Pre-Conference Workshop I (full-day)

Date: Tuesday, May 26, 2020

Time: 8:30 am – 5:30 pm

Synthesis of Datasets to Understand Risk and Prevention of Important Mental, Emotional and Behavioral Health Outcomes (To register select: Synthesis of Datasets)

Underwritten by: NIH/Office of Disease Prevention

Organizers

- Crystal L. Barksdale, PhD, MPH, National Institutes of Health, National Institute of Mental Health
- Rebecca Kurikeshu George, MPH, National Institutes of Health, National Institute of Mental Health
- Eve E. Reider, PhD, National Institutes of Health, National Institute of Mental Health
- Belinda E. Sims, PhD, National Institutes of Health, National Institute on Drug Abuse

Discussants

- Arin Connell, PhD, Case Western Reserve University
- Dorothy Espelage, PhD, University of North Carolina at Chapel Hill
- George W. Howe, George Washington University

Presenters

- Jennifer Bailey, Ph.D., University of Washington
- Jeffrey A. Bridge, PhD, The Research Institute at Nationwide Children’s Hospital
- C. Hendricks Brown, PhD, Northwestern University
- George W. Howe, PhD, George Washington University
- Rick Kosterman, PhD, University of Washington
- David MacKinnon, PhD, Arizona State University
- Rashelle Musci, PhD, Johns Hopkins University
- Manual Ocasio, PhD, Tulane University
- Tatiana Perrino, PsyD, University of Miami School of Medicine
- Bobbi Jo Yarborouogh, PsyD, Kaiser Foundation Research Institute
- Fred Wulczyn, PhD, Chapin Hall at The University of Chicago

Description:

There is a growing body of literature reporting on the benefits of preventive interventions for substance abuse and internalizing/externalizing behaviors, delivered in childhood on the long-term outcomes of mental health and reduced substance use. Findings from this research
demonstrate that (1) intervening early in development and targeting proximal risk and protective factors can have an impact on a broad array of distal outcomes; and (2) preventive interventions can have unanticipated beneficial effects on outcomes not specifically targeted by the intervention (cross-over effects). Indeed, there is a small body of evidence providing proof of concept that preventive interventions aimed at reducing a number of risk factors for suicide (e.g., substance use, externalizing, and internalizing behavior) can prevent suicidal ideation and behaviors. New technological and analytic approaches for harmonizing/integrating data sets hold potential for increasing statistical power and facilitating the detection of the risk and protective factors for important mental, emotional, and behavioral (MEB) health outcomes, and impact of prevention interventions, in general, and on important subgroups (e.g., sexual minority youth, racial/ethnic minority youth) and in the case of low base rate behaviors (e.g., suicidal behaviors, psychosis).

The purpose of this workshop is to encourage research to integrate/harmonize existing data sets from preventive intervention trials implemented early in life and administrative data (e.g., national death index, child welfare, criminal justice, etc.) to: 1) examine risk and protective factors relevant to later mental health outcomes in childhood, adolescence and young adulthood that could become targets of prevention; and 2) determine whether preventive interventions delivered earlier in life have long-term effects, and cross-over effects (e.g., unanticipated beneficial effects), on important MEB health outcomes.

Learning objectives:

- To understand feasibility of, steps involved in and potential barriers to synthesizing data and harmonizing measures across studies of risk and protection and prevention studies.
  - Learn to determine likely studies and outcomes for inclusion
  - Learn steps needed for harmonization based on prior efforts at aggregation
- To become familiar with long-term outcomes and cross-over effects of prevention interventions delivered early in life;
- Identify additional data collection that may strengthen findings
- Identify potential collaborative partnerships to implement analyses
- Learn about funding mechanisms for submitting grant applications on data harmonization.

Target Workshop Audience:

Prevention scientists, practitioners, federal employees and policy makers interested in learning about the integration/harmonization of administrative and prevention intervention data sets to examine risk and protective factors and long-term impact and cross-over effects of interventions on important MEB outcomes.

Materials to be provided to attendees:

- Electronic “handouts” of presentation
• A list that includes: 1) potential prevention data sets available for examination; and 2) information on the use of NIH reporter to search for prevention studies using different search terms.

Organizers:

Crystal Barksdale, Ph.D., MPH is a Health Science Policy Analyst at the National Institute of Mental Health. She currently works on health disparities and minority health research efforts and projects within NIMH. Previously, she worked as a Senior Research Scientist and led projects that explored racial disparities and disproportionality in child-serving systems, and identified culturally appropriate mental health interventions for at-risk youth and their families. Dr. Barksdale is interested in the translation of research that reduces mental health disparities and in the implementation of culturally and linguistically appropriate mental health interventions using advanced methods that promote health equity.

Rebecca Kurikeshu George, M.P.H., is a Scientific Program Analyst for the National Institutes of Mental Health, in the Division of Services and Intervention Research. She currently works on various suicide prevention projects within NIMH. She previously served as the Senior Project Coordinator for the Maryland Collaborative to Reduce College Drinking. She has an interest in adolescent and young adult health risk behaviors and global mental health.

Eve E. Reider, Ph.D., is Associate Director for Prevention at the National Institute of Mental Health (NIMH). She oversees the NIMH Prevention Intervention Research Program, a developmentally focused theory-based research program that spans the life course, from prenatal though adulthood. Dr. Reider has been interested in the long-term and cross-over effects of prevention interventions for many years, and she co-authored two papers for supplements related to this topic, in the areas of prevention of health risking sexual behaviors related to HIV and suicide ideation and behaviors.

Belinda Sims, Ph.D. is a program official at the National Institute on Drug Abuse, in the Prevention Research Branch. NIDA has provided significant support for longitudinal research to examine the long-term outcomes of interventions to prevent substance use. In addition, this NIDA-supported research has documented the potential for these interventions to have cross-over effects on outcomes not originally targeted by the intervention. Dr. Sims can provide information on NIDA’s ongoing interest in this work, including approaches that use secondary analysis and integrative data analytics. In addition, Dr. Sims has co-authored papers for two special issues related to this topic, in the areas of HIV prevention and suicide prevention.

Presenters:

Jennifer A. Bailey, Ph.D., is a research scientist at the Social Development Research Group, University of Washington. Her research interests focus on understanding the causes of healthy
and unhealthy development in childhood, adolescence, and young adulthood. Specific outcomes she studies include conduct and attention problems, substance use, mental health, and sexual health, including HIV/STI sexual risk and protective behaviors. Dr. Bailey is expanding her research to include health behaviors like diet and physical activity that are linked to cardiovascular health, obesity, and cancer as well as gene/environment interaction as related to problem behaviors. Her methodological interests include structural equation modeling, multilevel modeling, and longitudinal data analysis as well as the application of longitudinal and latent variable modeling to genetic and health behavior data.

Jeffrey A. Bridge, Ph.D., is an epidemiologist and director of the Center for Suicide Prevention and Research in the Abigail Wexner Research Institute at Nationwide Children’s Hospital and Professor of Pediatrics, Psychiatry and Behavioral Health at The Ohio State University College of Medicine. His research focuses on the epidemiology of suicide and suicidal behavior in young people, neurocognitive vulnerability to suicidal behavior, screening for suicide risk in medical and school settings, and on improving the quality of care for suicidal youth.

C Hendricks Brown, Ph.D., is principal investigator of two synthesis research projects involving the integration of individual level data from a total of 29 randomized prevention trials; the first addressed prevention of adolescent depression, and the more recent one involves prevention of suicide related behavior by interventions that either directly target suicide or target suicide's risk factors.

George Howe, Ph.D. has spent most of the last decade collaborating with a network of prevention trials investigators and methodologist colleagues to develop methods for combining individual- and item-level data from a series of randomized prevention trials to study heterogeneity in program effectiveness as a basis for the development of more effective intervention methods. This has included developing collaborative networks of trials investigators, establishing and implementing data sharing agreements, the application of IRT modeling to harmonize outcomes including youth depression, and testing variation in intervention impact. He has also worked on the implementation of baseline target moderated mediation (BTMM) analyses to test whether and how variation in baseline intervention targets moderates prevention impact, both in individual trials and in synthesis analyses from combined trials. (Presenter and Discussant)

Rick Kosterman, PhD, is a research scientist with the Social Development Research Group, School of Social Work, University of Washington. His research interests include developmental and environmental risks for interrelated drug abuse and mental and physical health problems, and the evaluation of prevention programs. He is currently principal investigator of a study examining health-related outcomes in the longitudinal panel of the Seattle Social Development Project. This study examines the environmental mechanisms for health as specified by the social
development model (SDM), the theory underlying the project. One focus of this research is the long-term effects of an early, SDM-based preventive intervention (embedded in the study) on outcomes in adulthood.

David P. MacKinnon, Ph.D., is a Foundation Professor in the Department of Psychology at Arizona State University. He has been at Arizona State University since 1990 and is affiliated with the Prevention Intervention Research Center and the Research in Prevention Laboratory. Dr. MacKinnon teaches graduate analysis of variance, mediation analysis, and statistical methods in prevention research courses. In 2011 he received the Nan Tobler Award from the Society for Prevention Research for his book on statistical mediation analysis. He has served on federal review committees including a term on the Epidemiology and Prevention Research review committee and was a consulting editor for the journal, *Prevention Science*. Dr. MacKinnon has been principal investigator on many federally funded grants and has had a National Institute on Drug Abuse grant to develop and evaluate methods to assess mediation since 1990. He received the Prevention Science Award from the Society for Prevention Research. Dr. MacKinnon has wide ranging interests in statistics and methodology but his primary interest is in the area of statistical methods to assess how and for whom prevention and treatment programs achieve their effects.

Rashelle J. Musci, Ph.D. is the Dr. Ali and Rose Kawi Professor in Mental health at the Johns Hopkins Bloomberg School of Public Health. As a developmental methodologist she is focused on using latent variable methods to understand the impact of prevention and intervention programs across the lifespan. She is a member of the Data Analysis Center of the NIH funded Environmental Influences on Child Health Outcomes (ECHO) program, serving as the lead methodologist on a number of important data harmonization projects. Dr. Musci currently serves as PI on a NICHD funded project to explore the intergenerational impact of an early childhood school-based prevention program.

Manuel Ocasio, Ph.D., has a doctorate in epidemiology, in which he received training in advanced statistical methods, such as mediation analysis, longitudinal data analysis and structural equation modeling. Dr. Ocasio’s F31-funded dissertation utilized integrative data analysis to pool data from five separate trials. He completed these analyses under guidance from his co-sponsor C. Hendricks Brown, a methodologist experienced in this approach.

Tatiana Perrino, Psy.D., is associate professor at the University of Miami’s Department of Public Health Sciences. She is a licensed psychologist and a court-certified family mediator whose research and community work focus on the prevention of mental, emotional and behavioral problems in adolescents, particularly among families and communities disproportionately affected by these health risks. She has been with the University of Miami for over 20 years and teaches graduate-level courses including *Determinants of Health & Health Disparities across the Life Course*. Dr. Perrino has over forty peer-reviewed publications in prevention science and has
served as project director for prevention research grants, including projects funded by the National Institute of Mental Health (NIMH), National Institute on Drug Abuse (NIDA), and Centers for Disease Control and Prevention (CDC). As project director and investigator of the Collaborative Data Synthesis for Adolescent Depression Trials study (R01-NIMH040859), she coordinated and supported the sharing of de-identified datasets across 19 prevention trials, leading several publications that involved data sharing and synthesis across trials.

Fred Wulczyn, Ph.D., is a Senior Research Fellow and founding staff member of the Chapin Hall Center for Children at the University of Chicago. In addition, he directs Center for State Child Welfare Data. Over the course of his career, he has led the field developing new ways to use administrative records for purposes of monitoring the performance of public and private child welfare agencies. He developed the very first longitudinal data in Illinois in 1981. From that platform he developed an array of statistical methods and reporting architectures to support state and local decision-makers, whether at the policy or casework level. He has designed web-based applications for data reporting and data capture. His expertise extends from computer technology (software and hardware), statistics and research methods and child welfare policy and practice. His active role in improving how data is used led to his appointment as Director of the Accountability Center in Tennessee. Among other actions by the state, the Accountability Center ended 15 years of oversight by the federal courts of Tennessee’s child welfare agency. Dr. Wulczyn and the Center for State Child Welfare Data were selected to fulfill this vital role because of their expertise and their reputation for integrity. Dr. Wulczyn brings a multidisciplinary perspective to this work, drawing on disciplines such as mathematics, population biology, human development, sociology, system dynamics, and social work. His contributions emphasize the use research evidence needed to operate complex systems.

Bobbi Jo Yarborough, PsyD, Kaiser Permanente Center for Health Research, is a clinical psychologist and health services researcher working to improve care and outcomes among individuals with serious mental illnesses and/or substance use disorders. Across both areas, her work has focused on consumer definitions of recovery and preferences for treatment. Dr. Yarborough has a thriving program of substance use research, with a focus on opioid use. This research includes examining the incidence and prevalence of the risks of opioid abuse, misuse, and addiction among patients treated with opioids for chronic pain; an observational study designed to measure the incidence and predictors of opioid overdose and death using patient health records, insurance claims, and death records; a study examining long-term changes in function associated with opioid dose changes; and an examination of different models of treatment for opioid use disorders in primary care settings.

Discussants:
Arin M. Connell, Ph.D., is an Associate Professor and Director of Clinical Training in the Department of Psychological Sciences at Case Western Reserve University, with a secondary appointment in the Biostatistics program in the School of Medicine at CWRU. He currently serves as Associate Editor of the *Journal of Family Psychology*, and the *Journal of Early Adolescence*. His work has focused on the intersections of family-, prevention-, and affective-science-based approaches to the development and prevention of emotional and behavioral disorders across childhood and adolescence. One line of work has involved collaborative work examining long-term cross-over effects of the Family Check-Up intervention model on depression and suicide-related outcomes, and he is currently conducting an integrative data analysis project synthesizing data across several trials of the Family Check-Up program, in order to enhance understanding of such cross-over effects across development.

Dorothy L. Espelage, Ph.D., is Professor of Psychology at the University of Florida. Over the last 22 years, she has authored over 200 peer-reviewed articles, six edited books, and 70 chapters on bullying, homophobic teasing, sexual harassment, dating violence, and gang violence. Her research focuses on translating empirical findings into prevention and intervention programming and she has secured over twelve million dollars of external funding. She has conducted several large-scale randomized clinical trials to address youth bullying, sexual violence, and suicide and has been successful in tracking youth after the trials have ended. Along with her colleagues, she has conducted six large-scale meta-analyses on school violence, bystander behavior, implementation effects, cyberbullying interventions, family-based interventions, and school-based bullying interventions. She is also currently a co-PI on an NIMH funded grant to synthesize over 20 clinical trials to evaluate the efficacy of interventions for sexual and gender minorities on suicidal behaviors and mental health outcomes. This experience demonstrates her commitment to conducting synthesis and open science work.

**Outline of workshop, including (a) roles of presenters if more than one is listed, and (b) which aspects of instruction are hands on.**

**Outline of workshop**

8:30-8:45 a.m.  Introduction of Workshop, Organizers, and Discussants

Organizers: Eve Reider, Belinda Sims, Crystal Barksdale, and Rebecca Kurikeshu

- Statement of the issue: A key principle for prevention interventions delivered early in life is that intervening early can alter the life course trajectory in a positive direction. Thus, there is a need to examine the long-term impact as well as the cross-over effects (unanticipated beneficial effects) of prevention interventions delivered early in life on important outcomes such as mental health and common comorbidities (e.g., substance
use, including low-base rate behaviors, and for minority populations (e.g., sexual gender and racial/ethnic). To do this, methodological challenges will need to be addressed.

- Integrating administrative data sets to understand risk and protective factors and identify who is at risk for important MEB health outcomes
- Synthesizing prevention data sets can answer some important questions for the field
- Methods for synthesizing findings across randomized trials: opportunities and challenges
- Issues in sharing data across multiple trials
- How can we further the development of methods for addressing outcomes in intervention studies among small, selected populations and low base rate issues to better address health disparities, vulnerability, and strengths?
- What expertise is needed to synthesize and analyze prevention data sets?

8:45-9:15  Assessing Risk: Integrating Administrative Data
Presenter: Fred Wulczyn

- What are the challenges involved in obtaining administrative data?
- What has been the overall approach to integrating different types of administrative data?
- How has predictive analytics been used in child welfare?
- What are important considerations for the use of predictive analytics in child welfare?

9:15-9:45 a.m. Identifying Periods of High Risk and Predictors of Suicide for Youth in Public Child Serving Systems
Presenter: Jeff Bridge

- This study aims to: 1) quantify the incidence of suicide across and within 4 public child-serving systems (Medicaid, child welfare, juvenile justice, and behavioral health) in Ohio; 2) identify high risk periods for suicide among youth in publicly funded sectors; and 3) develop and validate a risk prediction algorithm to estimate individual risk for suicide in this population

9:45-10:15 a.m. Predictive Modeling: The Role of Opioid Use in Suicide Risk
Presenter: Bobbi Jo Yarborough

- Suicides and opioid-related overdoses have many overlapping risk factors, and both have been increasing over the past decade, causing concern that many overdose deaths may actually be suicides. This research team has developed: 1) robust models to predict suicide attempts and deaths following outpatient healthcare visits; and 2) algorithms to identify opioid-related overdoses and classify them as unintentional or intentional suicides. These two lines of research are converging to identify important, understudied opioid-related predictors and moderators of suicide risk.

10:15-10:30 a.m. Break
10:30-11:00 a.m.  Methods for Synthesizing Findings across Randomized Trials: Opportunities and Challenges
Presenter: Hendricks Brown

• What are the technical challenges in synthesizing findings across randomized trials at the individual level?
• How can we best handle differences in populations, interventions, and trial designs, as well as limitations of dealing with small sample sizes?

11:00-11:30 a.m. Issues in Sharing Data across Multiple Trials
Presenter: Tatiana Perrino

• How to address investigator concerns about sharing datasets and depositing harmonized datasets in repositories?
• How can we overcome practical issues in implementing NIH policies on data sharing?
• How best to facilitate researchers’ permission to use datasets and promote collaboration on synthesis projects?
• What are the major human subjects issues and how best to address them?

11:30 a.m.-12 p.m. Two Examples
Presenter: Hendricks Brown

• Two-Year Impact of Prevention Programs on Adolescent Depression: an Integrative Data Analysis Approach
• Synthesis of Trials to Prevent Suicide Risk Behavior in Sexual and Gender Minorities

12-1 p.m. Lunch

1:00-1:30 p.m. Harmonization of Measures in Synthesis Projects
Presenter: George Howe

• We anticipate that across multiple trials there will be different ways that outcomes will be measured.
• How can the analytic challenges of these and other differently measured variables be addressed in the harmonization of measures?
• What can be learned from other harmonization projects?

1:30-2:00 p.m. Integrating Universal School-Based Prevention programs: An Example
Presenter: Rashelle Musci

• The potential of examining the long-term and cross-over effects of school-based, universal preventive intervention programs for disruptive and aggressive behavior in early childhood on several mental health outcomes in early adulthood.
2:00-2:30 p.m. Subgroup, Mediation and Moderation Analysis in Synthesis Projects  
Presenter: David MacKinnon

- A major question addressed by this symposium is whether there are sufficient data available across studies to conduct meaningful analyses of the long-term outcomes of preventive interventions for low-base rate behaviors and subgroup analyses.
- Which criteria can help determine which studies are appropriate to be part of a synthesis from the perspective of adequate evaluations of outcome, heterogeneity of impact and influential processes such as moderation and mediation?
- What are the issues related to small and selected subsamples that need to be considered in comparing outcomes across subgroups and studies, and to examine mediation?

2:30-3:00 p.m. The Social Development Model: An Example  
Presenters: Jennifer Bailey and Rick Kosterman

- Feature the Social Development Model as a universal approach to reducing risks and enhancing protection and focusing on the long-term impacts related to mental, emotional and behavioral health.

3:00-3:15 p.m. Break

3:15-3:45 p.m. Familias Unidas: Examining Effects on Sexual Minority Hispanics  
Presenter: Manual Ocasio

- Use integrative data analysis across multiple Familias Unidas intervention trials to examine sexual minority Hispanic youth and their response to the intervention (multiple outcomes)

3:45-4:15 p.m. Discussion: Dorothy Espelage, George Howe, and Arin Connell

4:15-5:00 p.m. Open Discussion and Next Steps  
Moderators: Eve Reider, Crystal Barksdale, Rebecca Kurikeshu, Belinda Sims

- Overall issues: What are important questions to examine? How can data sets be combined in a meaningful way?
- What outcomes are important? What are the most feasible to examine?
- Are there data sets available to examine questions of interest? Where and how to find them? Is there administrative data that can be linked with prevention data sets?
- Does the team have the necessary expertise (e.g., prevention, outcomes of interest if examining cross-over effects, integrating/harmonizing, methodological)?
- What are the sample size considerations & how well do available studies address them?
- What design considerations need to be considered in the context of existing studies and efforts to add new variables?
- How best to deal with complexities such as evaluating determinants, mediation, moderation, and trajectories?
• What resources are needed? What mechanisms exist to address them? What are important review considerations
• Match making in terms of data sets and methodological expertise
• Tools and resources needed to disseminate these approaches and methods