

LONELINESS

Public health implications and potential mechanisms



Charles C. Shepard Science Awards

June 28, 2017 • 10:00 am

Keynote speaker
John Cacioppo, PhD





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.



AWARDS PROGRAM

June 28, 2017 • 10:00 am



Tom Harkin Global Communications Center
Building 19, Alexander D. Langmuir Auditorium
CDC Roybal Campus
1600 Clifton Road, Atlanta, Georgia

Introductory Remarks

Nicole Dowling, PhD

Introduction of Keynote Speaker

Rear Admiral Anne Schuchat, MD

Loneliness: Public Health Implications and Potential Mechanisms

John T. Cacioppo, PhD

Presentation of the 2017 Charles C. Shepard Science Awards

Ron Otten, PhD

Assessment

Data Methods and Study Design

Laboratory Science

Prevention and Control

Lifetime Scientific Achievement

Closing

Ron Otten, PhD



Keynote Speaker's Biography

John Cacioppo, PhD



John Cacioppo, PhD, completed his doctoral work at Ohio State University in psychology, where he received the Alumni Award for Graduate Student Research and Creative Achievement in 1977 for his dissertation on the neural modulation of social cognition. He has since served with distinction on faculties at the University of Notre Dame, the University of Iowa, Ohio State University, and beginning in 1999, he has served as the Tiffany and Margaret Blake Distinguished Service Professor of Psychology at the University of Chicago, where he helped found and directs the Center for Cognitive and Social Neuroscience.

In the early 1990s, Dr. Cacioppo began working with Gary Berntson at Ohio State, and together they pioneered a field they called “social neuroscience.” Their new field of inquiry, which examines the associations between social and neural levels of organizations and the biological mechanisms underlying these associations, is concerned with how biological systems affect social-psychological processes and behavior. By examining brain scans, autonomic and neuroendocrine processes, and assays of immune function, Cacioppo and his colleagues found that social behavior and its environmental context can alter genetic expression, for example in white blood cells. Their research led to an expansion of Cacioppo's examination of how personal relationships affect social cognition, emotions, personality processes, biology, and health.

Dr. Cacioppo has authored or coauthored more than 500 articles and 20 books. He currently serves as a member of the President's Committee on the National Medal of Science. He has also served as the chair of the Board of Behavioral, Cognitive, and Sensory Sciences at the National Research Council. He is a member of the National Science Foundation Advisory Committee for the Social, Behavioral, and Economic Sciences Directorate. He is also a member of the National Institutes of Health's Center for Scientific Review and Advisory Council; a member of the Expert Panel on Program to Reduce Social Isolation, Mary Foundation, Copenhagen, Denmark; a member of the Board of the Federation of Associations in Behavioral and Brain Sciences Foundation; chair of the International Board of the Cluster of Excellence “Languages and Emotion” at the Free University of Berlin; and a member of the External Advisory Committee for the Beckman Institute for Advanced Science and Technology at the University of Illinois. He has been elected to fellow status in 18 scientific societies and is a member of the Society of Experimental Psychologists (2003), the Society for Experimental Social Psychology (1981), and the American Academy of Arts and Sciences (2003).

His awards include the Troland Award (National Academy of Sciences, 1989); Campbell Award (2000, Theoretical Innovation Prize, 2008); Award for Distinguished Service (2008) from the Society for Personality and Social Psychology; Distinguished Scientific Contribution Award (2002) and Presidential Citation (2008) from the American Psychological Association; Scientific Impact Award (2009) and Distinguished Scientist Award (2015) from the Society for Experimental Social Psychology; Distinguished Scholar Award from the Social and Affective Neuroscience Society (2016); and Career Achievement Award from the Chicago Society for Neuroscience (2016).

He has served as president of the Association for Psychological Science, the Society for Social Neuroscience, the Society for Psychophysiological Research, the Society for Consumer Psychology, and the Society for Personality and Social Psychology. He has also chaired of the Psychology Section of the American Association for the Advancement of Science. He has also served as the editor of *Psychophysiology*; the associate editor of *Psychological Review and Social Neuroscience*; the advisory editor for *Perspectives on Psychological Science*; and consulting editor for a variety of journals, including the *Journal of Personality and Social Psychology*; *Attitudes and Social Cognition*; the *Journal of Personality and Social Psychology*; *Personality Processes and Individual Differences*; *Current Opinion in Behavioral Sciences*; *Social Neuroscience*; *Social Cognitive and Affective Neuroscience*; the *Journal of Applied Social Psychology*; *Personality and Social Psychology Review*; and *Psychological Review*.





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 2017 Charles C. Shepard Science Awards.

The nominated articles were judged on scientific merit and the significance of their effect on the mission of CDC/ATSDR. 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

Katherine A. Ahrens, Barbara A. Haley, Lauren M. Rossen, Patricia C. Lloyd, and Yutaka Aoki
Housing Assistance and Blood Lead Levels: Children in the United States, 2005–2012
American Journal of Public Health 2016;106(11):2049–2056

The authors compared the blood lead levels of a nationally representative sample of children aged 1–5 years in two groups: (1) children living in HUD-assisted housing and (2) children living in housing with comparable characteristics that was not HUD-assisted housing. The study found that children living in federally assisted housing had lower blood lead levels than would be expected given their demographic, socioeconomic, and family characteristics.

David J. Blackley, Michael R. Wiley, Jason T. Ladner, Mosoka Fallah, Terrence Lo, Merle L. Gilbert, Christopher Gregory, Johnathan D’ambrozio, Stewart Coulter, Suzanne Mate, Zephaniah Balogun, Jeffrey Kugelman, William Nwachukwu, Karla Prieto, Adolphus Yeiah, Fred Amegashie, Brian Kearney, Meagan Wisniewski, John Saindon, Gary Schroth, Lawrence Fakoli, Joseph W. DiClaro II, Jens H. Kuhn, Lisa E. Hensley, Peter B. Jahrling, Ute Ströher, Stuart T. Nichol, Moses Massaquoi, Francis Kateh, Peter Clement, Alex Gasasira, Fatorma Bolay, Stephan S. Monroe, Andrew Rambaut, Mariano Sanchez-Lockhart, A. Scott Laney, Tolbert Nyenswah, Athalia Christie, and Gustavo Palacios

Reduced Evolutionary Rate in Reemerged Ebola Virus Transmission Chains
Science Advances 2016;2(4):e1600378

This paper shows that renewed Liberian outbreaks of Ebola virus disease occurring after the control of person-to-person transmission arose from persistently infected sources, rather than from reintroduction by a reservoir, or from neighboring countries with ongoing transmission. The study showed that the reduced rate of viral evolution identified can be used to identify similar outbreaks in future epidemiologic investigations. It also highlights the risk of Ebola outbreaks long after an epidemic is thought to be controlled.

Cristina V. Cardemil, Concepción Estívariz, Laxman Shrestha, Jeevan B. Sherchand, Arun Sharma, Howard E. Gary, Jr., M. Steven Oberste, William C. Weldon, III, Michael D. Bowen, Jan Vinjé, W. William Schluter, Abhijeet Anand, Ondrej Mach, and Susan Y. Chu

The Effect of Diarrheal Disease on Bivalent Oral Polio Vaccine (bOPV) Immune Response in Infants in Nepal
Vaccine 2016;34(22):2519–2526

This study showed that diarrhea impairs infants’ ability to develop antibodies in response to bivalent oral polio vaccine (bOPV). It also showed that pathogens in the intestinal tract play a role in the immune response to bOPV, with infants having norovirus infection and diarrhea showing a decrease in type 1 response. The study supports the recommendation of providing an additional dose of bOPV to infants presenting with diarrhea.

Michele Casper, Michael R. Kramer, Harrison Quick, Linda J. Schieb,
Adam S. Vaughan, and Sophia Greer

**Changes in the Geographic Patterns of Heart Disease Mortality
in the United States: 1973 to 2010**

Circulation 2016;133(12):1171–1180

The authors examined heart disease death rates in 3,099 counties in the United States over 40 years. Geographic disparities in rates of decline over space and time—with the slowest declines occurring primarily in southern counties—resulted in a nearly twofold increase in the extent of disparity in heart disease deaths among counties. This paper provides insights into the causes of declining heart disease death and information for tailoring prevention and treatment services and policies.

Harrell W. Chesson, Jean-François Laprise, Marc Brisson, and Lauri E. Markowitz

**Impact and Cost-effectiveness of 3 Doses of 9-Valent Human
Papillomavirus (HPV) Vaccine Among U.S. Females Previously Vaccinated
with 4-Valent HPV Vaccine**

The Journal of Infectious Diseases 2016;213(11):1694–1700

This paper describes the health benefits of quadrivalent HPV vaccination and assesses the costs and benefits of a 1-year program of additional 9-valent HPV vaccination of females aged 13–18 years within an ongoing 9-valent HPV program for females and males. Previous studies have used different methods but do not confront the cost-benefit question. The main finding was that providing 9-valent HPV vaccine to those who had already received the quadrivalent vaccine was probably not as cost-effective as other HPV vaccine strategies.

Sarah DeGue, Katherine A. Fowler, and Cynthia Calkins

**Deaths Due to Use of Lethal Force by Law Enforcement: Findings from
the National Violent Death Reporting System, 17 U.S. States, 2009–2012**

American Journal of Preventive Medicine 2016;51(5S3):S173–S187

Using a variety of data from the National Violent Death Reporting System—death certificates, coroner/medical examiner reports, and law enforcement reports—the authors examined the nature and circumstances of deaths resulting from the use of lethal force by law enforcement officials in the United States. Findings can improve risk assessment and modify law enforcement response to prevent fatalities associated with law enforcement intervention.

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, 2010–2011

JAMA 2016;315(17):1864–1873

Adverse drug events from antibiotics result in roughly 143,000 emergency department visits per year nationally. This paper established that at least 30% of outpatient oral antibiotic prescriptions in the United States are unnecessary, representing a goal for safe reduction in antibiotic prescribing. The study gained national attention, leading to CDC, The Pew Charitable Trusts, and 12 national healthcare professional organizations in October 2016 to issue a Joint Statement on the Importance of Outpatient Antibiotic Stewardship.

David S. Freedman, Hannah G. Lawman, Liping Pan, Asheley C. Skinner, David B. Allison, Lisa C. McGuire, and Heidi M. Blanck

The Prevalence and Validity of High, Biologically Implausible Values of Weight, Height, and BMI Among 8.8 Million Children

Obesity 2016;24(5):1132–1139

The authors examined whether potential WHO cut points for determining weight, height, and body mass index among children and adolescents are likely erroneous. More accurate estimates of the prevalence of severe obesity are important when exploring trends, comparisons across countries, and the effects of obesity interventions. The WHO cut points incorrectly flagged a large proportion of extremely high values as being implausible, and these values were then typically excluded from the data analyses.

Joseph R. Holbrook, Steven P. Cuffe, Bo Cai, Susanna N. Visser, Melinda S. Forthofer, Matteo Bottai, Andrew Ortaglia, and Robert E. McKeown

Persistence of Parent-Reported ADHD Symptoms from Childhood Through Adolescence in a Community Sample

Journal of Attention Disorders 2016;20(1):11–20

Care for ADHD represents the second largest healthcare expenditure for children and adolescents nationally, accounting for \$20.6 billion in 2013. ADHD is associated with academic underachievement, substance use, sexual-risk behaviors, and unemployment. This paper describes symptom patterns that characterize the phenotypes of childhood ADHD, opening the way to more targeted treatment that may improve outcomes and cost-effectiveness, as well as providing guidance about what to expect as children with ADHD mature.

Margaret A. Honein, April L. Dawson, Emily E. Petersen, Abbey M. Jones, Ellen H. Lee, Mahsa M. Yazdy, Nina Ahmad, Jennifer Macdonald, Nicole Evert, Andrea Bingham, Sascha R. Ellington, Carrie K. Shapiro-Mendoza, Titilope Oduyebo, Anne D. Fine, Catherine M. Brown, Jamie N. Sommer, Jyoti Gupta, Philip Cavicchia, Sally Slavinski, Jennifer L. White, S. Michele Owen, Lyle R. Petersen, Coleen Boyle, Dana Meaney-Delman, Denise J. Jamieson, and the U.S. Zika Pregnancy Registry Collaboration

Birth Defects Among Fetuses and Infants of U.S. Women with Evidence of Possible Zika Virus Infection During Pregnancy

JAMA 2017;317(1):59–68

This paper describes the design of a national surveillance system to understand the impact of Zika virus infection during pregnancy. This surveillance relies on extensive collaboration with state and local health departments to collect information on pregnant women with laboratory evidence of a possible recent Zika virus infection. Establishing a national surveillance system during a level 1 emergency and the work to understand the risk of Zika virus infection in the first trimester are guiding the emergency response.



Michael A. Johansson, Luis Mier-y-Teran-Romero, Jennita Reefhuis,
Suzanne M. Gilboa, and Susan L. Hills

Zika and the Risk of Microcephaly

The New England Journal of Medicine 2016;375(1):1–4

This study used novel mathematical modeling to establish risk factors linking Zika virus infection and microcephaly. The authors rapidly developed mathematical analysis to consider all of the data and uncertainties important to decision making in the emerging epidemic. Their analysis resulted in the first population-level estimates of microcephaly risk due to congenital Zika virus infection, predicting the risk that was greatest for infections during the first trimester.

Djenaba A. Joseph, Reinier G. S. Meester, Ann G. Zauber, Diane L. Manninen,
Linda Wings, Fred B. Dong, Brandy Peaker, and Marjolein van Ballegooijen

Colorectal Cancer Screening: Estimated Future Colonoscopy Need and Current Volume and Capacity

Cancer 2016;122(16):2479–2486

At the time of this study, there were three United States Preventive Services Task Force-recommended screening types with varying follow-up procedures. Besides colonoscopy being the most widely used primary screening test, it is currently the only test used to confirm positive tests from other screening methods. The study combined microsimulation modeling to assess colonoscopy need with traditional survey methods to determine if existing and projected colonoscopy capacity was sufficient to meet estimated colonoscopy need.

Shawn R. Lockhart, Kizee A. Etienne, Snigdha Vallabhaneni, Joveria Farooqi,
Anuradha Chowdhary, Nelesh P. Govender, Arnaldo Lopes Colombo, Belinda Calvo,
Christina A. Cuomo, Christopher A. Desjardins, Elizabeth L. Berkow,
Mariana Castanheira, Rindidzani E. Magobo, Kauser Jabeen, Rana J. Asghar,
Jacques F. Meis, Brendan Jackson, Tom Chiller, and Anastasia P. Litvintseva

Simultaneous Emergence of Multidrug-Resistant *Candida auris* on 3 Continents Confirmed by Whole-Genome Sequencing and Epidemiological Analyses

Clinical Infectious Diseases 2017;64(2):134–140

Candida auris, a multidrug-resistant yeast that causes deadly infections, has emerged simultaneously on three continents in the past 7 years, causing outbreaks in numerous hospitals. This study used whole genome sequencing to assess the global epidemiology of *C. auris* and provided key data for understanding its origins. The authors collaborated with researchers and clinicians from India, Pakistan, South Africa, and Venezuela and collected isolates and case information from 14 hospitals in these countries.

Roosecelis Brasil Martines, Julu Bhatnagar, Ana Maria de Oliveira Ramos, Helaine Pompeia Freire Davi, Silvia D'Andretta Iglezias, Cristina Takami Kanamura, M. Kelly Keating, Gillian Hale, Luciana Silva-Flannery, Atis Muehlenbachs, Jana Ritter, Joy Gary, Dominique Rollin, Cynthia S. Goldsmith, Sarah Reagan-Steiner, Yokabed Ermiyas, Tadaki Suzuki, Kleber G. Luz, Wanderson Kleber de Oliveira, Robert Lanciotti, Amy Lambert, Wun-Ju Shieh, and Sherif R. Zaki

Pathology of Congenital Zika Syndrome in Brazil: A Case Series

The Lancet 2016;388(10047):898–904

This report examined congenital Zika syndrome by using a combination of newly developed tests. The tests gave researchers an early and better understanding of the origins of the disease and showed evidence of links between Zika virus and microcephaly. Findings led to an international public health response with a focus on preventing Zika in pregnant women. It also laid the groundwork for later studies that investigated the link between Zika infection and birth defects and other adverse pregnancy outcomes.

Elizabeth A. Masterson, Christa L. Themann, Sara E. Luckhaupt, Jia Li, and Geoffrey M. Calvert

Hearing Difficulty and Tinnitus Among U.S. Workers and Non-Workers in 2007

American Journal of Industrial Medicine 2016;59(4):290–300

Hearing loss is the third most common chronic physical condition after hypertension and arthritis in the United States. The authors produced nationally representative estimates of the prevalence and assessed the risk of hearing difficulty and tinnitus among workers and the U.S. adult population. They also generated prevalence estimates for hearing difficulty and tinnitus by severity, comparing workers who were exposed with workers who were not exposed to occupational noise.

Marshall A. Mazepa, Paul E. Monahan, Judith R. Baker, Brenda K. Riske, and J. Michael Soucie, on behalf of the U.S. Hemophilia Treatment Center Network

Men with Severe Hemophilia in the United States: Birth Cohort Analysis of a Large National Database

Blood 2016;127(24):3073–3081

People with hemophilia have often experienced complications from ineffective treatment, including, early on, exposure to HIV and hepatitis from products made from large pools of plasma donations. This paper uses data from a 13-year CDC surveillance system to document how people with hemophilia have been affected by exposures at different times. This approach yields insight on advances in healthcare delivery and drug therapies on sickness, death, access to care, and physical functioning among people in later generations.

Maria C. Mirabelli, Ambarish Vaidyanathan, W. Dana Flanders, Xiaoting Qin, and Paul Garbe

Outdoor PM^{2.5}, Ambient Air Temperature, and Asthma Symptoms in the Past 14 Days Among Adults with Active Asthma

Environmental Health Perspectives 2016;124(12):1882–1890

This paper described the effect of ambient air pollution on asthma among adults in the United States. The authors analyzed county-level estimates of concentrations of particulate matter, ambient ozone, precipitation, and air temperature and compared them with individual-level characteristics of adults with asthma. Findings suggest the relationship between particulate matter and asthma may not be constant across the range of concentrations. Also, among people with asthma, exacerbations may begin to increase at low concentrations.

James J. Sejvar, Adriana S. Lopez, Margaret M. Cortese, Eyal Leshem, Daniel M. Pastula, Lisa Miller, Carol Glaser, Anita Kambhampati, Kayoko Shioda, Negar Aliabadi, Marc Fischer, Nicole Gregoricus, Robert Lanciotti, W. Allan Nix, Senthilkumar K. Sakthivel, D. Scott Schmid, Jane F. Seward, Suxiang Tong, M. Steven Oberste, Mark Pallansch, and Daniel Feikin

Acute Flaccid Myelitis in the United States, August–December 2014: Results of Nationwide Surveillance

Clinical Infectious Diseases 2016;63(6):737–745

This study involved the collection of clinical and radiologic information to describe the new disease, acute flaccid myelitis (AFM), that affected children in the United States in 2014. Although the clinical presentation of cases of AFM is similar to those with acute flaccid paralysis due to poliovirus, the findings from this study demonstrated that AFM cases reported in 2014 were not due to poliovirus, thus ensuring that the United States has not had a reintroduction of poliovirus.

Nadine Shehab, Maribeth C. Lovegrove, Andrew I. Geller, Kathleen O. Rose, Nina J. Weidle, and Daniel S. Budnitz

U.S. Emergency Department Visits for Outpatient Adverse Drug Events, 2013–2014

JAMA 2016;316(20):2115–2125

The authors characterize medication safety problems that lead to emergency department visits in the United States and identify the most common medications involved by patient age to target prevention efforts. The study also improved a U.S. Consumer Product Safety Commission surveillance structure to reduce the cost of collecting new data. Findings refute the conventional wisdom that expensive and extensive interventions measurably improve medication safety and suggest instead a novel prevention paradigm.

Michelle M. Van Handel, Charles E. Rose, Elaine J. Hallisey, Jessica L. Kolling, Jon E. Zibbell, Brian Lewis, Michele K. Bohm, Christopher M. Jones, Barry E. Flanagan, Azfar-E-Alam Siddiqi, Kashif Iqbal, Andrew L. Dent, Jonathan H. Mermin, Eugene McCray, John W. Ward, and John T. Brooks

County-Level Vulnerability Assessment for Rapid Dissemination of HIV or HCV Infections Among Persons Who Inject Drugs, United States

Journal of Acquired Immune Deficiency Syndromes (1999) 2016;73(3):323–331

The expanding U.S. opioid epidemic has caused a steady increase in the number of Americans engaged in illicit injection drug use, especially in rural communities. Identifying where people who inject drugs live can help direct prevention activities to where they are most needed. However, locating these vulnerable communities is challenging given the scarcity of good prevalence data for such drug use. This paper reports the results of a two-step analytic approach to identify such communities.

Courtney M. Yuen, J. Steve Kammerer, Kala Marks, Thomas R. Navin, and Anne Marie France

Recent Transmission of Tuberculosis—United States, 2011–2014

PLOS ONE 2016;11(4):e0153728

Cases of tuberculosis disease may occur as a result of recent transmission from an infectious patient or via reactivation of remotely acquired latent infection, and the two cannot be distinguished clinically. This paper applies a field-validated algorithm for attributing tuberculosis cases to recent transmission to U.S. tuberculosis surveillance data to determine the epidemiology of tuberculosis transmission in the United States. This assessment lays the groundwork for enhancing tuberculosis control interventions aimed at reducing transmission.

Data Methods and Study Design

Penelope Baughman, Michael E. Andrew, Cecil M. Burchfiel, Desta Fekedulegn, Tara A. Hartley, John M. Violanti, and Diane B. Miller

High-Protein Meal Challenge Reveals the Association Between the Salivary Cortisol Response and Metabolic Syndrome in Police Officers

American Journal of Human Biology 2016;28(1):138–144

Stress is a risk factor for many occupations. To investigate a possible connection between high-stress jobs and cardiovascular illness, the authors compared the before and after salivary cortisol responses of groups of police officers who had drunk high-protein shakes, and compared them with various measures of metabolic syndrome: abdominal obesity, hypertension, elevated triglycerides, reduced high-density lipoprotein cholesterol, and glucose intolerance. The study design is likely applicable to various occupations and populations.

Stephen J. Bertke, Alex R. Meyers, Steven J. Wurzelbacher, Alex Measure, Michael P. Lampl, and David Robins

Comparison of Methods for Auto-Coding Causation of Injury Narratives

Accident Analysis and Prevention 2016;88:117–123

The authors identified the causes of injuries in a database of 1.5 million Ohio workers' compensation claims by using a self-learning auto-coding program that read injury narratives and assigned causes and scores indicating the confidence of the assigned category. The auto-coder learns by reading a training set of 10,000 manually coded claims, identifies patterns, and creates an algorithm to code uncoded claims. The program coded the 1.5 million claims in this study in just over an hour.

William M. Callaghan, Marian F. MacDorman, Carrie K. Shapiro-Mendoza, and Wanda D. Barfield

Explaining the Recent Decrease in U.S. Infant Mortality Rate, 2007–2013

American Journal of Obstetrics and Gynecology 2017;216(1):73e1–73e8

Infant mortality rates are an indicator of national health, but the decrease in the U.S. infant mortality rate has never been quantified as the product of its two primary causes. By applying decomposition analysis techniques, the authors identified trends in preterm birth and found that 70% were due to improvements in gestational survival rates and 30% were due to reductions in preterm birth. The relative contributions of these factors differed by race-ethnicity, which informs health equity initiatives to improve outcomes.

Kenneth G. Castro, Suzanne M. Marks, Michael P. Chen, Andrew N. Hill, Jose E. Becerra, Roque Miramontes, Carla A. Winston, Thomas R. Navin, Robert H. Pratt, Kai H. Young, and Philip A. LoBue

Estimating Tuberculosis Cases and Their Economic Costs Averted in the United States over the Past Two Decades

The International Journal of Tuberculosis and Lung Disease 2016;20(7):926–933

Intensive public health efforts were begun in 1993 to reduce tuberculosis (TB) incidence in the United States. But estimating the impact of these efforts is difficult. This study evaluates the contributions of TB control and stresses the health risks of a resurgence of TB. Benefits were estimated over the past two decades by examining trends in drug-susceptible and multidrug-resistant TB among U.S.-born and foreign-born persons, and by modeling factors contributing to the decline in TB during the period.

Steven P. Dehmer, Madeleine M. Baker-Goering, Michael V. Maciosek, Yuling Hong, Thomas E. Kottke, Karen L. Margolis, Julie C. Will, Thomas J. Flottemesch, Amy B. LaFrance, Brian C. Martinson, Avis J. Thomas, and Kakoli Roy

Modeled Health and Economic Impact of Team-Based Care for Hypertension

American Journal of Preventive Medicine 2016;50(5 Suppl 1):S34–S44

This paper assesses the health and budgetary effects of team-based care for uncontrolled hypertension. The study also provides budgetary impact evidence, which involved a new way to include microsimulation modeling and analyses of data sets to assess costs and benefits accruing to public and private payers such as Medicaid, Medicare, and private insurers. From a policy perspective the findings could assist state and local decision makers in moving toward a more comprehensive approach.

Paul I. Eke, Xingyou Zhang, Hua Lu, Liang Wei, Gina Thornton-Evans, Kurt J. Greenlund, James B. Holt, and Janet B. Croft

Predicting Periodontitis at State and Local Levels in the United States

Journal of Dental Research 2016;95(5):515–522

This study uses a multilevel regression and post-stratification method incorporating population demographics and individual-level risk factor (poverty and smoking status) data from publicly available data sets such as the National Health and Nutrition Examination Survey, 2012 Behavioral Risk Factor Surveillance System, American Community Survey, and 2010 U.S. Census to estimate the percentage of adults who have periodontitis, including severe periodontitis, at the state, county, congressional district, and census-tract levels.

Scott D. Grosse, Robert J. Berry, J. Mick Tilford, James E. Kucik, and Norman J. Waitzman

Retrospective Assessment of Cost Savings from Prevention: Folic Acid Fortification and Spina Bifida in the U.S.

American Journal of Preventive Medicine 2016;50(5 Suppl 1):S74–S80

This paper combines epidemiologic estimates of avoided cases of spina bifida among live births, calculates medical costs of spina bifida, and estimates time costs of informal caregiving to refine previous calculations of cost savings from folic acid fortification for the prevention of neural tube defects. Previous calculations were refined and expanded to inform policy decisions, including the recent FDA mandate to add folic acid to corn masa flour.

Ronaldo Iachan, Carol Pierannunzi, Kristie Healey, Kurt J. Greenlund, and Machell Town

National Weighting of Data from the Behavioral Risk Factor Surveillance System (BRFSS)

BMC Medical Research Methodology 2016;16(1):155

Accurate statistics are important to public health. Aggregating state data to obtain national estimates, though common, is not optimal, but little has been done to formally evaluate this practice. This paper proposes new ways to weight distributions of Behavioral Risk Factor Surveillance System data that match national distributions and reduce bias and variances in national prevalence estimates. In the future, appropriate national weights and guidance could be provided for better national estimates.

James M. Kariuki, Eric-Jan Manders, Janise Richards, Tom Oluoch, Davies Kimanga, Steve Wanyee, James O. Kwach, and Xenophon Santas

Automating Indicator Data Reporting from Health Facility EMR to a National Aggregate Data System in Kenya: An Interoperability Field-Test Using OpenMRS and DHIS2

Online Journal of Public Health Informatics 2016;8(2)e188

This paper describes how interoperability between an electronic medical records system at a health facility and a national health management information system can support routine monitoring of HIV care in Kenya. Recent estimates show more than 1.3 million people are living with HIV in Kenya. Having reliable and timely data available will help the program with planning and allocating resources to reach those vulnerable populations with the HIV services needed to improve outcomes.

Jennifer H. Madans and Julie D. Weeks

A Framework for Monitoring Progress Using Summary Measures of Health

Journal of Aging and Health 2016;28(7):1299–1314

More than 53 million people in the United States have a disability. CDC supports work that improves quality of life for people with disabilities. It supports the inclusion of people with disabilities in public health programs while working to improve access to routine preventive services. This paper recognizes that health is a complex idea that captures all aspects of physical and mental characteristics. Thus, three of the four summary measures of health in this paper are concerned with functional status.

Matthew J. Maenner, Marshalyne Yeargin-Allsopp, Kim Van Naarden Braun, Deborah L. Christensen, and Laura A. Schieve

Development of a Machine Learning Algorithm for the Surveillance of Autism Spectrum Disorder

PLOS ONE 2016;11(12):e0168224

CDC's active, records-based autism surveillance system is labor-intensive and costly. To classify autism, clinicians review medical and educational evaluations. This paper describes a machine-learning approach that predicts the surveillance case definition instantly and with high agreement with human surveillance clinicians. The study reviews the methods and performance of the algorithm and describes circumstances that are more likely to be misclassified. Results support the potential for improvement in the efficiency of the autism surveillance system.

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

This paper describes an advanced molecular detection method routinely used to analyze next-generation sequencing (NGS) data from clinical and cultured virus samples. This method has improved the public health community's ability to analyze NGS data obtained from influenza virus surveillance specimens. The method is open source and freely available; several other groups have adopted it for the analysis of NGS data obtained from other viruses such as Ebola, MERS-CoV, and Newcastle disease viruses.

Ruiguang Song, H. Irene Hall, Timothy A. Green, Céilia L. Szwarcwald, and Nikos Pantazis

Using CD4 Data to Estimate HIV Incidence, Prevalence, and Percent of Undiagnosed Infections in the United States

Journal of Acquired Immune Deficiency Syndromes 2017;74(1):42803

By adapting a previously used method, this paper describes a new way to estimate HIV incidence, prevalence, and percentage undiagnosed. Estimation may be performed at the national and local levels, using data routinely collected in all reporting jurisdictions for core HIV surveillance. The paper mostly shows that having a citable, peer-reviewed reference for this superior approach will allow CDC to use the new method to produce official estimates of these HIV surveillance indicators.

Laura C. Steinhardt, Yvan St Jean, Daniel Impoinvil, Kimberly E. Mace, Ryan Wiegand, Curtis S. Huber, Jean Jean Semé Fils Alexandra, Joseph Frederick, Emery Nkurunziza, Samuel Jean, Brian Wheeler, Ellen Dotson, Laurence Slutsker, S. Patrick Kachur, John W. Barnwell, Jean Frantz Lemoine, and Michelle A. Chang

Effectiveness of Insecticide-Treated Bednets in Malaria Prevention in Haiti: A Case-Control Study

The Lancet Global Health 2017;5(1):e96-e103

This study evaluates the effectiveness of bednets in Haiti for malaria prevention. Although bednets have saved millions of lives, the effectiveness of bednets against malaria in Haiti was unclear. It was not practical or ethical to undertake more conventional experimental study designs. The investigators employed a case-control design and novel analytical techniques to assemble evidence from a nonexperimental setting. Findings will help Haitian and global malaria control officials make more efficient use of scarce resources.

Rachel Rogers Worley and Jeffrey Fisher

Application of Physiologically-Based Pharmacokinetic Modeling to Explore the Role of Kidney Transporters in Renal Reabsorption of Perfluorooctanoic Acid in the Rat

Toxicology and Applied Pharmacology 2015;289(3):428–441

Perfluorooctanoic acid and other perfluoroalkyl compounds (PFAS) are emerging man-made pollutants that have been detected in more than 98% of the U.S. population. More than 5 million people have drinking water contaminated with PFAS. This paper describes the development and use of a mathematical model to explain sex-specific differences in how the kidneys eliminate perfluorooctanoic acid. Using computational toxicology is an innovative approach to assist in the evaluation and safety assessment of emerging public health pollutants.

Guangyu Zhang, Jennifer D. Parker, and Nathaniel Schenker

Multiple Imputation for Missingness Due to Nonlinkage and Program Characteristics: A Case Study of the National Health Interview Survey Linked to Medicare Claims

Journal of Survey Statistics and Methodology 2016;4(3):319–338

Record linkage is an efficient way to connect information from different data sources. This paper develops and examines ways to handle missing data and inconsistently formatted data due to program characteristics in producing and analyzing data. The authors evaluate the methods via Monte Carlo simulation and use of actual data on mammography screening from the linked National Health Interview Survey–Medicare files. The methods can improve accuracy of estimates compared with methods that use just the available data.

Laboratory Science

Katherine E. Bowden, Michael R. Weigand, Yanhui Peng, Pamela K. Cassiday, Scott Sammons, Kristen Knipe, Lori A. Rowe, Vladimir Loparev, Mili Sheth, Keeley Weening, M. Lucia Tondella, and Margaret M. Williams

Genome Structural Diversity Among 31 *Bordetella pertussis* Isolates from Two Recent U.S. Whooping Cough Statewide Epidemics

mSphere 2016;1(3)

This paper describes a whole-genome sequencing and analysis workflow to improve the molecular epidemiological analysis of circulating *Bordetella pertussis* strains. Due to the complexity of the pertussis genome, existing workflows fail to produce complete genome assemblies, limiting the genomic information available to assess pertussis disease resurgence and pathogen evolution. By using sequencing and bioinformatic workflows, this study provides evidence of genome rearrangement variation among *B. pertussis* strains and a framework for molecular typing and vaccine development.

Mary Bushman, Lindsay Morton, Nancy Duah, Neils Quashie, Benjamin Abuaku, Kwadwo A. Koram, Pedro Rafael Dimbu, Mateusz Plucinski, Julie Gutman, Peter Lyaruu, S. Patrick Kachur, Jacobus C. de Roode, and Venkatachalam Udhayakumar

Within-Host Competition and Drug Resistance in the Human Malaria Parasite *Plasmodium Falciparum*

Proceedings of the Royal Society B: Biological Sciences 2016;283(1826):20153038

This paper joins advanced molecular diagnostic methods and evolutionary biology with clinic-epidemiological data on antimalarial drug resistance to advance the understanding of one of the most serious threats to global public health. Demonstrating how basic science tools and approaches apply to parasite populations drawn from clinically ill children in three vulnerable countries points toward potential public health measures that could help contain or mitigate the evolution and spread of deadly drug-resistant malaria parasites.

Kevin P. Delaney, Debra L. Hanson, Silvina Masciotra, Steven F. Ethridge, Laura Wesolowski, and Sherry Michele Owen

Time Until Emergence of HIV Test Reactivity Following Infection With HIV-1: Implications for Interpreting Test Results and Retesting After Exposure

Clinical Infectious Diseases 2017;64(1):53–59

This paper combines results of a laboratory study with statistical methods to develop estimates of the relative timing of test reactivity for each of the 20 currently available FDA-approved HIV tests. The results confirmed that when tested with a procedure that detects both HIV antigen and antibody, 99% of infected persons will test positive within 45 days of exposure. The data support follow-up testing beginning 45 days after a possible HIV exposure, rather than the currently suggested 90 days.

Yonatan H. Grad, Simon R. Harris, Robert D. Kirkcaldy, Anna G. Green, Debora S. Marks, Stephen D. Bentley, David Trees, and Marc Lipsitch

Genomic Epidemiology of Gonococcal Resistance to Extended-Spectrum Cephalosporins, Macrolides, and Fluoroquinolones in the United States, 2000–2013

The Journal of Infectious Diseases 2016;214(10):1579–1587

With about 300,000 new gonorrhea cases appearing each year, *Neisseria gonorrhoeae* has shown remarkable resistance to drug therapies. Whole-genome sequencing approaches can advance understanding of *N. gonorrhoeae* and improve public health action to prevent new infections. Using longitudinal analyses, the authors examined genetic markers of resistance and the extent to which they emerge through clonal expansion, recombination, or new mutations. They revealed trends that can guide research into the genes underlying resistance and development of new diagnostic tests and therapies.

Andrew D. Huang, Chengwei Luo, Angela Pena-Gonzalez, Michael R. Weigand, Cheryl L. Tarr, and Konstantinos T. Konstantinidis

Metagenomics of Two Severe Foodborne Outbreaks Provides Diagnostic Signatures and Signs of Coinfection Not Attainable by Traditional Methods

Applied and Environmental Microbiology 2017;83(3)

Cell-culture isolates form the foundation for public health surveillance. However, laboratories are adopting culture-independent diagnostics tests (CIDTs), which do not require isolates from human specimens. CIDTs are rapid, inexpensive, and performed at point of care, thus benefiting individual patients. This paper describes a culture-independent metagenomics approach that distinguished isolates associated with two Salmonella outbreaks. The study opens the door to further development of metagenomics as a CIDT with relevance to public health surveillance.



Ann F. Hubbs, Kara L. Fluharty, Rebekah J. Edwards, Jamie L. Barnabei, John T. Grantham, Scott M. Palmer, Francine Kelly, Linda M. Sargent, Steven H. Reynolds, Robert R. Mercer, Madhusudan P. Goravanahally, Michael L. Kashon, John C. Honaker, Mark C. Jackson, Amy M. Cumpston, William T. Goldsmith, Walter McKinney, Jeffrey S. Fedan, Lori A. Battelli, Tiffany Munro, Winnie Bucklew-Moyers, Kimberly McKinstry, Diane Schwegler-Berry, Sherri Friend, Alycia K. Knepp, Samantha L. Smith, and Krishnan Sriram

Accumulation of Ubiquitin and Sequestosome-1 Implicate Protein Damage in Diacetyl-Induced Cytotoxicity

The American Journal of Pathology 2016;186(11):2887–2908

Flavorings-related lung disease has killed people and damaged the lung function of others. This study implicates widespread damage and inconsistent functioning of certain proteins as the primary cause of flavorings-related lung disease. By identifying the protein damage and inconsistent functioning, this study suggests that carbonyl compounds are priority candidates for future studies of airways disease. The findings add to evidence implicating the role of abnormal protein functioning in many diseases and alters thinking about protein damage in toxicology.

Pramod Kulkarni, Chaolong Qi, and Nobuhiko Fukushima

Development of Portable Aerosol Mobility Spectrometer for Personal and Mobile Aerosol Measurement

Aerosol Science and Technology 2016;50(11):1167–1179

This paper describes the development and testing of a portable aerosol mobility spectrometer (PAMS), a tool used to measure exposure to ultrafine aerosols. The existing instruments to obtain similar measurements are laboratory instruments. Due to its unique physical attributes and precise units of measure, the PAMS instrument allows probing human exposures to ultrafine aerosol in situations or applications that were once inaccessible even with existing laboratory instruments.

Taekhee Lee, Larry Lee, Emanuele Cauda, Jon Hummer, and Martin Harper

Respirable Size-Selective Sampler for End-of-Shift Quartz Measurement: Development and Performance

Journal of Occupational and Environmental Hygiene 2017;14(5):335–342

The current way to determine exposure to respirable crystalline silica (RCS) requires an air sample obtained during a work period, followed by laboratory analysis. Results often take weeks to return, and in that time the conditions which led to the exposure may have persisted or changed. This paper describes a way to determine the RCS concentration from the sample on site at the end of the work shift, allowing any necessary intervention to lower exposures to be carried out the following day.

Yuan Li, Benjamin J. Metcalf, Sopio Chochua, Zhongya Li, Robert E. Gertz, Jr., Hollis Walker, Paulina A. Hawkins, Theresa Tran, Cynthia G. Whitney, Lesley McGee, and Bernard W. Beall

Penicillin-Binding Protein Transpeptidase Signatures for Tracking and Predicting β -Lactam Resistance Levels in *Streptococcus Pneumoniae*

mBio 2016;7(3):e00756–16

Streptococcus pneumoniae causes about 1 million deaths each year. The beta-lactams such as penicillin and amoxicillin are first-line antibiotics for treating these pneumococcal infections. But many *S. pneumoniae* strains have developed resistance. Unfortunately, testing for beta-lactam minimum concentrations is difficult and costly. Whole-genome sequencing is increasingly used in pneumococcal strain surveillance, and the authors' new method can generate susceptibility information. This system of penicillin-binding protein typing is becoming available and could replace conventional methods.

Anita K. McElroy, Jessica R. Harmon, Timothy D. Flietstra, Shelley Campbell, Aneesh K. Mehta, Colleen S. Kraft, Marshall G. Lyon, Jay B. Varkey, Bruce S. Ribner, Christopher J. Kratochvil, Peter C. Iwen, Philip W. Smith, Rafi Ahmed, Stuart T. Nichol, and Christina F. Spiropoulou

Kinetic Analysis of Biomarkers in a Cohort of U.S. Patients with Ebola Virus Disease

Clinical Infectious Diseases 2016;63(4):460–467

Due to the difficulty of handling Ebola virus, literature on the pathophysiology of Ebola virus disease (EVD) in humans is sparse. This study delves into understudied areas of EVD pathophysiology, including the interplay of inflammation, coagulation, and dysfunction in the linings of blood vessels that are at work during EVD. The authors open new areas of research into evaluation of host-directed therapies that can be tested in animal models and affects future approaches to the treatment of human EVD.

Victoria M. Pratt, Robin E. Everts, Praful Aggarwal, Brittany N. Beyer, Ulrich Broeckel, Ruth Epstein-Baak, Paul Hujesak, Ruth Kornreich, Jun Liao, Rachel Lorier, Stuart A. Scott, Chingying Huang Smith, Lorraine H. Toji, Amy Turner, and Lisa V. Kalman

Characterization of 137 Genomic DNA Reference Materials for 28 Pharmacogenetic Genes: A GeT-RM Collaborative Project

The Journal of Molecular Diagnostics 2016;18(1):109–123

Reference materials are essential for quality genetic testing, allowing laboratories to develop and validate tests, detect testing errors, and conduct lot-testing of new reagent batches. Before this study, no characterized reference or quality-control materials were available for pharmacogenetics tests to help physicians select the right drug for each patient. This study produced 137 publicly available and renewable DNA samples as reference materials to improve accuracy of pharmacogenetics results and health management of patients for the remainder of their lives.

Bobbi S. Pritt, Paul S. Mead, Diep K. Hoang Johnson, David F. Neitzel, Laurel B. Respicio-Kingry, Jeffrey P. Davis, Elizabeth Schiffman, Lynne M. Sloan, Martin E. Schriefer, Adam J. Replogle, Susan M. Paskewitz, Julie A. Ray, Jenna Bjork, Christopher R. Steward, Alecia Deedon, Xia Lee, Luke C. Kingry, Tracy K. Miller, Michelle A. Feist, Elitza S. Theel, Robin Patel, Cole L. Irish, and Jeannine M. Petersen

Identification of a Novel Pathogenic *Borrelia* Species Causing Lyme Borreliosis with Unusually High Spirochaetaemia: A Descriptive Study

The Lancet Infectious Diseases 2016;16(5):556–564

This paper describes the discovery of a previously unrecognized bacteria, *Borrelia mayonii*, as a cause of Lyme disease. This discovery calls for a significant reappraisal of the causes of Lyme disease, the most common vector-borne disease in the United States. Before this discovery, the only cause recognized in the United States was *Borrelia burgdorferi*. *B. mayonii* was discovered during a partnership with the Mayo Clinic to identify pathogens from patients who had tested negative for *B. burgdorferi*.

Christopher A. Toth, Zsuzsanna Kuklenyik, Jeffrey I. Jones, Bryan A. Parks, Michael S. Gardner, David M. Schieltz, Jon C. Rees, Michael L. Andrews, Lisa G. McWilliams, James L. Pirkle, and John R. Barr

On-Column Trypsin Digestion Coupled with LC-MS/MS for Quantification of Apolipoproteins

Journal of Proteomics 2017;150:258–267

Cardiovascular disease is the number one cause of sickness and death in the United States. An updated framework of cardiovascular risk assessment is needed, taking advantage of genetic, biomolecular, and mechanistic understandings of the progression of lipid metabolism-related chronic diseases. The method and automated platform described in this paper goes beyond improving cardiovascular risk assessment and will allow more rapid development of improved treatment options and delivery systems for other chronic and infectious diseases.

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

The development of engineered vaccine cell lines can overcome the cost and vaccine production hurdles that global health officials face. This paper yields insights into enterovirus-host interactions and describes an approach to improve vaccine manufacturing through engineered vaccine cell lines. The results show that specific gene silencing and knockout events can enhance viral titers of attenuated (Sabin strain) and wild-type polioviruses, a finding that should simplify global use of inactivated polio vaccine and reduce costs for live-attenuated oral polio vaccines.

Prevention and Control

Andrew F. Auld, Ray W. Shiraishi, Aleny Couto, Francisco Mbofana, Kathryn Colborn, Charity Alfredo, Tedd V. Ellerbrock, Carla Xavier, and Kebba Jobarteh

A Decade of Antiretroviral Therapy Scale-Up in Mozambique: Evaluation of Outcome Trends and New Models of Service Delivery Among More Than 300,000 Patients Enrolled During 2004–2013

Journal of Acquired Immune Deficiency Syndromes 2016;73(2):e11–e22

Mozambique has one of the highest burdens of HIV/AIDS globally with about 1.5 million people living with HIV and an adult prevalence of about 11%. HIV/AIDS remains the most common cause of death and has significantly reduced average life expectancy in Mozambique. This paper documents important lessons learned during a rapid expansion of antiretroviral therapy (ART) in Mozambique from 2004 to 2013. The study showed that enrollment in community ART support groups helped patients continue in their therapy programs.

Lucy Breakwell, Patsy Kelso, Christine Finley, Susan Schoenfeld, Brant Goode, Lara K. Misegades, Stacey W. Martin, and Anna M. Acosta

Pertussis Vaccine Effectiveness in the Setting of Pertactin-Deficient Pertussis

Pediatrics 2016;137(5)

Despite high vaccine coverage, pertussis rates have increased in the United States, notably among vaccinated children and adolescents who received acellular pertussis vaccines. The authors assessed the continuing effectiveness of acellular pertussis vaccines against pertactin-deficient *Bordetella pertussis* among children and adolescents. The study found the continued effectiveness of acellular pertussis vaccines in the setting of high-pertactin deficiency, suggesting childhood and adolescent acellular vaccines remain protective against pertussis disease despite increasing prevalence of pertactin-deficient strains.

Michael G. Bruce, Dana Bruden, Debby Hurlburt, Carolyn Zanis, Gail Thompson, Lisa Rea, Michele Toomey, Lisa Townshend-Bulson, Karen Rudolph, Lisa Bulkow, Philip R. Spradling, Richard Baum, Thomas Hennessy, and Brian J. McMahon

Antibody Levels and Protection After Hepatitis B Vaccine: Results of a 30-Year Follow-Up Study and Response to a Booster Dose

The Journal of Infectious Diseases 2016;214(1):16–22

Worldwide, about 250 million people are infected with the hepatitis B virus. Despite three decades of hepatitis B vaccine use, duration of protection remains unknown. Before the availability of hepatitis B vaccine, Alaska natives suffered disproportionately high rates of hepatitis B infections and liver cancer. This paper describes antibody levels and protection after 30 years among children and adults vaccinated with the HBV vaccine in 1981. These unique data add evidence to the puzzle of long-term immunity.

B. F. Buss, M. V. Joshi, J. L. Dement, V. Cantu, and T. J. Safranek

Multistate Product Traceforward Investigation to Link Imported Romaine Lettuce to a U.S. Cyclosporiasis Outbreak—Nebraska, Texas, and Florida, June–August 2013

Epidemiology and Infection 2016;144(13):2709–2718

This is a unique epidemiological investigation where the authors used a trace-forward approach to identify potential sources of a large multistate outbreak (631 laboratory-confirmed cases) of Cyclosporiasis linked to contaminated salad mix containing Romaine lettuce in 26 states during the summer of 2013. The results of this investigation were reviewed and later used by the Food and Drug Administration to prevent similar outbreaks linked to imported salad products.

Hugo E. Camargo, Amanda S. Azman, and Lynn Alcorn

Development of Noise Controls for Longwall Shearer Cutting Drums

Noise Control Engineering Journal 2016;64(5):573–585

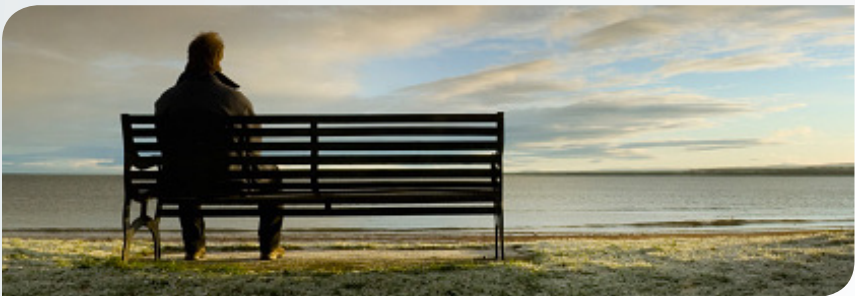
This paper details the use of numerical modeling to predict acoustic radiation and to design noise controls for mining equipment. Development of noise controls used to require the building of prototypes to measure noise reduction, but this is time consuming and costly. Numerical models and computer simulation eliminate the need for prototypes. Modeling also hastens the refinement of the most promising noise control concept to a final product that is practical, durable, and can be readily applied.

Deborah Dowell, Kun Zhang, Rita K. Noonan, and Jason M. Hockenberry

Mandatory Provider Review and Pain Clinic Laws Reduce the Amounts of Opioids Prescribed and Overdose Death Rates

Health Affairs 2016;35(10):1876–1883

Many have speculated that reducing access to prescribed opioids could drive demand for illicit opioids such as heroin and unintentionally increase deaths related to heroin and illicit opioids. To inform their actions, policymakers need sound evidence about effects of policies on prescription and illicit opioid mortality. This paper examined the effectiveness of a mandatory prescription drug monitoring program and pain clinic laws to lower opioid overdose death rates.



Brendan Flannery, Richard K. Zimmerman, Larisa V. Gubareva, Rebecca J. Garten, Jessie R. Chung, Mary Patricia Nowalk, Michael L. Jackson, Lisa A. Jackson, Arnold S. Monto, Suzanne E. Ohmit, Edward A. Belongia, Huong Q. McLean, Manjusha Gaglani, Pedro A. Piedra, Vasilij P. Mishin, Anton P. Chesnokov, Sarah Spencer, Swathi N. Thaker, John R. Barnes, Angie Foust, Wendy Sessions, Xiyan Xu, Jacqueline Katz, and Alicia M. Fry

Enhanced Genetic Characterization of Influenza A(H3N2) Viruses and Vaccine Effectiveness by Genetic Group, 2014–2015

The Journal of Infectious Diseases 2016;214(7):1010–1019

CDC estimates that influenza causes up to 710,000 hospitalizations and 20,000 deaths per year. This study evaluated influenza vaccine effectiveness with laboratory surveillance for influenza viruses using advanced molecular detection. The findings contribute to better understanding of the molecular basis of influenza vaccine effectiveness, which is critical for improving influenza vaccines in the future. The authors found vaccine provided no protection against viruses mismatched to vaccine but protected against a genetic group of viruses that remained similar to vaccine virus.

Lisa M. Gargano, Rana Hajjeh, and Susan T. Cookson

Pneumonia Prevention: Cost-Effectiveness Analyses of Two Vaccines Among Refugee Children Aged Under Two Years, *Haemophilus influenzae* Type B-Containing and Pneumococcal Conjugate Vaccines, During a Humanitarian Emergency, Yida Camp, South Sudan

Vaccine 2017;35(3):435–442

At the end of 2015, there were about 21.3 million refugees from war, over half of whom were children. These children are especially prone to infectious diseases, with the major cause of death among them being acute respiratory diseases. This study shows that providing *Haemophilus influenzae* type b vaccine and pneumococcal conjugated vaccine to displaced children is possible and economically wise. Vaccination with these two antigens will significantly reduce sickness and death among the most vulnerable in the world.



Lixin Hao, Chao Ma, Kathleen A. Wannemuehler, Qiru Su, Zhijie An, Lisa Cairns, Linda Quick, Lance Rodewald, Yuanbao Liu, Hanqing He, Qing Xu, Yating Ma, Wen Yu, Ningjing Zhang, Li Li, Ning Wang, Huiming Luo, Huaqing Wang, and Christopher J. Gregory

Risk Factors for Measles in Children Aged 8 Months–14 Years in China After Nationwide Measles Campaign: A Multi-Site Case-Control Study, 2012–2013
Vaccine 2016;34(51):6545–6552

This study identified the remaining barriers to measles elimination in China despite an intensive two-dose measles vaccination campaign that began in 2006. Measles incidence decreased dramatically because of the campaign, but continued transmission occurred in all 30 provinces, and nearly 10,000 measles cases were reported nationally in 2011. The study identified three significant risk factors for measles: 1) failure to vaccinate young children in a timely manner, 2) hospital exposure, and 3) migration into new communities.

Peter A. Jaques, Pengfei Gao, Selcen Kilinc-Balci, Lee Portnoff, Robyn Weible, Matthew Horvatin, Amanda Strauch, and Ronald Shaffer

Evaluation of Gowns and Coveralls Used by Medical Personnel Working with Ebola Patients Against Simulated Bodily Fluids Using an Elbow Lean Test
Journal of Occupational and Environmental Hygiene 2016;13(11):881–893

Many infectious diseases such as Ebola are mainly spread through direct contact with blood or body fluids of a sick person or with someone who has been in contact with contaminated objects. Protective garments worn by health workers are an effective way to prevent infectious body fluids from reaching the skin. Controlling exposures to Ebola virus is vital for reducing disease transmission. This paper explains a new way to quickly determine the barrier effectiveness of protective garments.

Rui Li, Katharine B. Simmons, Jeanne Bertolli, Brenda Rivera-Garcia, Shanna Cox, Lisa Romero, Lisa M. Koonin, Miguel Valencia-Prado, Nabal Bracero, Denise J. Jamieson, Wanda Barfield, Cynthia A. Moore, Cara T. Mai, Lauren C. Korhonen, Meghan T. Frey, Janice Pérez-Padilla, Ricardo Torres-Muñoz, and Scott D. Grosse

Cost-Effectiveness of Increasing Access to Contraception During the Zika Virus Outbreak, Puerto Rico, 2016

Emerging Infectious Diseases 2017;23(1):74–82

This study estimates the cost-effectiveness of increasing use of contraception to prevent Zika virus-associated birth defects during an outbreak. The authors showed increasing access to a full range of contraception, particularly long-acting reversible contraception, to women in Puerto Rico who did not intend to become pregnant during the Zika outbreak reduced the number of Zika-associated severe birth defects, and reduced costs. Findings suggest increasing contraception availability is a primary strategy to prevent Zika-associated birth defects.

The Look AHEAD Research Group: Edward W. Gregg, John M. Jakicic, Cora E. Lewis, Judith G. Regensteiner, Xavier Pi-Sunyer, Rena R. Wing, Jeffrey M. Curtis, Susan Z. Yanovski, Mary Evans, Wei Lang, Rebecca H. Neiberg, Paul M. Ribisl, George Blackburn, Paul Bloomquist, George A. Bray, Jeanne M. Clark, Mace Coday, Caitlin Egan, John P. Foreyt, Gary D. Foster, Helen P. Hazuda, James O. Hill, Edward S. Horton, Van S. Hubbard, Robert W. Jeffery, Karen C. Johnson, Abbas E. Kitabchi, William C. Knowler, Andrea Kriska, Maria G. Montez, David M. Nathan, Jennifer Patricio, Anne Peters, Henry Pownall, Bruce Redmon, W. Jack Rejeski, Monika Safford, Kerry Stewart, Dace Trence, and Thomas A. Wadden.

Association of the Magnitude of Weight Loss and Changes in Physical Fitness with Long-Term Cardiovascular Disease Outcomes in Overweight or Obese People with Type 2 Diabetes: A Post-Hoc Analysis of the Look AHEAD Randomised Clinical Trial

The Lancet Diabetes & Endocrinology 2016;4(11):913–921

Whether weight loss reduces the incidence of cardiovascular disease—the most common cause of death for people with diabetes—is unknown. This study found that the amount of weight loss in response to lifestyle intervention is associated with cardiovascular disease. Although the study found no significant effect of weight loss on cardiovascular disease incidence, these analyses showed that those who met the weight loss goal (10% over one year) or had strong fitness responses were 20% less likely to develop diabetes.

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. Duwe, 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):229–239

This paper describes an investigation to control a large outbreak of HIV infections among injection drug users in southeastern Indiana during 2014–2015. Using real-time HIV molecular epidemiologic methods to confirm recent infection, the authors demonstrated the vulnerability to illness created by health disparities in rural communities. They also showed how control of an HIV outbreak related to injection drug use requires the coordinated efforts of CDC, health departments, policymakers, clinicians, and communities to control.

Taylor J. Radke, Laura G. Brown, E. Rickamer Hoover, Brenda V. Faw, David Reimann, Melissa R. Wong, David Nicholas, Jonathan Barkley, and Danny Ripley

Food Allergy Knowledge and Attitudes of Restaurant Managers and Staff: An EHS-Net Study

Journal of Food Protection 2016;79(9):1588–1598

Nearly half of fatal food allergic reactions happen in food service establishments. This paper identifies important gaps in restaurant manager and staff food allergy knowledge and attitudes, and potential interventions for closing those gaps and improving restaurant manager and staff food allergy knowledge and attitudes.

David Schnabel, Douglas H. Esposito, Joanna Gaines, Alison Ridpath, M. Anita Barry, Katherine A. Feldman, Jocelyn Mullins, Rachel Burns, Nina Ahmad, Edith N. Nyangoma, Duc B. Nguyen, Joseph F. Perz, Heather A. Moulton-Meissner, Bette J. Jensen, Ying Lin, Leah Posivak-Khouly, Nisha Jani, Oliver W. Morgan, Gary W. Brunette, P. Scott Pritchard, Adena H. Greenbaum, Susan M. Rhee, David Blythe, Mark Sotir, and the RGM Outbreak Investigation Team

Multistate U.S. Outbreak of Rapidly Growing *Mycobacterial* Infections Associated with Medical Tourism to the Dominican Republic, 2013–2014(1)

Emerging Infectious Diseases 2016;22(8):1340–1347

This paper describes a multistate outbreak investigation of rapidly growing *Mycobacterium* infections associated with cosmetic surgery in 2014. The investigation team identified a link to a private surgical clinic in the Dominican Republic and communicated its findings to affected communities. Although measuring how many *Mycobacterium* infections were prevented is impossible, the team's communication efforts helped to identify cases earlier, and the surgical clinic's closure prevented more infections.

Karen R. Siegel, Kai McKeever Bullard, Giuseppina Imperatore, Henry S. Kahn, Aryeh D. Stein, Mohammed K. Ali, and K. M. Narayan

Association of Higher Consumption of Foods Derived from Subsidized Commodities with Adverse Cardiometabolic Risk Among U.S. Adults

JAMA Internal Medicine 2016;176(8):1124–1132

This study builds upon a new way to estimate the percentage of a person's daily caloric intake from foods derived from subsidized commodities (the Subsidy Score) and investigates associations between this Subsidy Score and key markers of cardiometabolic risk. Findings suggest strong associations between the Subsidy Score and obesity, high cholesterol, and belly fat. These links show potential disconnects between agricultural policies, nutritional guidelines, and markers of health status in the United States.

Moses J. Soka, Mary J. Choi, April Baller, Stephen White, Emerson Rogers, Lawrence J. Purpura, Nuha Mahmoud, Christine Wasunna, Moses Massaquoi, Neetu Abad, Jomah Kollie, Straker Dweh, Philip K. Bemah, Athalia Christie, Victor Ladele, Oneychachi C. Subah, Satish Pillai, Margaret Mugisha, Jonathan Kpaka, Stephen Kowalewski, Emilio German, Mark Stenger, Stuart Nichol, Ute Ströher, Kristin E. Vanderende, Shauna Mettee Zarecki, Hugh Henry W. Green, Jeffrey A. Bailey, Pierre Rollin, Barbara Marston, Tolbert G. Nyenswah, Alex Gasasira, Barbara Knust, and Desmond Williams

Prevention of Sexual Transmission of Ebola in Liberia Through a National Semen Testing and Counselling Programme for Survivors: An Analysis of Ebola Virus RNA Results and Behavioural Data

The Lancet Global Health 2016;4(10):e736–e743

This paper describes the first large-scale semen testing program, not just for Ebola virus, but for any pathogen. The Men's Health Screening Program was carried out in July 2015 to prevent the sexual transmission of Ebola virus in Liberia by providing free semen testing for Ebola virus, behavioral counseling on safe sexual practices, instruction on the proper use of condoms, and condoms for Ebola survivors in Liberia.

Parminder S. Suchdev, O. Yaw Addo, Reynaldo Martorell, Frederick Ke Grant, Laird J. Ruth, Minal K. Patel, Patricia C. Juliao, Rob Quick, and Rafael Flores-Ayala

Effects of Community-Based Sales of Micronutrient Powders on Morbidity Episodes in Preschool Children in Western Kenya

The American Journal of Clinical Nutrition 2016;103(3):934–941

Micronutrient powders (MNPs), which are added to prepared food given to infants and young children, are the preferred way to control for childhood anemia. More than 50 countries have MNP programs, but concerns about iron-related deaths from malaria, diarrhea, and other infectious diseases have slowed use of MNPs. The authors examined the effects of a market-based community distribution of MNP on infectious illness in Kenya and found MNPs were not associated with increased diarrhea, respiratory illness, or malaria death.

Linlin Wang, Zuguo Mei, Hongtian Li, Yali Zhang, Jianmeng Liu, and Mary K. Serdula

Modifying Effects of Maternal Hb Concentration on Infant Birth Weight in Women Receiving Prenatal Iron-Containing Supplements: A Randomised Controlled Trial

The British Journal of Nutrition 2016;115(4):644–649

More than 20 million low birth weight infants are born annually. Low birth weight is associated with sickness and death in childhood and has long-term effects on health in adulthood. This study compares the effects of iron-containing supplements with folic acid supplements on infants' birth weight among pregnant women with mild or no anemia or high hemoglobin levels. The study will guide recommendations about the use of iron supplements during pregnancy to prevent adverse health outcomes for infants.

Fujie Xu, Anne C. Moorman, Xin Tong, Stuart C. Gordon, Lorelee B. Rupp, Mei Lu, Eyasu H. Teshale, Philip R. Spradling, Joseph A. Boscarino, Connie M. Trinacty, Mark A. Schmidt, and Scott D. Holmberg for the Chronic Hepatitis Cohort Study

All-Cause Mortality and Progression Risks to Hepatic Decompensation and Hepatocellular Carcinoma in Patients Infected with Hepatitis C Virus

Clinical Infectious Diseases 2016;62(3):289–297

With more than 3 million Americans infected with chronic hepatitis C virus (HCV), physicians prioritize treatment to those at highest risk of death. Better understanding of the implications of prioritizing care in such a way helps inform clinical guidance. In 2015 and 2016, data from this study were used to help state Medicaid offices prioritize HCV patients for immediate treatment, leading to the treatment of thousands of HCV patients.







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 were judged on their work's scientific merit, its effect on public health and the mission of CDC/ATSDR, and on their leadership and recognition by peers.

Beth P. Bell, MD, MPH

National Center for Emerging and Zoonotic Infectious Diseases

Dr. Beth Bell's body of scientific work derives mostly from her involvement in outbreak investigations, medical and epidemiologic research, and public health response leadership. Her first major public health investigation was a 1993 outbreak of *E. coli*. The interviewing and source identification methods employed by Dr. Bell and her team during this investigation helped redefine how foodborne disease outbreak investigations are conducted and how public health agencies respond to foodborne illness.

After moving to CDC's viral hepatitis program, Dr. Bell led studies on the epidemiology and transmission of hepatitis A and B virus infections and helped craft immunization policy to protect against these infections. She later worked in leadership positions in which she contributed to efforts to protect against other vaccine-preventable infections. More recently, she led CDC's work combating outbreaks of public health importance, including H1N1, cholera in Haiti, fungal meningitis, Ebola, and Zika.

During her tenure as NCEZID director (2010–2017), she collaborated with CDC programs to develop the Advanced Molecular Diagnostics initiative, which has provided the guidance and resources needed to strengthen genetic sequencing and analytic technologies at CDC and other public health laboratories. She also worked with partners to launch the Antibiotic Resistance (AR) Solutions Initiative in 2016, providing new resources during the next 5 years to fight antibiotic resistance.

As the center director responsible for directing CDC's emergency responses to the Ebola and Zika outbreaks during 2014–2017, Dr. Bell guided effective public health actions that tackled unprecedented infectious disease threats, and her scientific expertise and experience with public health responses were critical to CDC's success in combating these outbreaks.

Dr. Bell's work has been repeatedly recognized by her peers. She has coauthored more than 145 scientific articles and book chapters and earned multiple awards and citations, including the Alexander Langmuir Award, the Iain Hardy Memorial Award, two Mackle Awards, four Secretary's Awards for Distinguished Service, a CDC/ATSDR Honors Group Award for Research, eight Nakano Citations for excellence in scientific publications, and 12 Public Health Service Awards. She has held important positions with influential health organizations and is associate editor of the *Journal of Clinical Virology* and a reviewer for several scientific journals.

Captain Debra Gayle DeBord, PhD

National Institute for Occupational Safety and Health

Dr. D. Gayle DeBord began her work at CDC/NIOSH in 1987 as a research pharmacologist and U.S. Public Health Service officer. During her 30-year career, Dr. DeBord has designed, conducted, and overseen laboratory and field research that has not only advanced occupational safety and health knowledge, but also has been the foundation for setting occupational safety and health policy and practices. She is a nationally recognized leader and expert in the fields of biomonitoring, exposure assessment, the exposome (the summation of all exposures throughout a person's lifetime), hazardous drugs, and direct-reading instruments and sensors that measure worker exposure to gases, aerosols, and fine particulates.

Dr. DeBord has pioneered areas of research and changed the landscape of some occupational safety and health issues. Her early work on biomarkers for chemical exposure in animals led to more efficient techniques and required a smaller set of animals than traditional rodent assays, and this work also led to recognizing the chemical compound MOCA as a likely human carcinogen.

Dr. DeBord was pivotal in developing a coordinated genetics research program and headed efforts to develop institute policy on subject notification, put forth an institute genetics research strategic plan to better understand the relationships between worker exposures and genetic effects, and was a driver of the NIOSH part of the CDC Genetics Initiative. The CDC Genomics Strategic Plan that was developed during the initiative laid the groundwork for the CDC Genomics Office and offered a framework for the inclusion of genomics into CDC studies. She was the primary author of the NIOSH Genetics in the Workplace: Implications for Occupational Safety and Health, which has been featured in several professional meetings by others outside of NIOSH.

Dr. DeBord has also advanced NIOSH science into new areas related to exposure assessment, including direct-reading instrumentation and methodologies, sensor technology, and the occupational exposome. Her research on biomonitoring has been critical in its gaining acceptance in the occupational safety and health literature, and her work on establishing the exposome.

Dr. DeBord is a key member of the newly formed NIOSH Disaster Science Responder Research Program, and she has been extensively involved in setting up the Institute's program for how to conduct scientific research during a disaster.

Linda S. Geiss, MA

National Center for Chronic Disease Prevention and Health Promotion

For more than 30 years, Linda Geiss has played a pivotal role in developing CDC's ability to monitor the national diabetes problem, shaping national policies for prevention and control and influencing approaches to chronic disease surveillance. The significance of Ms. Geiss's work is reflected in more than 150 publications and reports in high-impact journals, including *JAMA*, *The New England Journal of Medicine*, *MMWR*, and *Diabetes Care*. More importantly, her work has influenced the public health response to diabetes—specifically, the emphasis on improving diabetes care in the 1990s, and on diabetes prevention, especially for young people, in the 2000s.

In the early 1990s, when disease surveillance focused largely on infectious conditions, Ms. Geiss recognized the potential to improve chronic disease surveillance and began to envision and create the U.S. Diabetes Surveillance System. Part of this vision was based on her observations that surveillance could be adapted to measure chronic disease care and management so that care could be improved and the risk of diabetes complications could be reduced. Her work led health plans, health departments, and national health ministries to assess population-level risk, care, and outcomes for diabetes and other chronic conditions.

Ms. Geiss's identification of new areas of investigation, including type 2 diabetes in young people, hypoglycemia, disability, peripheral arterial disease, and alternative definitions of diabetes, has generated research to better monitor these problems and identify subpopulations for intervention, eventually adjusting the public health response to diabetes. Her team's surveillance led to the development of CDC's National Diabetes Prevention Program. Since 2012, more than 35,000 people at high risk for type 2 diabetes have participated in the program, now offered by more than 450 organizations.

Along the way, Ms. Geiss has mentored and supervised dozens of colleagues who have gone on to do important work in chronic disease epidemiology and prevention. Her support of other colleagues, combined with the infrastructure and systems she has developed and maintained, have led three of her colleagues to win the American Diabetes Association's prestigious Kelly West Award, the nation's highest award for excellence in diabetes epidemiology. She has led numerous other staff through promotions from staff scientists to team, branch, and division leadership roles, giving tirelessly and selflessly to their benefit above her own.

Patrick J. Lammie, PhD

Center for Global Health

Dr. Patrick Lammie's body of work has touched on nearly every type of endeavor CDC attempts, from research to treatment, lab to field. He has been involved in basic parasite immunology, pathology, diagnostics, vector biology, chemotherapy, surveillance, public health practice, even global eradication programs. His impact on control and elimination of neglected parasitic diseases, particularly lymphatic filariasis (LF), cannot be overstated. LF, a parasitic disease transmitted by mosquito bites, affects more than 120 million people in 73 countries.

Dr. Lammie has made major scientific contributions on all aspects of disease and its transmission, publishing more than 185 journal articles and book chapters, including seminal papers on schistosomiasis, cryptosporidiosis, cyclosporiasis, giardiasis, trachoma, hookworm, malaria, toxoplasmosis, and strongyloidiasis. The impact of his innovations has been magnified because they also have been applied in control of other parasitic infections. In fact, much of the strategy for control of neglected tropical diseases (NTDs) would not exist without his contributions.

Dr. Lammie's vision extends beyond LF to the commonalities of all infections of neglected populations. Because of the successes of mass drug administration in LF control, this strategy is now applied in numerous NTD control programs. Dr. Lammie has pioneered efforts to link the targeting of diseases such as malaria, schistosomiasis, onchocerciasis, and blinding trachoma. He has used his understanding of human immunologic responses to develop antibody-based surveillance tools for trachoma and enteric parasitic diseases such as cryptosporidiosis. The surveillance tools developed in these early studies resulted in research and surveillance programs at CDC that have improved our understanding of the diseases.

Now in his fourth decade at CDC, Dr. Lammie has served as a distinguished consultant, guest researcher, principal investigator, technical director, team lead, and research biologist. During much of that time, he also juggled teaching responsibilities at Emory, Tulane, Louisiana State, James Cook, and the University of Pennsylvania. He has conducted field studies on optimal treatment and managed mass drug treatment campaigns and studies on the efficacy of drug delivery in table salt. He also directed genealogy studies to explore the role of heredity. At the program level, Dr. Lammie helped secure the donation of drugs required for treatment and assisted countries in developing surveillance and treatment programs. He has also made important contributions in detecting infection and managing disease pathology.

Leonard W. Mayer, PhD

National Center for Immunization and Respiratory Diseases

Throughout his 42-year career in public service, Dr. Leonard Mayer has demonstrated exceptional performance and leadership in numerous domestic and international public health roles. It is no exaggeration to say that his work in the United States, South America, Africa, and Asia improved the public health of at least two-thirds of the world's population.

Under Dr. Mayer's direction, CDC's Meningitis Laboratory in the Division of Bacterial Diseases became a national and World Health Organization (WHO) international reference laboratory for *Neisseria meningitidis* and *Haemophilus influenzae*. He led the lab in multiple domestic and international collaborations, in the development of innovative training courses, in public health emergency response, and in groundbreaking research studies, resulting in the detection and control of outbreaks and the provision of laboratory-based evidence used to shape vaccine policies around the world.

Dr. Mayer was involved in the decade-long fight to develop a vaccine to eliminate epidemics of serogroup A meningococcal infection in sub-Saharan Africa. Under his guidance, CDC's labs trained national staff and tested *N. meningitidis* isolates and clinical specimens collected in Ouagadougou, Burkina Faso, before and after mass vaccination campaigns in the fall of 2010.

Dr. Mayer was often invited by WHO to serve on advisory committees and to conduct training courses he developed to confront emerging issues in laboratory diagnostics and surveillance techniques. International entities recognized him as a global subject-matter expert, and he made numerous presentations to scientists, health providers, and public health professionals around the world on topics as diverse as bacterial meningitis and Japanese encephalitis, the use of fluorescent dye-based real-time polymerase chain reaction techniques for the detection of agents of bacterial meningitis, and the application of new and underused vaccines.

Dr. Mayer has made a significant contribution to the scientific literature. He has written or coauthored more than 150 peer-reviewed manuscripts and more than 100 abstracts presented in professional settings, and he holds two patents related to vaccine components. In addition to his technical acumen, his interpersonal skills enable him to foster a culture of respectful listening, patient knowledge sharing, and respect for differences. His approach allowed him to develop innumerable partnerships and productive friendships, and to work successfully in diplomatically delicate and challenging contexts.

Leonard Paulozzi, MD, MPH

National Center for Injury Prevention and Control

Dr. Leonard Paulozzi's decades of scientific achievements have advanced the health and well-being of all Americans. Before retiring in 2015, Dr. Paulozzi was a medical epidemiologist in the Division of Unintentional Injury Prevention. His landmark work focused on prescription drug overdose and violence, which both fall within the 10 leading causes of death for all ages. His work helped shift the scientific approach to prescription drug overdose from substance abuse to the broader consideration of inappropriate opioid prescribing.

Dr. Paulozzi's work in injury prevention is a culmination of experience gained as an Epidemic Intelligence Service field officer in Washington state and at the Vermont State Health Department. He has also served as director of the Metropolitan Atlanta Congenital Defects Program, where his work focused on congenital defects, the leading cause of death for infants under 1 year old. His work in birth defects has informed the risk for birth defects among premature infants, the impact of folic acid fortification on the occurrence of neural tube defects, and the risk of developmental disabilities in children who have major birth defects.

In 2003, Dr. Paulozzi developed the National Violent Death Reporting System (NVDRS), one of the Injury Center's most valued public health tools. Before the system, scientists had limited data to help them focus violence prevention programs. Today, NVDRS provides rich details on circumstances leading to death. It is the first system to link reports from law enforcement officers, medical examiners and coroners, and toxicologists.

Dr. Paulozzi also spearheaded a partnership with the Bureau of Justice Assistance, the Food and Drug Administration, and Brandeis University in developing the Prescription Behavior Surveillance System, which gathers data from state prescription drug monitoring programs to capture information about inappropriate prescribing and use, especially of opioid painkillers.

Dr. Paulozzi received his medical degree from Ohio State University, a master's degree in public health from the University of Washington, and is board certified in preventive medicine. He has given countless talks, presentations, and media interviews. He has written or coauthored more than 100 publications that have been cited thousands of times. His papers have won the Langmuir Prize and been nominated for the Charles C. Shepard Award on seven occasions.

James L. Pirkle, MD, PhD

National Center for Environmental Health

Dr. James Pirkle has made numerous unique contributions to advance public health and environmental health protection and to improve the detection, diagnosis, treatment, and prevention of disease, injury, and unsafe exposures. In his more than 35 years at CDC's Division of Laboratory Sciences (DLS) and 28 years in senior medical scientist positions, his work has advanced the field of biomonitoring, improved the accuracy of laboratory tests to detect diseases and exposures to toxins and chemicals, and led to measures that limit exposure to tobacco smoke and lead in gasoline.

Dr. Pirkle was instrumental in publishing four CDC national reports on human exposure to environmental chemicals. These reports provide the most comprehensive assessment of the exposure of Americans to more than 300 environmental chemicals using biomonitoring (blood and urine measurements) of participants in the National Health and Nutrition Examination Survey (NHANES). He is also involved in high-quality biomonitoring exposure measurements in more than 50 studies per year of populations exposed to environmental chemicals to better determine safe and unsafe human exposure levels. As of 2014, there have been 273 publications using NHANES data on chemical health and exposure assessments produced by Dr. Pirkle's division.

Dr. Pirkle originated and directed the continued development of the laboratory response to chemical terrorism—the rapid toxic screen. The rapid toxic screen has been used by the national and international health community to assess risk from exposures to dangerous chemicals. This individual exposure information provides health responders with data on who has been exposed and how extensively, which is valuable for directing treatment and to prevent future exposures. No other capability exists to provide this valuable individual exposure information. Under Dr. Pirkle's guidance, DLS established the nation's only laboratory for responding to a public health emergency involving radiological materials by developing the urine radiological screen that allows for the assessment of radiological contamination or dose in people that will guide critical medical management.

Dr. Pirkle has written or coauthored more than 120 published articles on laboratory science and has received more than 20 honors of recognition, including the Charles C. Shepard Award for Laboratory and Methods; the Assistant Secretary for Health's Award for Exceptional Achievement; and the Commissioned Corps Distinguished Service Medal.

John W. Ward, MD

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

For more than three decades, Dr. John Ward has been a principal contributor to the body of scientific knowledge on some of the most challenging and consequential public health problems spanning the 20th and 21st centuries. His scientific achievements in the fields of HIV/AIDS and viral hepatitis include discovery and explanation of risk factors, transmission modes, vulnerable population needs, and racial and ethnic disparities. Dr. Ward also has been responsible for developing effective interventions for preventing and controlling infection, disease complications, and premature mortality from HIV/AIDS and viral hepatitis.

Dr. Ward's CDC career began in 1984 as an Epidemic Intelligence Service officer assigned to CDC's AIDS Activity. Since then, he has served as an assistant chief; special assistant; assignee to the University of Washington and the Seattle–King County Department of Health; chief in CDC's HIV/AIDS Surveillance Branch; editor-in-chief of *Morbidity and Mortality Weekly Report* series of publications, and director of the Office of Scientific and Health Communications, Epidemiology Program Office. In his current position, he directs the Division of Viral Hepatitis at the National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.

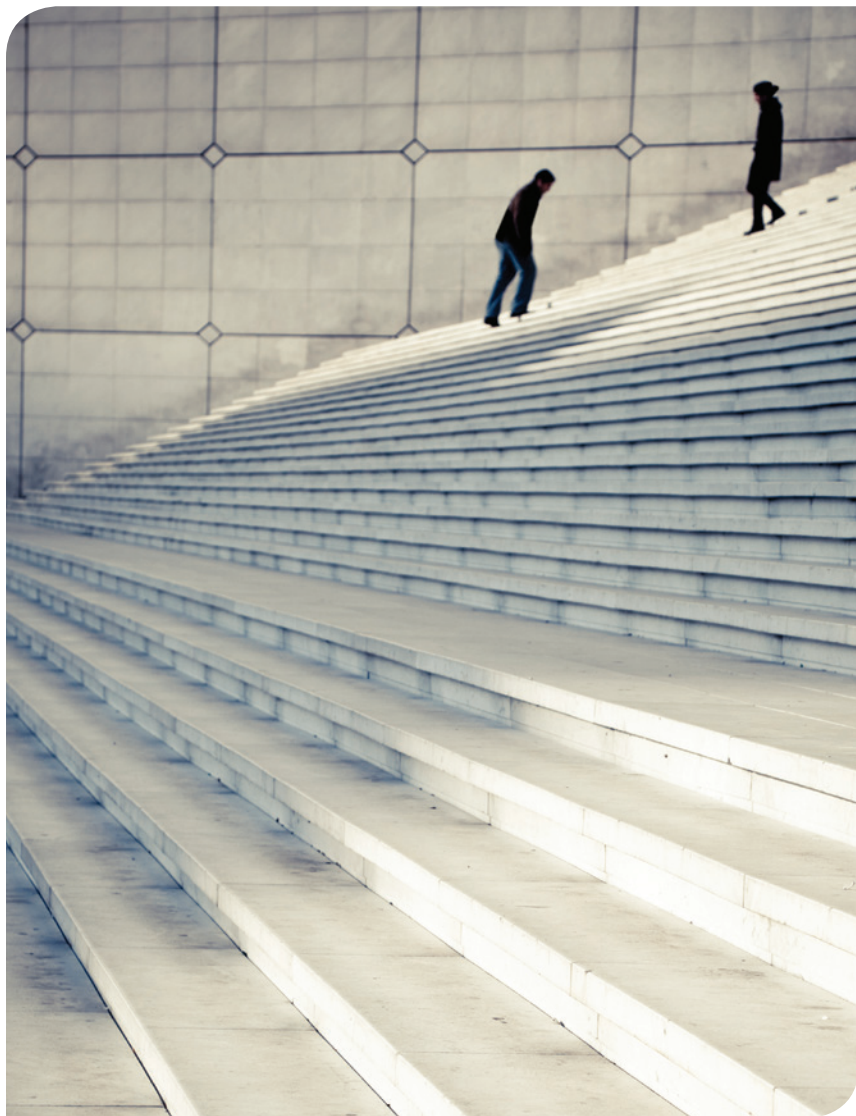
Throughout his CDC career, Dr. Ward has inspired hundreds of professionals he has directly supervised or mentored during investigations of HIV/AIDS, viral hepatitis transmission, the natural history of disease, and disease surveillance. He has also led them in responses to public health emergencies, policy development, and scientific communication activities.

Dr. Ward's public health work spans the practice of epidemiology, laboratory science, clinical trials, public health program practice, policy development, health communication and education, and clinical medicine. His work in scientific communications resulted in collaborations with diverse prevention programs at CDC. He has taught public health professionals and clinical care providers through his development and management of a continuing medical education program at *MMWR*, participation in numerous scientific conferences, and as an instructor in the American College of Physicians and the American Association for the Study of Liver Diseases continuing education programs for viral hepatitis. He has also authored more than 150 peer-reviewed publications, *MMWRs*, and policy statements or practice guidelines throughout his career at CDC. Dr. Ward and his colleagues have received prestigious awards that recognize scientific achievements at CDC and elsewhere, including the Charles C. Shepard Science Award in 2016.



Previous Winners

of the Charles C. Shepard Science Awards



2016

Assessment

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

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

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

Data Methods and Study Design

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

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

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

Laboratory Science

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

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

Lancet Infectious Diseases 2015;15:898–904

Lifetime Scientific Achievement

Rear Admiral Kenneth G. Castro, MD

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

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 Sharkar, 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

Journal of Pediatrics 2013;163:S73–S78

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 Giese, 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 Following Challenge in Adult and Pregnant Sheep

Journal of Virology 2011;85(24):12901–12909

Prevention and Control

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

Three Months of Rifapentine and Isoniazid for Latent Tuberculosis Infection

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

Lifetime Scientific Achievement

Henry Falk, MD, MPH

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

2011

Assessment and Epidemiology

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

Epidemiologic Investigation of Immune-Mediated Polyradiculoneuropathy Among Abattoir Workers Exposed to Porcine Brain

PLOS ONE 2010;5(3):e9782

Laboratory and Methods

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

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

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

Prevention and Control

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

Maternal or Infant Antiretroviral Drugs to Reduce HIV-1 Transmission

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

Lifetime Scientific Achievement

Kathleen Kreiss, MD

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

2010

Assessment and Epidemiology

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

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

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

Laboratory and Methods

Joseph U. Igiyetseme, 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

Prevention and Control

Sandra L. Decker

Changes in Medicaid Physician Fees and Patterns of Ambulatory Care

Proceedings of the National Academy of Sciences of the United States of America 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

Proceedings of the National Academy of Sciences of the United States of America 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 (EIS) program since 1989, and under his direction, the first CDC plan for surveillance was completed in 1985.

2008

Assessment and Epidemiology

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

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

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

Laboratory and Methods

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

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

Science 2007;315:655–659

Prevention and Control

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

Preventing Alcohol-Exposed Pregnancies: A Randomized Controlled Trial

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

Lifetime Scientific Achievement

Vincent Castranova, PhD

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

2007

Assessment and Epidemiology

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

Transmission of Human Herpesvirus 8 by Blood Transfusion

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

Laboratory and Methods

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

Development of Adenoviral-Vector-Based Pandemic Influenza Vaccine against Antigenically Distinct Human H5N1 Strains in Mice

The Lancet 2006;368:1495–1502

Prevention and Control

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

Effectiveness of Seven-Valent Pneumococcal Conjugate Vaccine Against Invasive Pneumococcal Disease: A Matched Case-Control Study

The Lancet 2006;368:1495–1502

Lifetime Scientific Achievement

Roger I. Glass, MD, PhD, MPH

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

2006

Assessment and Epidemiology

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

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

American Journal of Epidemiology 2005;161:765–773

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

Excess Deaths Associated With Underweight, Overweight, and Obesity

JAMA 2005;293:1861–1867

Laboratory and Methods

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

Characterization of the Reconstructed 1918 Spanish Influenza Pandemic Virus

Science 2005;310(5745):77–80

Prevention and Control

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

Effect of Handwashing on Child Health: A Randomised Controlled Trial

The Lancet 2005;366:225–233

Lifetime Scientific Achievement

Robert V. Tauxe, MD, MPH

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

2005

Assessment and Epidemiology

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

Mental Health, Social Functioning, and Disability in Postwar Afghanistan

JAMA 2004;292:575–584

Laboratory and Methods

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

Proteomic Profiling of Intact Mycobacteria by Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry

Analytical Chemistry 2004;76:5769–5776

Prevention and Control

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

Rapid HIV-1 Testing During Labor: A Multicenter Study

JAMA 2004;292:219–223

Outstanding Scientific Contribution to Public Health

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

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

Newborn Screening Quality Assurance Program

Lifetime Scientific Achievement

James M. Hughes, MD

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

2004

Assessment and Epidemiology

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

Risk of Bacterial Meningitis in Children with Cochlear Implants

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

Laboratory and Methods

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

A Novel Coronavirus Associated with Severe Acute Respiratory Syndrome

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

Prevention and Control

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

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

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

Lifetime Scientific Achievement

Harold W. Jaffe, MD

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

Walter A. Orenstein, MD

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

2003

Assessment and Epidemiology

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

Oral Contraceptives and the Risk of Breast Cancer

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

Laboratory and Methods

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

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

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

Prevention and Control

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

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

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

Outstanding Scientific Contribution to Public Health

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

*National Center for Environmental Health
International Emergency and Refugee Health Branch*

Lifetime Scientific Achievement

William R. Jarvis, MD

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

2002

Assessment and Epidemiology

Trudy V. Murphy, Paul M. Gargiulo, Mehran S. Massoudi, David B. Nelson, Aisha O. Jumaan, Catherine A. Okoro, Lynn R. Zanzardi, 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

Surgeon General's Reports on Smoking and Health

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, Pratham 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, Marshalyne 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



Keynote Speakers

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



2016

**Zulfiqar A. Bhutta, PhD, MBBS,
FRCPCH, FAAP**

Hospital for Sick Children, Toronto

*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

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,
FRCP, FRS**

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, MBBS, MPH,

PhD, FRCP, FFPHM, FMedSci

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

Institute of Medicine
The National Academies

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

Robert F. Wagner Graduate School of
Public Health

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

Fordham University Graduate Center

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

The Johns Hopkins University
School of Hygiene and Public Health

Health of the World

1999

Steven N. Blair, PED

Cooper Institute for Aerobics Research

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 Albert Einstein College of Medicine

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*

1987

Frank Press, PhD

National Academy of Sciences

DNA in Washington

1988

David Baltimore, PhD

Hospital Whitehead Institute

Massachusetts Institute of Technology

Genetics and Modern Disease

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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Co-Chair: Sam Groseclose, DVM, MPH, DACVPM

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Joanne Klevens, PhD, MPH, MD

Stephen Banspach, PhD

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Carla Black, PhD

Anjel Vahratian, PhD, MPH

Charlotte Kent, PhD

Ramal Moonesinghe, PhD

Glen Satten, PhD

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Eddie Weiss, MD, MPH, CMQ

Monica Parise, MD

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Edward Gregg, PhD

Mi Kyong (Meekie) Shin, DPH, MPH

Lorraine Yeung, MD, MPH

Kristin Holland, PhD, MPH

Hillard Weinstock, MD, MPH

Preeta Kutty, MD, MPH

Carla Black, PhD

Makram Talih, PhD

Michael King, PhD

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Chair: Nong Shang, PhD
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Bill Levine, MD
David Blackley, DrPH
Ruben Smith, PhD
David Olson, PhD
Sarah Tinker, PhD, MPH
Gwen Bergen, PhD, MPH, MS
Stephen Banspach, PhD
Bishwa Adhikari, PhD
Yulei He, PhD
Louisa Chapman, MD, MSPH
Ramal Moonesinghe, PhD
Statistician: Phil Rhodes, PhD

Laboratory Science Subcommittee

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Sandra Steiner, PhD
Tun Ye, MD, PhD, MSPH
Mike Elliott, PhD
Anne Sowell, PhD
Suzanne Kalb, PhD
Jodi Jackson, PhD
Yury Khudyakov, PhD
Scott Bearden, PhD
James Stevens, PhD
Yutaki Aoki, PhD, MHS, MS, ME

Prevention and Control Subcommittee

Chair: Nykiconia Preacely, DrPH, MPH
Fred Angulo, DVM, PhD
William King, PhD
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David Homa, PhD
Lina Balluz, ScD, MPH
Joann Thierry, PhD
Joanne Klevens, MD, PhD, MPH
Timothy Green, PhD
Art Liang, MD, MPH
Joe Bresee, MD
Anjel Vahratian, PhD, MPH
Charlotte Kent, PhD
Zhuo (Adam) Chen, PhD, MS, MMgt
Statistician: Betsy Gunnels, MSPH

Program Executive

Ron Otten, PhD

Executive Secretaries

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