Publications nominated by the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry for the 2002 Charles C. Shepard Science Awards

The following nominated articles, all published in 2001, were judged on their scientific merit and the significance of their impact on the missions of CDC and ATSDR.

Category: Assessment and Epidemiology

Michael G. Bruce, Nancy E. Rosenstein, Jennifer M. Capparella, Kathleen A. Shutt, Bradley A. Perkins, MarJeanne Collins.
Risk Factors for Meningococcal Disease in College Students.
JAMA 2001;286:688–93.

In conjunction with state and local health departments and the American College Health Association, we set up prospective surveillance for meningococcal disease among U.S. college students and performed a case-control study. We found that freshmen living in dormitories were at significantly higher risk for the disease than were other college students and that the currently available quadrivalent polysaccharide vaccine could substantially reduce students' risk.

Michael J. Cannon, Sheila C. Dollard, Dawn K. Smith, Robert S. Klein, Paula Schuman, Josiah D. Rich, David Vlahov, Philip E. Pellett, for the HIV Epidemiology Research Study Group.
Blood-borne and Sexual Transmission of Human Herpesvirus 8 in Women with or at Risk for Human Immunodeficiency Virus Infection.
The New England Journal of Medicine 2001;344:637–43.

Little is known about the transmission of *Human herpesvirus 8* (HHV-8), the causal agent of Kaposi's sarcoma among women. Although HHV-8 has been detected in blood, there has been no clear evidence of blood-borne transmission. We found that both injection drug use and sexual behavior were HHV-8 risk factors among the women studied. Our results suggest that the virus can be transmitted by needle sharing.

Man-huei Chang, Robert A. Hahn, Steven M. Teutsch, Lori C. Hutwagner.
Multiple Risk Factors and Population Attributable Risk for Ischemic Heart Disease Mortality in the United States, 1971–1992.
Journal of Clinical Epidemiology 2001;54:634–44.

In this analysis, we assessed the associations between risk- factor combinations and ischemic heart disease (IHD) mortality in the United States. We found that many deaths from IHD attributable to

individual risk factors are actually caused by those factors in combination with other risk factors. Analyses that do not examine risk-factor combinations may greatly overestimate the population attributable risk associated with individual risk factors.

John E. Crews, Vincent A. Campbell.
Health Conditions, Activity Limitations, and Participation Restrictions Among Older People with Visual Impairments.
Journal of Visual Impairment and Blindness 2001;95:453–67.

We analyzed data from the National Health Interview Second Supplement on Aging to examine differences in health conditions, activity limitations, and social participation between older people with vision problems and those without. We found higher rates of co-morbid conditions and activity limitations among people with vision problems, which resulted in their having less social participation. These findings indicate the importance of public health interventions for people with vision impairments.

Shanta R. Dube, Robert F. Anda, Vincent J. Felitti, Daniel P. Chapman, David F. Williamson, Wayne H. Giles.
Childhood Abuse, Household Dysfunction, and the Risk of Attempted Suicide Throughout the Life Span.
JAMA 2001;286:3089–96.

To assess the relationship between suicide attempts and 8 adverse childhood experiences (ACEs) such as abuse and domestic violence, we surveyed 17,337 adult HMO members: 64% reported at least one ACE. We found that the number of ACEs was directly related to a person's risk for suicide attempts, with this risk being roughly 31 times higher among those with 7 or more ACEs than among those with none. We estimated that two-thirds of suicide attempts may be attributable to ACEs.

Michael S. Friedman, Kenneth E. Powell, Lori Hutwagner, LeRoy M. Graham, W. Gerald Teague.
Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma.
JAMA 2001;285:897-905.

We found that Atlanta's alternative transportation strategy in the summer of 1996 resulted in decreased citywide automobile congestion, especially during the critical morning rush-hour period. This led to reductions in particulate and ozone pollution, which in turn resulted in fewer acute care visits for asthma but not for other causes. These results provide important, previously lacking, experimental evidence that traffic patterns, air quality, and respiratory health are causally linked.

Susan O. Griffin, Barbara F. Gooch, Stuart A. Lockwood, Scott L. Tomar.
Quantifying the Diffused Benefit from Water Fluoridation in the United States.
Community Dentistry and Oral Epidemiology 2001;29:120-9.

We estimated the total contribution of water fluoridation to decreases in tooth decay by accounting for fluoride's protective affect on people in nonfluoridated communities who consumed bottled beverages and processed foods imported from fluoridated communities. Using state fluoridation coverage as a proxy for exports with fluoride, we found that children living in states with high coverage (>55%) had 26% less decay than similar children living in states with low coverage (≤25%).

Jeannette R. Ickovics, Merle E. Hamburger, David Vlahov, Ellie E. Schoenbaum, Paula Schuman, Robert J. Boland, Janet Moore, for the HIV Epidemiology Research Study Group.
Mortality, CD4 Cell Count Decline, and Depressive Symptoms Among HIV-Seropositive Women.
JAMA 2001;285:1466–74.

In a multivariate analysis of data from 765 HIV-seropositive women aged 16 to 55 years over a 5- to 7-year period, we found that those with chronic depressive symptoms had a significantly greater decline in CD4 cell counts than those with limited or no symptoms and were also twice as likely to die. Further research is needed to determine whether treatment of depression can actually impede the progression of HIV disease.

John A. Jernigan, David S. Stevens, David A. Ashford, Carlos Omenaca, Martin S. Topiel, Mark Galbraith, Michael Tapper, Tamara L. Fisk, Sherif Zaki, Tanja Popovic, Richard F. Meyer, Conrad P. Quinn, Scott A. Harper, Scott K. Fridkin, James J. Sejvar, Colin W. Shepard, Michelle McConnell, Jeannette Guarner, Wun-Ju Shieh, Jean M. Malecki, Julie L. Gerberding, James M. Hughes, Bradley A. Perkins, members of the Anthrax Bioterrorism Investigation Team.
Bioterrorism-Related Inhalational Anthrax: The First 10 Cases Reported in the United States.
Emerging Infectious Diseases 2001;7:933-44.

We described the clinical presentation and course of the first 10 cases of bioterrorism-related inhalational anthrax poisoning in the United States, providing clinicians with valuable information to help them diagnosis and manage such cases. The data suggest that survival may be markedly improved by early recognition and treatment with a combination of antimicrobial therapy and aggressive supportive care. Newer methods of detection such as polymerase chain reaction, immunohistochemistry, and serologic tests are important adjunctive diagnostic tools.

Lola Jean Kozak, Margaret J. Hall, Maria F. Owings.
Trends in Avoidable Hospitalizations, 1980–1998.
Health Affairs 2001;20:225–32.

Using data from the National Hospital Discharge Survey, we identified hospitalizations that might have been avoided if patients had received timely and effective ambulatory care. From 1980–1998, rates of these avoidable hospitalizations increased for blacks and those 65 years or older but decreased for children and whites less than 65 years old. These disparities suggest that unmet health care needs are increasing for vulnerable populations.

Eileen D. Kuempel, Chi-Lang Tran, A. John Bailer, Dale W. Porter, Ann F. Hubbs, Vincent Castranova.
Biological and Statistical Approaches to Predicting Human Lung Cancer Risk from Silica.
Journal of Environmental Pathology, Toxicology and Oncology 2001;20(Suppl. 1):15-32.

We used a multidisciplinary risk-assessment approach to investigate how alternative assumptions about the mechanism of silica-induced lung cancer affect risk estimates. We found that choice of model and assumptions about relevant biological mechanisms both influence the magnitude of risk estimates. However, methods based on assumptions of direct and indirect genotoxicity both predict substantial lung cancer risk among workers currently exposed to crystalline silica over a working lifetime.

Lisa M. Lee, John M. Karon, Richard Selik, Joyce J. Neal, Patricia L. Fleming.
Survival After AIDS Diagnosis in Adolescents and Adults During the Treatment Era, United States, 1984–1997.
JAMA 2001;285:1308–15.

We found that the median post-diagnosis survival time of patients with an AIDS-defining opportunistic illness (OI) increased from 11 months in 1984 to 44 months in 1997. Among patients with immunologic diagnoses, the 24-month survival rate increased from 67% in 1993 to 90% in 1997, and among those with OI diagnoses, it increased from 49% in 1993 to 81% in 1997. These improved survival times present a growing public health challenge as the number of persons living with chronic HIV illness increases.

Michael A. McCawley, Michael S. Kent, Michael T. Berakis.
Ultrafine Beryllium Number Concentration as a Possible Metric for Chronic Beryllium

Disease Risk.
Applied Occupational and Environmental Hygiene 2001;16:631–8.

Beryllium is known to cause chronic granulomatous lung disease among workers who become sensitized to it, and the disease has persisted even in plants that do not exceed OSHA's occupational exposure limit of 2 g/m^3. By providing side-by-side measurements of particle number and particle mass, we confirmed previous findings that particle number may better reflect target organ dose and thus be a more appropriate measure of exposure for chronic beryllium disease.

James A. Mercy, Marcie-jo Kresnow, Patrick W. O'Carroll, Roberta K. Lee, Kenneth E. Powell, Lloyd B. Potter, Alan C. Swann, Ralph F. Frankowski, Timothy L. Bayer.
Is Suicide Contagious? A Study of the Relation Between Exposure to the Suicidal Behavior of Others and Nearly Lethal Suicide Attempts.
American Journal of Epidemiology 2001;154(2):120-7.

In a case-control study, we sought to determine whether exposure to others' suicidal behavior influenced subjects' own risk for suicide attempts. We found that people exposed to suicidal behavior of friends or acquaintances were only 60% as likely to engage in a nearly lethal suicide attempt as those without such exposure and that those exposed to accounts of suicidal behavior in the media were only 20% as likely. These findings may prove useful in developing educational and media messages on suicide.

Ali H. Mokdad, Barbara A. Bowman, Earl S. Ford, Frank Vinicor, James S. Marks, Jeffrey P. Koplan.
The Continuing Epidemics of Obesity and Diabetes in the United States.
JAMA 2001;286:1195–1200.

Using 2000 data from the Behavioral Risk Factor Surveillance System, we found that obesity and diabetes have become more prevalent among U.S. adults despite previous calls for action and evidence that not following dietary and activity guidelines is a major factor in failing to achieve one's weight control objectives. The time has come to develop a national, comprehensive plan to combat the obesity and diabetes epidemics, with intervention programs to be implemented by health departments and communities.

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

Team.
Intussusception Among Infants Given an Oral Rotavirus Vaccine.
The New England Journal of Medicine 2001;344:564-72.

We conducted an investigation in 19 states to determine whether a new, universally recommended vaccine to prevent rotavirus gastroenteritis was associated with intussusception, a form of intestinal obstruction in which a segment of the bowel prolapses into a more distal segment. We found a strong association between receipt of the rotavirus vaccine and intussusception among otherwise healthy infants; the vaccine was withdrawn from the market.

Denis Nash, Farzad Mostashari, Annie Fine, James Miller, Daniel O'Leary, Kristy Murray, Ada Huang, Amy Rosenberg, Abby Greenberg, Margaret Sherman, Susan Wong, Marcelle Layton, for the 1999 West Nile Outbreak Response Working Group.
The Outbreak of West Nile Virus Infection in the New York City Area in 1999.
The New England Journal of Medicine 2001;344:1807–14.

Following reports of an unusual cluster of meningoencephalitis in New York in 1999, we identified 59 area patients who had been hospitalized with West Nile virus infection. We found that being 75 years or older and having diabetes mellitus were each independent risk factors for death from the virus. Physicians along the eastern U.S. coast should consider West Nile virus in the differential diagnosis of encephalitis and viral meningitis, especially in older patients and those with muscle weakness.

Katherine A. Robinson, Wendy Baughman, Gretchen Rothrock, Nancy L. Barrett, Margaret Pass, Catherine Lexau, Barbara Damaske, Karen Stefonek, Brenda Barnes, Jan Patterson, Elizabeth R. Zell, Anne Schuchat, Cynthia G. Whitney, for the Active Bacterial Core Surveillance (ABCs)/Emerging Infections Program Network.
Epidemiology of Invasive *Streptococcus pneumoniae* Infections in the United States, 1995–1998.
JAMA 2001;285:1729–35.

A pneumococcal vaccine was recently licensed for children; a vaccine for adults has been available for two decades. We assessed 15,860 invasive disease episodes to identify high-risk groups and evaluate vaccine recommendations. We found that infants, the elderly, and blacks are disproportionately affected. Although pneumococcal vaccines are not generally recommended for people 18–64 years old, they are recommended for groups at high risk for death from invasive pneumococcal disease.

Arlinda Rolett, Jennifer D. Parker, Katherine E. Heck, Diane M. Makuc.

Parental Employment, Family Structure, and Child's Health Insurance.
Ambulatory Pediatrics 2001;1:306–13.

Using National Health Interview Survey data for 1993–1995, we found that children with two employed parents were more likely to have employer-sponsored health insurance coverage than children with one employed parent, even among children in two-parent families. Among children of employed parents, coverage rates varied widely, depending on parental employment factors such as hours worked, employment sector, occupation, industry, and firm size.

Peter Salama, Fitsum Assefa, Leisel Talley, Paul Spiegel, Abertien van der Veen, Carol A. Gotway.
Malnutrition, Measles, Mortality, and the Humanitarian Response During a Famine in Ethiopia.
JAMA 2001;286:563–71.

Using a two-stage cluster survey, we determined that the crude mortality rate in the Gode district of Ethiopia for December 1999–July 2000 was 3.2/10000/day overall and 6.8/10000/day among children under 5 years of age. Approximately 77% of deaths occurred before relief interventions began in April/May 2000. During such famines, humanitarian response should be rapid, well-coordinated, and based on sound epidemiologic evidence; proven public health interventions should be the first priority.

Nancy L. Sonnenfield, Irva Hertz-Picciotto, Wendy E. Kaye.
Tetrachloroethylene in Drinking Water and Birth Outcomes at the U.S. Marine Corps Base at Camp Lejeune, North Carolina.
American Journal of Epidemiology 2001;154:902–8.

Using 1968–1985 data from birth certificates of children born at Camp Lejeune, where drinking water in certain areas had been contaminated with tetrachloroethylene (PCE), we examined correlations between fetal PCE exposure and selected birth outcomes. Overall, we found only weak correlations or none at all; however, among children of mothers 35 years or older or with two or more fetal losses, fetal PCE exposure was marginally associated with low mean birth weight and being small for gestational age.

Kyle Steenland, Andrea Mannetje, Paolo Boffetta, Leslie Stayner, Michael Attfield, Jingqiong Chen, Mustafa Dosemeci, Nicholas DeKlerk, Eva Hnizdo, Riitta Kozkela, Harvey Checkoway.
Pooled Exposure–Response Analyses and Risk Assessment for Lung Cancer in 10 Cohorts of Silica-Exposed Workers: an IARC Multicentre Study.
Cancer Causes and Control 2001;12:773–84.

The carcinogenicity of silica is controversial. Approximately 100,000 U.S. workers are exposed to levels above NIOSH limits. In a pooled exposure-response analysis of 10 cohorts (65,980 workers, 1072 lung cancers), we found that rate ratios for lung cancer increased by quintile of cumulative exposure (1.0, 1.0, 1.3, 1.5, 1.6) and that 45 years of silica exposure at the current maximum permissible level in many countries was associated with a 1.1–1.7% excess lifetime risk for lung cancer. Our results suggest that many current exposure limits are inadequate.

Steven J. Steindel, Peter J. Howanitz.
Physician Satisfaction and Emergency Department Laboratory Test Turnaround Time: Observations Based on College of American Pathologists Q-Probes Studies.
Archives of Pathology and Laboratory Medicine 2001;125:863–71.

Participating hospital laboratories reported that, for 90% of tests ordered, their turnaround times were 69 minutes or less for potassium tests and 55 minutes or less for hemoglobin tests. Yet 42.9% of physicians believed that slow laboratory turnaround delayed emergency department (ED) treatment more than half the time, and 61.4% believed it lengthened patient ED stays more than half the time. These results suggest a need for improved communication and coordination between hospital laboratories and EDs.

Elizabeth Ward, Paolo Boffetta, Aage Andersen, Didier Colin, Pietro Comba, James A. Deddens, Marco De Santis, Göran Engholm, Lars Hagmar, Sverre Langard, Ingvar Lundberg, Damien McElvenny, Roberta Pirastu, Davide Sali, Lorenzo Simonato.
Update of the Follow-Up of Mortality and Cancer Incidence Among European Workers Employed in the Vinyl Chloride Industry.
Epidemiology 2001:12:710-8.

In this study, we demonstrated a significant exposure-response relationship between estimated cumulative lifetime exposure to vinyl chloride (VC) monomer and risks for both angiosarcoma and hepatocellular carcinoma of the liver. The findings suggest that people with cumulative VC exposures within orders of magnitude of current standards are at increased risk for angiosarcoma. These findings are important because vinyl chloride production has been increasing worldwide.

Mitchell I. Wolfe, Fujie Xu, Priti Patel, Michael O'Cain, Julia A. Schillinger, Michael E. St. Louis, Lyn Finelli.
An Outbreak of Syphilis in Alabama Prisons: Correctional Health Policy and Communicable Disease Control.
American Journal of Public Health 2001;91:1220–5.

After syphilis outbreaks at three Alabama men's prisons in early 1999, we attempted to identify risk factors for syphilis infection and to describe patterns of its transmission. By analyzing various prison records and documented sexual networks, we found that state prisoners being mixed with unscreened jail populations, infected inmates being transferred between prisons, and prisoners having multiple concurrent sexual partners all contributed to syphilis transmission.

Zhi-Jie Zheng, Janet B. Croft, Wayne H. Giles, George A. Mensah.
Sudden Cardiac Death in the United States, 1989 to 1998.
Circulation 2001;104:2158–63.

Sudden cardiac death (SCD) is a major clinical and public health problem. Analyses of U.S. vital statistics mortality data showed that SCD accounted for 63% of all cardiac deaths among persons aged 35 years and older in 1998. Coronary disease was listed as the underlying cause on 62% of all death certificates citing SCD. African Americans had the highest death rates for SCD. From 1989 to 1998, aged-adjusted SCD rates declined 11.7% among men and 5.8% among women; however, SCD rates increased 21% among women aged 35–44 years.

Category: Prevention and Control

Francisco Averhoff, Craig N. Shapiro, Beth P. Bell, Insu Hyams, Leslie Burd, Adeline Deladisma, Edgar P. Simard, David Nalin, Barbara Kuter, Chester Ward, Mark Lundberg, Natalie Smith, Harold S. Margolis.
Control of Hepatitis A Through Routine Vaccination of Children.
JAMA 2001;286:2968–73.

In a community-based demonstration project in a county with recurrent hepatitis A epidemics, vaccination was offered to children aged 2 to 17 years from 1995–2000. We found that 66.2% of eligible children received at least one dose and 39.3% received a second dose and that the number of hepatitis cases fell from 57 in 1995 to 4 in 2000. This childhood vaccination project thus appears to have sharply decreased hepatitis A incidence among adults as well as children.

Lucinda J. England, Juliette S. Kendrick, Hoyt G. Wilson, Robert K. Merritt, Paul M. Gargiullo, S. Christine Zahniser.
Effects of Smoking Reduction During Pregnancy on the Birth Weight of Term Infants.
American Journal of Epidemiology 2001;154:694–701.

Using data from the Smoking Cessation in Pregnancy project, we found that a $\geq$50% reduction in

cigarette use during pregnancy was associated with only a nonsignificant 32g increase in birth weight, but that infant birth weight did have a sharp inverse association with third-trimester maternal cigarette use of up to 8 cigarettes per day. These results suggest that to increase their child's birth weight, pregnant women who smoke need to cut back to fewer than 8 cigarettes per day.

Amanda R. Freeman, Patrick J. Lammie, Robin Houston, Mark D. LaPointe, Thomas G. Streit, Pieter L. Jooste, Jean Marc Brissau, Jack Guy LaFontant, David G. Addiss.
A Community-Based Trial for the Control of Lymphatic Filariasis and Iodine Deficiency Using Salt Fortified with Diethylcarbamazine and Iodine.
American Journal of Tropical Medicine and Hygiene 2001;65:865–71.

To evaluate how effective salt fortified with diethylcarbamazine and iodine is in preventing Bancroftian filariasis and iodine deficiency, we gave fortified salt to consenting members of a Haitian community in which rates of both conditions were high. One year after this distribution began, the prevalence and intensity of *Wuchereria bancrofti* microfilaria were both more than 95% lower, and iodine deficiency was eliminated.

Margaret A. Honein, Leonard J. Paulozzi, T. J. Mathews, J. David Erickson, Lee-Yang C. Wong.
Impact of Folic Acid Fortification of the U.S. Food Supply on the Occurrence of Neural Tube Defects.
JAMA 2001;285:2981-6.

Effective January 1998, the U.S. Food and Drug Administration mandated that all enriched grain products be fortified with folic acid. To assess the impact of this important public health intervention, we compared U.S. birth certificate data on neural tube defects for 15-month periods before and after its institution. We found that the birth prevalence of these defects was 19% lower in the period after mandatory folic acid fortification.

Maureen S. Kolasa, Timothy J. Petersen, Edward W. Brink, Igor D. Bulim, John M. Stevenson, Lance E. Rodewald.
Impact of Multiple Injections on Immunization Rates Among Vulnerable Children.
American Journal of Preventive Medicine 2001;21:261–6.

We found that parents and providers responded rapidly to a 1997 recommendation by the Advisory Committee on Immunization Practices that infants be immunized with the safer diphtheria-tetanus-acellular pertussis (DTaP) and inactivated polio virus (IPV) vaccines rather than the diphtheria-tetanus-pertussis (DTP) and oral polio virus (OPV) vaccines. We also found that immunization coverage at 12

months of age was higher for children receiving DTaP and IPV vaccines than for those receiving OPV and DTP vaccines.

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, William R. Jarvis.
Control of Vancomycin-Resistant Enterococcus in Health Care Facilities in a Region.
The New England Journal of Medicine 2001;344:1427–33.

First detected in U.S. hospitals in 1989, vancomycin-resistant enterococci (VRE) have caused numerous hospital outbreaks and have become endemic in many hospitals. We showed that an infection control intervention in a region where VRE was rapidly emerging eradicated VRE or significantly reduced VRE prevalence at all 32 participating health care facilities. This is the first demonstration study to document the control or eradication of an antimicrobial-resistant pathogen at all health care facilities in a region.

Ted Scharf, Charlie Vaught, Pamela Kidd, Lisa Steiner, Kathleen Kowalski, Bill Wiehagen, Lynn Rethi, Henry Cole.
Toward a Typology of Dynamic and Hazardous Work Environments.
Human and Ecological Risk Assessment 2001;7:1827–41.

The most hazardous work environments put workers at risk because the hazards are constantly changing. We propose a typology that accounts for eight interrelated features of the dynamic nature of occupational hazards. This typology could be useful in investigating workplace fatalities, conducting tool box safety talks, and revising "standard operating procedures" to encourage worker independence, flexibility, and adaptation under changing conditions.

Stephanie J. Schrag, Chabela Peña, Josefina Fernández, Jacqueline Sánchez, Virgen Gómez, Eddy Pérez, Jesús M. Feris, Richard E. Besser.
Effect of Short-Course, High-Dose Amoxicillan Therapy on Resistant Pneumococcal Carriage.
JAMA 2001;286:49–56.

In a prospective, randomized trial, we demonstrated that short-course, high-dose outpatient amoxicillin therapy for respiratory infections reduced children's risk for post-treatment carriage of drug-resistant *Streptococcus pneumoniae* better than standard therapy did. Our results suggest that short-course, high-dose antibiotic therapy holds promise as a means of minimizing the spread of drug-resistant pneumococci caused by antibiotic use.

Abigail M. Shefer, Elizabeth T. Luman, Bridget H. Lyons, Victor G. Coronado, Philip J. Smith, John M. Stevenson, Lance E. Rodewald.
Vaccination Status of Children in the Women, Infants, and Children (WIC) Program: Are We Doing Enough to Improve Coverage?
American Journal of Preventive Medicine 2001;20(4S):47–54.

By analyzing data from the National Immunization Survey and from an annual survey of state immunization and WIC program managers, we showed that preschool children served by WIC have lower immunization rates than more affluent children who do not participate; however, we also showed that fully implemented immunization-promoting strategies can significantly improve vaccination rates among children in WIC.

Ruth A. Shults, Randy W. Elder, David A. Sleet, James L. Nichols, Mary O. Alao, Vilma G. Carande-Kulis, Stephanie Zaza, Daniel M. Sosin, Robert S. Thompson, the Task Force on Community Preventive Services.
Reviews of Evidence Regarding Interventions to Reduce Alcohol-Impaired Driving.
American Journal of Preventive Medicine 2001;21(4S):66–88.

We reviewed the effectiveness of five population-based interventions to reduce alcohol-impaired driving: 0.08% blood alcohol concentration laws, "zero tolerance" laws for young drivers, minimum legal drinking age laws, sobriety checkpoint programs, and training programs for servers of alcoholic beverages. We found evidence that all could be successful and in this review present additional information to help decision makers identify and implement those interventions that best fit within an overall strategy to prevent impaired driving.

Janet S. St. Lawrence, Tracey E. Wilson, Gloria D. Eldridge, Ted L. Brasfield, Robert E. O'Bannon III.
Community-Based Interventions to Reduce Low Income African American Women's Risk of Sexually Transmitted Diseases: A Randomized Controlled Trial of Three Theoretical Models.
American Journal of Community Psychology 2001;29:937–64.

We evaluated three STD/HIV risk-reduction interventions. Women in all three intervention groups showed improvement on cognitive and skill-acquisition measures, whereas control participants did not. However, our findings suggest that existing intervention models that have proven effective for women who engage in high-risk behavior appear to be less effective for women whose STD/HIV risk is primarily from the extra-relationship behavior of their partners.

Li Yan Wang, Linda S. Crossett, Richard Lowry, Steve Sussman, Clyde W. Dent.
Cost-Effectiveness of a School-Based Tobacco-Use Prevention Program.
Archives of Pediatric and Adolescent Medicine 2001;155:1043–50.

We evaluated the cost-effectiveness of Project Toward No Tobacco Use (TNT), a school-based tobacco-use prevention program. We estimated that TNT, at an intervention cost of $16,403, will prevent 34.9 students from becoming established smokers by age 26, resulting in estimated cost savings of $13,316 per life year saved and $8,482 per quality-adjusted life year saved. Results remained cost-effective over a reasonable range of model parameter estimates.

William A. Yasnoff, J. Marc Overhage, Betsy L. Humphreys, Martin LaVenture.
A National Agenda for Public Health Informatics: Summarized Recommendations from the 2001 AMIA Spring Congress.
Journal of the American Medical Informatics Association 2001;8:535-45.

Topics of discussions aimed at developing a national agenda for public health informatics included funding, governance, architecture, infrastructure, standards, research, evaluation, best practices, confidentiality, security, and training. The 74 recommendations produced at the conference have two key themes: 1) coordinated activities are needed in public health information architecture, standards, confidentiality, best practices, and research; and 2) informatics training is needed throughout the public health workforce.

Category: Laboratory and Methods

Mustafa M. Aral, Jiabao Guan, Morris L. Maslia.
Identification of Contaminant Source Location and Release History in Aquifers.
Journal of Hydrologic Engineering 2001;6:225–34.

To simplify the computationally intensive process of solving the nonlinear optimization model used to identify the source of ground-water contaminants, we propose a new combinatorial approach: the progressive genetic algorithm. Through numerical experiments, we show that the proposed approach is a robust tool for solving ground-water contaminant source-identification problems.

Raymond E. Biagini, Edward F. Krieg, Lynne E. Pinkerton, Robert G. Hamilton.

Receiver Operating Characteristics Analyses of Food and Drug Administration-Cleared Serological Assays for Natural Rubber Latex-Specific Immunoglobulin E Antibody.
Clinical and Diagnostic Laboratory Immunology 2001;8:1145–9.

We examined the diagnostic discrimination of the three FDA-approved serological tests for the diagnosis of latex allergy; an FDA candidate latex allergy skin testing reagent served as a diagnostic discriminator. Using receiver operating characteristics analyses, we determined that by increasing the diagnostic positive cutoff value we could increase the sensitivity of one of the tests by almost 20%, making it the most sensitive of the three FDA-approved tests.

Kristine M. Bisgard, Celia D. C. Christie, Shirley F. Reising, Gary N. Sanden, Pamela K. Cassiday, Claire Gomersall, Wendy A. Wattigney, Nancy E. Roberts, Peter M. Strebel.
Molecular Epidemiology of *Bordetella pertussis* by Pulsed-Field Gel Electrophoresis Profile: Cincinnati, 1989–1996.
The Journal of Infectious Diseases 2001;183:1360–7.

To evaluate trends of pertussis in Cincinnati, site of a 1993 epidemic, we analyzed 496 *Bordetella pertussis* isolates with pulsed-field gel electrophoresis (PFGE). We identified 30 PFGE profiles but found that one profile predominated throughout the time period studied. The 1993 epidemic was primarily associated with the increased prevalence of PFGE profiles that circulated before and after 1993, suggesting that the epidemic was due to factors other than the emergence of a novel *B. pertussis* strain.

Ralph S. Caraballo, Gary A. Giovino, Terry F. Pechacek, Paul D. Mowery.
Factors Associated with Discrepancies Between Self-Reports on Cigarette Smoking and Measured Serum Cotinine Levels Among Persons Aged 17 Years or Older.
American Journal of Epidemiology 2001;153;807–14.

Using data from the Third National Health and Nutrition Examination Survey (1988–1994), we found that 7.5% of self-reported smokers had serum cotinine levels at or below 15.0 ng/ml, the selected cutoff point distinguishing smokers from nonsmokers, and only 1.4% of self-reported nonsmokers had levels exceeding the cutoff point. These results, especially for nonsmokers, indicate that self-reports are good indicators of actual smoking status.

Fei Chen, Yongju Lu, Zhuo Zhang, Val Vallyathan, Min Ding, Vince Castranova, Xianglin Shi.
Opposite Effect of NF- B and c-Jun N-terminal Kinase on p53-independent GADD45 Induction by Arsenite.

The Journal of Biological Chemistry 2001;276:11414–9.

Using cells derived from human bronchial epithelial cells, we showed that NF- B and c-Jun N-terminal kinase (JNK) reciprocally regulate arsenite-induced p53-independent expression of GADD45 protein, a cell cycle checkpoint protein that arrests cells at the G_2/M phase transition, and suggested a molecular mechanism by which NF- B and JNK may differentially contribute to cell cycle regulation in response to arsenite.

Brent S. Davis, Gwong-Jen J. Chang, Bruce Cropp, John T. Roehrig, Denise A. Martin, Carl J. Mitchell, Richard Bowen, 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;75:4040–7.

The introduction of West Nile (WN) virus into the United States has created major public health concerns. Currently, no human or veterinary vaccine is available to prevent WN viral infection. We constructed a recombinant plasmid that expressed the WN virus prM and E proteins. This DNA vaccine induced protective immunity, preventing WN virus infection in mice and horses. Antigen secreted by plasmid-transformed COS-1 cells has also been used to support nationwide WN virus surveillance.

Todd V. Ellerbrock, Jeffrey L. Lennox, Kelly A. Clancy, Raymond F. Schinazi, Thomas C. Wright, Melody Pratt-Palmore, Tammy Evans-Strickfaden, Cathy Schnell, Rekha Pai, Lois J. Conley, Edith E. Parrish-Kohler, Timothy J. Bush, Kathy Tatti, Clyde E. Hart.
Cellular Replication of Human Immunodeficiency Virus Type 1 Occurs in Vaginal Secretions.
Journal of Infectious Diseases 2001;184:28–36.

Most HIV-1 transmission worldwide is the result of exposure to infectious virus in genital secretions. Examining multiply spliced HIV-1 messenger RNA, cell-free HIV-1 RNA genotypes, and drug resistant-associated mutations in blood and genital secretions from HIV-1-infected women, we found that cellular replication of HIV-1 occurs in vaginal secretions and can result in a virus population with important differences from that in blood.

J. Gerardo García-Lerma, Soumya Nidtha, Katherine Blumoff, Hillard Weinstock, Walid Heneine.
Increased Ability for Selection of Zidovudine Resistance in a Distinct Class of Wild Type HIV-1 from Drug-Naive Persons.

Proceedings of the National Academy of Sciences USA 2001;98:13907–12.

Through surveillance of drug-resistant HIV-1 in previously untreated patients, we identified a subgroup of patients infected with a class of HIV-1 that carry a unique set of mutations in the reverse transcriptase gene. These viruses were phenotypically indistinguishable from other wild type viruses but had a greater capacity to become zidovudine-resistant in culture. Defined by an increased ability to select drug-resistant mutations, this new class of wild type HIV-1 has a greater potential to compromise the efficacy of antiretroviral therapy.

Kayla F. Laserson, Allen S. Kenyon, Tom A. Kenyon, Tom Layoff, Nancy J. Binkin.
Substandard Tuberculosis Drugs on the Global Market and Their Simple Detection.
International Journal of Tuberculosis and Lung Disease 2001;5:448–54.

Using a recently developed thin-layer chromatography (TLC) kit, we screened tuberculosis drugs from Columbia, Estonia, India, Latvia, Russia, and Vietnam. We found that a substantial number of these drugs were substandard and could contribute to the creation of drug-resistant tuberculosis and that TLC is an effective, convenient, and inexpensive method of detecting substandard drugs.

Yeuk-Mui Lee, Patrick W. Johnson, Jeffery L. Call, Michael J. Arrowood, Bruce W. Furness, Sarah C. Pichette, Katherine K. Grady, Patty Reeh, Larry Mitchell, David Bergmire-Sweat, William R. MacKenzie, Victor C.W. Tsang.
Development and Application of a Quantitative, Specific Assay for *Cryptosporidium Parvum* Oocyst Detection in High-Turbidity Environmental Water Samples.
American Journal of Tropical Medicine and Hygiene 2001;65:1–9.

Chlorine-resistant *Cryptosporidium parvum* oocysts in drinking water play an important role in the epidemiology of cryptosporidiosis. Using a quantitative, reproducible assay that we developed, we examined water and sewer samples collected during a cryptosporidiosis outbreak. We found *C. parvum* oocysts in the source water at the time of the outbreak and sharply decreasing levels of oocysts in sewer samples collected over a 3-month period following the outbreak.

Michele Lynberg, J.R. Nuckols, Peter Langlois, David Ashley, Philip Singer, Pauline Mendola, Charles Wilkes, Heidi Krapfl, Eileen Miles, Vanessa Speight, Bruce Lin, Leanne Small, Amy Miles, Michael Bonin, Perri Zeitz, Altaf Tadkod, Judy Henry, Mathias B. Forrester.
Assessing Exposure to Disinfection By-Products in Women of Reproductive Age Living in Corpus Christi, Texas, and Cobb County, Georgia: Descriptive Results and Methods.
Environmental Health Perspectives 2001;109:597–604.

Using sophisticated analytical techniques, we quantified blood trihalomethane (THM) levels, enabling us to determine whether study participants had elevated blood THM levels. This is the first study to 1) document elevated background levels of individual THMs in humans; 2) demonstrate substantial differences in levels of various THM species between populations served by different water supplies; and 3) indicate that THM levels in a person's blood mirror levels found in that person's water supply.

Gerald H. Mazurek, Philip A. LoBue, Charles L. Daley, John Bernardo, Alfred A. Lardizabal, William R. Bishai, Michael F. Iademarco, James S. Rothel.
Comparison of a Whole-Blood Interferon Assay with Tuberculin Skin Testing for Detecting Latent *Mycobacterium tuberculosis* Infection.
JAMA 2001;286:1740–7.

We evaluated a whole-blood interferon l assay for detecting M. tuberculosis infections in 1,474 subjects. We demonstrated that the blood test was comparable with the skin test in detecting these infections and that it has numerous advantages. Using logistic regression, we showed that the new blood test may be more accurate than the skin test for people with a prior BCG vaccination or evidence of immune reactivity to nontuberculous mycobacterium.

Martin I. Meltzer, Inger Damon, James W. LeDuc, J. Donald Millar.
Modeling Potential Responses to Smallpox as a Bioterrorist Weapon.
Emerging Infectious Diseases 2001;7:959–69.

We mathematically modeled a deliberate release of smallpox and demonstrated that quarantine alone could stop the outbreak if victims were very efficiently identified and isolated. Vaccination alone would also stop the outbreak if transmission could be reduced to less than 0.85 persons infected per infectious person. A combined vaccination and quarantine program has the best chance of stopping an outbreak.

Tanja Popovic, Susanna Schmink, Nancy A. Rosenstein, Gloria W. Ajello, Michael W. Reeves, Brian Plikaytis, Susan B. Hunter, Efrain M. Ribot, David Boxrud, Maria L. Tondella, Chung Kim, Corie Noble, Elizabeth Mothershed, John Besser, Bradley A. Perkins.
Evaluation of Pulsed-Field Gel Electrophoresis in Epidemiological Investigations of Meningococcal Disease Outbreaks Caused by *Neisseria meningitidis* Serogroup C.
Journal of Clinical Microbiology 2001;39:75–85.

Prompted by the increased frequency of *Neisseria meningitidis* serogroup C (NMSC) outbreaks in the United States since 1990, we compared pulsed-field gel electrophoresis (PFGE) with four other molecular subtyping approaches and evaluated its potential to differentiate outbreak-related from

sporadic NMSC isolates; we demonstrated that in four analyzed outbreaks PFGE would have given public health officials rapid additional support in declaring an outbreak and making appropriate public health decisions.

Jennifer K. Pullium, Debra R. Adams, Eddie Jackson, Caryn N. Kim, Dawn K. Smith, Robert Janssen, Kenneth Gould, Thomas M. Folks, Sal Butera, Ron A. Otten.
Pig-tailed Macaques Infected with Human Immunodeficiency Virus (HIV) Type 2_{GB122} or Simian/$HIV_{89.6p}$ Express Virus in Semen During Primary Infection: New Model for Genital Tract Shedding and Transmission.
The Journal of Infectious Diseases 2001;183:1023–30.

To better understand the risk for sexual transmission of HIV among humans, we used macaques to study HIV expression in semen during primary infection. We found that exposure route and strain virulence influenced the onset time, peak level, and duration of detectable seminal virus. This report provides vital insight into the earliest events associated with HIV shedding from the male genital tract and establishes a basis for evaluating interventions.

Nathaniel Schenker, Jane F. Gentleman.
On Judging the Significance of Differences by Examining the Overlap Between Confidence Intervals.
The American Statistician 2001;55:182–6.

To judge whether the difference between two point estimates is statistically significant, analysts of health data often examine the overlap between the two associated confidence intervals. We show that in a very common situation, this technique is more likely to fail to detect a true difference than is the standard method of testing based on a single confidence interval for the difference.

Terrence M. Tumpey, Mary Renshaw, John D. Clements, Jacqueline M. Katz.
Mucosal Delivery of Inactivated Influenza Vaccine Induces B-Cell-Dependent Heterosubtypic Cross-Protection Against Lethal Influenza A H5N1 Virus Infection.
Journal of Virology 2001;75:5141–50.

Influenza vaccines that induce greater cross-reactive immunity may overcome limitations in vaccine efficacy imposed by the antigenic variability of influenza viruses. We determined that mucosal administration with a traditional inactivated influenza A H3N2 vaccine in mice induced B-cell-dependent subtype cross-reactive protective immunity against a highly lethal H5N1 virus. These results suggest a strategy of vaccination that may stimulate cross-protection against multiple influenza virus

subtypes, including those with pandemic potential.

Linda M. Weigel, Gregory J. Anderson, Richard R. Facklam, Fred C. Tenover.
Genetic Analyses of Mutations Contributing to Fluoroquinolone Resistance in Clinical Isolates of *Streptococcus pneumoniae*.
Antimicrobial Agents and Chemotherapy 2001;45:3517–23.

The emergence of *S. pneumoniae* strains resistant to all fluoroquinolones is a major public health concern. Our molecular analyses of pneumococcal resistance mechanisms revealed novel and increasingly diverse mutations. We found that fluoroquinolone cross-resistance varied with the chemical structure of each agent and with the location rather than the number of mutations; our data will help in developing a rational approach to susceptibility testing and the therapeutic use of fluoroquinolones.

Hui-Min Yang, James M. Antonini, Mark W. Barger, Leon Butterworth, Jenny R. Roberts, Joseph K. H. Ma, Vince Castranova, Jane Y. C. Ma.
Diesel Exhaust Particles Suppress Macrophage Function and Slow the Pulmonary Clearance of *Listeria monocytogenes* in Rats.
Environmental Health Perspectives 2001;109:515–21.

Exposure to diesel exhaust particles (DEPs) has been associated with increased respiratory morbidity and mortality. We demonstrated that rats with respiratory exposure to DEPs had decreased alveolar macrophage function and slower pulmonary clearance of *Listeria monocytogenes*, indicating that DEPs not only enhance allergen-induced airway hyper-responsiveness, but also suppress the defense system and increase the susceptibility of hosts to lung infection.

Category: Outstanding Scientific Contribution to Public Health

The following were nominated for the CDC/ATSDR Outstanding Scientific Contribution to Public Health Award, established to recognize an individual or group for scientific work or an application that has had significant influence on the public's health or on public health practice.

The *Guide to Community Preventive Services* and other publications of the Community Guide Working Group

Epidemiology Program Office
Peter A. Briss, Stephanie Zaza, Marguerite Pappaioanou, and the Task Force on Community Preventive Services

The Community Guide Working Group reviews information about important health-promotion and disease-prevention interventions, reviews the scientific literature for evidence of their effects, translates such evidence into clear recommendations, and works with diverse partners to encourage the implementation of those recommendations. In the *Guide to Community Preventive Services* series and elsewhere, the working group has provided reviews and recommendations on subjects such as improving vaccine coverage, preventing and controlling tobacco use, reducing injuries to motor vehicle occupants, promoting oral health, increasing physical activity, and improving the care for people with diabetes.

Metropolitan Atlanta Congenital Defects Program (MACDP)
National Center on Birth Defects and Developmental Disabilities

MACDP, created in 1967 in the aftermath of the thalidomide tragedy, has served as a model and a developmental laboratory for birth defects surveillance programs. MACDP collects, analyzes, and interprets birth defects surveillance data from the Atlanta area and has identified almost 40,000 babies with serious birth defects. Over the years, MACDP has developed the tools and methodology to support birth defects surveillance worldwide, as well as a detailed coding scheme for complex birth defects based on the ICD-9-CM coding system. It is currently contributing to the birth defects modification of ICD-10-CM that is expected to be in use by 2004.

Musculoskeletal Disorders and Workplace Factors
National Institute for Occupational Safety and Health
Bruce Bernard

This landmark 400-page report, developed and edited by Dr. Bruce Bernard and published in 1997, summarizes the methods and results of more than 600 studies of possible correlations between workplace factors and musculoskeletal disorders and applies rigorous scientific methods to assess the findings of these studies and interpret their significance. As noted by a former NIOSH director, this report, which received the 1998 Alice Hamilton Award for Excellence in Occupational Safety, provides "compelling evidence that these types of disorders are a significant problem in U.S. workplaces."

PulseNet
National Center for Infectious Diseases
Bala Swaminathan, Timothy J. Barrett, Susan B. Hunter, Robert V. Tauxe, and the CDC PulseNet Task Force

Since its inception 5 years ago and its formal inauguration 3 years ago, PulseNet, a molecular subtyping network for foodborne disease surveillance, has become an indispensable tool for molecular epidemiology and has revolutionized foodborne disease surveillance and outbreak investigation. More than 300 epidemiologists, public health microbiologists, and food regulatory personnel subscribe to the PulseNet listserv and exchange current and critical information on new disease clusters and new outbreak investigations on a local, state, and national level.

Surgeon General's Reports on Smoking and Health

National Center for Chronic Disease Prevention and Health Promotion

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

Since 1974, CDC's Office on Smoking and Health has been responsible for publishing the last 12 Surgeon General's Reports on Smoking and Health. This series of reports, which began in 1964, has had a tremendous impact on the health of the nation. By documenting the many serious and often fatal health problems associated with smoking, these reports have contributed to widespread adoption of policies that discourage the use of tobacco and to a remarkable reduction in the prevalence of smoking.

Category: Lifetime Scientific Achievement

The following current or former CDC/ATSDR employees were nominated for the Lifetime Scientific Achievement Award, established to recognize an individual for a body of scientific work contributing to public health. Nominees were judged on the basis of the scientific merit and impact of their work on public health and the mission of CDC/ATSDR as well as on their leadership and recognition by peers.

Gerald R. Cooper, M.D., Ph.D.
Early in his nearly 50-year career at CDC, Gerald Cooper recognized that blood lipid measurements could be powerful predictors of heart disease risk, but only if the methods of lipid measurement were sufficiently accurate and precise. Dr. Cooper's subsequent decades of leadership in improving laboratory measurements of lipids led to the establishment of the CDC Lipid Standardization Program, which helps ensure the accuracy and precision of lipid measurements at U.S. and international testing laboratories. Dr. Cooper's efforts to standardize measurements of cholesterol have made it easier to detect correlations between cholesterol levels and various health risks and ultimately to devise effective public health interventions to minimize those risks. Dr. Cooper currently serves as medical officer in the Division of Laboratory Sciences at CDC's National Center for Environmental Health.

Nancy J. Cox, Ph.D.
During her nearly 30-year career as an influenza virologist, Nancy Cox has developed an international reputation for excellence within the influenza research community. Dr. Cox's training in influenza virus genetics and her outstanding leadership have had an enormous effect on the influenza vaccine strain selection process. She has responded effectively to the challenges presented by new virus strains with pandemic potential, particularly novel strains of the avian influenza H9N2 virus and the avian influenza H5N1 virus that caused six deaths in Hong Kong in 1997. As chief of the Influenza Branch at CDC's National Center for Infectious Diseases, Dr. Cox represents CDC on the FDA and WHO advisory committees for influenza vaccine strain evaluation.

Andrew Griswold Dean, M.D., M.P.H.
Andrew Dean is the developer of Epi Info, a software tool designed to help public health officials collect, analyze, and disseminate epidemiologic data. Epi Info is the most widely used public domain epidemiologic software program in the world and is especially important in helping developing countries strengthen their core public health functions. Dr. Dean was also instrumental in CDC's development of the system that later came to be known as the National Electronic Telecommunications System for Surveillance. Dr. Dean, who has served as an epidemiologist in both state and international positions, is currently chief of the Epi Info Development Team in the Epidemiology Program Office of CDC.

J. David Erickson, D.D.S., Ph.D., M.P.H.
As an acknowledged expert in the design, implementation, and analysis of epidemiologic studies, David Erickson has led numerous national and international studies to identify factors that cause or contribute to the development of birth defects and genetic diseases. Dr. Erickson is responsible for the operation of the Metropolitan Atlanta Congenital Defects Program, the oldest continuous birth defects surveillance system in the United States, and has promoted the formation of a national network of birth defects surveillance programs, the National Birth Defect Prevention Network. In 1988, Dr. Erickson was instrumental in focusing national attention on the serious birth defects then occurring among children whose mothers had taken the prescription drug Accutane while pregnant. Dr. Erickson is currently leader of the Birth Defects Epidemiology Team at CDC's National Center on Birth Defects and Developmental Disabilities.

Richard J. O'Brien, M.D.
During his 32-year career in public health, Richard O'Brien has made internationally recognized contributions to tuberculosis (TB) control and elimination. Landmark studies in which he participated have led to FDA approval for the first new drug for TB treatment in more than 20 years, and his visionary leadership has brought CDC closer to fulfilling its goals related to the treatment and prevention of TB. Dr. O'Brien, who serves on the FDA Medical Devices Advisory Committee and the WHO Strategic and Technical Advisory Committee for Tuberculosis, recently helped establish the Global Alliance for TB Drug Development. Currently, he serves as chief of the Research and Evaluation Branch at CDC's National Center for HIV, STD, and TB Elimination, and as a clinical assistant professor of medicine specializing in infectious diseases at the Emory University School of Medicine.

Harry Michael Rosenberg, Ph.D.
As chief of the Mortality Statistics Branch at CDC's National Center for Health Statistics, Harry Rosenberg has guided the production and analysis of general mortality statistics for the United States for nearly a quarter century. Because of his recognized expertise, Dr. Rosenberg frequently serves as a consultant to international health organizations on issues related to health statistics. He helped develop multiple cause-of-death statistics, which allow fuller use of information reported by physicians who certify deaths, and played a key leadership role in developing age-adjustment standards that make death rates comparable across time, place, or population subgroups. Dr. Rosenberg represented the United States in developing the Tenth Revision of the International Classification of Diseases (ICD-10) for mortality and has been key in implementing the smooth transition from ICD-9 to ICD-10 in the United States.

Kyle Steenland, Ph.D.
During his 20-year CDC career, Dr. Steenland's research has focused on occupational and

environmental epidemiology and on epidemiologic methods. He was the principal investigator in large cohort studies of cancer among workers exposed to various toxins and is a world-renowned expert on the effects of silica, having provided the most important evidence to date suggesting that silica does indeed cause lung cancer. His research has contributed directly to several public health actions aimed at reducing workers' exposure to other toxic materials such as pesticides and environmental tobacco smoke. Dr. Steenland currently serves as senior epidemiologist at CDC's National Institute for Occupational Safety and Health, Cincinnati, Ohio.