

Dissemination and Implementation Research: An Introductory Workshop for Investigators
 Clinical Research Training Center, October 22-23, 2020
 Washington University School of Medicine in St. Louis

DAY 1		
Time and Session	Topic	Comments/Notes
Session 1: (9:00-09:30)	Introduce dual goals of workshop to provide entree to D&I as well as build cohort of scholars; expectations for participants; “mavens” and disseminating D&I; follow-up and engagement over time; make sure other resources in D&I are introduced;	
Session 2: The Ailment - Why a Science of D&I is needed (9:30-10:30)	Describe motivation for implementation science; understand need for rigor as well as relevance for generalizable but impactful implementation research; the central scientific challenge of context and generalizability; external validity a critical challenge in implementation science.	Lecture and discussion
Session 3: The Diagnosis I - How to Analyze a Gap in Implementation: Foundational Perspectives, Frameworks and Theories (10:40-11:10)	Understand approaches to addressing the gap between evidence and practice; the role of theory; common frameworks and theories; specific frameworks (e.g., CFIR); applications of theory to inform the understanding of a particular implementation problem; link to related theories in health behavior and public health (e.g., Bandura, socio-ecological frameworks)	Lecture and discussion
Session 4: Diagnosis II - How to Analyze a Gap in Implementation using Perspectives from Social Sciences (11:10 to 11:40)	Draw from major theoretical perspectives that emerged from traditions outside of health; sociology and social networks; economics and random utility theory, cognitive biases; marketing; social proof; place implementation theories and frameworks within larger context of perspectives to improve implementation of evidence based interventions	Lecture and discussion
Discussion: 11:50 to 12:30	Students to describe their work in D&I, including development of a proposal, and solicit feedback from the group; depending on size, in multiple smaller groups.	
Day 2		
Session 5: The Treatment - Designing and Implementing Implementation Strategies (9:00-9:40) – Christopher	Understand how implementation strategies are best conceptualized, specified and reported; cover differences between implementation strategies and clinical interventions; illustrate shortcomings in the reporting of implementation strategies in current literature; illustrate unifying approaches that cut across major families of implementation strategies;	Lecture and discussion

Carpenter		
Session 6: Study Designs and Approaches in Implementation Research (9:40-10:30) – Aaloke Mody	Understand research designs that can advance D&I research; pragmatic trials, stepped wedge; cover use of “impact evaluation” or econometric approaches such as regression discontinuity and difference-in-difference; the concept of natural experiments; hybrid designs – implementation and effectiveness trials; choice experiments; human centered design	Lecture and discussion
Session 7: Mechanisms and External Validity in Implementation Research (10:40-11:10)	Theory of change literature, causal model and mechanisms, transportability & external validity; mechanism as key for external validity; concrete examples; implications for study design mechanism	Lecture and discussion
Session 8: Context, Adaptation and Fidelity (11:10-11:40) – Ana Baumann	Introduce the concept of adaptation of interventions and implementation strategies; understand the value-added of adaptation particularly as it is related to equity delivery of care, introduce process and tracking framework of adaptation; tracking methods	Lecture and discussion
Discussion 11:50-12:30	Students to describe their work in D&I, including development of a proposal, and solicit feedback from the group; survey	

Readings for Session 2

- Gawande, A. (2013). Slow Ideas Some innovations spread fast. How do you speed the ones that don't? The New Yorker. Retrieved from <https://www.newyorker.com/magazine/2013/07/29/slow-ideas>
- Geng, E. H., Peiris, D., & Kruk, M. E. (2017). Implementation science: Relevance in the real world without sacrificing rigor. *PLoS Med*, 14(4), e1002288. doi:10.1371/journal.pmed.1002288
- Madon, T., Hofman, K. J., Kupfer, L., & Glass, R. I. (2007). Public health. Implementation science. *Science*, 318(5857), 1728-1729. doi:10.1126/science.1150009
- Proctor, E. K., Powell, B. J., Baumann, A. A., Hamilton, A. M., & Santens, R. L. (2012). Writing implementation research grant proposals: ten key ingredients. *Implementation science : IS*, 7(1), 96. doi:10.1186/1748-5908-7-96
- Rabin, B. A., & Brownson, R. C. (2017). Terminology for dissemination and implementation research. In *Dissemination and Implementation Research in Health: Translating Science to Practice, Second Edition* (pp. 19-46): Oxford University Press.
- Remme, J. H., Adam, T., Becerra-Posada, F., D'Arcangues, C., Devlin, M., Gardner, C., . . . Terry, R. F. (2010). Defining research to improve health systems. *PLoS Med*, 7(11), e1001000. doi:10.1371/journal.pmed.1001000
- Westreich, D., Edwards, J. K., Lesko, C. R., Cole, S. R., & Stuart, E. A. (2019). Target Validity and the Hierarchy of Study Designs. *Am J Epidemiol*, 188(2), 438-443. doi:10.1093/aje/kwy228

Readings for Session 3

- Altman, M., Huang, T. T. K., & Breland, J. Y. (2018). Design Thinking in Health Care. *Preventing chronic disease*, 15, E117-E117. doi:10.5888/pcd15.180128

- Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. *Implementation science : IS*, 4(1), 50. doi:10.1186/1748-5908-4-50
- Donabedian, A. (1988). The Quality of Care. *JAMA: The Journal of the American Medical Association*, 260(12), 1743-1748. doi:10.1001/jama.1988.03410120089033
- Green, L. W., Ottoson, J. M., García, C., & Hiatt, R. A. (2009) Diffusion theory and knowledge dissemination, utilization, and integration in public health. In: Vol. 30. *Annual Review of Public Health* (pp. 151-174).
- Lyon, A. R., & Koerner, K. (2016). User- centered design for psychosocial intervention development and implementation. *Clinical Psychology: Science and Practice*, 23(2), 180-200.
- Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science : IS*, 6(1), 42. doi:10.1186/1748-5908-6-42
- Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation science : IS*, 10(1), 53. doi:10.1186/s13012-015-0242-0
- Rimer, B. K., Glanz, K., & National Cancer, I. (2005). Theory at a glance : a guide for health promotion practice. Retrieved from <http://www.sbccimplementationkits.org/demandrnmch/wp-content/uploads/2014/02/Theory-at-a-Glance-A-Guide-For-Health-Promotion-Practice.pdf>
- Rogers, E. M. (2003). *Elements of Diffusion*. In *Diffusion of Innovations* (5th ed.). New York: Free Press.
- Team, B. I. (2010). *Applying behavioural insight to health*. London: Cabinet Office.

Readings for Session 4

- Ashraf, N. (2013). Rx: human nature. *Harv Bus Rev*, 91(4), 119-123, 125, 143. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/23593771>
- Bor, J., & Thirumurthy, H. (2019). Bridging the Efficacy-Effectiveness Gap in HIV Programs: Lessons From Economics. *Journal of acquired immune deficiency syndromes (1999)*, 82, S183-S191. doi:10.1097/QAI.0000000000002201
- Cialdini, R. B., & Goldstein, N. J. (2004) Social influence: Compliance and conformity. In: Vol. 55. *Annual Review of Psychology* (pp. 591-621).
- Dolan, P., Hallsworth, M., Halpern, D., King, D., Metcalfe, R., & Vlaev, I. (2012). Influencing behaviour: The mindspace way. *Journal of Economic Psychology*, 33(1), 264-277. doi:10.1016/j.joep.2011.10.009
- Hallsworth, M., Chadborn, T., Sallis, A., Sanders, M., Berry, D., Greaves, F., . . . Davies, S. C. (2016). Provision of social norm feedback to high prescribers of antibiotics in general practice: A pragmatic national randomised controlled trial. *The Lancet*, 387(10029), 1743-1752. doi:10.1016/S0140-6736(16)00215-4
- Valente, T. W. (2012). Network interventions. *Science*, 336(6090), 49-53. doi:10.1126/science.1217330

Readings for Session 5

- Pinnock, H., Barwick, M., Carpenter, C. R., Eldridge, S., Grandes, G., Griffiths, C. J., . . . Taylor, S. J. C. (2017). Standards for Reporting Implementation Studies (StaRI) Statement. *BMJ (Online)*, 356. doi:10.1136/bmj.i6795

- Powell, B. J., Waltz, T. J., Chinman, M. J., Damschroder, L. J., Smith, J. L., Matthieu, M. M., . . . Kirchner, J. A. E. (2015). A refined compilation of implementation strategies: Results from the Expert Recommendations for Implementing Change (ERIC) project. *Implementation Science*, 10(1). doi:10.1186/s13012-015-0209-1
- Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., . . . Hensley, M. (2011). Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Administration and Policy in Mental Health and Mental Health Services Research*, 38(2), 65-76. doi:10.1007/s10488-010-0319-7
- Proctor, E. K., Powell, B. J., & McMillen, J. C. (2013). Implementation strategies: Recommendations for specifying and reporting. *Implementation Science*, 8(1). doi:10.1186/1748-5908-8-139

Readings for Session 6

- Bärnighausen, T., Tugwell, P., Røttingen, J. A., Shemilt, I., Rockers, P., Geldsetzer, P., . . . Atun, R. (2017). Quasi-experimental study designs series—paper 4: uses and value. *Journal of Clinical Epidemiology*, 89, 21-29. doi:10.1016/j.jclinepi.2017.03.012
- Curran, G. M., Bauer, M., Mittman, B., Pyne, J. M., & Stetler, C. (2012). Effectiveness-implementation hybrid designs: Combining elements of clinical effectiveness and implementation research to enhance public health impact. *Medical Care*, 50(3), 217-226. doi:10.1097/MLR.0b013e3182408812
- Hemming, K., Haines, T. P., Chilton, P. J., Girling, A. J., & Lilford, R. J. (2015). The stepped wedge cluster randomised trial: Rationale, design, analysis, and reporting. *BMJ (Online)*, 350. doi:10.1136/bmj.h391
- Loudon, K., Treweek, S., Sullivan, F., Donnan, P., Thorpe, K. E., & Zwarenstein, M. (2015). The PRECIS-2 tool: Designing trials that are fit for purpose. *BMJ (Online)*, 350. doi:10.1136/bmj.h2147

Readings for Session 7

- Bareinboim, E., & Pearl, J. (2011, Jul 30 2011). External Validity and Transportability: A Formal Approach. Paper presented at the JSM Proceedings, Miami, FL.
- Breuer, E., Lee, L., De Silva, M., & Lund, C. (2015). Using theory of change to design and evaluate public health interventions: a systematic review. *Implementation Science*, 11(1), 63.
- Chambers, D. A., Glasgow, R. E., & Stange, K. C. (2013). The dynamic sustainability framework: Addressing the paradox of sustainment amid ongoing change. *Implementation Science*, 8(1). doi:10.1186/1748-5908-8-117
- Lewis, C. C., Boyd, M. R., Walsh-Bailey, C., Lyon, A. R., Beidas, R., Mittman, B., . . . Chambers, D. A. (2020). A systematic review of empirical studies examining mechanisms of implementation in health. *Implementation Science*, 15(1). doi:10.1186/s13012-020-00983-3
- Mehrotra, M. L., Petersen, M. L., & Geng, E. H. (2019). Understanding HIV Program Effects: A Structural Approach to Context Using the Transportability Framework. *Journal of acquired immune deficiency syndromes (1999)*, 82, S199-S205. doi:10.1097/QAI.0000000000002202
- Nilsen, P., & Bernhardsson, S. (2019). Context matters in implementation science: A scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. *BMC Health Services Research*, 19(1). doi:10.1186/s12913-019-4015-3
- Pfadenhauer, L. M., Gerhardus, A., Mozygemba, K., Lysdahl, K. B., Booth, A., Hofmann, B., . . . Rehfuess, E. (2017). Making sense of complexity in context and implementation: The Context and Implementation of Complex Interventions (CICI) framework. *Implementation Science*, 12(1). doi:10.1186/s13012-017-0552-5

- Rothman, K. J., & Greenland, S. (2005). Causation and causal inference in epidemiology. *American Journal of Public Health*, 95(SUPPL. 1), S144-S150. doi:10.2105/AJPH.2004.059204

Readings for Session 8

- Baumann, A. A., & Cabassa, L. J. (2020). Reframing implementation science to address inequities in healthcare delivery. *BMC Health Services Research*, 20(1). doi:10.1186/s12913-020-4975-3
- Baumann, A. A., Domenech Rodríguez, M. M., Amador, N. G., Forgatch, M. S., & Parra-Cardona, J. R. (2014). Parent management training-oregon model (PMTO™) in Mexico City: Integrating cultural adaptation activities in an implementation model. *Clinical Psychology: Science and Practice*, 21(1), 32-47. doi:10.1111/cpsp.12059
- Perez Jolles, M., Lengnick-Hall, R., & Mittman, B. S. (2019). Core Functions and Forms of Complex Health Interventions: a Patient-Centered Medical Home Illustration. *Journal of General Internal Medicine*, 34(6), 1032-1038. doi:10.1007/s11606-018-4818-7
- Rabin, B. A., McCreight, M., Battaglia, C., Ayele, R., Burke, R. E., Hess, P. L., . . . Glasgow, R. E. (2018). Systematic, multimethod assessment of adaptations across four diverse health systems interventions. *Frontiers in Public Health*, 6(APR). doi:10.3389/fpubh.2018.00102
- Stirman, S. W., Baumann, A. A., & Miller, C. J. (2019). The FRAME: An expanded framework for reporting adaptations and modifications to evidence-based interventions. *Implementation Science*, 14(1). doi:10.1186/s13012-019-0898-y

INSTRUCTOR BIOS

Elvin H. Geng, MD, MPH

Professor of Medicine

Director of the Center for Dissemination and Implementation at the Institute of Public Health

Using the lens of implementation science, Dr. Geng conducts research to optimize the use of evidence-based interventions in the public health response to HIV. His work is carried out through collaborations in Kenya, Zambia, Uganda, as well as in safety-net setting in the US. Current projects make use of a range of observational, mixed methods, quasi-experimental and experimental methods.

Ana A Baumann, Ph.D.

Research Assistant Professor

Ana Baumann's research agenda focuses on identifying strategies to facilitate the implementation and dissemination of evidence-based interventions in low-resource settings. Baumann is the co-director of the Dissemination and Implementation Research Core (DIRC). Through DIRC, she has supported several investigators as an implementation scientist in receiving federally funded funds to conduct studies aiming to accelerate the use of evidence-based interventions or guidelines in different settings of care.

Christopher Carpenter, MD, MSC, FACEP, FAAEM, AGSF

Professor, Emergency Medicine, Emergency Care Research Core

Director, Evidence Based Medicine, Washington University Division of Emergency Medicine

Dr. Carpenter's primary emergency medicine research interests are geriatrics, cognitive dysfunction, evidence based medicine, diagnostic testing, and implementation science. He co-led an [NIH Work Group](#) to create a framework for Dissemination and Implementation Science and then co-authored the [EQUATOR Network reporting standards](#) for Implementation Science. He has lectured locally and regionally on various issues related to emergency care of aging adults, evidence based medicine, and implementation science.

Aaloke Mody, MD

Instructor in Medicine

Dr. Mody's overall interest is in utilizing interdisciplinary implementation science research to understand how public health systems can be optimized to deliver high-quality and patient-centered HIV care in resource-limited settings. He has particular interest in utilizing advanced epidemiologic methods, including natural experiments and other causal methods for real-world data, for implementation science research that helps to answer the most pressing and relevant questions to improving patient outcomes during real-world implementation of HIV care in resource-limited settings.

Stephanie Mazzucca, Ph.D.

Research Assistant Professor

Stephanie Mazzucca's research works to develop and evaluate evidence-based approaches for promoting healthy eating and physical activity to prevent chronic diseases such as obesity, diabetes and cancer. A member of the Prevention Research Center, Mazzucca's work focuses on improving home environments and organizations - such as public health departments and community-based groups - to support healthy behaviors for populations at risk of chronic disease. She also works to improve the dissemination and implementation of research evidence into public health and clinical practice.

