudmyla Kompaniyets, Nickolas T. Agathis, Jennifer M. Nelson, Leigh Ellyn Preston, Jean Y. Ko, Brook Belay, Audrey F. Pennington, Melissa L. Danielson, Carla L. DeSisto, Jennifer R. Chevinsky, Lyna Z. Schieber, Hussain Yusuf, James Baggs, William R. Mac Kenzie, Karen K. Wong, Tegan K. Boehmer, Adi V. Gundlapalli, and Alyson B. Goodman**

**Underlying Medical Conditions Associated with Severe COVID-19 Illness Among Children**

*JAMA Network Open* 2021;4(6):e2111182

In this cross-sectional study of 43,465 patients aged 18 years or younger, the authors examined the risk of severe COVID-19 illness with underlying medical conditions and medical complexity. Findings suggest asthma, obesity, neurodevelopmental disorders, and certain mental health conditions were most common. Certain conditions and medical complexity were also associated with a higher risk of severe COVID-19 illness. Findings could inform pediatric clinical practice and public health priorities such as prevention and mitigation of COVID-19.

**Lyudmyla Kompaniyets, Audrey F. Pennington, Alyson B. Goodman, Hannah G. Rosenblum, Brook Belay, Jean Y. Ko, Jennifer R. Chevinsky, Lyna Z. Schieber, April D. Summers, Amy M. Lavery, Leigh Ellyn Preston, Melissa L. Danielson, Zhaohui Cui, Gonza Namulanda, Hussain Yusuf, William R. Mac Kenzie, Karen K. Wong, James Baggs, Tegan K. Boehmer, and Adi V. Gundlapalli**

**Underlying Medical Conditions and Severe Illness Among 540,667 Adults Hospitalized With COVID-19, March 2020–March 2021**

*Preventing Chronic Disease* 2021;18:E66

This paper describes a robust analysis to identify the most prevalent underlying medical conditions associated with severe COVID-19 outcomes among a geographically diverse and large sample (N=540,667) of hospitalized patients. Findings contributed to the COVID-19 literature by considering nearly 300 conditions and were widely shared and used by the CDC to provide timely information to policy makers, researchers, public health practitioners, and healthcare providers.

**Ruowei Li, Julie Ware, Aimin Chen, Jennifer M. Nelson, Jennifer M. Kmet, Sharyn E. Parks, Ardythe L. Morrow, Jian Chen, and Cria G. Perrine**

**Breastfeeding and Post-perinatal Infant Deaths in the United States, A National Prospective Cohort Analysis**

*The Lancet Regional Health—Americas* 2022;5:100094

Studies have shown that breastfeeding plays an important role in reducing infant mortality in low- and middle-income countries. In this study, the authors examined the association of more than 3 million births in the United States to infant deaths up to one year after birth to evaluate whether these benefits of breastfeeding also apply in a high-income country. Findings support promoting breastfeeding as a key strategy for infant mortality reduction efforts in the United States.

**Kathleen M. Navarro, Molly R. West, Katelyn O'Dell, Paro Sen, I-Chen Chen, Emily V. Fischer, Rebecca S. Hornbrook, Eric C. Apel, Alan J. Hills, Alex Jarnot, Paul DeMott, and Joseph W. Domitrovich**

**Exposure to Particulate Matter and Estimation of Volatile Organic Compounds Across Wildland Firefighter Job Tasks**

*Environmental Science & Technology* 2021;55(17):11795–11804

During the height of wildfire season in the fall, thousands of wildland firefighters are mobilized across the United States. Wildland firefighters are exposed to a variety of pollutants. The authors estimated exposures to particulate matter using air sampling measurements from 81 wildland firefighters in nine states. Findings suggest smoke exposures for wildland firefighters have not significantly declined over time, can exceed the recommended National Wildland Fire Coordinating Group occupational exposure limit, and can be higher when performing specific job tasks.

**Amanda B. Payne, Zunera Gilani, Shana Godfred-Cato, Ermias D. Belay, Leora R. Feldstein, Manish M. Patel, Adrienne G. Randolph, Margaret Newhams, Deepam Thomas, Reed Magleby, Katherine Hsu, Meagan Burns, Elizabeth Dufort, Angie Maxted, Michael Pietrowski, Allison Longenberger, Sally Bidol, Justin Henderson, Lynn Sosa, Alexandra Edmundson, Melissa Tobin-D'Angelo, Laura Edison, Sabrina Heidemann, Aalok R. Singh, John S. Giuliano, Jr., Lawrence C. Kleinman, Keiko M. Tarquinio, Rowan F. Walsh, Julie C. Fitzgerald, Katharine N. Clouser, Shira J. Gertz, Ryan W. Carroll, Christopher L. Carroll, Brooke E. Hoots, Carrie Reed, F. Scott Dahlgren, Matthew E. Oster, Timmy J. Pierce, Aaron T. Curns, Gayle E. Langley, Angela P. Campbell, MIS-C Incidence Authorship Group, Neha Balachandran, Thomas S. Murray, Cole Burkholder, Troy Brancard, Jenna Lifshitz, Dylan Leach, Ian Charpie, Cory Tice, Susan E. Coffin, Dana Perella, Kaitlin Jones, Kimberly L. Marohn, Phoebe H. Yager, Neil D. Fernandes, Heidi R. Flori, Monica L. Koncicki, Karen S. Walker, Maria Cecilia Di Pentima, Simon Li, Steven M. Horwitz, Sunanda Gaur, Dennis C. Coffey, Ilana Harwayne-Gidansky, Saul R. Hymes, Neal J. Thomas, Kate G. Ackerman, and Jill M. Cholette**

**Incidence of Multisystem Inflammatory Syndrome in Children Among U.S. Persons Infected With SARS-CoV-2**

*JAMA Network Open* 2021;4(6):e2116420

Multisystem inflammatory syndrome in children (MIS-C) is a rare but serious illness that can be triggered by viral infection. The inflammation can involve the heart, blood vessels, and other organs. Affected children may need hospitalization. This study describes the incidence of MIS-C in select U.S. jurisdictions during April to June 2020. The study involved the collection and analysis of data to estimate the incidence of MIS-C per SARS-CoV-2 infection. These estimates can be used as a baseline for future analyses.

**Linda C. Pimentel, Alicia C. May, John K. Iskander, Ronald E. Banks, and John D. Gibbins**

**Assessment of One Health Knowledge, Animal Welfare Implications, and Emergency Preparedness Considerations for Effective Public Health Response**

*Public Health Reports* 2021;333549211047234

This study used a survey to examine One Health awareness across numerous public health disciplines in the United States. While U.S. accredited schools of public health have recently begun One Health training, a lack of One Health knowledge in the workforce can affect public health response effectiveness. Findings suggest that other public health professionals, in addition to veterinarians, play important roles in animal welfare and public health practice, which improves human health and well-being.

**Bryan Stierman, Cynthia L. Ogden, Jack A. Yanovski, Crescent B. Martin, Neda Sarafrazi, and Craig M. Hales**

**Changes in Adiposity Among Children and Adolescents in the United States, 1999–2006 to 2011–2018**

*The American Journal of Clinical Nutrition* 2021;114(4):1495–1504

Obesity in children is associated with low self-esteem and bullying while also increasing the risk for type 2 diabetes, high blood pressure, and severe COVID-19. Obesity during childhood also often leads to obesity in adulthood. Because body mass index (BMI) does not always reflect underlying body fat, these findings reinforce the need to consider other measures, besides BMI categories, when studying body fat in children and adolescents.

**Nicola D. Thompson, Nimalie D. Stone, Cedric J. Brown, Austin R. Penna, Taniece R. Eure, Wendy M. Bamberg, Grant R. Barney, Devra Barter, Paula Clogher, Malini B. DeSilva, Ghinwa Dumyati, Linda Frank, Christina B. Felsen, Deborah Godine, Lourdes Irizarry, Marion A. Kainer, Linda Li, Ruth Lynfield, J. P. Mahoehney, Meghan Maloney, Joelle Nadle, Valerie L. S. Ocampo, Rebecca Pierce, Susan M. Ray, Sarah Shrum Davis, Marla Sievers, Krithika Srinivasan, Lucy E. Wilson, Alexia Y. Zhang, and Shelley S. Magill**

**Antimicrobial Use in a Cohort of U.S. Nursing Homes, 2017**

*JAMA* 2021;325(13):1286–1295

The authors report the prevalence of antimicrobial use, types of antimicrobials administered, risk factors for receipt of antimicrobials, and the indications for their use in a large group of U.S. nursing homes. Data from this survey will provide a benchmark from which to evaluate the impact of activities designed to improve antimicrobial use and serve as a reference point for comparison to other countries conducting similar activities.

**Wendy A. Wattigney, Sanghamitra S. Savadatti, Ming Liu, Marian Pavuk, Elizabeth Lewis-Michl, Kurunthachalam Kannan, Wei Wang, Henry Spliethoff, Lydia Marquez-Bravo, and Syni-An Hwang**

**Biomonitoring of Per- and Polyfluoroalkyl Substances in Minority Angler Communities in Central New York State**

*Environmental Research* 2022;204(Pt. C):112309

In this study, investigators examined demographic, behavioral, dietary, and other characteristics of survey participants as predictors of serum per- and polyfluoroalkyl substance (PFAS) concentrations with a focus on locally caught fish consumption in a cohort of Burmese and Bhutanese refugees and urban minority anglers. The investigation, which took place over the course of 12 months, from an area of well-known environmental chemical contamination, yielded valuable information to the community and health officials, directly affecting residents' lives.

**Hannah K. Weir, Trevor D. Thompson, Sherri L. Stewart, and Mary C. White**

**Cancer Incidence Projections in the United States Between 2015 and 2050**

*Preventing Chronic Disease* 2021;18:E59

Cancer incidence for most cancers increases with age. During the past few decades, the age distribution of the U.S. population has shifted to include more older adults, and this trend is expected to continue. The authors projected cancer incidence rates from 2016 through 2050 using high-quality registry data and sophisticated age-period-cohort regression models. Findings projected a 50 percent increase in the number of new cancer cases between 2015 and 2050, due largely to the aging of the U.S. population.

**Hayley D. Yaglom, Gavriella Hecht, Andrew Goedderz, Daniel Jasso-Selles, Jennifer L. Ely, Irene Ruberto, Jolene R. Bowers, David M. Engelthaler, and Heather Venkat**

**Genomic Investigation of a Household SARS-CoV-2 Disease Cluster in Arizona Involving a Cat, Dog, and Pet Owner**

*One Health* 2021;13:100333

The authors report on a SARS-CoV-2 transmission from humans to companion animals (a dog and a cat with the identical sequence as their owner). As part of a study conducted by the Arizona Department of Health Services on households with COVID-positive humans and their pets, surveillance of pets identified a household with multiple pets that tested positive for COVID. Whole genome sequencing assessed the relatedness between the infecting viruses. Findings suggest transmission of the virus can occur from humans to animals.

# Data Methods and Study Design

**Aziza Arifkhanova, Emily McCormick Kraus, Alia Al-Tayyib, Julie Taub, Annette Encinias, Dean McEwen, Arthur Davidson, and Judith C. Shlay**

**Estimating Costs of Hospitalizations Associated with Opioid Use Disorder or Opioid Misuse at a Large, Urban Safety-net Hospital—Denver, Colorado, 2017**

*Drug and Alcohol Dependence* 2021;218:108306

Studies of healthcare expenditures of many conditions, including opioid use disorder (OUD) or opioid misuse (OM), often rely on diagnostic codes to identify which patients to include. This paper characterized how diagnostic codes underestimate expenditures for opioid-related hospitalizations. Findings offer healthcare systems a way to classify hospitalizations associated with OUD or OM more accurately and may guide program planning to allocate resources more efficiently.

**Andrew F. Auld, Andrew D. Kerkhoff, Yasmeen Hanifa, Robin Wood, Salome Charalambous, Yuliang Liu, Tefera Agizew, Anikie Mathoma, Rosanna Boyd, Anand Date, Ray W. Shiraishi, George Bicego, Unami Mathebula-Modongo, Heather Alexander, Christopher Serumola, Goabaone Rankgoane-Pono, Pontsho Pono, Alyssa Finlay, James C. Shepherd, Tedd V. Ellerbrock, Alison D. Grant, and Katherine Fielding**

**Derivation and External Validation of a Risk Score for Predicting HIV-associated Tuberculosis to Support Case Finding and Preventive Therapy Scale-up: A Cohort Study**

*PLOS Medicine* 2021;18(9):e1003739

The authors use a combination of traditional logistic regression and machine learning approaches using Random Forest models to derive risk scores for active tuberculosis among people living with HIV (PLHIV). The paper also externally validates a TB risk score for active TB among both antiretroviral therapy (ART)-naive and ART-experienced adult PLHIV using three trial datasets from diverse settings. The new TB risk score has the potential to facilitate earlier diagnosis and reduce the annual 214,000 TB deaths among PLHIV.

**Giulia Earle-Richardson, Eva Erlach, Vivienne Walz, Ombretta Baggio, Molly Kurnit, Cheick Abdoulaye Camara, Christina Craig, Lucia Robles Dios, Daiva Yee, Gnakub Norbert Soke, Ialijaona Voahary, and Christine E. Prue**

**New Mixed Methods Approach for Monitoring Community Perceptions of Ebola and Response Efforts in the Democratic Republic of the Congo**

*Global Health: Science and Practice* 2021;9(2):332–343

This paper describes how the authors developed a bilingual (French/English) coding and analysis system in Microsoft Excel that enabled the timely delivery of raw and robust interpreted community feedback data. These data helped to build trust between community members and public health authorities during the Ebola outbreak in the Democratic Republic of Congo and continued to do so for the COVID-19 response.

**Jeffrey W. Eaton, Laura Dwyer-Lindgren, Steve Gutreuter, Megan O’Driscoll, Oliver Stevens, Sumali Bajaj, Rob Ashton, Alexandra Hill, Emma Russell, Rachel Esra, Nicolas Dolan, Yusuf O. Anifowoshe, Mark Woodbridge, Ian Fellows, Robert Glaubius, Emily Haeuser, Taylor Okonek, John Stover, Matthew L. Thomas, Jon Wakefield, Timothy M. Wolock, Jonathan Berry, Tomasz Sabala, Nathan Heard, Stephen Delgado, Andreas Jahn, Thokozani Kalua, Tiwonge Chimpandule, Andrew Auld, Evelyn Kim, Danielle Payne, Leigh F. Johnson, Richard G. FitzJohn, Ian Wanyeki, Mary I. Mahy, and Ray W. Shiraishi**

**Naomi: A New Modelling Tool for Estimating HIV Epidemic Indicators at the District Level in Sub-Saharan Africa**

*Journal of the International AIDS Society* 2021;24 Suppl 5:p.e25788

This paper presents the Naomi model, a way to estimate HIV-related indicators by sex and 5-year age groups at the second subnational (district) geopolitical level. The Naomi model is now a standard tool used by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) for planning and assessment of interventions in sub-Saharan Africa and in allocating more than \$4 billion in PEPFAR funds annually.



**Anne M. Foreman, Jonathan E. Friedel, Yusuke Hayashi, and Oliver Wirth**

**Texting While Driving: A Discrete Choice Experiment**

*Accident Analysis & Prevention* 2021;149:105823

This study applies a behavioral economic assessment method called “discrete choice experiment” (DCE) to study safety-related decision making. Based on random utility theory, DCE analyzes choice patterns among hypothetical but realistic scenarios in which factors vary systematically and quantifies the relative importance of factors that influence decisions and behavior. From the results, the researchers can ascertain the factors most important in deciding whether to don a respirator.

**Muhammad Jami Husain, Biplab Kumar Datta, and Deliana Kostova**

**Disease and Demography: A Systems-dynamic Cohort-component Population Model to Assess the Implications of Disease-specific Mortality Targets**

*BMJ Open* 2021;11(5):e043313

Population projection models typically emphasize the role of fertility but rarely explain how changes in disease-specific mortality affect demographics. This study details the development of a cohort-component model that projects demographic and health trends of a population determined by relationships between population determinants, including those affected by policy actions. The model accounts for aging over 101 annual age cohorts and projects population changes based on trends in disease-specific mortality while simultaneously using fertility and net migration data.

**Kristen M. Kreisel, Emily J. Weston, Sancta B. St. Cyr, and Ian H. Spicknall**

**Estimates of the Prevalence and Incidence of Chlamydia and Gonorrhea Among U.S. Men and Women, 2018**

*Sexually Transmitted Diseases* 2021;48(4):222–231

The Sexually Transmitted Infection (STI) Incidence, Prevalence, and Cost Estimates Team updated incidence, prevalence, and cost estimates of eight STIs for 2018, including chlamydia and gonorrhea. New methods used models for estimating the incidence and prevalence of chlamydia and gonorrhea and served as the prototypes upon which the modeling for all other STI incidence and prevalence estimates included on the team were based.

**Amber Kunkel, Seonghye Jeon, Haim C. Joseph, Pierre Dilius, Kelly Crowdis, Martin I. Meltzer, and Ryan Wallace**

**The Urgency of Resuming Disrupted Dog Rabies Vaccination Campaigns: A Modeling and Cost-effectiveness Analysis**

*Scientific Reports* 2021;11(1):12476

Haiti, a country of about 12 million people, has the highest burden of human rabies deaths in the Western Hemisphere. This paper reflects a novel approach to estimating human deaths due to a rabies outbreak, while also evaluating the cost and effectiveness of differing levels of intervention. This was applied to a real-world situation and had direct impact on resuming dog vaccination programs in a rabies endemic country.

**Matthew J. Maenner, Sierra J. Graves, Georgina Peacock, Margaret A. Honein, Coleen A. Boyle, and Patricia M. Dietz**

**Comparison of 2 Case Definitions for Ascertaining the Prevalence of Autism Spectrum Disorder Among 8-Year-Old Children**

*American Journal of Epidemiology* 2021;190(10):2198–2207

Data from CDC's Autism and Developmental Disabilities Monitoring Network are the gold standard for estimating autism prevalence in the United States. This paper established a new case definition for the surveillance of autism, which prompted a redesign of the way CDC collects autism surveillance data. The new method uses health and education records, but the data abstracted are a diagnosis of autism by a professional, eligibility to special education because of autism, and the International Classification of Diseases code for autism.

**Zuguo Mei, O. Yaw Addo, Maria Elena Jefferds, Andrea J. Sharma, Rafael C. Flores-Ayala, and Gary M. Brittenham**

**Physiologically Based Serum Ferritin Thresholds for Iron Deficiency in Children and Non-pregnant Women: A U.S. National Health and Nutrition Examination Surveys (NHANES) Serial Cross-sectional Study**

*The Lancet Hematology* 2021;8(8):e572–e582

This paper proposes a new way to use two physiological indicators of iron-deficient red blood cell production, hemoglobin and soluble transferrin receptor, to identify potential ferritin (a protein) thresholds using physiological criteria from high-quality population data (National Health and Nutrition Examination Survey, NHANES) rather than relying on statistical analyses of the distribution of a pure chemical substance in samples from various sources or on expert opinion. These physiologically based thresholds for identification may be more clinically and epidemiologically relevant.

**Rebecca D. Merrill, Ali Imorou Bah Chabi, Elvira McIntyre, Jules Venance Kouassi, Martial Monney Alleby, Corrine Codja, Ouyi Tante, Godjedo Togbemabou Primous Martial, Idriss Kone, Sarah Ward, Tamekloe Tsidi Agbeko, and Clement Glèlè Kakaï**

**An Approach to Integrate Population Mobility Patterns and Sociocultural Factors in Communicable Disease Preparedness and Response**

*Humanities and Social Sciences Communications* 2021;8(23):1–11

This paper describes a new way to give governments and public health partners accurate data on cross-border mobility of populations in resource-constrained settings to assess preparedness and response needs. The method integrates qualitative, quantitative, and spatial data-gathering strategies to ensure users, even those with minimal experience, can efficiently generate data for public health action. The method outlined in the paper has been used by governments in Latin America, the Middle East, and sub-Saharan Africa.

**M. M. Mumtaz, M. C. Buser, and H. R. Pohl**

**Per- and Polyfluoroalkyl Mixtures Toxicity Assessment “Proof-of-Concept” Illustration for the Hazard Index Approach**

*Journal of Toxicology and Environmental Health Part A* 2021;84(13):553–567

Conventionally, estimating causal effects of a chemical exposure on health and inferring causal relationships have been limited to studies in which exposure information precedes information about health outcomes. This paper advances understanding about causal estimation by describing conditions under which such inferences can be made using data for which exposure and health outcome data may be field collected simultaneously.

**Dean M. Resnick, Christine S. Cox, and Lisa B. Mirel**

**Using Synthetic Data to Replace Linkage Derived Elements: A Case Study**

*Health Services Outcomes Research Methodology* 2021;21:389–406

Most linked data are designated as restricted-use and accessible only through research data centers. To increase access to linked data, this paper presents a case study to assess the creation of synthetic data files, using the National Hospital Care Survey (NHCS) data linked to the National Death Index (NDI). The NHCS patient data were linked to the NDI to enhance the survey with mortality information. The study found that results of synthetic data were favorably compared to the true linked data.

**Isaac See, Prbasaj Paul, Rachel B. Slayton, Molly K. Steele, Matthew J. Stuckey, Lindsey Duca, Arjun Srinivasan, Nimalie Stone, John A. Jernigan, and Sujan C. Reddy**

**Modeling Effectiveness of Testing Strategies to Prevent Coronavirus Disease 2019 (COVID-19) in Nursing Homes—United States, 2020**

*Clinical Infectious Diseases* 2021;73(3):e792–e798

Nursing homes emerged early in the COVID-19 pandemic as a setting where the virus could spread rapidly with high attack and case-fatality rates. This paper examined how best to control COVID-19 outbreaks in nursing homes through testing. The authors combined data from multiple sources and used mathematical modeling to evaluate a public health problem of national importance. Findings prompted changes to CDC guidance for COVID-19 testing in nursing homes and Centers for Medicare & Medicaid Services federal regulations.

**Steven A. Sumner, Brock Ferguson, Brian Bason, Jacob Dink, Ellen Yard, Marci Hertz, Brandon Hilkert, Kristin Holland, Melissa Mercado-Crespo, Shichao Tang, and Christopher M. Jones**

**Association of Online Risk Factors with Subsequent Youth Suicide-related Behaviors in the U.S.**

*JAMA Network Open* 2021;4(9):e2125860

Suicide is currently the second leading cause of death among youth ages 10–18 years. The cause of these population-level trends in youth mental health and suicide risk has not yet been determined. This paper describes a large-scale study using real-world, longitudinal data encompassing online and social media behavior drawn from more than 5 million students in more than 2,600 school districts nationwide to better understand the precise role of online activities in suicide risk behavior.

**Mark G. Thompson, Jefferey L. Burgess, Allison L. Naleway, Harmony Tyner, Sarang K. Yoon, Jennifer Meece, Lauren E. W. Olsho, Alberto J. Caban-Martinez, Ashley L. Fowlkes, Karen Lutrick, Holly C. Groom, Kayan Dunnigan, Marilyn J. Odean, Kurt Hegmann, Elisha Stefanski, Laura J. Edwards, Natasha Schaefer-Solle, Lauren Grant, Katherine Ellingson, Jennifer L. Kuntz, Tnelda Zunie, Matthew S. Thiese, Lynn Ivacic, Meredith G. Wesley, Julie Mayo Lamberte, Xiaoxiao Sun, Michael E. Smith, Andrew L. Phillips, Kimberly D. Groover, Young M. Yoo, Joseph Gerald, Rachel T. Brown, Meghan K. Herring, Gregory Joseph, Shawn Beitel, Tyler C. Morrill, Josephine Mak, Patrick Rivers, Brandon P. Poe, Brian Lynch, Yingtao Zhou, Jing Zhang, Anna Kelleher, Yan Li, Monica Dickerson, Erika Hanson, Kyley Guenther, Suxiang Tong, Allen Bateman, Erik Reisdorf, John Barnes, Eduardo Azziz-Baumgartner, Danielle R. Hunt, Melissa L. Arvay, Preeta Kutty, Alicia M. Fry, and Manjusha Gaglani**

### **Prevention and Attenuation of Covid-19 with the BNT162b2 and mRNA-1273 Vaccines**

*The New England Journal of Medicine* 2021;385(4):320–329

When messenger RNA (mRNA) COVID-19 vaccines became available to healthcare workers and other essential workers in early 2021, their effectiveness in preventing SARS-CoV-2 infection and their ability to weaken vaccine breakthrough infections were unknown. This paper assesses mRNA COVID-19 vaccine effectiveness against symptomatic and asymptomatic infections of any kind in the United States.

**Katy Town, Emily R. Learner, Vasanta L. Chivukula, Kerry Mauk, Jennifer L. Reimche, Matthew W. Schmerer, Jamie Black, Preeti Pathela, Sanjib Bhattacharyya, Roxanne P. Kerani, Karen E. Gieseke, Acasia Fukuda, Madeline Sankaran, Candice J. McNeil, Ian H. Spicknall, Brian H. Raphael, Cyr Sancta B. St, Kyle Bernstein, Ellen N. Kersh, Robert D. Kirkcaldy, Karen Schlanger, Kim M. Gernert, and the SURRG Working Group**

### **Exploring and Comparing the Structure of Sexual Networks Affected by *Neisseria gonorrhoeae* Using Sexual Partner Services Investigation and Genomic Data**

*Sexually Transmitted Diseases* 2021;48(12S Suppl 2):S131–S136

Partner services for sexually transmitted diseases are an important intervention to control and prevent infections but may be reluctant or unable to name sexual partners. Thus, sexual networks derived from partner services data are incomplete. Few studies have combined data from partner service investigations with *Neisseria gonorrhoeae* genomic data to investigate sexual networks with gonorrhea transmission. Combining these two datasets gave the authors a clearer understanding of sexual network connections in which *N. gonorrhoeae* was transmitted.

# Health Equity Science

**Dena Bushman, Alexander Davidson, Preeti Pathela, Sharon K. Greene, Don Weiss, Vasudha Reddy, the New York City Fatal Case-control Study Team, and Julia Latash**

## **Risk Factors for Death Among Hospitalized Patients Aged 21–64 Years Diagnosed with COVID-19—New York City, March 13–April 9, 2020**

*Journal of Racial and Ethnic Health Disparities* 2021 9(4):1584–1999

This case-control study assessed risk factors for death among New York City residents aged 21–64 years who were hospitalized with COVID-19 during the height of the initial wave of the COVID-19 pandemic. The authors showed that underlying medical conditions were risk factors for death among adults aged 21–64 years. Findings suggest that while patient race and ethnicity were not independent risk factors for mortality, the prevalence of these underlying conditions was highest among control-patients who were non-Hispanic Black.

**Jean M. Cox-Ganser, and Paul K. Henneberger**

## **Occupations by Proximity and Indoor/Outdoor Work: Relevance to COVID-19 in All Workers and Black/Hispanic Workers**

*American Journal of Preventive Medicine* 2021;60(5):621–628

Black and Hispanic people experience a higher risk for COVID-19 and severe illness, influenced by factors such as discrimination, housing, and healthcare access and use. This paper identifies job categories that put workers at risk because they require working in close contact with others. Some of these jobs have a disproportionately high number of Black or Hispanic workers. Researchers used data from the Occupational Information Network and the Bureau of Labor Statistics to classify the occupations of all U.S. workers.

**Benjamin Guesdon, Alexia Couture, Elise Lesieur, and Oleg Bilukha**

## **“No Weight for Height” Case Detection Strategies for Therapeutic Feeding Programs: Sensitivity to Acute Malnutrition and Target Composition Based on Representative Surveys in Humanitarian Settings**

*BMC Nutrition* 2021;7(1):3

This paper contributes to understanding and evaluating admission criteria for therapeutic feeding programs, which directly tackles health equity in nutrition on a global stage. The analysis and evaluation of admission criteria deepens the understanding of nutritional disparities and provides evidence-based insights on interventions aimed to reduce health disparities by providing intensive nutritional and medical support.

**Wojciech Kaczowski, Jingjing Li, Adina C. Cooper, and Leah Robin**

**Examining the Relationship Between LGBTQ-supportive School Health Policies and Practices and Psychosocial Health Outcomes of Lesbian, Gay, Bisexual, and Heterosexual Students**

*LGBT Health* 2022;9(1):43–53

Lesbian, gay, bisexual, transgender, and questioning students are at disproportionate risk for many adverse health outcomes and behaviors, including those related to mental health, substance use, violence, and suicide. This paper examines and documents associations of supportive school policies and practices with key outcomes of interest in both LGBTQ and heterosexual youth, showing that CDC can provide evidence to support using these policies and build support for LGBTQ youth while also improving the health of all youth.

**Mbabazi Kariisa, Puja Seth, Lawrence Scholl, Nana Wilson, and Nicole L. Davis**

**Drug Overdose Deaths Involving Cocaine and Psychostimulants with Abuse Potential Among Racial and Ethnic Groups—United States, 2004–2019**

*Drug and Alcohol Dependence* 2021;227:109001

The drug overdose epidemic is one of the historic public health challenges of recent times. More than 100,000 people are estimated to have died of a drug overdose between November 2020 and November 2021. Stimulant-involved overdose deaths have disproportionately harmed racial and ethnic minority groups. This study examined health disparities in stimulant-involved overdose death rates, including the simultaneous involvement of opioids in these overdoses among racial and ethnic groups in the United States.

**Catherine A. Okoro, Tara W. Strine, Lela McKnight-Eily, Jorge Verlenden, and NaTasha D. Hollis**

**Indicators of Poor Mental Health and Stressors During the COVID-19 Pandemic, by Disability Status: A Cross-sectional Analysis**

*Disability and Health Journal* 2021;14(4):101110

People with disabilities have often been omitted from public health interventions. Hence, there are health disparities observed among people with disabilities across their lifetimes. This manuscript provides statistical data that highlight several mental and behavioral health disparities observed during the COVID-19 pandemic between adults with disabilities and adults without disabilities. The authors show the importance of delivering timely mental health screening and intervention during and after the COVID-19 pandemic to adults with disabilities.

**Joohyun Park, Ping Zhang, Yu Wang, Xilin Zhou, Kevin A. Look, and Elizabeth T. Bigman**

**High Out-of-pocket Health Care Cost Burden Among Medicare Beneficiaries with Diabetes, 1999–2017**

*Diabetes Care* 2021;44(8):1797–1804

The financial burden of medical costs among older adults with diabetes is not well understood and could have critical consequences. This paper examined the magnitude of out-of-pocket (OOP) healthcare costs and the resulting burden among Medicare beneficiaries with diabetes, as well as changes in OOP costs and burden over time. The authors also examined disparities by income level, race, and ethnicity and changes in those disparities over time.

**Lauren M. Rossen, Jeremy A. W. Gold, Farida B. Ahmad, Paul D. Sutton, and Amy M. Branum**

**Trends in the Distribution of COVID-19 Deaths by Age and Race/Ethnicity—United States, April 4–December 26, 2020**

*Annals of Epidemiology* 2021;62:66–68

During the early part of the COVID-19 pandemic, previous research indicated that the proportion of COVID-19 deaths by age, race, and ethnicity evolved. However, this research generally did not examine changes in the distribution of COVID-19 deaths by race and ethnicity across age groups, particularly near the end 2020. This paper used National Vital Statistics System data from April 4 to December 26, 2020, to examine weekly trends in COVID-19 deaths by age, race, and ethnicity.

**Mona Saraiya, Li C. Cheung, Ashwini Soman, Jacqueline Mix, Kristy Kenney, Xiaojian Chen, Rebecca B. Perkins, Mark Schiffman, Nicolas Wentzensen, and Jacqueline Miller**

**Risk of Cervical Precancer and Cancer Among Uninsured and Underserved Women from 2009 to 2017**

*American Journal of Obstetrics & Gynecology* 2021;224(4):366.e1–366.e32

For more than 30 years, the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) has collected data on cancer screening, diagnostic, and treatment data on services for women who have low incomes. The diversity of women enrolled in the NBCCEDP allowed for a more thorough examination of immediate cervical dysplasia risks by race and ethnicity. These data extend findings from earlier studies of well-screened populations, making them generalizable.



**Bryan Stierman, Joseph Y. Abrams, Shana E. Godfred-Cato, Matthew E. Oster, Lu Meng, Luke Yip, Pragna Patel, Neha Balachandran, Emily Prezzato, Timmy Pierce, Katherine K. Hsu, Meagan Burns, Xandy Peterson Pompa, Priscilla Lauro, Amanda Hartley, Cassandra Jones, Stephanie Grets, Heather Reid, Sarah Lim, Angela P. Campbell, and Ermias D. Belay**

**Racial and Ethnic Disparities in Multisystem Inflammatory Syndrome in Children in the United States, March 2020 to February 2021**

*Pediatric Infectious Disease Journal* 2021;40(11):e400–e406

This paper investigates potential disparities in the burden of multisystem inflammatory syndrome in children (MIS-C) by race and ethnicity in the United States. The paper also examined what separates COVID-19 rates from MIS-C rates to determine if racial and ethnic groups have disproportionate risk of developing MIS-C beyond the already disproportionate risk of COVID-19. Findings highlight the unequal burden of this disease on children of certain racial or ethnic groups and offer clues about underlies those disparities.

**Derek W. Werthmann, Felicia A. Rabito, Daniel M. Stout, II, Nicolle S. Tulve, Gary Adamkiewicz, Antonia M. Calafat, Maria Ospina, and Ginger L. Chew**

**Pyrethroid Exposure Among Children Residing in Green Versus Non-green Multi-family, Low-income Housing**

*Journal of Exposure Science & Environmental Epidemiology* 2021;31(3):549–559

Concern over children's chronic low-level exposure to pesticides continues to grow. The authors conducted a longitudinal study of pyrethroid metabolites collected from urine samples of 68 children in New Orleans residing in green and non-green housing. Children were followed for one year with three measures of pesticide exposure. Findings suggest no significant differences in urinary concentrations of these metabolites between those residing in green versus non-green housing.

**Austin M. Williams, Heather B. Clayton, and James A. Singleton**

**Racial and Ethnic Disparities in COVID-19 Vaccination Coverage: The Contribution of Socioeconomic and Demographic Factors**

*American Journal of Preventive Medicine* 2022;62(4):473–482

Health disparities among racial, ethnic, and socioeconomic groups are pervasive, and the COVID-19 pandemic has not been an exception. This study explores the key demographic and socioeconomic factors related to racial and ethnic disparities in COVID-19 vaccination coverage. The authors found that the variables that best explained disparities in adult vaccination coverage were age, education, employment, and income.

# Laboratory Science

**Whitney R. Baldwin, Holli A. Giebler, Janae L. Stovall, Ginger Young, Kelly J. Bohning, Hansi J. Dean, Jill A. Livengood, and Claire Y-H Huang**

## **Single Dose of Chimeric Dengue-2/Zika Vaccine Candidate Protects Mice and Non-human Primates Against Zika Virus**

*Nature Communications* 2021;12(1):7320

Zika virus (ZIKV) causes severe birth defects and fetal death. Options for preventing infection and subsequent disease are limited. A safe and effective ZIKV vaccine can have a tremendous public health benefit for travelers to ZIKV-affected areas and pregnant women living in endemic regions. The authors used molecular engineering and state-of-the-art laboratory technologies in cell cultures, mosquito, and animal models in characterizing the vaccine viruses.

**Joel Barratt, Katelyn Houghton, Travis Richins, Anne Straily, Ryan Threlkel, Betelehem Bera, Jayne Kenneally, Brooke Clemons, Susan Madison-Antenucci, Elizabeth Cebelinski, Brooke M. Whitney, Katherine R. Kreil, Vitaliano Cama, Michael J. Arrowood, and Yvonne Qvarnstrom**

## **Investigation of U.S. *Cyclospora cayetanensis* Outbreaks in 2019 and Evaluation of an Improved Cyclospora Genotyping System Against 2019 Cyclosporiasis Outbreak Clusters**

*Epidemiology and Infection* 2021;149:e214

Cyclosporiasis is a parasitic enteric disease caused by *Cyclospora cayetanensis*. It harms the U.S. population, with yearly seasonal foodborne outbreaks occurring since 1996. Outbreak investigations had relied solely on epidemiological methods due to lack of genotyping tools. This paper describes a bioinformatics algorithm employed to analyze genetic similarity using sequencing data from parasitic diseases that cannot be analyzed through phylogenetic methods used for other human pathogens.

**Julu Bhatnagar, Joy Gary, Sarah Reagan-Steiner, Lindsey B. Estetter, Suxiang Tong, Ying Tao, Amy M. Denison, Elizabeth Lee, Marlene DeLeon-Carnes, Yan Li, Anna Uehara, Clinton R. Paden, Brooke Leitgeb, Timothy M. Uyeki, Roosecelis B. Martines, Jana M. Ritter, Christopher D. Paddock, Wun-Ju Shieh, and Sherif R. Zaki**

**Evidence of Severe Acute Respiratory Syndrome Coronavirus 2 Replication and Tropism in the Lungs, Airways, and Vascular Endothelium of Patients with Fatal Coronavirus Disease 2019: An Autopsy Case Series**

*The Journal of Infectious Disease* 2021;223(5):752–764

This paper identified cellular targets of SARS-CoV-2 tropism and replication in various tissues of fatal COVID-19 patients by using diagnostic assays and innovative techniques such as tissue-based RT-PCR, Sanger sequencing, in-situ hybridization, cell marker studies, and whole genome sequencing. The work yielded insights into COVID-19 development, complications, and mechanisms of severe disease outcomes. In addition, a tissue-based RT-PCR assay expanded diagnostic opportunities for SARS-CoV-2, particularly for fatal suspected COVID-19 cases in which no testing had been performed.

**Jayme P. Coyle, Raymond C. Derk, William G. Lindsley, Francoise M. Blachere, Theresa Boots, Angela R. Lemons, Stephen B. Martin, Jr., Kenneth R. Mead, Steven A. Fotta, Jeffrey S. Reynolds, Walter G. McKinney, Erik W. Sinsel, Donald H. Beezhold, and John D. Noti**

**Efficacy of Ventilation, HEPA Air Cleaners, Universal Masking, and Physical Distancing for Reducing Exposure to Simulated Exhaled Aerosols in a Meeting Room**

*Viruses* 2021;13(12):2536

Because of the limitations of remote learning, there is a strong desire for classes and meetings to take place in person rather than online. However, gathering large numbers of people for extended times in indoor settings increases the risk of spreading SARS-CoV-2. This paper describes research done in a CDC/NIOSH conference room using robot simulators that cough and exhale respiratory aerosols to test the roles of supplemental ventilation, face masks, and social distancing in mitigating aerosol transmission of SARS-CoV-2.

**Justin S. Lee, Jason M. Goldstein, Jonathan L. Moon, Owen Herzegh, Dennis A. Bagarozzi, Jr., M. Steven Oberste, Heather Hughes, Kanwar Bedi, Dorothe Gerard, Brenique Cameron, Christopher Benton, Asiya Chida, Ausaf Ahmad, David J. Petway, Jr., Xiaoling Tang, Nicky Sulaiman, Dawit Teklu, Dhvani Batra, Dakota Howard, Mili Sheth, Wendi Kuhnert, Stephanie R. Bialek, Christina L. Hutson, Jan Pohl, and Darin S. Carroll**

**Analysis of the Initial Lot of the CDC 2019–Novel Coronavirus (2019-nCoV) Real-time RT-PCR Diagnostic Panel**

*PLoS One* 2021;16(12):e0260487

The emergence of SARS CoV-2 presented an unprecedented challenge to CDC and U.S. public health infrastructure and processes. Although CDC has designed and distributed countless diagnostic assays, never had the need been greater or more urgent for the creation of a novel diagnostic assay. This paper explores the possible causes of false positive results generated by the first lot of the CDC 2019–Novel Coronavirus Real-Time RT-PCR Diagnostic Panel using laboratory methods.

**William G. Lindsley, Françoise M. Blachere, Brandon F. Law, Donald H. Beezhold, and John D. Noti**

**Efficacy of Face Masks, Neck Gaiters and Face Shields for Reducing the Expulsion of Simulated Cough-Generated Aerosols**

*Aerosol Science and Technology* 2021;55(4):449–457

In response to the COVID-19 pandemic and to compare how well face masks, neck gaiters, and face shields blocked cough aerosols from being expelled into the air, NIOSH designed and built a cough aerosol simulator. The system simulates human coughing and uses a mannequin head form with pliable skin that mimics the elasticity of the human face, a collection chamber into which the aerosol is coughed, and a cascade impactor to collect and separate the aerosol particles by size.

**Victoria M. Pratt, Amy Turner, Ulrich Broeckel, D. Brian Dawson, Andrea Gaedigk, Ty C. Lynnes, Elizabeth B. Medeiros, Ann M. Moyer, Deborah Requesens, Francesco Vetrini, and Lisa V. Kalman**

**Characterization of Reference Materials with an Association for Molecular Pathology Pharmacogenetics Working Group Tier 2 Status: CYP2C9, CYP2C19, VKORC1, CYP2C Cluster Variant, and GGCX: A GeT-RM Collaborative Project**

*The Journal of Molecular Diagnostics* 2021;23(8):952–958

This paper reports on a project by CDC's Genetic Reference Material (GeT-RM) Program with implications for medicine and public health. The authors produced 18 publicly available and renewable genomic DNA reference materials. These alleles were selected for study to support clinical guidelines published by the Association for Molecular Pathology Pharmacogenetics Working Group. Samples will enable laboratories to develop genetic tests for these pharmacogenetic genes and ensure their accuracy. Results can be used to help physicians select appropriate drugs and doses for each patient throughout their lifetime.

**Sumathi Ramachandran, Guo-Liang Xia, Zoya Dimitrova, Yulin Lin, Martha Montgomery, Ryan Augustine, Saleem Kamili, and Yury Khudiyakov**

**Changing Molecular Epidemiology of Hepatitis A Virus Infection, United States, 1996–2019**

*Emerging Infectious Diseases* 2021;27(6):1742–1745

This paper reports on the development and field use of a new sequencing methodology (GHOST) for identifying Hepatitis A strains associated with a multistate outbreak that spanned between 2016 and 2020. The outbreak was the largest of its kind in the past 50 years. The new sequencing method enabled detection of previously uncommon strains and highlights the changing molecular epidemiology of Hepatitis A infection in the United States.

**Anand Ranpara, Aleksandr B. Stefaniak, Elizabeth Fernandez, and Ryan F. LeBouf**

**Effect of Puffing Behavior on Particle Size Distributions and Respiratory Depositions from Pod-style Electronic Cigarette, or Vaping, Products**

*Frontiers in Public Health* 2021;9:750402

Today's e-cigarettes heat a liquid to deliver aerosol into the lungs. But a portion of that aerosol is exhaled and poses a secondhand exposure risk to bystanders. In this study, the effect of up to six exhalation amounts on particle size distributions was evaluated using a popular e-cigarette product. The modeled dosimetry and calculated aerosol mass median aerodynamic diameters were used to calculate secondhand exposure risks.

**D. Joseph Sexton, Meghan L. Bentz, Rory M. Welsh, Gordana Derado, William Furin, Laura J. Rose, Judith Noble-Wang, Massimo Pacilli, Tristan D. McPherson, Stephanie Black, Sarah K. Kemble, Owen Herzegh, Ausaf Ahmad, Kaitlin Forsberg, Brendan Jackson, and Anastasia P. Litvintseva**

**Positive Correlation Between *Candida auris* Skin-colonization Burden and Environmental Contamination at a Ventilator-capable Skilled Nursing Facility in Chicago**

*Clinical Infectious Diseases* 2021;73(7):1142–1148

*Candida auris*, a drug-resistant fungus, can cause severe infections and has been behind many hard-to-control outbreaks in healthcare facilities. This paper describes a new understanding of the relationship between patients infected by the emerging, highly resistant, and highly fatal *C. auris* and their environment. The authors developed a way to detect *C. auris* and demonstrated a direct correlation between the amount of *C. auris* on patients' skin and in their surroundings, showing that skin colonization contributes to environmental contamination and transmission in facilities.

**Bo Shu, Marie K. Kirby, William G. Davis, Christine Warnes, Jimma Liddell, Ji Liu, Kai-Hui Wu, Norman Hassell, Alvaro J. Benitez, Malania M. Wilson, Matthew W. Keller, Benjamin L. Rambo-Martin, Yamundow Camara, Jorn Winter, Rebecca J. Kondor, Bin Zhou, Stacey Spies, Laura E. Rose, Jonas M. Winchell, Brandi M. Limbago, David E. Wentworth, and John R. Barnes**

**Multiplex Real-time Reverse Transcription PCR for Influenza A Virus, Influenza B Virus, and Severe Acute Respiratory Syndrome Coronavirus 2**

*Emerging Infectious Diseases* 2021;27(7):1821–1830

This paper describes a diagnostic multiplex real-time RT-PCR assay used to detect SARS CoV-2, influenza A virus, influenza B virus, and a human specimen quality control target called RNase P in a single reaction. This assay speed diagnoses of various respiratory viruses. Use of the Flu SC2 Multiplex assay has enabled CDC and public health partners to not only diagnose influenza and SARS-CoV-2 cases around the world, but to maintain quality surveillance of influenza during the SARS-CoV-2 pandemic.

**Jesse C. Thomas, IV, Sandeep J. Joseph, John C. Cartee, Cau D. Pham, Matthew W. Schmerer, Karen Schlanger, Sancta B. St. Cyr, Ellen N. Kersh, Brian H. Raphael, and the Antimicrobial Resistant *Neisseria gonorrhoeae* Working Group**

**Phylogenomic Analysis Reveals Persistence of Gonococcal Strains with Reduced-susceptibility to Extended-spectrum Cephalosporins and Mosaic PenA-34**

*Nature Communications* 2021;12(1):3801

This paper describes the results of a phylogenomic analysis to understand the emergence and dissemination of gonococcal isolates with reduced susceptibility to extended spectrum antibiotics. The genomic data and the minimum inhibitory concentrations to antibiotics for the isolates used in this paper were generated in laboratories at CDC and in state public health laboratories.

**Dongxia Wang, Bin Zhou, Theodore R. Keppel, Maria Solano, Jakub Baudys, Jason Goldstein, M. G. Finn, Xiaoyu Fan, Asheley P. Chapman, Jonathan L. Bundy, Adrian R. Woolfitt, Sarah H. Osman, James L. Pirkle, David E. Wentworth, and John R. Barr**

**N-glycosylation Profiles of the SARS-CoV-2 Spike D614G Mutant and its Ancestral Protein Characterized by Advanced Mass Spectrometry**

*Scientific Reports* 2021;11(1):23561

The SARS-CoV-2 spike protein is a highly complex glycoprotein. An important early mutation to SARS-CoV-2 was a change in spike protein from 614D to 614G, and this mutation continued throughout the pandemic in every variant of concern. This paper describes the development and use of biological and advanced mass spectrometry-based laboratory methods to determine glycosylation patterns in the SARS-CoV-2 spike protein from the D614G variant and its ancestral protein.

**Bin Zhou, Tran Thi Nhu Thao, Donata Hoffmann, Adriano Taddeo, Nadine Ebert, Fabien Labrousseau, Anne Pohlmann, Jacqueline King, Silvio Steiner, Jenna N. Kelly, Jasmine Portmann, Nico Joel Halwe, Lorenz Ulrich, Bettina Salome Trueb, Xiaoyu Fan, Bernd Hoffmann, Li Wang, Lisa Thomann, Xudong Lin, Hanspeter Stalder, Berta Pozzi, Simone de Brot, Nannan Jiang, Dan Cui, Jaber Hossain, Malania M. Wilson, Matthew W. Keller, Thomas J. Stark, John R. Barnes, Ronald Dijkman, Joerg Jores, Charaf Benarafa, David E. Wentworth, Volker Thiel, and Martin Beer**

**SARS-CoV-2 Spike D614G Change Enhances Replication and Transmission**  
*Nature* 2021;592(7852):122–127

This paper uses robust laboratory techniques to characterize the first major SARS-CoV-2 variant during the COVID-19 pandemic. By developing and performing various stages of laboratory experiments, the authors were able to characterize this variant and not only proved its increased replication and transmission variant but were also able to decipher the underlying molecular mechanisms that lead to these increases.



# Prevention and Control

**Catherine E. Barrett, Joohyun Park, Lyudmyla Kompaniyets, James Baggs, Yiling J. Cheng, Ping Zhang, Giuseppina Imperatore, and Meda E. Pavkov**

## **Intensive Care Unit Admission, Mechanical Ventilation, and Mortality Among Patients with Type 1 Diabetes Hospitalized for COVID-19 in the U.S.**

*Diabetes Care* 2021;44(8):1788–1796

This paper describes a large U.S. study on risk for severe outcomes among patients with type 1 diabetes hospitalized for COVID-19. Using patients' hospital discharge records, risk of severe COVID-19 (intensive care unit admission, mechanical ventilation, death) was assessed among patients with type 1, type 2, and no diabetes. The paper provided early evidence to support recommending vaccination in people with type 1 diabetes.

**Anna N. Chard, Maureen Martinez, Almea Matanock, and Ahmed M. Kassem**

## **Estimation of Oral Poliovirus Vaccine Effectiveness in Afghanistan, 2010–2020**

*Vaccine* 2021;39(42):6250–6255

This paper evaluated the per-dose effectiveness of oral poliovirus vaccines that provide the population immunity against wild poliovirus type 1 in Afghanistan, one of the two remaining endemic countries, from 2010 to 2020. The study also advanced efforts to achieve global polio eradication. Findings suggest children who had received fewer than four doses are not protected (29 percent vaccine effectiveness) compared with those who had received at least seven doses (96 percent vaccine effectiveness) after the switch to oral polio vaccine.

**Susan E. Dorman, Payam Nahid, Ekaterina V. Kurbatova, Patrick P. J. Phillips, Kia Bryant, Kelly E. Dooley, Melissa Engle, Stefan V. Goldberg, Ha T. T. Phan, James Hakim, John L. Johnson, Madeleine Lourens, Neil A. Martinson, Grace Muzanyi, Kim Narunsky, Sandy Nerette, Nhung V. Nguyen, Thuong H. Pham, Samuel Pierre, Anne E. Purfield, Wadzanai Samaneka, Radojka M. Savic, Ian Sanne, Nigel A. Scott, Justin Shenje, Erin Sizemore, Andrew Vernon, Ziyaad Waja, Marc Weiner, Susan Swindells, Richard E. Chaisson, the AIDS Clinical Trials Group, and Tuberculosis Trials Consortium**

**Four-Month Rifapentine Regimens with or Without Moxifloxacin for Tuberculosis**

*The New England Journal of Medicine* 2021;384(18):1705–1718

The six-month standard of care treatment regimen for drug-susceptible TB has been largely unchanged for 40 years. Shorter TB disease treatment would enable patients to be cured faster, with the potential to reduce costs, improve patient quality of life, and increase therapy completion. This paper reports the results of Study 31, a CDC-sponsored phase 3, drug-susceptible TB disease treatment-shortening trial. The trial showed that the efficacy of a four-month rifapentine-based regimen containing moxifloxacin was as effective as standard six-month regimen.

**Robyn Neblett Fanfair, George Khalil, Tiffany Williams, Kathleen Brady, Alfred DeMaria, Merceditas Villanueva, Lisa M. Randall, Heidi Jenkins, Frederick L. Altice, Nasima Camp, Crystal Lucas, Marianne Buchelli, Taraz Samandari, and Paul J. Weidle**

**The Cooperative Re-engagement Controlled Trial (CoRECT): A Randomised Trial to Assess a Collaborative Data to Care Model to Improve HIV Care Continuum Outcomes**

*The Lancet Regional Health—Americas* 2021;3:100057

Health departments must assure the public that people living with HIV are in care and virally suppressed. This randomized trial conducted in three states evaluated healthcare access among people with HIV. The CoRECT study had health department staff work directly with clinic-based staff to identify people who were out of care for more than six months and had no objective CD4 count or viral load test result reported to health department surveillance for that period.

**Joy Hsu, Xiaoting Qin, Maria C. Mirabelli, and W. Dana Flanders**

**Medicaid Expansion, Health Insurance Coverage, and Cost Barriers to Care Among Low-income Adults with Asthma: The Adult Asthma Call-back Survey**  
*The Journal of Asthma* 2021;58(11):1478–1487

Since Medicaid coverage was expanded in 2014, knowledge about the effect expansion has had on people with respiratory conditions has been scarce. In this study of adults aged 18–64 years with asthma and lower incomes living in 25 states and Puerto Rico, the authors found Medicaid expansion was not significantly associated with cost barriers to buying asthma medication or seeing a healthcare provider for asthma.

**Evin U. Jacobson, Katherine A. Hicks, Justin Carrico, David W. Purcell, Timothy A. Green, Jonathan H. Mermin, and Paul G. Farnham**

**Optimizing HIV Prevention Efforts to Achieve EHE Incidence Targets**  
*Journal of Acquired Immune Deficiency Syndromes* 2022;89(4):374–380

The authors of this paper developed a resource allocation model to assess how the annual HIV incidence reduction goals of the U.S. Department of Health and Human Services' Ending the HIV Epidemic in the U.S. Initiative could be met. They examined whether the incidence goals (reducing annual incidence by 75 percent within five years and by 90 percent within 10 years) could be reached through additional funding and reallocating funding to the most cost-effective interventions.

**Katherine Kortsmit, Rui Li, Shanna Cox, Carrie K. Shapiro-Mendoza, Cria G. Perrine, Denise V. D'Angelo, Wanda D. Barfield, Holly B. Shulman, Craig F. Garfield, and Lee Warner**

**Workplace Leave and Breastfeeding Duration Among Postpartum Women, 2016–2018**  
*American Journal of Public Health* 2021;111(11):2036–2045

This paper uses data from CDC's Pregnancy Risk Assessment Monitoring System to examine associations of workplace leave length with breastfeeding initiation and continuation at one, two, and three months. Breastfeeding is associated with lower rates of infant illness and death. Identifying strategies to improve breastfeeding rates in the United States is a public health priority. Findings provide additional evidence for the role workplace leave has on breastfeeding.

**R. Paul McClung, Amy D. Atkins, Michael Kilkenny, Kyle T. Bernstein, Kara S. Willenburg, Matthew Weimer, Susan Robilotto, Nivedha Panneer, Erica Thomasson, Elizabeth Adkins, Sheryl B. Lyss, Shawn Balleydier, Anita Edwards, Mi Chen, Suzanne Wilson, Senad Handanagic, Vicki Hogan, Meg Watson, Scott Eubank, Carolyn Wright, Antoine Thompson, Elizabeth DiNunno, Robyn Neblett Fanfair, Alison Ridpath, Alexandra M. Oster, and the 2019 Cabell County HIV Outbreak Response Team**

**Response to a Large HIV Outbreak, Cabell County, West Virginia, 2018–2019**  
*American Journal of Preventive Medicine* 2021;61(5 Suppl 1):S143–S150

Detecting and responding to HIV outbreaks is crucial for ensuring effective HIV prevention efforts are reaching those most in need. This paper describes a large and complex response to an HIV outbreak in Cabell County, WV, notable for the largest relative increase over baseline of any U.S. HIV outbreak since 2015. The response's effect on HIV prevention, care, and transmission has expanded understanding and uptake of this strategy nationwide.

**Amanda B. Payne, Thomas V. Adamkiewicz, Scott D. Grosse, Andrea Steffens, David K. Shay, Carrie Reed, and Laura A. Schieve**

**Influenza Vaccination Rates and Hospitalizations Among Medicaid Enrollees with and Without Sickle Cell Disease, 2009–2015**  
*Pediatric Blood & Cancer* 2021;68(12):e29351

This study compared rates of influenza vaccination between people with sickle cell disease (SCD) and those without SCD. It also compared rates of hospitalizations related to influenza and to pneumonia or acute chest syndrome between the same two groups. Vaccination rates were higher for people with SCD than those without SCD. However, hospitalization rates were 18 to 42 times higher among people with SCD. Findings suggest there is opportunity to prevent influenza and its complications among people with SCD.

**Tamara Pilishvili, Ryan Gierke, Katherine E. Fleming-Dutra, Jennifer L. Farrar, Nicholas M. Mohr, David A. Talan, Anusha Krishnadasan, Karisa K. Harland, Howard A. Smithline, Peter C. Hou, Lilly C. Lee, Stephen C. Lim, Gregory J. Moran, Elizabeth Krebs, Mark T. Steele, David G. Beiser, Brett Faine, John P. Haran, Utsav Nandi, Walter A. Schrading, Brian Chinnock, Daniel J. Henning, Frank Lovecchio, Jane Lee, Devra Barter, Monica Brackney, Scott K. Fridkin, Kaytlynn Marceaux-Galli, Sarah Lim, Erin C. Phipps, Ghinwa Dumyati, Rebecca Pierce, Tiffanie M. Markus, Deverick J. Anderson, Amanda K. Debes, Michael Y. Lin, Jeanmarie Mayer, Jennie H. Kwon, Nasia Safdar, Marc Fischer, Rosalyn Singleton, Nora Chea, Shelley S. Magill, Jennifer R. Verani, Stephanie J. Schrag, and the Vaccine Effectiveness among Healthcare Personnel Study Team**

**Effectiveness of mRNA Covid-19 Vaccine Among U.S. Health Care Personnel**  
*The New England Journal of Medicine* 2021;385(25):e90

This study describes the prevention of symptomatic SARS-CoV-2 using the novel mRNA COVID-19 vaccines among healthcare workers. This multisite evaluation of COVID-19 vaccine effectiveness against symptomatic SARS-CoV-2 provided estimates of real-world effectiveness of COVID-19 vaccines among healthcare personnel. The authors had a wide representation of healthcare workers, drawing from surveillance that covered more than 500,000 workers at 33 sites across 25 states, yielding highly generalizable results.

**Leah Robin, Zachary Timpe, Nicolas A. Suarez, Jingjing Li, Lisa Barrios, and Kathleen A. Ethier**

**Local Education Agency Impact on School Environments to Reduce Health Risk Behaviors and Experiences Among High School Students**  
*The Journal of Adolescent Health* 2022;70(2):313–321

The authors evaluated the primary program cooperative agreement funded by CDC's Division of Adolescent and School Health to support school districts across the United States. The paper drew on data from CDC school-based surveillance systems, combined with program records about which schools in each district had been exposed to the program. Findings suggest students in schools with the program reported reduced odds of several variables, including sexual risk behaviors, experiences of violence, and substance use.

**Aaron M. Samuels, Nobert Awino Odera, Wycliffe Odongo, Kephass Otieno, Vincent Were, Ya Ping Shi, Tony Sang, John Williamson, Ryan Wiegand, Mary J. Hamel, S. Patrick Kachur, Laurence Slutsker, Kim A. Lindblade, Simon K. Kariuki, and Meghna R. Desai**

**Impact of Community-based Mass Testing and Treatment on Malaria Infection Prevalence in a High-transmission Area of Western Kenya: A Cluster Randomized Controlled Trial**

*Clinical Infectious Diseases* 2021;72(11):1927–1935

Global progress toward malaria prevention goals has stalled, and new approaches to controlling the source of malaria infections need to be evaluated. This cluster-randomized controlled trial used a novel design to limit contamination between study arms while balancing potential confounding variables between clusters. The study also used multiple data sources, both epidemiological and entomological measures, to assess the effect of mass testing and treatment on rates of malaria transmission.

**Sundar S Shrestha, Kevin Davis, Nathan Mann, Nathaniel Taylor, James Nonnemaker, Rebecca Murphy-Hoefer, Katrina F. Trivers, Brian A. King, Stephen D. Babb, and Brian S. Armour**

**Cost Effectiveness of the Tips from Former Smokers(R) Campaign—U.S., 2012–2018**

*American Journal of Preventive Medicine* 2021;60(3):406–410

This paper presents findings on the long-term cost-effectiveness of CDC's Tips from Former Smokers® (Tips) campaign. This study found that from 2012 to 2018, Tips motivated 16.4 million people who smoke cigarettes to quit, prevented 129,100 smoking-related deaths, and saved the health-care sector \$7.3 billion in smoking-related medical expenditures, showing a pronounced positive public health benefit in terms of both outcomes and cost savings.

**Peter Simeonov, Hongwei Hsiao, Ashish Nimbarte, Richard Current, Douglas Ammons, Hee-Sun Choi, Md Mahmudur Rahman, and Darlene Weaver**

**Evaluation of Advanced Curve Speed Warning System for Fire Trucks**

*Applied Ergonomics* 2021;97:103527

Fire trucks are expected to reach their destinations quickly during emergencies. But being large and top-heavy, fire trucks are susceptible to rollover crashes. The authors evaluated a curve speed warning system for fire trucks in a driving simulator. The warning system reduced the driving speed at approach and entry to the curve. The warning system also reduced the number of severe braking events and how far the truck traveled over the recommended safety speed.

**Mary Beth F. Son, Nancy Murray, Kevin Friedman, Cameron C. Young, Margaret M. Newhams, Leora R. Feldstein, Laura L. Loftis, Keiko M. Tarquinio, Aalok R. Singh, Sabrina M. Heidemann, Vijaya L. Soma, Becky J. Riggs, Julie C. Fitzgerald, Michele Kong, Sule Doymaz, John S. Giuliano, Jr., Michael A. Keenaghan, Janet R. Hume, Charlotte V. Hobbs, Jennifer E. Schuster, Katharine N. Clouser, Mark W. Hall, Lincoln S. Smith, Steven M. Horwitz, Stephanie P. Schwartz, Katherine Irby, Tamara T. Bradford, Aline B. Maddux, Christopher J. Babbitt, Courtney M. Rowan, Gwenn E. McLaughlin, Phoebe H. Yager, Mia Maamari, Elizabeth H. Mack, Christopher L. Carroll, Vicki L. Montgomery, Natasha B. Halasa, Natalie Z. Cvijanovich, Bria M. Coates, Charles E. Rose, Jane W. Newburger, Manish M. Patel, Adrienne G. Randolph, and Overcoming COVID-19 Investigators**

### **Multisystem Inflammatory Syndrome in Children—Initial Therapy and Outcomes**

*The New England Journal of Medicine* 2021;385(1):23–34

In the absence of randomized controlled trials during the COVID-19 pandemic, there were no agreed upon therapies for the increasing cases of multisystem inflammatory syndrome in children. Treatment approaches varied, with no standard data on effectiveness. This paper describes the application of analytic approaches such as propensity-score matching and inverse probability weighting. The authors concluded that a combined treatment plan of intravenous immune globulin (IVIG) and corticosteroids was about 50 percent more effective than IVIG alone at rapidly resolving cardiovascular dysfunction.

**Rebecca C. Woodruff, Angela P. Campbell, Christopher A. Taylor, Shua J. Chai, Breanna Kawasaki, James Meek, Evan J. Anderson, Andy Weigel, Maya L. Monroe, Libby Reeg, Erica Bye, Daniel M. Sosin, Alison Muse, Nancy M. Bennett, Laurie M. Billing, Melissa Sutton, H. Keipp Talbot, Keegan McCaffrey, Huong Pham, Kadam Patel, Michael Whitaker, Meredith L. McMorrow, and Fiona P. Havers**

### **Risk Factors for Severe COVID-19 in Children**

*Pediatrics* 2021;149(1):e2021053418

Characterizing children at greatest risk for severe COVID-19 can inform clinical and public health practice. Using data from the COVID-19-Associated Hospitalization Surveillance Network, this study calculated population-based rates of severe COVID-19 in children and identified demographic characteristics and underlying medical conditions associated with greater risk of intensive care unit admission, invasive mechanical ventilation, and in-hospital death among more than 2,000 hospitalized children with laboratory-confirmed COVID-19 during March 2020–May 2021.

**Xueyan S. Xu, Daniel E. Welcome, Thomas W. McDowell, Christopher Warren, Samantha Service, Hansheng Lin, Qingsong Chen, and Ren G. Dong**

**An Investigation of the Effectiveness of Vibration-reducing Gloves for Controlling Vibration Exposures During Grinding Handheld Workpieces**

*Applied Ergonomics* 2021;95:103454

This study developed an on-the-hand method for testing and evaluating the effectiveness of vibration-reducing (VR) gloves for controlling the vibration exposures of workers performing the grinding of handheld workpieces. The method was applied to assessing the effectiveness of a typical VR glove for reducing the vibrations transmitted to the hand, wrist, forearm, and upper arm.

**Quanhe Yang, Anping Chang, Xin Tong, and Robert Merritt**

**Herpes Zoster Vaccine Live and Risk of Stroke Among Medicare Beneficiaries: A Population-based Cohort Study**

*Stroke* 2021;52(5):1712-1721

The present study examined the association between receipt of herpes zoster (HZ) vaccine and stroke risk among an older U.S. population. Results suggest that, among Medicare fee-for-service beneficiaries, receipt of HZ vaccine was associated with lower incidence of stroke. Findings indicate that, in addition to the primary benefits conferred by the vaccine for reducing HZ risk, administration of these vaccines may be an effective stroke prevention strategy.

**Khalequ Zaman, Stephanie D. Kovacs, Kristin Vanderende, Asma Aziz, Mohammed Yunus, Sara Khan, Cynthia J. Snider, Qian An, Concepción F. Estívariz, M. Steven Oberste, Mark A. Pallansch, and Abhijeet Anand**

**Assessing the Immunogenicity of Three Different Inactivated Polio Vaccine Schedules for Use After Oral Polio Vaccine Cessation, an Open Label, Phase IV, Randomized Controlled Trial**

*Vaccine* 2021;39(40):5814-5821

The World Health Organization's Scientific Advisory Group of Experts on Immunization has recommended that a second dose of inactivated poliovirus vaccine be added to the essential childhood immunization schedule. This paper evaluates the immunogenicity of three inactivated polio vaccine schedules designed to contribute to the population immunity needed to interrupt wild poliovirus and vaccine-derived poliovirus transmission and achieve global polio eradication.



**Lauren H. Zauche, Bailey Wallace, Ashley N. Smoots, Christine K. Olson, Titilope Oduyebo, Shin Y. Kim, Emily E. Petersen, Jun Ju, Jennifer Beauregard, Allen J. Wilcox, Charles E. Rose, Dana M. Meaney-Delman, Sascha R. Ellington, and the CDC V-safe Covid-19 Pregnancy Registry Team**

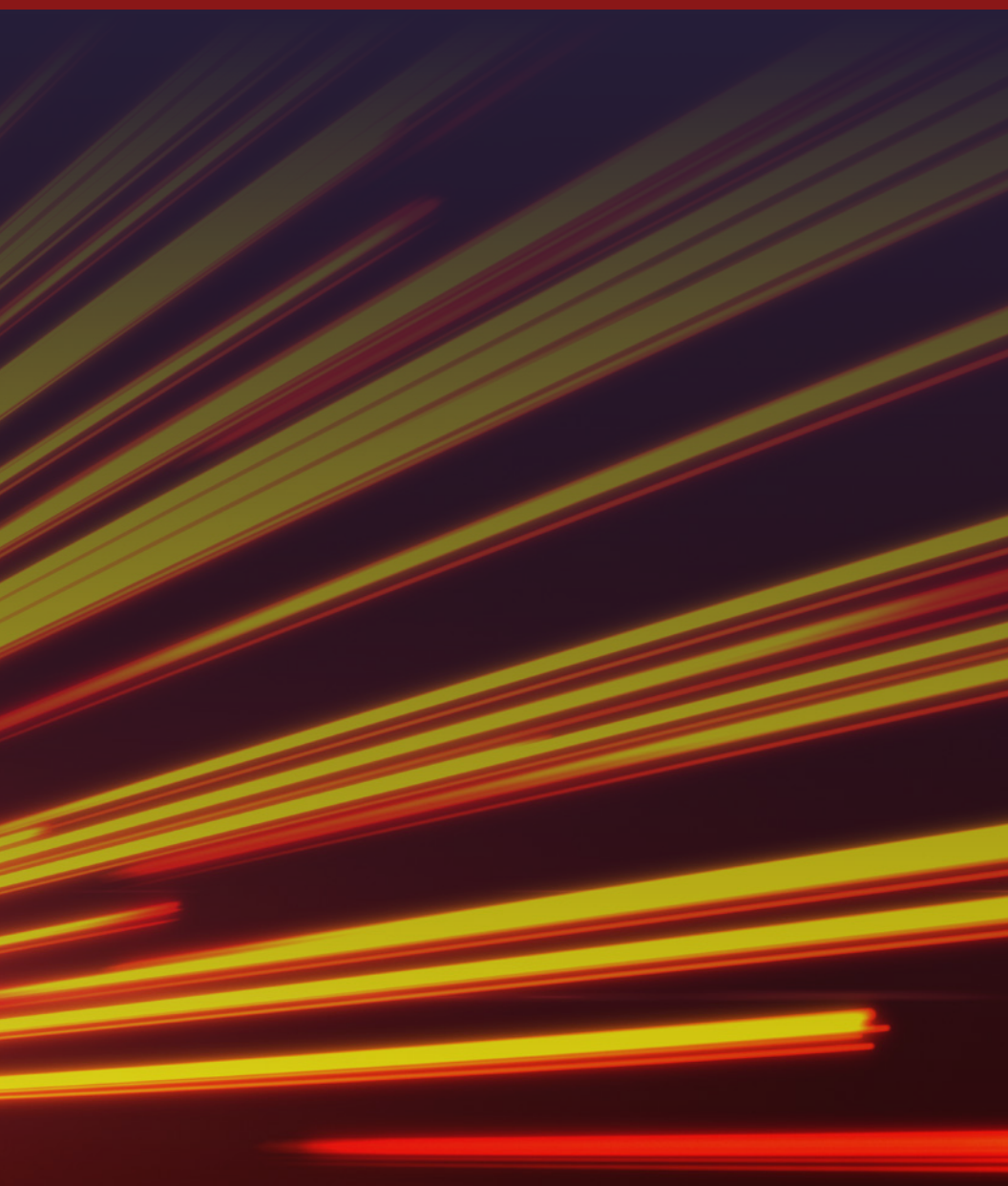
**Receipt of mRNA Covid-19 Vaccines and Risk of Spontaneous Abortion**

*The New England Journal of Medicine* 2021;385(16):1533–1535

Pregnant people are at increased risk for severe illness, hospitalization, and death from SARS-CoV-2 infection, yet vaccination rates remained low for this population compared to non-pregnant populations of similar age, in part because of lack of safety data. This paper showed that there was no increased risk of spontaneous abortion compared to historical cohorts of pregnant people and, thus, contributed to the accumulating safety information about COVID-19 vaccination during pregnancy.

# **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.*



## **Inger K. Damon, MD, PhD, FIDSA**

*National Center for Emerging and Zoonotic Infectious Diseases*

For more than two decades, Dr. Inger Damon has improved CDC's preparedness and response capacity. She is regarded as a visionary leader who stepped up when called to lead the agency through some of its most complex challenges. She first joined CDC to develop the agency's Smallpox Research Agenda, in which her work to advance diagnostic assay and therapeutics development has ensured the agency and the world are now better prepared to respond to natural or intentional outbreaks of pox viruses. During the eight years she served as director for the Division of High-Consequence Pathogens and Pathology, she has promoted strong science foundations and overseen the agency's expertise on many of the world's deadliest pathogens. During the 2014–2016 Ebola outbreak in West Africa, she served as incident manager for many months, excelling in the role and providing strong, thoughtful, and science-based leadership.

Dr. Damon took on the mantle of DHCPP division director in 2014 and from the start showed courage and skilled leadership as the agency encountered complex challenges with the West Africa Ebola outbreak, which infected over 28,000 people and killed over 11,000 in Sierra Leone, Liberia, and Guinea. Under her leadership, CDC launched hundreds of staff into the field to support these countries during their hour of greatest need and led a team of hundreds from CDC headquarters providing clinical, epidemiologic, communications, laboratory, and logistical support. During her tenure, Time magazine named the "Ebola Fighters" as their 2014 Person of the Year.

Dr. Damon is a prolific scientist. She has published over 200 scientific papers and book chapters. She has authored seminal papers explaining nearly everything there is to know about monkeypox and the establishment of an animal model to study the disease and its pathogenesis. She has published important studies that provided insight into the evolution and biology of variola virus and has been integral for the development of the Advisory Committee on Immunization Practices and clinical guidance for the use of smallpox vaccine for pre- and post- exposures and the adverse events associated with smallpox vaccination. She has been a regular contributor to three of the highest impact infectious disease textbooks. She has chaired sessions on several conferences, especially the International Poxvirus Conference.

## **Ann Dellinger, PhD, MPH**

### *National Center for Injury Prevention and Control*

Throughout Dr. Ann Dellinger's 28-year career at CDC, she has been at the forefront of research and program design that has led to improvements in everything from identifying social determinants of injury disparities to developing interventions, carrying them out, and evaluating their consequences. Dr. Dellinger set the course for CDC's work in motor vehicle injury prevention. She has conducted groundbreaking research in many areas including alcohol-impaired driving, teen driving safety, older driver safety, child occupant and pedestrian injury, and international road safety.

Dr. Dellinger's work in investigating the public health impact of civil unrest encouraged other investigators to similarly consider civil unrest a public health problem and not just a law enforcement issue, just as the Injury Center has done with many other injury issues since then (e.g., motor vehicle injuries). This is evidence of the great impact of her work on public health research. Additionally, the geospatial methods used in this investigation led to the application of these methods in other studies.

Dr. Dellinger has contributed to over 100 published works in a wide array of topic areas, including motor vehicle injury prevention, older adult falls, childhood and maternal injury, injury surveillance, environmental injury prevention, safety culture, child injury, teen driving, helmet promotion, years of potential life lost due to injury, health care utilization, older adult injury risks, pedestrian injuries, economic costs of injury, alcohol-impaired driving, prevention counseling, military injuries, and developmental disabilities. Her ability to apply her epidemiological and behavioral research skills in injury prevention to such a variety of causes and dispositions from an injury speaks to the wide-ranging impact of her work with various professional audiences.

Dr. Dellinger is widely published and a sought-after national and international speaker because of her expertise. She serves on the editorial boards of many prestigious journals and previously served as the associate editor for prominent traffic safety journals. She is also the recipient of numerous individual and group awards given by her scientific peers inside and outside the agency during her tenure at CDC. Her reputation in the field as a scientist, implementer, and communicator has resulted in high-profile conference presentations (both invited and submitted), including presentations at world conferences, university schools of public health, and distinguished speaker series.

## **H. Irene Hall, PhD, MPH**

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

Throughout her career, Dr. H. Irene Hall conducted epidemiologic research and surveillance with domestic and international impact. She built her career providing direction on science programs and developing technical assistance programs and training in HIV and cancer. Her prolific research has been documented in more than 250 publications.

Dr. Hall has years of experience conducting epidemiologic studies that have helped advance what scientists now know about cancer. She designed and conducted studies in cancer prevention and control, including analysis of surveillance and mortality data. Her work in cancer has expanded our knowledge and improved practice especially in the area of skin cancer. She has conducted surveys on sun exposure in children and adults that have ultimately led to evidentiary guidance and a consumer campaign on skin cancer education and prevention.

During her career at CDC, she led branches, offices, teams, and numerous staff in accomplishing CDC science, program, and policy objectives. As deputy director in the Division of HIV Prevention she oversaw the division's HIV surveillance, epidemiology, and laboratory research portfolios, guiding changes to surveillance data collection, national and international research activities, and reorganization of the laboratory. She also guided the development of division research priorities and improvements in priority setting and protocol development. In this role and as acting division director she even advised and oversaw the division's reorganization.

For the better part of her career, Dr. Hall provided leadership in data collection and analyses, especially in the field of HIV incidence surveillance. She traveled the world sharing those methods through training and technical assistance. This has led other countries to make changes to their surveillance systems and analytic methods, improving public health surveillance even beyond U.S. borders. Dr. Hall's expert consultations with public health agencies across Europe, Canada, the Global AIDS Program, and UNAIDS have helped make the U.S. surveillance system an internationally recognized model.

Dr. Hall's dedication to mentorship and guidance, and her support of staff within DHP and beyond was a hallmark of her accomplishments. Not only was she driven to advance the science, but she also inspired and enabled her peers to do so. Her leadership qualities were backed with hard work, and her modesty elevated all who worked beside her.

## **Jaqueline Katz, PhD**

### *National Center for Immunization and Respiratory Diseases*

Dr. Jackie Katz joined CDC in 1992 and has dedicated her life to reducing the harm of influenza through innovative science and public health leadership. Her scientific expertise and visionary leadership helped produce safe and effective influenza vaccines and prevented disease in the United States and the world. Along the way she has also helped CDC, the World Health Organization (WHO), and other health partners understand and reduce the influenza health burden. She has helped develop improved influenza vaccines, investigate and clarify cell-mediated immune responses to respiratory viruses, characterize mucosal immunology and viral pathogenesis, and reveal the effects of “imprinting” on the immune systems of people infected with influenza viruses.

In 2009, Dr. Katz played a key role in CDC’s global emergency response to the H1N1 influenza pandemic. She led characterization of human host response to the emergent virus, and her work strongly influenced CDC response planning and execution. After the H1N1 pandemic, Dr. Katz saw that research on improving influenza vaccines had stalled due to a lack of standards in serologic testing for measuring the effects of influenza infection or influenza vaccination. She took it upon herself to bring together influenza laboratory experts around the globe, leading to the Consortium for the Standardization of Influenza Seroepidemiology (CONSISE). This group agreed on a single method for determining serological protection from influenza vaccination. Because of this groundbreaking work, data from disparate studies can be compared and combined—allowing greater capability to show when flu vaccines are, or are not, working.

Dr. Katz’ body of scientific work is vast and has had a lasting impact on CDC’s mission. She has published 278 manuscripts in peer-reviewed journals including *Nature*, *Science*, *The Lancet*, *The New England Journal of Medicine*, and many others. She has served as an author and subject-matter expert in developing biosecurity and biosafety requirements for the Biosafety in Microbiological and Biomedical Laboratories guidelines. Considered the world’s most authoritative document for the protection of laboratory workers, the guidelines led to a safer work environment for CDC laboratorians and their colleagues worldwide. Dr. Katz has served in leadership positions for CDC committees for the protection of human subjects and the humane care of animals in research, assuring CDC is conducting research ethically and fairly.

## **James P. O'Callaghan, PhD**

*National Institute for Occupational Safety & Health*

Dr. James P. O'Callaghan's career has focused on neurotoxicity (particularly amphetamine and dopaminergic neurotoxicity), identifying potentially neurotoxic compounds to prevent long-term illness and disease, and unraveling the pathobiology of neurotoxicant-driven illnesses to identify treatments and therapeutics. He identified glial-fibrillary-acidic-protein (GFAP) as a biomarker for neurotoxicity and developed a quantitative assay that can be used in tissues to assess neurotoxicity. He has published several methods papers and book chapters for this assay, which is highlighted by more than 700 citations on these related publications. The study of astrogliosis has skyrocketed over the years, making the quantitation of GFAP (the hallmark of astrogliosis) important to the field.

Dr. O'Callaghan has also become a notable scientist in the area of Gulf War Illness research. His work on committees such as the VA's Research Advisory Committee on Gulf War Veterans' Illnesses and meetings with members of congress led to the development of a dedicated DoD Congressionally Directed Medical Research Program for Gulf War Illness. His work related to Gulf War Illness has resulted in 21 publications with nearly 800 citations, collectively. Moreover, this body of work has also supported research initiatives related to uncovering and understanding the long-term consequences of work-related exposures to organophosphates, such as pesticides among agricultural workers.

Dr. O'Callaghan has an h-index of 69 with a total of 17,460 citations across more than 200 publications. This includes 23 publications with over 200 citations each, with his top publication having over 600 citations. This high level of citation is an indication of the impact of his research on his peers and a recognition of the significance of his work. Moreover, Dr. O'Callaghan has received more than 35 research grants. His contribution is also shown through his role as co-investigator, mentor, and consultant on various projects, where his knowledge and experience were sought by peers to support their own projects. Dr. O'Callaghan is also a four-time nominee for the Charles C. Shepard Science Awards and received an honorable mention for the NIOSH Bullard-Sherwood Award. He also has served as an editor or editorial board member for 10 peer-reviewed research journals and has been invited to give more than 270 presentations on his research around the world.

## **Venkatachalam (Lata) Udhayakumar, MPH, MS**

### *Center for Global Health*

The breadth of Dr. Udhayakumar's scientific contributions to malaria research over the past three decades is profound. His contributions have touched on a diverse set of malaria control issues related to the host, parasite, and vector. In addition, many of the research projects he has led have influenced the direction of global malaria surveillance and control activities. In fact, the 50 percent reduction in malaria deaths during the past 20 years can be linked directly to many of his research contributions.

Dr. Udhayakumar's efforts have greatly improved malaria case management in Africa through quality-assured rapid diagnostic tests (RDTs) and by providing data to advance the most appropriate drug treatment policies to counter evolving drug resistance. He has also developed various other tools for malaria control and elimination and for SARS-CoV-2 surveillance in support of the COVID-19 International Task Force. These tools have been used in multiple countries. His expertise has contributed to maintaining appropriate malaria treatment policies in 20 Latin American countries, many African countries, and three Asian countries. His leadership to modernize genotyping platforms and to transfer these tools to two U.S. public health laboratories and five international laboratories has widely advanced surveillance efforts for parasitic diseases.

Dr. Udhayakumar has led numerous field studies in Africa, Asia, and the Americas to understand malaria burden, evaluate HIV/malaria interactions, and monitor and evaluate malaria control and elimination interventions. He has led laboratory work for the WHO Collaborating Center for Malaria at CDC to improve the quality of RDTs for programmatic use (up to 400 million RDTs are procured globally, and the CDC Malaria Lab oversees evaluation of RDT quality). He leads technical contributions to carry out therapeutic efficacy studies in various countries to maintain effective drug policies for case management in malaria-endemic countries.

Dr. Udhayakumar has published more than 220 peer reviewed research publications and presented more than 200 abstracts as posters or oral presentation in national and international conferences on various themes relevant to advancing public health. He is widely consulted by U.S academic institutions, international institutions, ministries of health in more than 40 countries, and public health institutions. He is invited to conduct technical workshops on various malaria tools in multiple countries, strengthening and expanding their technical capabilities.



# Previous Winners

## 2021

### ASSESSMENT

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

### 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 SubSaharan Africa to Inform Who Needs Intensification of Care: A Derivation and External Validation Cohort Study**

*BMC Medicine* 2020;18(1):311

### HEALTH EQUITY SCIENCE

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

### LABORATORY SCIENCE

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

## PREVENTION AND CONTROL

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

## LIFETIME SCIENTIFIC ACHIEVEMENT

Stuart Nichol, PhD

Dr. Nichol was recognized for his expertise in the study of high-consequence RNA viruses and his research and leadership in high-containment laboratory work.

# 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, Xiyang 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. Arvey, 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, Iftekhar 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 Khudyakovs

### **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 Rifampine 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 bbaG4 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 Suryaparakash 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. Gai

### **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 Chotpitayasunondh, 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 Charles C. Shepard Science Awards ceremony since the ceremony was first held in 1986.

## 2021

**Robert D. Bullard, PhD, MA**

Texas Southern University Barbara Jordan-Mickey Leland School of Public Affairs

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

## 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"*

# Committee Members

of the Charles C. Shepard Science Awards

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