

Objectives and Trial Design: An Overview of Hybrid Designs

Hayden Bosworth, PhD

Professor of Population Health Sciences
Department of Population Health Sciences
Duke University School of Medicine



Learning goals



- Overview of the 3 types of effectiveness-implementation hybrid trial designs and when they may be appropriate for ePCTs



Important things to know

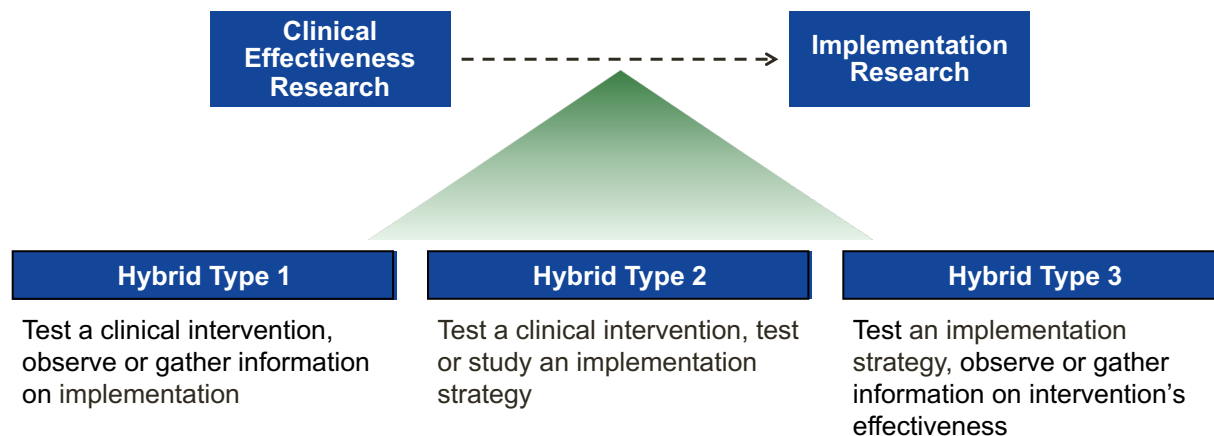


- Hybrid trial designs are trials with a focus on both clinical (patient) and implementation outcomes
- ePCTs are usually hybrid type 1 or 2; however, implementation should be considered and prepared for when ever possible.
- Choosing the appropriate hybrid trial design for an ePCT involves considering the research objectives, resources, timeline, and the balance between understanding effectiveness and optimizing implementation strategies.

Why hybrid trial designs?

- Let's go faster!
 - Sequential looks at effectiveness and implementation are slower
- Don't wait for perfect effectiveness data before moving to implementation research
- We can backfill effectiveness data while we test/evaluate implementation strategies
- How do clinical outcomes relate to adoption and fidelity?
 - How will we know this without data from both sides?

Types of hybrids



Type 1

- **Clinical Trial PLUS**
 - Implementation-focused process evaluation
 - Usually a mixed-methods study of what worked or didn't
 - Revise intervention? Implementation strategies needed?
- **Indications**
 - Clinical effectiveness data remain limited, so “too early” for intensive focus on implementation, but...
 - Ideal opportunity to explore implementation issues, learn what's needed for future focus on implementation (study or do...)

Type 1 example: PPACT

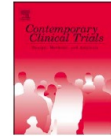
Contemporary Clinical Trials 67 (2018) 91–99



Contents lists available at ScienceDirect

Contemporary Clinical Trials

journal homepage: www.elsevier.com/locate/conclintrial



Interdisciplinary team-based care for patients with chronic pain on long-term opioid treatment in primary care (PPACT) – Protocol for a pragmatic cluster randomized trial



Lynn DeBar^{a,*,1}, Lindsay Benes^{a,b}, Allison Bonifay^a, Richard A. Deyo^c, Charles R. Elder^a, Francis J. Keefe^d, Michael C. Leo^a, Carmit McMullen^a, Meghan Mayhew^a, Ashli Owen-Smith^{e,f}, David H. Smith^a, Connie M. Trinacty^g, William M. Vollmer^a



Type 1 example: PPACT

- Effectiveness aim: Determine effectiveness of team-based intervention for reducing pain impact
- Implementation aim: Conduct an implementation-focused process evaluation to assess reach of and fidelity to the intervention, and barriers to and facilitators of the interventions



Type 2

- Clinical trial nested within
 - Implementation trial of competing strategies
 - Pilot (one-arm) study of single implementation strategy
- Indications
 - Clinical effectiveness data available, though perhaps not for your population or context of interest
 - Have data on barriers and facilitators to implementation
 - “Implementation momentum” within healthcare system

Type 2 example: STOP CRC

Green et al. *Implementation Science* (2019) 14:53
<https://doi.org/10.1186/s13012-019-0903-5>

Implementation Science

METHODOLOGY

Open Access

Using a continuum of hybrid effectiveness-implementation studies to put research-tested colorectal screening interventions into practice



Beverly B. Green^{1*}, Gloria D. Coronado², Malaika Schwartz³, Jen Coury⁴ and Laura-Mae Baldwin³

Type 2 example: STOP CRC

- Effectiveness aim: Determine effectiveness of mailed outreach for increasing colorectal cancer screening
- Implementation aim: Determine feasibility and potential utility of an implementation strategy (training, technical support, PDSA)

Type 3

- Implementation trial!
 - Primary test is comparing implementation strategies
 - Clinical effectiveness is a secondary analysis
- Indications
 - We sometimes proceed with rollouts or implementation studies of interventions without strong effectiveness data
 - Interested in exploring how clinical effectiveness might vary by extent and/or quality of implementation?

Type 3 example: ENABLE

Zubkoff et al. *Implementation Science* (2021) 16:25
<https://doi.org/10.1186/s13012-021-01086-3>

Implementation Science

STUDY PROTOCOL

Open Access

A cluster randomized controlled trial comparing Virtual Learning Collaborative and Technical Assistance strategies to implement an early palliative care program for patients with advanced cancer and their caregivers: a study protocol



Lisa Zubkoff^{1,2*}, Kathleen Doyle Lyons^{3,4}, J. Nicholas Dionne-Odom^{5,6,7}, Gregory Hagley³, Maria Pisu^{1,7}, Andres Azuero^{1,5,6}, Marie Flannery⁸, Richard Taylor^{5,6}, Elizabeth Carpenter-Song⁹, Supriya Mohile^{8†} and Marie Anne Bakitas^{5,6,7†}

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Concluding points

- This was a very brief summary!
- ePCTs are usually type 1 or 2, depending on how ready you are to test an implementation strategy on summative implementation outcomes
 - To describe implementation during the trial and prepare for later work on real-world implementation strategies = 1
 - To test the impact of real-world strategies on implementation outcomes like adoption and fidelity = 2

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Concluding points

- 3 If you want to learn more...



NIH Public Access

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Med Care. 2012 March ; 50(3): 217–226. doi:10.1097/MLR.0b013e3182408812.

Effectiveness-implementation Hybrid Designs:

Combining Elements of Clinical Effectiveness and Implementation Research to Enhance Public Health Impact

Geoffrey M. Curran, PhD¹, Mark Bauer, MD¹, Brian Mittman, PhD², Jeffrey M. Pyne, MD³, and Cheryl Stetler, PhD²

¹Central Arkansas Veterans Healthcare System, and Department of Psychiatry, University of Arkansas for Medical Sciences, Little Rock, AR

²VA Boston Healthcare System, Harvard Medical School, Boston, MA

³Center for Implementation Practice and Research Support (CIPRS), VA Greater Los Angeles Healthcare System, Los Angeles, CA



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An introduction to effectiveness-implementation hybrid designs

Sara J. Landes^{a,b,c,*}, Sacha A. McBain^{b,c}, Geoffrey M. Curran^{b,c,d}

^aThe Department of Veterans Affairs Quality Enhancement Research Initiative (QUERI) for Team-Based Behavioral Health, 2200 Fort Rooks Drive, North Little Rock, AR 72114, USA

^bSouth Central Mental Illness Research Education and Clinical Center (MIRECC), Central Arkansas Veterans Healthcare System, 2200 Fort Rooks Drive, North Little Rock, AR 72114, USA

^cUniversity of Arkansas for Medical Sciences, Department of Psychiatry, 4301 W. Markham St, Little Rock, AR 72205, USA

^dUniversity of Arkansas for Medical Sciences, Department of Pharmacy Practice, 4301 W. Markham St, Little Rock, AR 72205, USA



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Important things to do

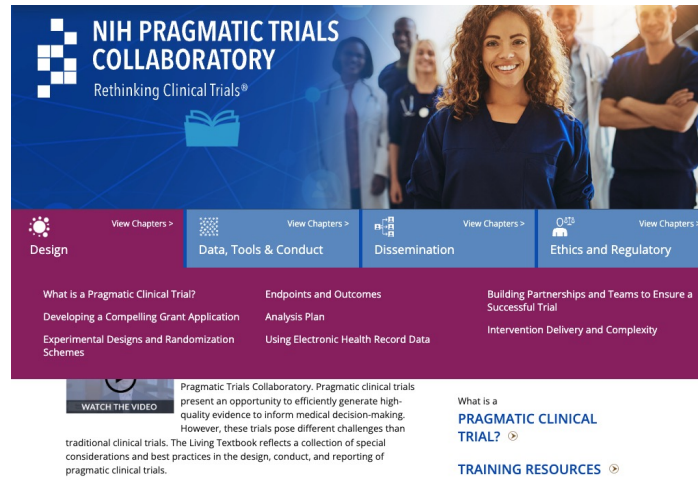
- Outline the primary objectives and goals of the study, considering both clinical effectiveness and implementation outcomes
- Assess the nature and complexity of the intervention being tested, as this may influence the choice of hybrid trial design (e.g., a complex intervention may benefit from a phased approach).
- Ensure that the chosen hybrid trial design allows for pragmatic elements, such as broad eligibility criteria, minimal interference with routine care, and outcomes that are meaningful in real-world settings.
- Clearly document the rationale for selecting the specific hybrid trial design to aid transparency, reproducibility, and future research

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Resource: The Living Textbook

Visit the *Living Textbook of Pragmatic Clinical Trials* at

www.rethinkingclinicaltrials.org



The screenshot shows the homepage of the NIH Pragmatic Trials Collaboratory. At the top left is the logo with the text "NIH PRAGMATIC TRIALS COLLABORATORY" and "Rethinking Clinical Trials®". Below the logo is a navigation bar with four main categories: "Design", "Data, Tools & Conduct", "Dissemination", and "Ethics and Regulatory". Each category has a "View Chapters >" link. Below the navigation bar are several featured articles or sections, including "What is a Pragmatic Clinical Trial?", "Endpoints and Outcomes", and "Building Partnerships and Teams to Ensure a Successful Trial". At the bottom left, there is a "WATCH THE VIDEO" button and a short paragraph about pragmatic clinical trials. At the bottom right, there is a "What is a PRAGMATIC CLINICAL TRIAL?" section and a "TRAINING RESOURCES" link. The NIH Pragmatic Trials Collaboratory logo is also present in the bottom right corner of the screenshot.

Question & Answer