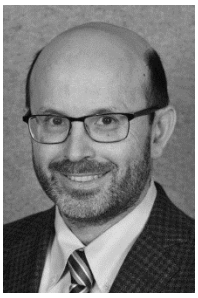
Duke | Robert J. Margolis, MD Center for Health Policy

Evaluating RWE from Observational Studies in Regulatory Decision-Making: Lessons Learned from Trial Replication Analyses

Duke-Margolis Center for Health Policy | 2-Day Virtual Meeting
February 16 & 17, 2021

Biographies



Robert Ball is Deputy Director, Office of Surveillance and Epidemiology (OSE), Center for Drug Evaluation and Research, FDA. Dr. Ball shares in the responsibilities for leading OSE staff evaluating drug and biologic product safety and effectiveness using Real World Evidence, including managing the Sentinel System. From 2008 to 2013, Dr. Ball served as the Director, Office of Biostatistics and Epidemiology, Center for Biologics Evaluation and Research (CBER), FDA where he led statistical and epidemiological evaluation of vaccines, blood, cell, tissue, and gene therapy products. He started his FDA career as a medical epidemiologist in CBER in 1998 and oversaw post-market safety surveillance for all US licensed vaccines from 2001-2008. Dr. Ball received his BS in Mathematics and MD from Georgetown University, where he was elected to the Alpha Omega Alpha Honor Medical Society. He interned at the US Naval Hospital Bethesda, completed his MPH and residency in Occupational Medicine at the Uniformed Services University of the Health Sciences, and received the ScM degree in Infectious Disease Epidemiology and Vaccine Science and Policy from Johns Hopkins School of Public Health. In addition, Dr. Ball is Board Certified in Clinical Informatics.

Josephine P. Briggs is Senior Advisor at the Patient-Centered Outcomes Research Institute (PCORI). Most recently, Briggs also served as PCORI's Interim Executive Director following the retirement of founding Executive Director Joe V. Selby, MD, MPH and Acting Chief Science Officer. Briggs is a nationally recognized nephrologist and health services researcher who serves as Editor in Chief of the Journal of the American Society of Nephrology, the leading journal in the field. She served as Senior Scientific Officer at the Howard Hughes Medical Institute and spent nearly 20 years in various leadership positions at the National Institutes of Health (NIH), including Director of the Division of Kidney, Urologic, and Hematologic Diseases in the National Institute of Diabetes and Digestive and Kidney Diseases, and Director of the National Center for Complementary and Integrative Health. During her time at the NIH, Briggs led the establishment of several major programs. She was co-leader of the NIH Common Fund Health Care Systems Research Collaboratory, a 10-year effort to conduct pragmatic clinical trials in partnership with clinical investigators and healthcare systems in the United States. She also was interim founding director of the NIH Precision Medicine Initiative® Cohort Program, now known as All of Us. Briggs was a Professor of Medicine and Physiology and Associate Chair of the Department of Medicine at the University of Michigan before joining the NIH. She completed her residency in internal medicine and nephrology at the Mount Sinai School of Medicine in New York City.

John Concato is the Associate Director for Real-Word Evidence Analytics in the Office of Medical Policy (OMP) at the Center for Drug Evaluation and Research (CDER), US Food and Drug Administration. In seeking to enhance policies related to drug development and regulatory review, his responsibilities involve coordinating CDER's real-world evidence (RWE) Program, serving as Chair of the RWE Subcommittee, supporting RWE guidance development and demonstration projects, interacting with external stakeholders regarding RWE, and developing internal Agency processes related to RWE. He also supports other activities and initiatives in the Office of Medical Policy Initiatives (OMPI). Prior to joining FDA in 2019, his career focused on generating research as an independent investigator and research center director at Yale University School of Medicine and the U.S. Department of Veterans Affairs (VA), including serving as one of two founding principal investigators of the VA Million Veteran Program. He received M.D. and M.S. degrees from New York University and an M.P.H. degree from Yale University.

Jacqueline Corrigan-Curay serves as Director of CDER's Office of Medical Policy (OMP). She leads the development, coordination, and implementation of medical policy programs and strategic initiatives. She works collaboratively with other CDER program areas, FDA centers, and stakeholders on enhancing policies to improve drug development and regulatory review processes. OMP is comprised of the Office of Prescription Drug Promotion (OPDP) and the Office of Medical Policy Initiatives (OMPI). OPDP oversees the regulation of prescription drug promotion and advertising. OMPI provides oversight and direction for new and ongoing policy initiatives in broad-based medical and clinical policy areas. Prior to joining FDA, she served as supervisory medical officer with the Immediate Office of the Director, National Heart, Lung and Blood Institute (NHLBI), at National Institute of Health's (NIH) where she focused on developing policies and procedures to enhance the clinical trial enterprise. She also served as the Director of the Office of Biotechnology Activities (OBA), Office of Science Policy at NIH, where she was executive secretary of the NIH Recombinant DNA Advisory Committee. She has held positions as an attending physician with the VA Medical Center, a policy analyst with the Congressional Office of Technology Assessment, and a practicing attorney in Washington, D.C. Dr. Corrigan-Curay earned her law degree from Harvard Law School, her medical degree from University of Maryland School of Medicine, and a bachelor's degree in history of science from Harvard/Radcliffe College in Cambridge, MA. She completed her training in internal medicine at Georgetown University Medical Center, where she also served as a clinical assistant professor of medicine. She continues to practice internal medicine part-time at the Veterans Affairs Medical Center in Washington, D.C.

William H. Crown is Distinguished Research Scientist at The Heller School, Brandeis University. In this role he provides methodological guidance on a portfolio of research projects with specific focus on causal inference in database studies, simulation of health care systems, and application of operations research methods to health policy questions. From 2013-2020, he was Chief Scientific Officer of OptumLabs where he led the development of the research and data infrastructure of the Labs, as well as its relationships with academic research partners. From 2004-2013, Dr. Crown was President of the health economics, late phase research, data products, and epidemiology business units at Optum Life Sciences. He was Vice President of Outcomes Research and Econometrics at Thomson Reuters Medstat from 1994-2004. From 1982-1995, Dr. Crown was a faculty member of the Florence Heller Graduate School, Brandeis University, where he taught graduate courses in statistics and conducted research on the economics of aging and long-term care

policy. He received his doctorate degree in regional economic modeling from the Massachusetts Institute of Technology, and a master of arts in economics from Boston University. The author of two books and co-author of two others, Dr. Crown has published over 180 peer-reviewed journal articles, book chapters, and other scholarly papers. He is a frequent speaker on statistical methods for the analysis of observational data at professional meetings and conferences. Dr. Crown was also 2013-14 President of the International Society of Pharmacoeconomics and Outcomes Research (ISPOR). He currently co-chairs an ISPOR Task Force on Machine Learning, as well as a joint ISPOR/ISPE Task Force on protocol design to enhance transparency in the registration of observational studies. He is particularly interested in the intersection of machine learning and causal inference methods.

Gerald J. Dal Pan currently serves as the Director of the Office of Surveillance and Epidemiology in FDA's Center for Drug Evaluation and Research, where since 2005 he has been responsible for the Center's programs in adverse event surveillance and analysis, pharmacoepidemiology, risk management, and medication error prevention. In this capacity, he is involved in both the premarket and postmarket regulation of drugs and therapeutic biologics, and in the implementation of the drug safety provisions of the Food and Drug Administration Amendments Act and other initiatives. He is a member of the World Health Organization Advisory Committee on the Safety of Medicinal Products, and has served on working groups of the Council of International Organization of Medical Sciences (CIOMS) and the International Council on Harmonisation (ICH). He received his MD from Columbia University College of Physicians and Surgeons and his Master of Health Science in Clinical Epidemiology from the Johns Hopkins University School of Hygiene and Public Health. He completed residency training in Internal Medicine at the Hospital of the University of Pennsylvania and in Neurology at the Johns Hopkins Hospital. He is board certified in both Internal Medicine and Neurology. He joined FDA in 2000 as a medical reviewer in the Center's Office of New Drugs. Before working at FDA, he was a faculty member in the Department of Neurology at Johns Hopkins and worked in the pharmaceutical industry.

Nancy Dreyer is Senior Vice President and Chief Scientific Officer for Real World Solutions at IQVIA, and Adjunct Professor of Epidemiology at the University of North Carolina at Chapel Hill. At IQVIA, Dreyer leads the Center for Advanced Evidence Generation, working to raise attention to the use of real-world research to enhance and accelerate evidence generation. Her current work is focused on COVID-19 as well as other issues of regulatory and public health importance. Dreyer received the Red Jacket honor from PharmaVOICE in 2020 and DIA's Global Inspire Award for Author of the Year in 2019.

Michele Jonsson Funk is Associate Professor of Epidemiology and Director of the Center for Pharmacoepidemiology at the University of North Carolina at Chapel Hill. Dr Jonsson Funk has an international reputation as a trusted voice for clear insights on rigorous approaches to studying drug safety and effectiveness. Over the past 15 years, her research has focused on the intersection of pharmacoepidemiology and methods for estimating valid effects in real world data with specific applications in women's health research. Her methodologic expertise includes rigorous estimation of drug effects using non-experimental data, evaluation of treatment effect heterogeneity, implementation of propensity scores, doubly robust estimators, methods to address bias due to measurement error, and data linkage approaches. Dr Jonsson Funk leads *Detailing and Evaluating Tools*

to Expose Confounded Treatment Effects (DETECTe), an FDA-funded demonstration project. She currently serves on the Council for International Organizations of Medical Sciences (CIOMS) Working Group XIII on Real World Data (RWD) and Real World Evidence (RWE) for Regulatory Decision Making, the Real World Data Sharing Steering Committee for the COVID R&D Alliance, a consortium of more than 20 life sciences companies working together on COVID-related research, and is a Fellow of the International Society of Pharmacoepidemiology. She received her PhD in Epidemiology from the University of North Carolina at Chapel Hill and her BA in Psychology from Reed College.

Jennifer Graff is the National Pharmaceutical Council's (NPC) vice president of policy research. In this role, she leads research and policy initiatives to advance the use of evidence to inform health care decision-making. Her areas of focus include research and education to support increased access to and use of high-quality data, development and adoption of good research methods, and policies to enable the exchange of truthful and non-misleading information to support stakeholder decision-making. Prior to joining NPC in 2009, Dr. Graff led strategic health economic and outcomes research activities at MedImmune and Pfizer Pharmaceuticals. She has authored over 20 peer-reviewed articles and presents frequently on policy issues affecting the biopharmaceutical industry. She currently serves as an associate editor of the AcademyHealth journal eGEMS and as a member of the Academy of Managed Care Pharmacy Format Executive Committee. Dr. Graff holds a Doctorate of Pharmacy from the University of Nebraska Medical Center, and completed a Health Outcomes and Pharmacoeconomics fellowship at the University of Michigan.

Frank Harrell received his PhD in Biostatistics from UNC in 1979. Since 2003 he has been Professor of Biostatistics, Vanderbilt University School of Medicine, and was the department chairman from 2003-2017. He was Expert Statistical Advisor for the Office of Biostatistics for FDA CDER from 2016-2020. He is Associate Editor of Statistics in Medicine, and a member of the Scientific Advisory Board for Science Translational Medicine. He is a Fellow of the American Statistical Association and winner of the Association's WJ Dixon Award for Excellence in Statistical Consulting for 2014. His specialties are development of accurate prognostic and diagnostic models, model validation, clinical trials, observational clinical research, cardiovascular research, technology evaluation, pharmaceutical safety, Bayesian methods, quantifying predictive accuracy, missing data imputation, and statistical graphics and reporting.

Miguel Hernán conducts research to learn what works for the treatment and prevention of cancer, cardiovascular disease, and HIV infection. Together with his collaborators, he designs analyses of healthcare databases, epidemiologic studies, and randomized trials. Miguel teaches clinical data science at the Harvard Medical School, clinical epidemiology at the Harvard-MIT Division of Health Sciences and Technology, and causal inference methodology at the Harvard T.H. Chan School of Public Health, where he is the Kolokotrones Professor of Biostatistics and Epidemiology. His edX course Causal Diagrams and his book Causal Inference, co-authored with James Robins, are freely available online and widely used for the training of researchers.

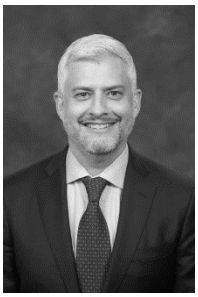
Adrian Hernandez is Executive Director of the Duke Clinical Research Institute, and also serves as Vice Dean and Professor of Medicine, Division of Cardiology, at the Duke University School of Medicine, all in Durham, NC. Dr. Hernandez received his medical degree from the University of Texas-Southwestern Medical Center in Dallas. He completed his residency training in internal medicine at the University of California in San Francisco. Dr. Hernandez completed his fellowship in cardiology at Duke University Medical Center Cardiology in Durham, NC, as well as his MHS. Dr. Hernandez has research interests in the cardiology field, specifically acute, chronic, and advanced heart failure, heart failure and comorbidities, quality of care and outcomes research, clinical trials, comparative effectiveness and health policy. Dr. Hernandez is a member of the American College of Cardiology, the American Heart Association, the Heart Failure Society of America, and the American Society for Clinical Investigation. He has co-authored more than 600 peer-reviewed publications.

Mark McClellan is Director of the Margolis Center for Health Policy at Duke University and the Robert J. Margolis Professor of Business, Medicine, and Policy. He is a physician economist who focuses on quality and value in health care including payment reform, real-world evidence and more effective drug and device innovation. He is former administrator of the Centers for Medicare & Medicaid Services and former commissioner of the U.S. Food and Drug Administration, where he developed and implemented major reforms in health policy. He was previously Senior Fellow at the Brookings Institution and a faculty member at Stanford University.

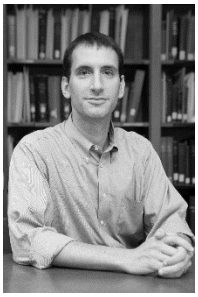
Nandita Mitra is Professor of Biostatistics and Vice-Chair of Faculty Professional Development in the Department of Biostatistics, Epidemiology, and Informatics at the University of Pennsylvania. She is also the Chair of the Graduate Group in Epidemiology and Biostatistics and Co-Director of the Center for Causal Inference at Penn. She received her BA in Mathematics from Brown University, MA in Biostatistics from the University of California, Berkeley, and her PhD in Biostatistics from Columbia University and completed a postdoctoral fellowship at Harvard. Her primary research area is causal inference with a focus on developing propensity score, instrumental variables, and sensitivity analysis methods for observational data with applications in cancer, health policy, and health economics. Dr. Mitra is the author of over 225 peer-reviewed journal articles, Editor-in-Chief of *Observational Studies* and serves on the editorial board of the *International Journal of Biostatistics*. She is an elected Fellow of the American Statistical Association.

Lucinda Orsini is currently Vice President for Value and Outcomes at COMPASS Pathways, a mental healthcare company dedicated to accelerating patient access to evidence-based innovation in mental health. Until January 2021, she was Associate Chief Science Officer at ISPOR, the leading society for health economics and outcome research. The science office at ISPOR develops, leads, and supports strategic initiatives related to research, scientific, and content priorities. While Lucinda holds a professional medical degree, she has spent most of her ~20-year career in health economics and outcomes research. Starting at The Medstat Group (Truven Health Analytics) Lucinda managed projects using health care claims data for external clients. She has worked in the pharmaceutical industry at Bristol-Myers Squibb and subsidiaries in Global HEOR focused on oncology and immunotherapy leading and publishing on patient reported outcomes, health economic modeling

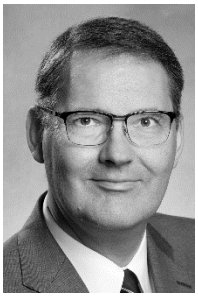
and real-world evidence studies – both prospective and retrospective in many different tumor types. Lucinda has also led HEOR efforts at Parexel a full-service contract research group prior to ISPOR.



Robert Reynolds is Vice President, Epidemiology and Patient-Centered Outcomes in Value Evidence and Outcomes, part of Research and Development at GSK. His group is responsible for leading the epidemiologic and patient-reported components of integrated evidence plans. He is also an Adjunct Associate Professor of Epidemiology at the Tulane School of Public Health and Tropical Medicine. Prior to joining GSK, he worked at Pfizer for twenty years, most recently leading Epidemiology in the R&D organization. He is a Fellow and former Board member of the International Society for Pharmacoepidemiology. He holds an AB in Biology from Bard College and a MSc in Epidemiology and ScD in Population and International Health from the Harvard T.H. Chan School of Public Health.

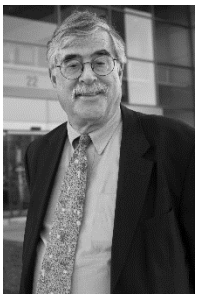


Joseph S. Ross is a Professor of Medicine (General Medicine) and of Public Health (Health Policy and Management) at the Yale School of Medicine, an Associate Physician of the Center for Outcomes Research and Evaluation at Yale-New Haven Health System, and Co-Director of the National Clinician Scholars Program at Yale. With expertise in health services and outcomes research and the translation of clinical research into practice, his research examines the use and delivery of higher quality care and issues related to pharmaceutical and medical device regulation, evidence development, postmarket surveillance, and clinical adoption. Dr. Ross co-directs the Yale-Mayo Clinic Center for Excellence in Regulatory Science and Innovation (CERSI), the Yale Open Data Access (YODA) Project, and the Collaboration for Research Integrity and Transparency (CRIT) at Yale Law School, and leads efforts at Yale-New Haven Health System in collaboration with the National Evaluation System for health Technology (NEST).



Sebastian Schneeweiss is a Professor of Medicine and Epidemiology at Harvard Medical School and Chief of the Division of Pharmacoepidemiology, Department of Medicine, Brigham and Women's Hospital. His research focuses on the comparative effectiveness and safety of biopharmaceuticals. He has developed analytic methods to improve the scientific validity of epidemiologic analyses using complex longitudinal healthcare databases for newly marketed medical products. The overarching theme of his research is applying advanced real-world data analytics for regulatory decision making transparently and in rapid cycles. His work is published in >400 articles. His work is funded by NIH, PCORI, Arnold Foundation, IMI, and FDA where he is also a voting consultant. Dr. Schneeweiss is Principal Investigator of the FDA Sentinel Innovation Center funded by FDA/CDER and Methods Lead of the FDA Sentinel program. He 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 received his medical training at the University of Munich Medical School and his doctoral degree in pharmacoepidemiology from Harvard.

Nilay Shah is Chair of the Division of Health Care Delivery Research at Mayo Clinic and Professor of Health Services Research in the Mayo Clinic College of Medicine. He is also the Robert D. and Patricia E. Kern endowed Director for Research in the Center for the Science of Health Care Delivery at Mayo Clinic. He currently co-leads the FDA funded Yale-Mayo Clinic Center for Excellence in Regulatory Science and Innovation (CERSI) with Joe Ross from Yale University. He also leads the Mayo Clinic collaboration with National Evaluation System for health Technology Coordinating Center (NESTcc).



Robert Temple serves as CDER's Deputy Center Director for Clinical Science and Senior Advisor in the Immediate Office of the Office of New Drugs (OND). As the senior advisor, Bob is a consultant to the OND director and other FDA officials on matters related to clinical program objectives. Dr. Temple received his medical degree from the New York University School of Medicine in 1967. In 1972, he joined CDER as a Medical Officer in the Division of Metabolic and Endocrine Drug Products. He later moved into the position of Director of the Division of Cardio-Renal Drug Products. Before becoming Senior Advisor in OND, Dr. Temple was the Acting Deputy Director of OND's Office of Drug Evaluation-I (ODE-I) which is responsible for the regulation of cardiovascular and renal, neurology, and psychiatry drug products. He served in this capacity for more than 23 years—since the office's establishment in 1995. Dr. Temple has a long-standing interest in the design and conduct of clinical trials. He has written extensively on this subject, especially on choice of control group in clinical trials, evaluation and active control trials, trials to evaluate dose-response, and trials using "enrichment" designs. He has been involved in the development of many International Conference on Harmonization (ICH) guidelines and numerous FDA guidances, including ones on study enrichment and on issues related to the design and interpretation of non-inferiority studies.