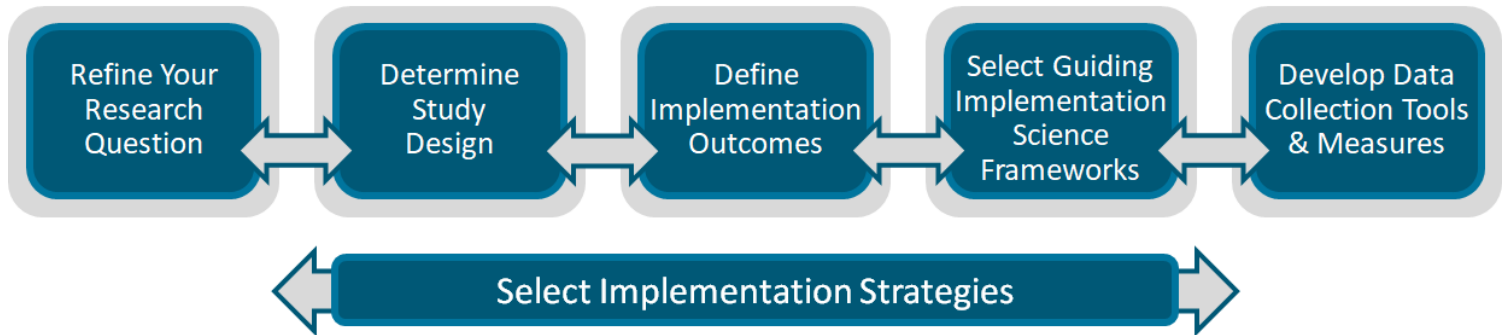


THE STAGES OF RESEARCH



Library of Resources

Background to the Field of Implementation Science

References

- Bauer, MS, Damschroder, L, Hagedorn, H, Smith, J, Kilbourne, AM. An introduction to implementation science for the non-specialist. *BMC Psychology*. 2015; 3(1):32. <https://doi.org/10.1186/s40359-015-0089-9> PMID: 26376626; PMCID: PMC4573926
- Brownson, RC, Colditz, GA and Proctor EK. *Dissemination and implementation research in health: Translating research to practice*. New York: Oxford University Press; 2017.
- Curran GM. Implementation science made too simple: a teaching tool. *Implement Sci Commun*. 2020 Feb 25;1:27. <https://doi.org/10.1186/s43058-020-00001-z> PMID: 32885186; PMCID: PMC7427844.
- Eccles, MP, Mittman BS. Welcome to implementation science. *Implementation Science*. 2006; 1:1, 1 <https://doi.org/10.1186/1748-5908-1-1> PMCID: PMC1436009
- Lenfant, C. Clinical research to clinical practice - Lost in translation? *New England Journal of Medicine*. 2003; 349: 868-874. <https://doi.10.1056/NEJMsa035507>
- Leeman, J., Rohweder, C., Lee, M. *et al*. Aligning implementation science with improvement practice: a call to action. *Implement Sci Commun*. 2021; 2(99). <https://doi.org/10.1186/s43058-021-00201-1> PMID: 34496978; PMCID: PMC8424169.
- Proctor EK, Powell BJ, Baumann AA, Hamilton AM, Santens RL. Writing implementation research grant proposals: ten key ingredients. *Implement Sci*. 2012; 12(7):96. <https://doi.org/10.1186/1748-5908-7-96> . PMID: 23062065; PMCID: PMC3541090.
- NIH PAR [PAR-22-105: Dissemination and Implementation Research in Health \(R01 Clinical Trial Optional\)](#) (nih.gov): <https://grants.nih.gov/grants/guide/pa-files/PAR-22-105.html>

Refining Your Research Question

References

Lane-Fall MB, Curran GM, Beidas RS. Scoping implementation science for the beginner: locating yourself on the "subway line" of translational research. *BMC Med Res Methodol*. 2019; 28;19(1):133. <https://doi.org/10.1186/s12874-019-0783-z> PMID: 31253099; PMCID: PMC6599376.

Peters D H, Adam T, Alonge O, Agyepong I A, Tran N. Implementation research: what it is and how to do it. *BMJ*. 2013; 347:f6753. doi: <https://doi.org/10.1136/bmj.f6753> PMID: 24259324

Determining Study Design

References

Brown CH, Curran G, Palinkas LA, Aarons GA, Wells K, et al. An overview of research and evaluation designs for dissemination and implementation. *Annual Review of Public Health* 2017 38:1, 1-22. <https://www.annualreviews.org/doi/abs/10.1146/annurev-publhealth-031816-044215> PMID: 28384085; PMCID: PMC5384265.

Curran GM, Bauer M, Mittman B, Pyne JM, Stetler C. Effectiveness-implementation hybrid designs: Combining elements of clinical effectiveness and implementation research to enhance public health impact. *Medical Care*. 2012; 50(3):217-226. DOI: [10.1097/MLR.0b013e3182408812](https://doi.org/10.1097/MLR.0b013e3182408812) PMID: 22310560 PMCID: PMC3731143

Curran et al. Reflections of 10 years of effectiveness-implementation hybrid studies. *Frontiers in Health Services*. 2022; 2: <https://doi.org/10.3389/frhs.2022.1053496> PMID: 36925811; PMCID: PMC10012680.

Hwang S, Birken SA, Melvin CL, Rohweder CL, Smith JD. Designs and methods for implementation research: Advancing the mission of the CTSA program. *J Clin Transl Sci*. 2020; 4(3):159-167. doi: [10.1017/cts.2020.16](https://doi.org/10.1017/cts.2020.16) PMID: 32695483; PMCID: PMC7348037.

Defining Implementation Outcomes

References

Glasgow, R, Vogt, T, Boles, S. Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *Am J Public Health*. 1999; 89: 1322-1327. <https://doi.org/10.2105/ajph.89.9.1322> PMID: 10474547; PMCID: PMC1508772.

Hermes et al. Measuring the implementation of behavioral intervention technologies: Recharacterization of established outcomes. *JMIR*; 2019; 21:e11752. <https://doi.org/10.2196/11752> PMID: 30681966; PMCID: PMC6367669.

Proctor, E, Silmere, H, Raghavan, R, Hovmand, P, Aarons, G, Bunger, A, Griffney, R, Hensley, M. Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Adm Policy Ment Health*. 2011; 38: 65-76. <https://doi.org/10.1007/s10488-010-0319-7> PMID: 20957426; PMCID: PMC3068522

Proctor et al (2023). Ten years of implementation outcomes research: a scoping review. *Implementation Science*. 18:31. <https://doi.org/10.1186/s13012-023-01286-z> PMID: 37491242; PMCID: PMC10367273.

Selecting Guiding Implementation Science Frameworks

References

Literature about General Frameworks

- Nilsen, P. Making sense of implementation theories, models and frameworks. *Implementation Science*. 2015; 10(1): 53. <https://doi.org/10.1186/s13012-015-0242-0> PMID: 25895742; PMCID: PMC4406164.
- Nilsen, P., Bernhardsson, S. Context matters in implementation science: a scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. *BMC Health Serv Res*; 2019; 19, 189 (2019). <https://doi.org/10.1186/s12913-019-4015-3>. PMID: 30909897; PMCID: PMC6432749.
- Tabak, R, Khoong, E, Chambers, D, & Brownson, R. Bridging research and practice: Models for dissemination and implementation research. *American Journal of Preventive Medicine*. 2012; 43(3): 337-350. <https://doi.org/10.1016/j.amepre.2012.05.024> PMID: 22898128; PMCID: PMC3592983.

Literature about Specific Frameworks

- Aarons, G, Green, A, Willging, C, et al. Mixed-method study of a conceptual model of evidence-based intervention sustainment across multiple public-sector service settings. *Implementation Science*. 2014; 9(183). <https://doi.org/10.1186/s13012-014-0183-z> PMID: 25490886; PMCID: PMC4272775.
- Aarons, GA, Hurlburt, M, and Horwitz, SM. Advancing a conceptual model of evidence-based practice implementation in public service sectors. *Adm Policy Ment Health*. 2011; 38:4-23. <https://doi.org/10.1007/s10488-010-0327-7> PMID: 21197565; PMCID: PMC3025110.
- Damschroder, LJ, Aron, DC, Keith, RE, Kirsh, SR, Alexander, JA, & Lowery, JC. Fostering implementation of health services research findings into practice: A consolidated framework for advancing implementation science. *Implementation Science*. 2009; 4(50): 1-15. <https://doi.org/10.1186/1748-5908-4-50>. PMID: 19664226; PMCID: PMC2736161
- Damschroder, L.J., Reardon, C.M., Widerquist, M.A.O. et al. The updated Consolidated Framework for Implementation Research based on user feedback. *Implementation Sci* **17**, 75 (2022). <https://doi.org/10.1186/s13012-022-01245-0> PMID: 36309746; PMCID: PMC9617234.
- Field, B, Booth, A, Ilott, I, Gerrish, K. Using the Knowledge to Action Framework in practice: A citation analysis and systematic review. *Implementation Science*. 2014; 9: 172. <https://doi.org/10.1186/s13012-014-0172-2> PMID: 25417046; PMCID: PMC4258036
- Gaglio, B, Shoup, J, Glasgow, R. The RE-AIM Framework: A systematic review of use over time. *Am J Public Health*. 2013; 103: e38-e46. <https://doi.org/10.2105/ajph.2013.301299> PMID: 23597377; PMCID: PMC3698732
- Gielen, AC, & Eileen, MM. (1996). The PRECEDE-PROCEED Planning Model. In *Health Behavior and Health Education*. Edited by Glanz, K, Lewis, F., & Rimer, KB. San Francisco: Jossey-Bass.
- Glasgow, R, Vogt, T, Boles, S. Evaluating the public health impact of health promotion interventions: The RE-AIM Framework. *Am J Public Health*. 1999; 89: 1322-1327. DOI: [10.2105/ajph.89.9.1322](https://doi.org/10.2105/ajph.89.9.1322) PMID: 10474547; PMCID: PMC1508772.
- Iowa Model Collaborative; Buckwalter KC, Cullen L, Hanrahan K, Kleiber C, McCarthy AM, Rakel B, Steelman V, Tripp-Reimer T, Tucker S; Authored on behalf of the Iowa Model Collaborative. Iowa Model of Evidence-Based Practice: Revisions and Validation. *Worldviews Evid Based Nurs*. 2017 Jun;14(3):175-182. DOI: [10.1111/wvn.12223](https://doi.org/10.1111/wvn.12223) PMID: 28632931.
- Rabin, B.A., Cakici, J., Golden, C.A. et al. A citation analysis and scoping systematic review of the operationalization of the Practical, Robust Implementation and Sustainability Model

(PRISM). *Implementation Sci* **17**, 62 (2022). [10.1186/s13012-022-01234-3](https://doi.org/10.1186/s13012-022-01234-3) PMID: 36153628; PMCID: PMC9509575.

Wiltsey-Stirman, S, Baumann, AA, Miller, CJ. The FRAME: An expanded framework for reporting adaptations and modifications to evidence-based interventions. *Implementation Science*. 2019; 14:58. DOI: [10.1186/s13012-019-0898-y](https://doi.org/10.1186/s13012-019-0898-y) PMID: 31171014; PMCID: PMC6554895.

Links to Webtools for Framework Selection

Dissemination and Implementation Model webtool. 2022. University of Colorado, Washington University Institute for Clinical and Translational Science, UC San Diego. <https://dissemination-implementation.org/tool/>

T-CaST; Theory, Framework and Comparison Selection Tool. 2022. University of North Carolina. <https://impsci.tracs.unc.edu/tcast/>

Implementation Science, Pick A Theory, Model or Framework. 2022. University of Washington. <https://impsciuw.org/implementation-science/research/frameworks/>

Developing Data Collection Tools and Measures

References

Aarons, GA. Mental health provider attitudes toward adoption of evidence-based practice: The Evidence-Based Practice Attitude Scale (EBPAS). *Ment Health Serv Res*. 2004; 6(2): 61–74. <https://doi.org/10.1023/b:mhsr.0000024351.12294.65> PMID: 15224451; PMCID: PMC1564126.

Aarons, GA, Ehrhart, MG, Farahnak, LR. The Implementation Leadership Scale (ILS): Development of a brief measure of unit level implementation leadership. *Implementation Science*. 2014; 9(1):45. Epub 2014/04/16. <https://doi.org/10.1186/1748-5908-9-45> PubMed PMID: 24731295; PMCID: PMC4022333

Blegen, MA, Gearhart, S, O'Brien, R, Sehgal, NL, Alldredge, BK. AHRQ's Hospital Survey on Patient Safety Culture: Psychometric analyses. *Journal of Patient Safety*. 2009; 5(3):139-44. Epub 2009/11/19. <https://doi.org/10.1097/pts.0b013e3181b53f6e> PubMed PMID: 19920453.

Chaudoir, S, Dugan, A, Barr, C. Measuring factors affecting implementation of health innovations: A systematic review of structural, organizational, provider, patient, and innovation level measures. *Implementation Science*. 2013; 8:22. <http://www.implementationscience.com/content/8/1/22> PMID: 23414420; PMCID: PMC3598720.

Consolidated Framework for Implementation Research (CFIR):

- Qualitative Data – The Consolidated Framework for Implementation Research (cfirguide.org) <https://cfirguide.org/evaluation-design/qualitative-data/>
- Quantitative Data – The Consolidated Framework for Implementation Research (cfirguide.org) <https://cfirguide.org/evaluation-design/quantitative-data/>

Dissemination and Implementation Model webtool. 2022. University of Colorado, Washington University Institute for Clinical and Translational Science, UC San Diego <https://dissemination-implementation.org/tool/>

Ehrhart, MG, Aarons, GA, Farahnak, LR. Going above and beyond for implementation: The development and validity testing of the Implementation Citizenship Behavior Scale (ICBS). *Implementation Science*. 2015; 10: 65. <https://doi.org/10.1186/s13012-015-0255-8> PMID: 25948489; PMCID: PMC4465615.

Exploration, Preparation, Implementation, Sustainment Framework: <https://episframework.com/measures>

- Fernandez, ME, Walker, TJ, Weiner, BJ, Calo, WA, Liang, S, Risendal, B, Friedman, DB, Tu, SP, Williams, RS, Jacobs, S, Herrmann, AK. Developing measures to assess constructs from the inner setting domain of the Consolidated Framework for Implementation Research. *Implementation Science*. 2018; Dec 1;13(1):52. <https://doi.org/10.1186/s13012-018-0736-7> PMID: 29587804; PMCID: PMC5870186.
- Implementation Outcome Repository, Centre for Implementation Science, King's College, London, England; <https://implementationoutcomerepository.org/>
- Luke, DA, Calhoun, A, Robichaux, CB, Elliott, MB, Moreland-Russell, S. The Program Sustainability Assessment Tool: A new instrument for public health programs. *Preventing Chronic Disease*. 2014; 11:130184. Epub 2014/01/25. <https://doi.org/10.5888/pcd11.130184> PMID: 24456645; PMCID: PMC3900326.
- Martinez, R, Lewis, C, Weiner, B. Instrumentation issues in implementation science. *Implementation Science*. 2014; 9:118. DOI: [10.1186/s13012-014-0118-8](https://doi.org/10.1186/s13012-014-0118-8) PMID: 25185799; PMCID: PMC4164742.
- Metter, K., Lewis, C., Dorsey, C., Halko, H., & Weiner, B. (2020). Measuring implementation outcomes: An updated systematic review of measures' psychometric properties. *Implementation Research and Practice*, 1-29, [10.1177/2633489520936644](https://doi.org/10.1177/2633489520936644) PMID: 37089128; PMCID: PMC9924262.
- Proctor, E, Silmere, H, Raghavan, R, Hovmand, P, Aarons, G, Bunger, A, Griffney, R, Hensley, M. Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Adm Policy Ment Health*. 2011; 38: 65-76. DOI: [10.1007/s10488-010-0319-7](https://doi.org/10.1007/s10488-010-0319-7) PMID: 20957426; PMCID: PMC3068522.
- Society for Implementation Research Collaboration. Instrument Review Project; <https://societyforimplementationresearchcollaboration.org/sirc-instrument-project/>
- Sorra, JS, Dyer, N. Multilevel psychometric properties of the AHRQ Hospital Survey on Patient Safety Culture. *BMC Health Services Research*. 2010; 10:199. Epub 2010/07/10. <https://doi.org/10.1186/1472-6963-10-199> . PubMed PMID: 20615247; PMCID: PMC2912897.

Selecting Implementation Strategies

References

- Fernandez et al (2019). Implementation mapping: Using Intervention Mapping to develop implementation strategies. *Frontiers in Public Health* 18:7:158. <https://doi.org/10.3389/fpubh.2019.00158>
- Kirchner, JE, Smith, JL, Powell, BJ, Waltz, TJ, Proctor, EK. Getting a clinical innovation into practice: An introduction to implementation strategies. *Psychiatry Research*. 2020; 283. <https://doi.org/10.1016/j.psychres.2019.06.042>
- Perry, C.K., Damschroder, L.J., Hemler, J.R., Woodson, T.T., Ono, S., & Cohen, D.J. (2019). Specifying and comparing implementation strategies across seven large implementation interventions: A practical application of theory. *Implementation Science*, 14:32. <https://doi.org/10.1186/s13012-019-0876-4>
- Powell, BJ, Fernandez, ME, Williams, NJ, Aarons, GA, Beidas, RS, Lewis, CC, McHugh, SM, Weiner, BJ. Enhancing the impact of implementation strategies in healthcare: A research agenda. *Front Public Health*. 2019; 7:3. <https://doi.org/10.3389/fpubh.2019.00003>
- Powell, BJ, Waltz, TJ, Chinman, MJ, Damschroder, LJ, Smith, JL, Mattieu, MM, Proctor, EK, Kirchner, JE. A refined compilation of implementation strategies: Results from the Expert Recommendations for Implementing Change (ERIC) project. *Implementation Science*. 2015; 10(21). <https://doi.org/10.1186/s13012-015-0209-1>
- Waltz, TJ, Powell, BJ, Matthieu, MM, Damschroder, LJ, Chinman, MJ, Smith, JL, Proctor, EK, Kirchner, JE. Use of concept mapping to characterize relationships among implementation strategies and

assess their feasibility and importance: Results from the Expert Recommendations for Implementing Change (ERIC) study. *Implementation Science*. 2015; 10(109). <https://doi.org/10.1186/s13012-015-0295-0>

Health Equity in Implementation Science

References

Kerkhoff AD, Farrand E, Marquez C, Cattamanchi A, Handley MA. Addressing health disparities through implementation science—a need to integrate an equity lens from the outset. *Implement Sci*. 2022 Jan 31;17(1):13. <https://doi.org/10.1186/s13012-022-01189-5> PMID: 35101088; PMCID: PMC8802460.

Adsul et al (2022) Grounding implementation science in health equity for cancer prevention and control. *Implementation Science Communications* 3:56. <https://doi.org/10.1186/s43058-022-00311-4> PMID: 35659151; PMCID: PMC9164317.

Baumann and Cabassa (2020). Reframing implementation science to address inequities in healthcare delivery. *BMC Health Services Research* 20:190. <https://doi.org/10.1186/s12913-020-4975-3>