Expert Workshop: Methods for Signal Refinement in Active Medical Product Surveillance

Participant Biographies

Rachel E. Behrman, MD, MPH is the associate director for medical policy in the Office of Medical Policy in the Center for Drug Evaluation and Research at the Food and Drug Administration (FDA). She is responsible for developing, coordinating, and implementing medical policy programs and strategic initiatives, including those focused on clinical trial modernization, policy issues related to human subject protection, and good clinical practices. Dr. Behrman began her career with the FDA in the Division of Antiviral Drug Products and has served in numerous positions, most recently as associate commissioner for Clinical Programs and director of the Office of Clinical Programs. Dr. Behrman is a board-certified internist and infectious disease subspecialist. She received her MD from Mt. Sinai School of Medicine, her MPH from The Johns Hopkins School of Hygiene and Public Health, and her BA in mathematics from Washington University.

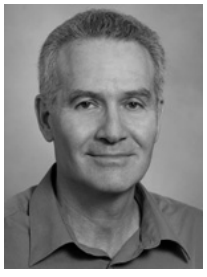
Andrew Bate, PhD is senior director, analytics team lead in epidemiology at Pfizer, Inc. Prior to joining Pfizer, Dr. Bate was employed at the World Health Organization's Collaborating Centre for International Drug Monitoring for more than 12 years, and was responsible for research at the institute. Dr. Bate coordinated the development of methods and tools for surveillance of spontaneous reports and electronic medical records (EMRs) and has published extensively. Dr. Bate has contributed to several international initiatives and partnerships associated with drug safety, including membership of the CIOMS VIII working group that published a monograph on "Practical Aspects of Signal Detection in Pharmacovigilance," and as a member of the Scientific Advisory Board of Observational Medical Outcomes Partnership. Dr. Bate holds a masters degree in chemistry from Oxford University, a PhD in clinical pharmacology, and is a visiting professor of computing and mathematics at Brunel University, London as well as adjunct associate professor of clinical pharmacology at New York University.

Robert M. Califf, MD is the vice chancellor for clinical research, director of the Duke Translational Medicine Institute (DTMI), and professor of medicine in the division of cardiology at the Duke University Medical Center. Dr. Califf leads a large, multifaceted organization focused on the transformation of how discoveries are translated into improved medical care. Prior to his role at DTMI, he was the founding director of the Duke Clinical Research Institute, a premier academic research organization. He is the editor-in-chief of *American Heart Journal*, the oldest cardiovascular specialty journal. As director of DTMI, funded in part by a National Institutes of Health Clinical and Translational Science Award (CTSA), Dr. Califf's contribution includes service as the first co-chair of the Principal Investigators Steering Committee of the CTSA. He has served on the Cardiorenal Advisory Panel of the Food and Drug Administration (FDA) and the Pharmaceutical Roundtable of the Institute of Medicine (IOM). He is currently a member of the IOM Forum in Drug Discovery, Development, and Translation and sits on a subcommittee of the Science Board of the FDA. During his tenure as a founding director of the Coordinating Center for the Centers for Education & Research on Therapeutics, a public-private partnership among the Agency for Healthcare Research and Quality, the FDA, academia, the medical-products industry, and consumer groups, he focused on research and education to advance and optimize the use of medical products. He currently serves as the co-chair of the Clinical Trials Transformation Initiative, a public-private partnership focused on improving the clinical trials system, and as the chair of the Clinical Research Forum, an organization of academic health and science system leaders focused on enhancing the effectiveness of the clinical research enterprise.

Francesca Cunningham, PharmD is director of the Center for Medication Safety and program director of outcomes assessment at the Department of Veterans Affairs (VA) National Center for Patient Safety and Pharmacy Benefits Management Services (PBM). Dr. Cunningham was the driving force behind the successful effort of PBM to establish reliable methods for merging the VA's prescription database with other large VA-related databases in order to evaluate the safe and appropriate use of medications in the veteran population. Her focus has been on assessing new agents where safety data is lacking and older drugs when a newly emerging danger requires evaluation. She also designed the VAMedSAFE and PBM Drug Safety Quality Improvement programs. Under her direction, the programs have become a major tool in the evaluation of drug safety in the VA and its role in the formulary decision process. Since joining the VA, Dr. Cunningham has focused her research efforts in the area of drug safety. Dr. Cunningham's group has worked independently and with other researchers to perform several drug safety and pharmacoepidemiologic studies. She sits on several internal and external boards and committees that focus on patient safety with an emphasis on pharmacovigilance, including the federal group for the Food and Drug Administration's Sentinel Initiative.

Lesley H. Curtis, PhD is associate professor of medicine in the Duke University School of Medicine and works primarily in the Center for Clinical and Genetic Economics. A health services researcher by training, Dr. Curtis oversees a portfolio of projects that use observational data to address questions related to clinical and comparative effectiveness, pharmacoepidemiology, health care delivery, and epidemiological trends. Dr. Curtis has considerable experience analyzing Medicare claims data, large clinical registries, and prescription drug data, and has led the linkage of large clinical registries with longitudinal Medicare claims data. She is a co-investigator for the Agency for Healthcare Research and Quality-sponsored Cardiovascular Center for Education and Research on Therapeutics, the director of the Duke DEcIDE (Developing Evidence to Inform Decisions about Effectiveness) Center, and co-leads the Data Core for the Food and Drug Administration's Sentinel Initiative.

William DuMouchel, PhD is chief statistical scientist at the Lincoln Safety Group of Phase Forward, Inc. His current research focuses on statistical computing and Bayesian hierarchical models, including applications to meta-analysis and data mining. Dr. DuMouchel is the inventor of the empirical Bayesian data mining algorithm known as GPS and its successor MGPS, which have been applied to the detection of safety signals in databases of spontaneous adverse drug event reports. Previously, he was a senior member of the data mining research group at AT&T Labs. Before that, he was chief statistical scientist at BBN Software Products, where he was lead statistical designer of a software advisory system for data analysis and experimental design called RS/Discover and RS/Explore. Dr. DuMouchel has been on the faculties of the University of California at Berkeley, the University of Michigan, MIT, and most recently was professor of biostatistics and medical informatics at Columbia University. He has authored approximately fifty papers in peer-reviewed journals and has also been an associate editor of the *Journal of the American Statistical Association*, *Statistics in Medicine*, *Statistics and Computing*, and the *Journal of Computational and Graphical Statistics*. Dr. DuMouchel is a member of the International Statistical Institute and is an elected fellow of the American Statistical Association and of the Institute of Mathematical Statistics. He has served on the National Research Council (NRC) Committee on Applied and Theoretical Statistics and on the Institute of Medicine Committee on Postmarket Surveillance of Pediatric Medical Devices and is currently a member of the NRC Committee on National Statistics. He received the PhD in statistics from Yale University.



Bruce Fireman, MA is a biostatistician and research scientist at the Division of Research, Kaiser Permanente Northern California. His research interests include assessment of the effectiveness and safety of vaccines and drugs, and the costs and outcomes of health care delivery systems. He works with population-based data, comparing the effectiveness of alternative treatments and alternative ways of delivering health care. He has evaluated disease management programs, web-based care, and primary care teams. He has collaborated with Kaiser Permanente clinicians and administrators in efforts to improve health services.

David Juurlink, BPharm, MD, PhD, FRCPC is a general internist at Sunnybrook Health Sciences Centre and the director of the division of clinical pharmacology at the University of Toronto. He is also a medical toxicologist at the Ontario Poison Information Centre and a scientist at the Institute for Clinical Evaluative Sciences. He received degrees in pharmacy and medicine from Dalhousie University and completed postgraduate training in internal medicine, clinical pharmacology, and medical toxicology along with a PhD in clinical epidemiology, all at the University of Toronto. In addition to providing care to patients on the General Internal Medicine service, Dr. Juurlink directs the Sunnybrook Clinical Pharmacology and Toxicology consult service and elective rotation for senior medical residents, one of only a few such programs in Canada. He maintains an active research program in pharmacoepidemiology, with a particular focus on drug safety and the clinical consequences of drug interactions. In addition to his research, clinical, and teaching responsibilities, Dr. Juurlink serves on the Ontario Committee to Evaluate Drugs, the Board of Trustees of the American Academy of Clinical Toxicology, and the Royal College of Physicians and Surgeons Subspecialty Committee in Clinical Pharmacology.

Tracy Lieu, MD, MPH is a professor and director of the Center for Child Health Care Studies, department of population medicine, Harvard Pilgrim Health Care Institute and Harvard Medical School. The Center's goal is to improve children's health through research that enhances health care decisions by policymakers, clinicians, and parents. Dr. Lieu is an expert in assessing the safety, outcomes, and cost-effectiveness of primary care, in particular vaccines and asthma interventions. She is the Harvard co-principal investigator of the Vaccine Safety Datalink Project, a multi-site project sponsored by the Centers for Disease Control and Prevention (CDC). She also is a leader in the Post-Licensure Rapid Immunization Safety Monitoring Network, which evaluates vaccine safety via multiple large health plans and state immunization registries with sponsorship by the Food and Drug Administration (FDA). Dr. Lieu collaborates with Dr. Richard Platt in the FDA-supported Mini-Sentinel Initiative on drug and vaccine safety surveillance. She also heads the Joint Initiative in Vaccine Economics, which supports several collaborative studies between CDC and Harvard investigators. Her other recent projects have included National Institutes of Health-sponsored studies of disparities in childhood asthma and the effects of high-deductible health plans on family decisions about health care use. She has served on national policymaking committees including the U.S. Preventive Services Task Force and Advisory Committee on Immunization Practices.

Mark McClellan, MD, PhD is director of the Engelberg Center for Health Care Reform and Leonard D. Schaeffer Chair in Health Policy Studies at the Brookings Institution. At the Center, his work focuses on promoting high-quality, innovative, and affordable health care. A doctor and economist by training, he also has a highly distinguished record in public service and in academic research. Dr. McClellan is a former administrator of the Centers for Medicare & Medicaid Services (CMS) and former commissioner of the Food and Drug Administration (FDA), where he developed and implemented major reforms in health policy. These include the Medicare prescription drug benefit, the FDA's Critical Path Initiative, and public-private initiatives to develop better information on the quality and cost of care. Dr. McClellan chairs the FDA's Reagan-Udall Foundation, is co-chair of the Quality Alliance Steering Committee, sits on the National Quality Forum's Board of Directors, is a member of the Institute of Medicine, and is a research associate at the National Bureau of Economic Research. He previously served as a member of the President's Council of Economic Advisers and senior director for health care policy at the White House, and was an associate professor of economics and medicine at Stanford University.

Jonathan Morris, MD is president and chief executive officer of ProSanos Corporation, and has held senior management roles in companies that provide health care analytics, drug safety solutions, and electronic medical records software systems. Most recently, he was chief medical officer and vice president of clinical services for the Enterprise & Health Solutions Sectors at Science Applications International Corporation (SAIC). Prior to SAIC, Dr. Morris ran component product development at Oceania, Inc., a leading developer of patient charting software. Dr. Morris received his BS degree in economics from the University of Michigan and his MD from Washington University (St. Louis), and served his internship, residency, and post-doctoral fellowship in general and pediatric surgery research at Stanford University. He has authored more than 90 peer-reviewed publications and presentations in the fields of drug safety, clinical medicine, and health outcomes research.

Judy Racoosin, MD, MPH is the Sentinel Initiative scientific lead at the Food and Drug Administration (FDA). In that role, she leads efforts to develop the scientific methodologies needed to enable FDA to conduct active surveillance in automated health care data sources such as administrative claims databases and electronic health record systems. Dr. Racoosin has worked at the FDA on pre- and post-market safety issues and safety policy for more than 14 years. Previously, she was the senior safety policy advisor in the Center for Drug Evaluation and Research's (CDER) Office of the Center Director. She was also a reviewer and team leader on the safety team in CDER's Divisions of Neurology Products and Psychiatry Products for nine years. Dr. Racoosin graduated magna cum laude from the University of Maryland School of Medicine and completed a residency in internal medicine at the University of Chicago Hospitals. Following her residency, she earned an MPH from the University of Illinois at Chicago School of Public Health. She is also board-certified in clinical pharmacology.

Christian Reich, MD, PhD is senior program manager at the Observational Medical Outcomes Partnership, a public-private research project between the Pharmaceutical Research and Manufacturers of America and academic research institutions managed by the Foundation for the National Institutes of Health and chaired by the Food and Drug Administration. The partnership is currently conducting a two-year research initiative to identify methods, technology, and governance to evaluate safety issues of drugs on the market and to inform a comprehensive drug surveillance program. In his function, Dr. Reich is responsible for the technical infrastructure, medical terminology, and successful execution of the research studies. Dr. Reich has more than 15 years of experience in life science research and medicine. He was a practicing physician in Berlin and Ulm, Germany before moving to the European Bioinformatics Institute to work on the Human Genome Project. Dr. Reich joined Millennium Pharmaceuticals in 1998, where he was in a number of key positions including the head of clinical informatics at Millennium and head of computational biology, where he was involved in the areas of drug development, safety, clinical research, and clinical trial management. In his position as vice president of scientific research at Genstruct, Dr. Reich led the company's internal biology research teams as well as efforts in translational medicine and clinical research with its large pharmaceutical partners.

Patrick Ryan, ME was a manager in statistical and quantitative sciences at GlaxoSmithKline Research and Development, where he led several efforts to develop and apply exploratory analysis methods to better understand the effects of medicines. He currently serves as the co-investigator of the Observational Medical Outcomes Partnership, a public-private partnership managed by the Foundation for the National Institutes of Health and chaired by the Food and Drug Administration. As part of this effort, he is conducting methodological research to assess the appropriate use of observational health care data to identify and evaluate drug safety issues.

Nancy C. Santanello, MD, MS is vice president and head of epidemiology at Merck Research Laboratories, Merck & Co. Inc. Dr. Santanello has been a physician epidemiologist in the department of epidemiology since 1991. Her areas of research interest include: the development and validation of outcome measures for use in clinical trials, study design, adherence to therapy, satisfaction with and preference for therapy, comparative safety and effectiveness study design and methods, drug and vaccine safety, and pharmacoepidemiology. Dr. Santanello has published over 60 peer-reviewed manuscripts. She has been invited to speak on outcome research measurement, drug and vaccine safety, and signal detection and evaluation issues at national and international meetings, including the Institute of Medicine, International Society of Quality of Life, International Society of Pharmacoepidemiology (ISPE) and the Agency for Healthcare Research and Quality Centers for Education & Research on Therapeutics. Dr. Santanello is the president-elect of ISPE. Prior to joining Merck, Dr. Santanello was a medical officer with the National Heart, Lung, and Blood Institute's Prevention and Demonstration Research Branch of the Division of Epidemiology and Clinical Applications (1987-1991).

Sebastian Schneeweiss, MD, ScD is associate professor of medicine and epidemiology at Harvard Medical School and vice chief of the division of pharmacoepidemiology and pharmacoeconomics at the Brigham and Women's Hospital. He is principal investigator of the DEcIDE Research Center on Comparative Effectiveness Research funded by the Agency for Healthcare Research and Quality, as well as PI of the Harvard-Brigham Drug Safety Research Center funded by the Food and Drug Administration (FDA). His research focuses on the comparative effectiveness and safety of biopharmaceuticals and analytic methods to improve the validity of epidemiologic studies using complex health care databases. Dr. Schneeweiss is past president of the International Society for Pharmacoepidemiology and is fellow of the American College of Epidemiology, the American College of Clinical Pharmacology, and the International Society for Pharmacoepidemiology. He is voting consultant on the FDA Drug Safety and Risk Management Advisory Committee and member of multiple scientific advisory boards.

Joshua M. Sharfstein, MD was appointed by President Obama to be the principal deputy commissioner, Food and Drugs, in March 2009. From December 2005 through March 2009, Dr. Sharfstein was the commissioner of health for the city of Baltimore, MD. In this position, he led efforts to expand literacy efforts in pediatric primary care, facilitate the transition to Medicare Part D for disabled adults, engage college students in public health activities, increase influenza vaccination of health care workers, and expand access to effective treatment for opioid addiction. Under his leadership, the Baltimore Health Department and its affiliated agencies have won multiple national awards for innovative programs, and in 2008, Dr. Sharfstein was named Public Official of the Year by *Governing Magazine*. From July 2001 to December 2005, Dr. Sharfstein served as minority professional staff of the Government Reform Committee of the U.S. House of Representatives for Congressman Henry A. Waxman. Dr. Sharfstein is a 1991 graduate of Harvard College, a 1996 graduate of Harvard Medical School, a 1999 graduate of the combined residency program in pediatrics at Boston Children's Hospital and Boston Medical Center, and a 2001 graduate of the fellowship in general pediatrics at the Boston University School of Medicine.

Alexander M. Walker, MD, DrPH is a principal at World Health Information Science Consultants, LLC (WHISCON), and adjunct professor of epidemiology at Harvard School of Public Health. At Harvard, he was formerly professor and chair of the department of epidemiology. At WHISCON, he oversees research strategy. Dr. Walker's work encompasses the safety of drugs, devices, vaccines, and medical procedures. Recent studies include post-marketing safety studies for approved drugs, natural history of disease studies to provide context for Phase III clinical trials, studies of the impact of drug labeling and warnings on prescribing behavior, and determinants of drug uptake and discontinuation. Dr. Walker is on the editorial board of *Pharmacoepidemiology and Drug Safety* and is on the board of directors of the International Society for Pharmacoepidemiology, which he also served as president in 1995-1996. He has served as a statistical consultant for the *New England Journal of Medicine* and a contributing editor for *The Lancet*.