NIH Pragmatic Trials Collaboratory: Program Impact



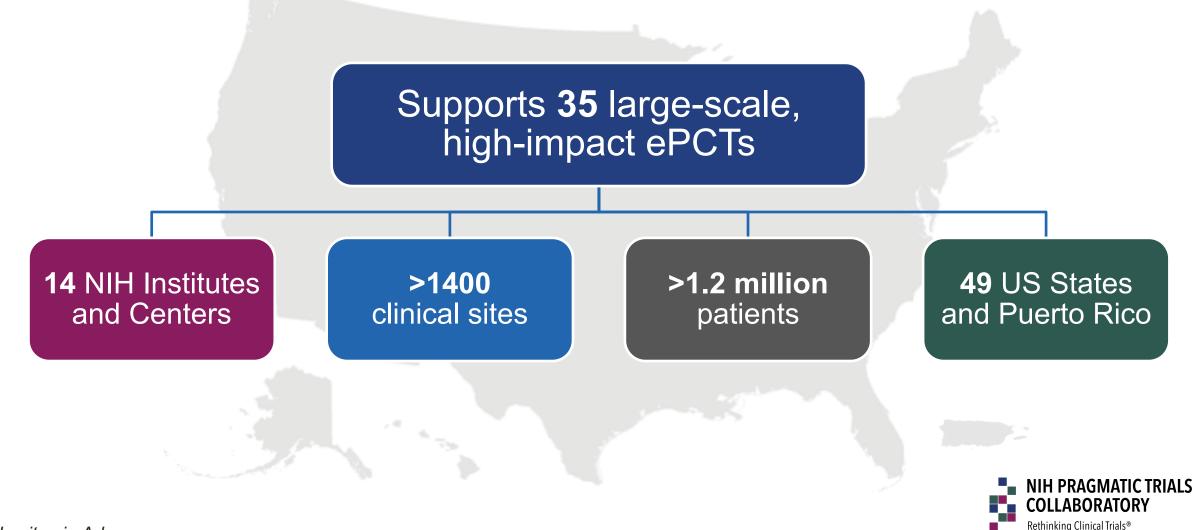
Updated January 31, 2025

Program Success and Evolution

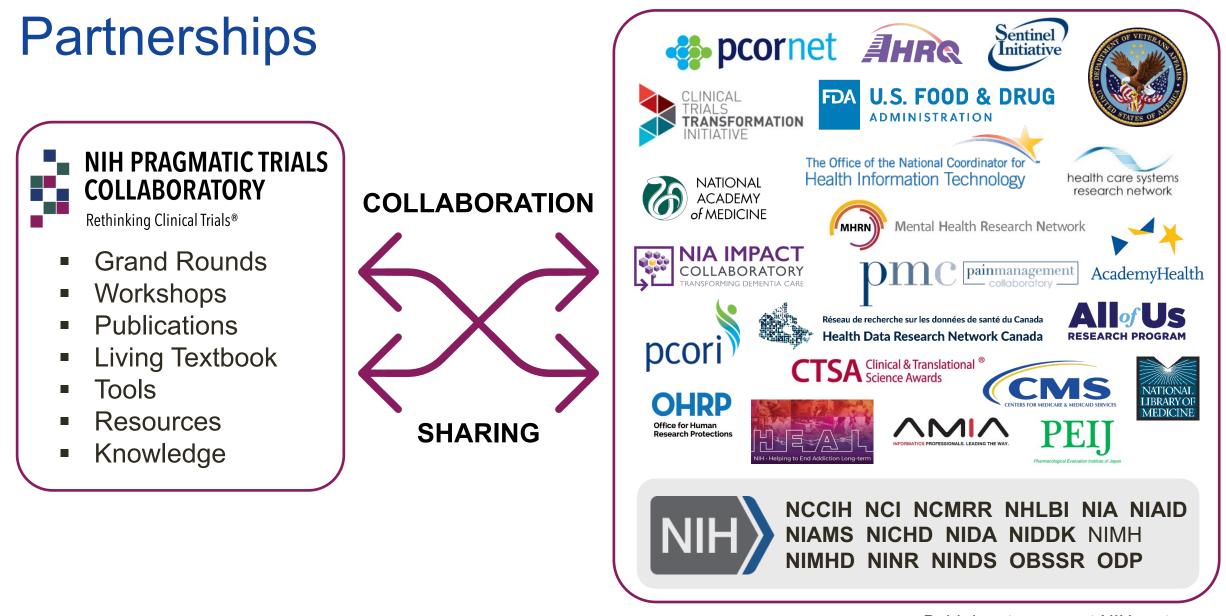
- Common Fund gave support for new ways to think about clinical research and allowed these ideas to take hold by demonstrating feasibility and rigor
- Successful transition from Common Fund to IC support showed appreciation of the program's value and uptake among broad group of ICs
- Integration with NIH HEAL Initiative extended the program's reach into a major NIH-wide program to address the overdose and pain crisis
- Informed other NIH initiatives (PMC & IMPACT) using ePCTs to address major health challenges
 - Pain Management Collaboratory (PMC) in military and Veterans healthcare systems
 - People living with dementia and their care partners (IMPACT Collaboratory)



Program Reach



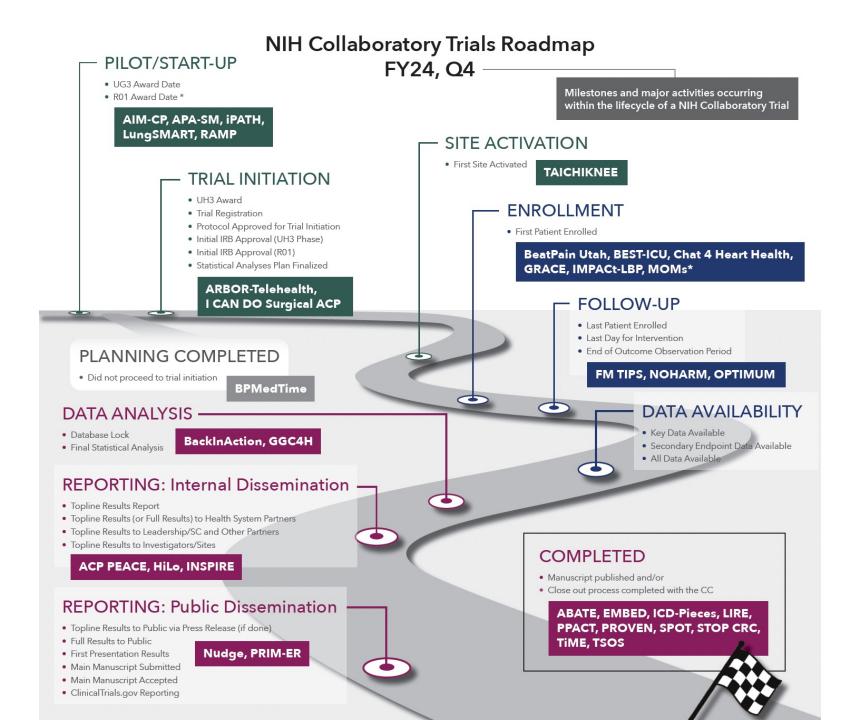
No sites in Arkansas



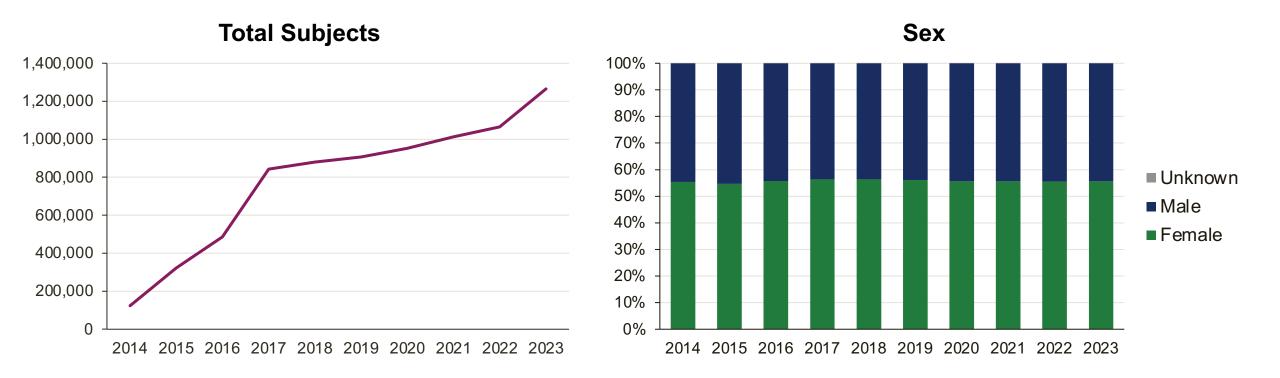
Bold denotes current NIH partner

NIH Collaboratory Trials



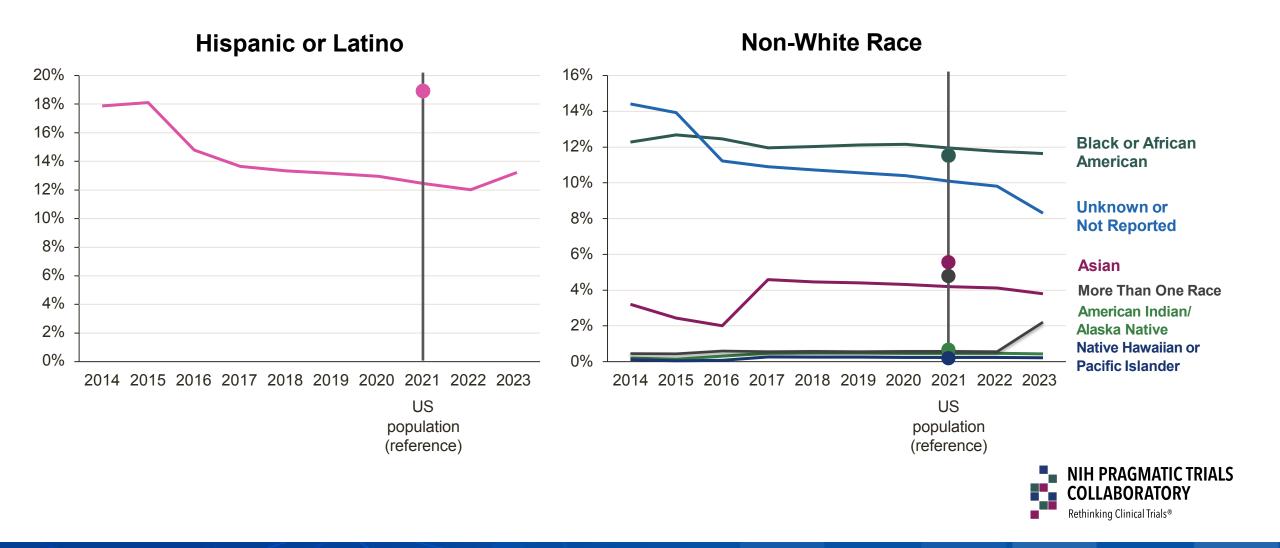


Participants (Total)





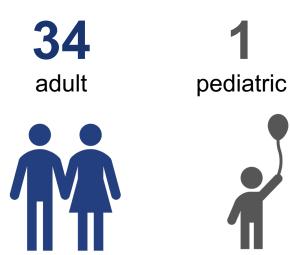
Participant Race and Ethnicity (Total)



NIH Collaboratory Trial Populations

Participant Age

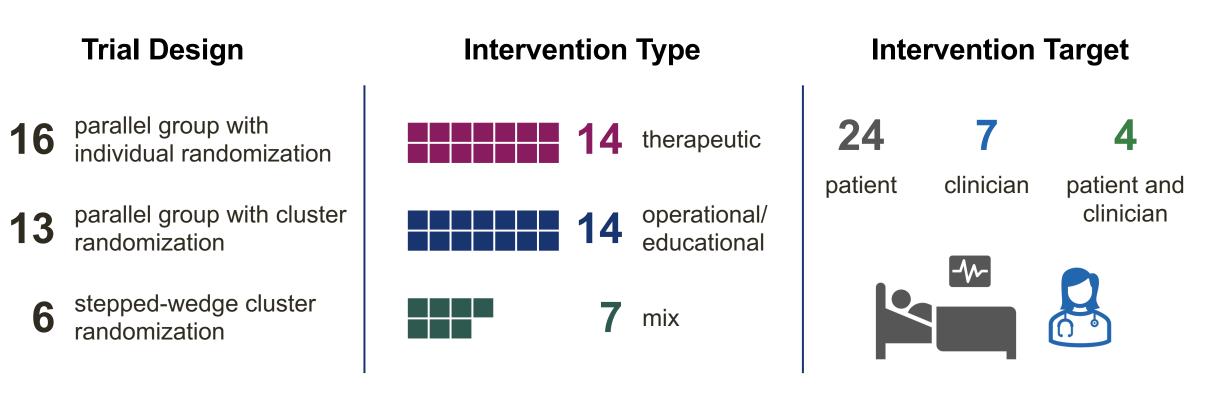
Health Condition



4	11	8	10	2
healthy	one chronic condition	multiple chronic conditions	acute	end of life

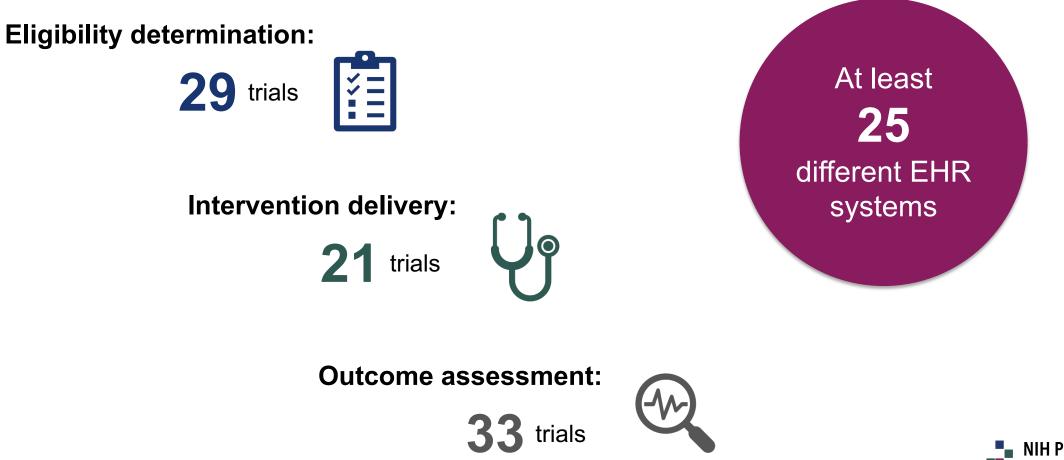


NIH Collaboratory Trial Designs





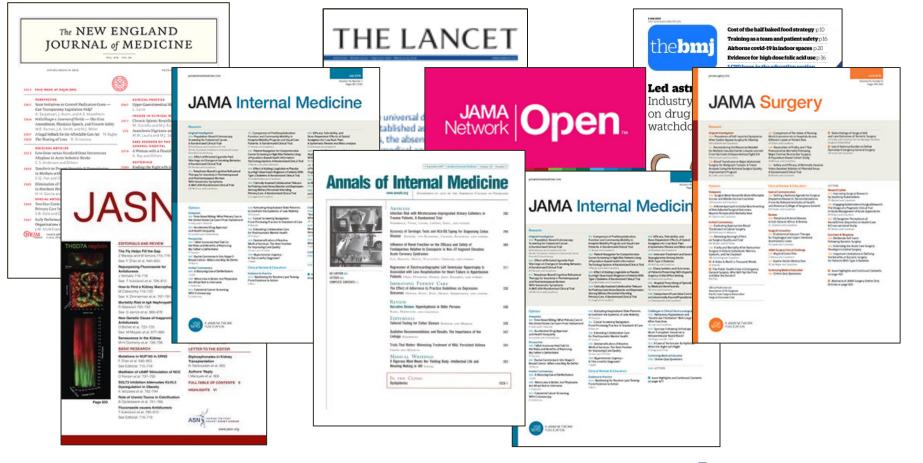
NIH Collaboratory Trials: Use of EHRs



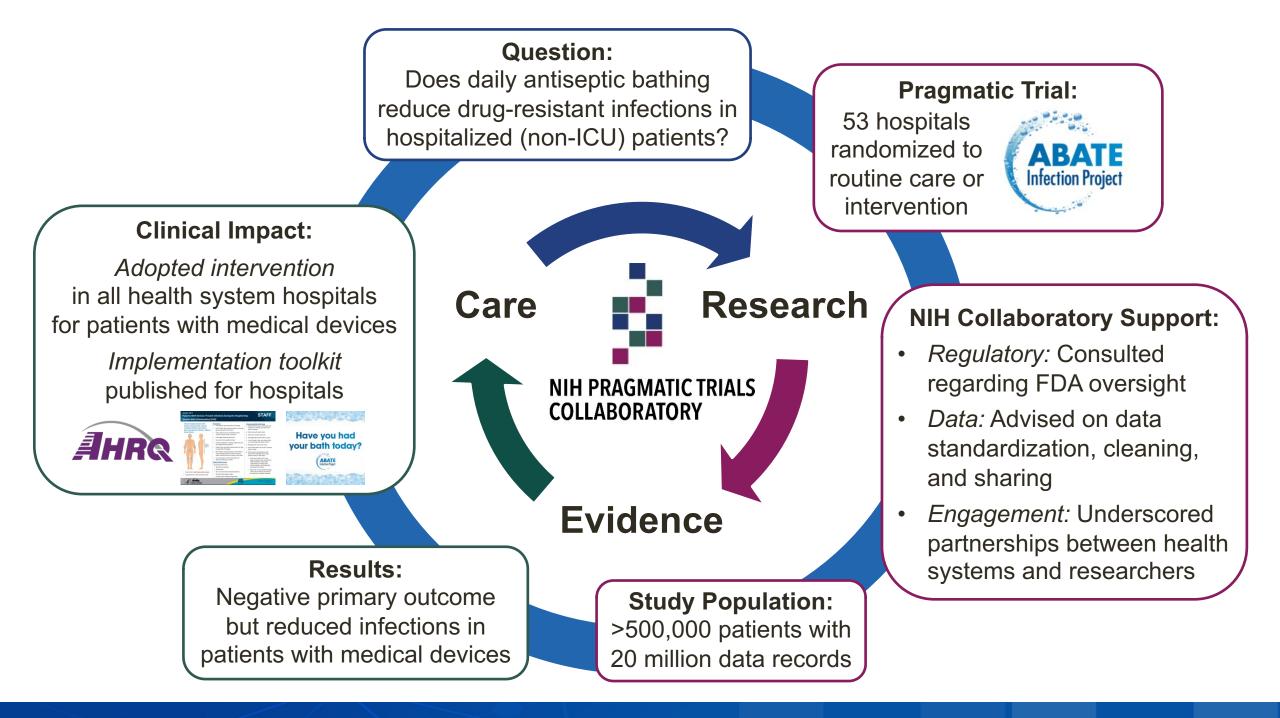


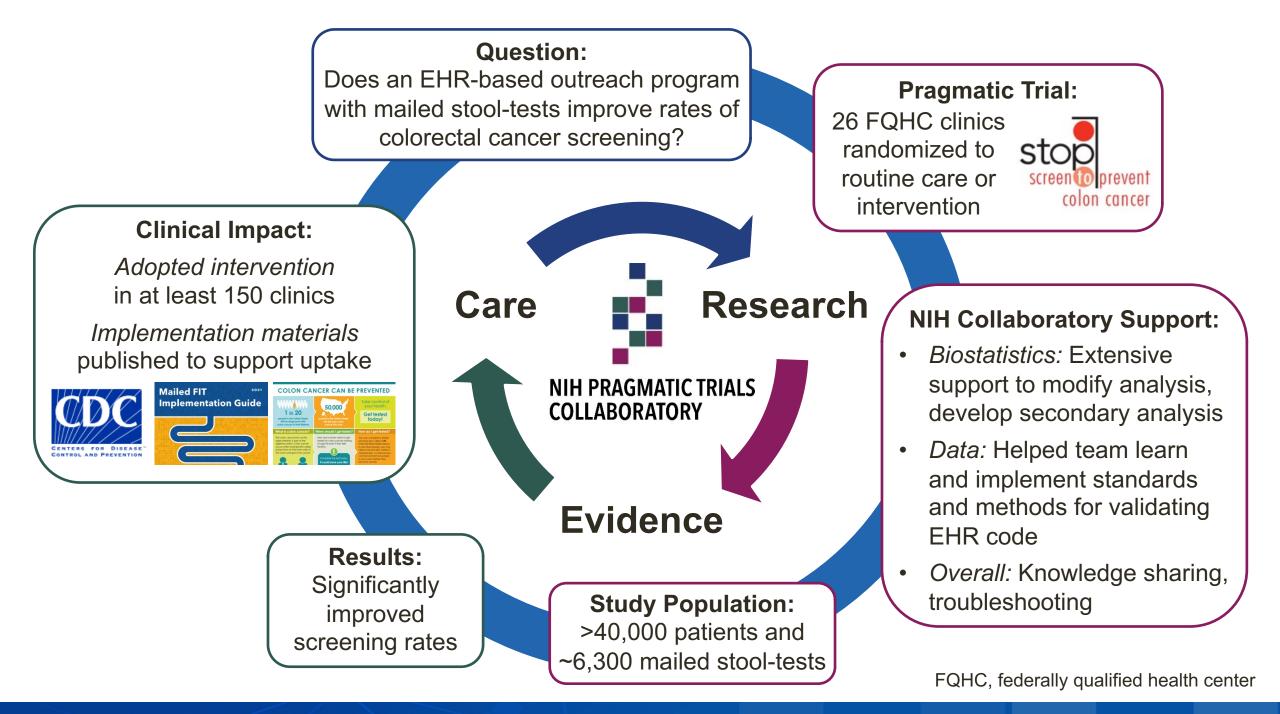
12 Trials Completed and Published

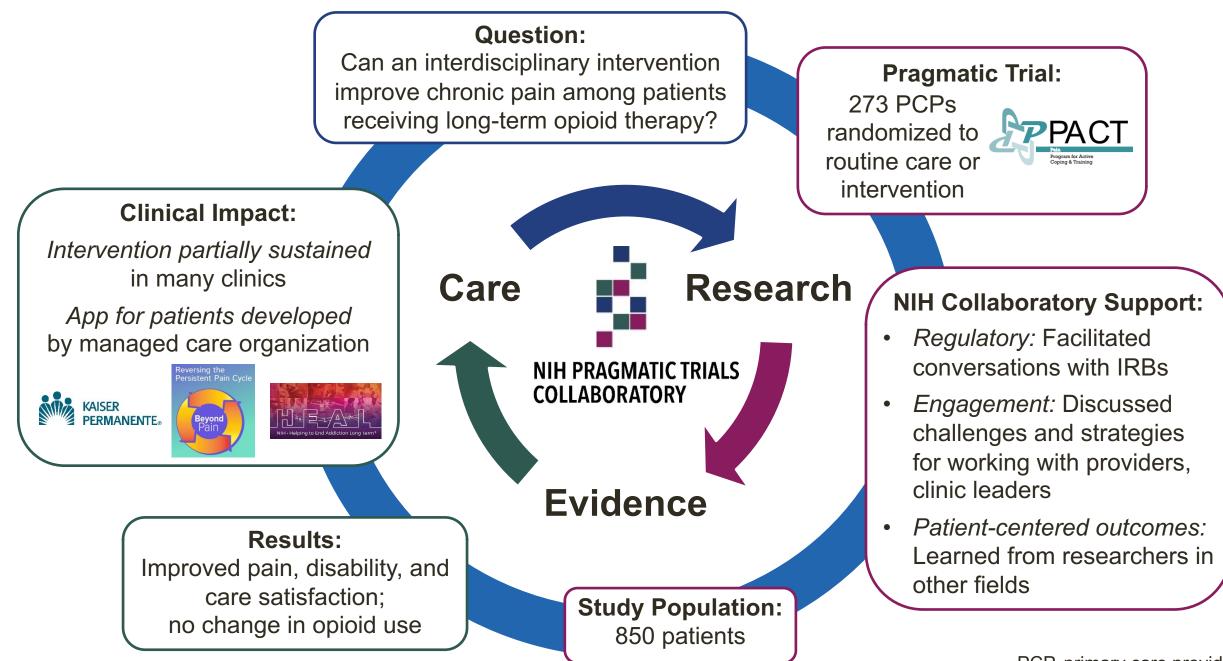
- STOP CRC
- TiME
- ABATE Infection
- PROVEN
- LIRE
- TSOS
- PPACT
- SPOT
- EMBED
- ICD-Pieces
- Nudge
- PRIM-ER

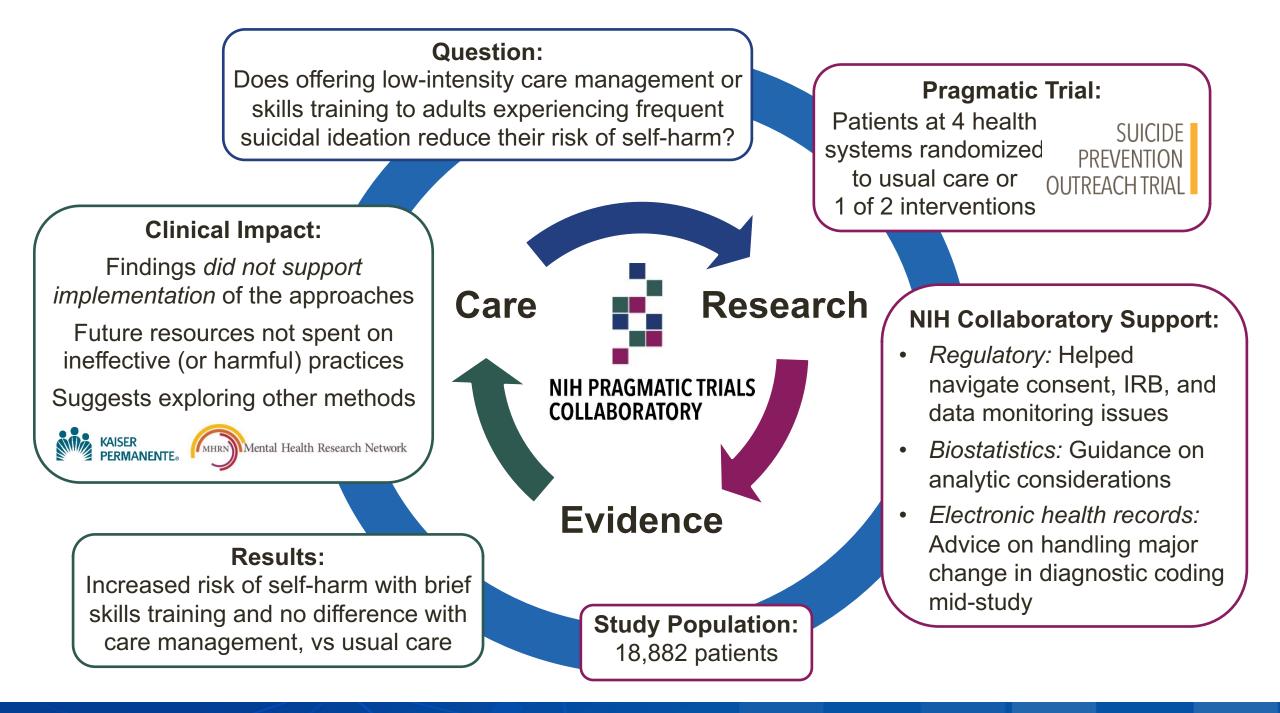












Sharing Trial Data and Resources

STUDY TOOLS

- Protocols
- Consent forms
- Implementation tools
- Site materials
- Questionnaires
- Toolkits
- Ethics and regulatory documentation



87 study tools

DATASETS AND DOCUMENTATION

- Data dictionaries
- Public use datasets
- Analytic code
- Computable
 phenotypes
- Data quality manuals
- Data request forms
- Data sharing checklists



Core Working Groups



Impact of Cores





publications & products



PI Testimonials

"Take the Biostats Core Working Group advice seriously—get it early and act on it early."

"The CC helped greatly with the selection of our secondary outcome measures."

"Have as many key members of your team work closely with Collaboratory Cores."

"Having adjusted our strategy prior to IRB submission based on input from the Core was likely a major reason the IRB review went so smoothly."

Biostatistics and Study Design Core: Impact Highlights



Key products

- Living Textbook chapters on study designs and analysis plans
- Intraclass Correlation Coefficient Cheat Sheet
- Statistical Analysis Plan Checklist for Addressing COVID-19 Impacts
- "Design and Analysis of ePCTs" workshop and Grand Rounds series

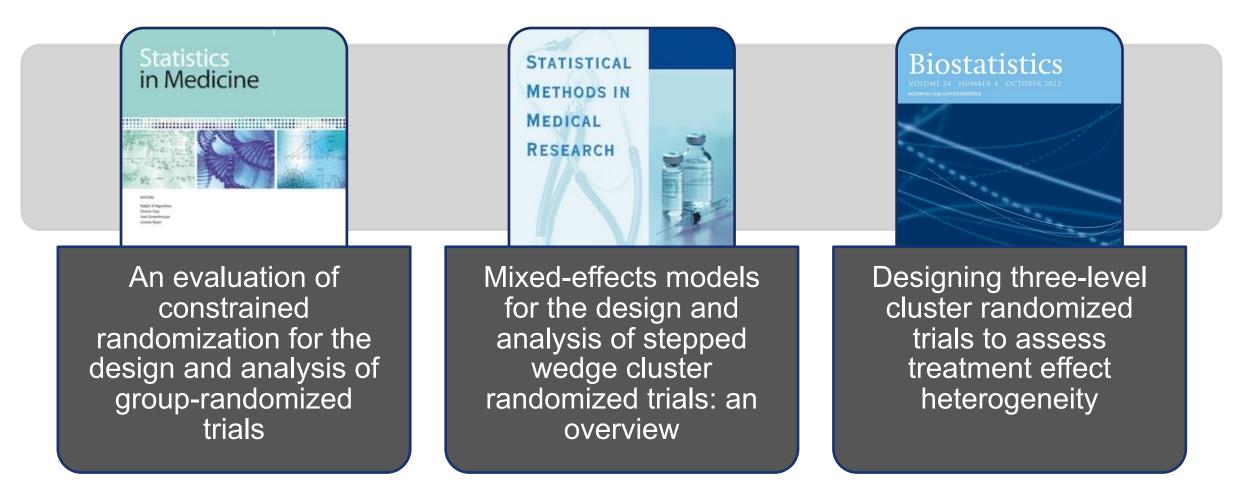
Major achievements

- Consultations had a direct impact on many NIH Collaboratory Trials, resulting in revised:
 - Statistical analysis plans
 - Sample sizes
 - Trial designs
- Substantial contributions to literature on design and analysis of grouprandomized trials



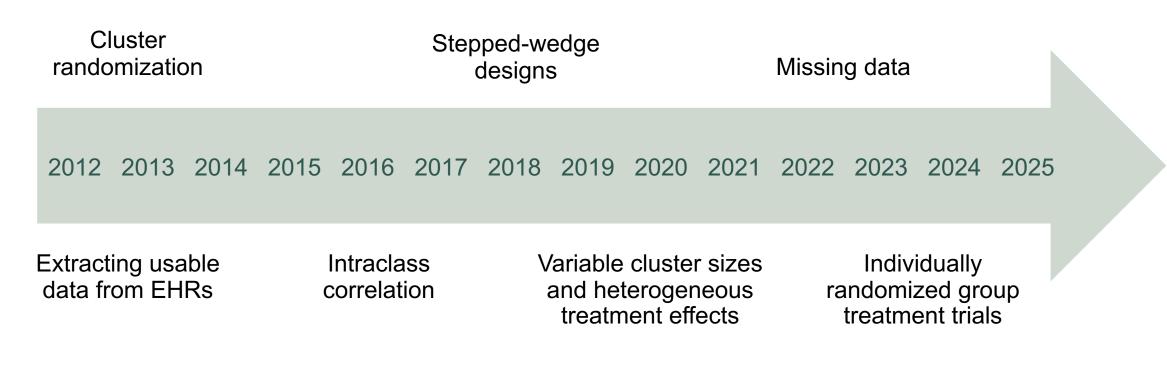
Biostatistics and Study Design Core: Key Publications





Biostatistics and Study Design Core: Evolution of Topics







Electronic Health Records Core: Impact Highlights



Key products

- Living Textbook chapters on using real-world data and EHR-based phenotyping
- Assessing Data Quality guidance document
- Data and resource sharing information and checklists
- Workshop series on advances in digital health, EHRs, and ePCTs

Major achievements

- Developed data and resource sharing materials to help the NIH Collaboratory Trials identify their sharing plans and promote posting of materials at closeout
- Established the NIH Collaboratory's Distributed Research Network and executed data queries



Electronic Health Records Core: Key Publications



SEPTEMBER 2023



Clinical phenotyping in selected national networks: demonstrating the need for high-throughput, portable, and computational methods Collecting patient-reported outcome measures in the EHR: lessons from the NIH Pragmatic Trials Collaboratory Potential bias and lack of generalizability in EHR data: reflections on health equity from the National Institutes of Health Pragmatic Trials Collaboratory

Electronic Heath Records Core: Evolution of Topics



Computable phenotypes

Acquiring real-word data

Data sharing

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

Data meaning and quality Assessing fitness for use of real-world data

Potential bias and lack of generalizability in EHR data Effect of EHR updates on ePCT interventions



Ethics and Regulatory Core: Impact Highlights



Key products

- Foundational scholarship on ethics and regulatory issues in ePCTs
- Data Monitoring Committee Charter
- Points to Consider in Data Monitoring for ePCTs
- 8 Living Textbook chapters
- Documentation of ethics and regulatory consultations with NIH Collaboratory trials

Major achievements

- Consulted with each NIH Collaboratory Trial on ethical and regulatory issues
- Organized workshops on ethical and regulatory aspects of ePCTs
- Conducted substantial empirical research on stakeholder perspectives on ePCTs



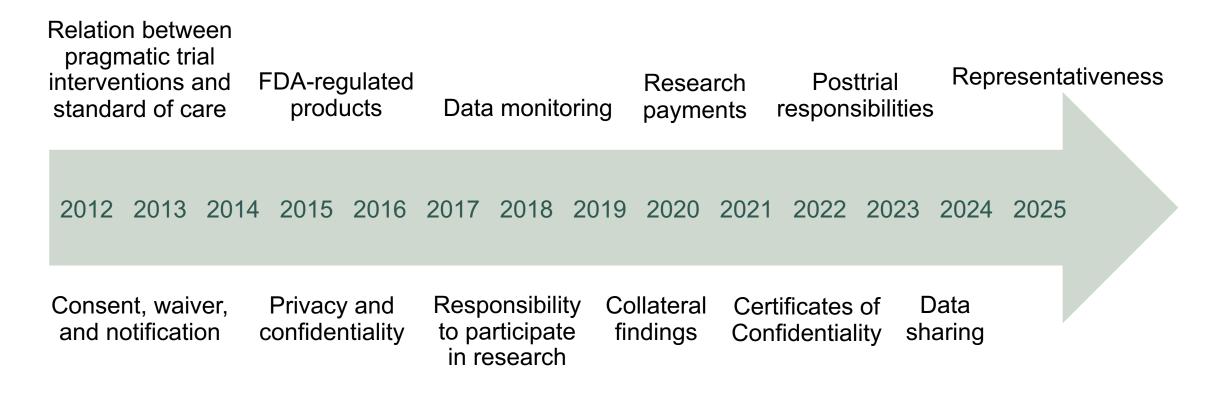
Ethics and Regulatory Core: Key Publications



Special issue of 12 articles exploring ethical and regulatory issues in pragmatic clinical trials Toward meeting the obligation of respect for persons in pragmatic clinical trials Post-trial responsibilities in pragmatic clinical trials: fulfilling the promise of research to drive realworld change

Ethics and Regulatory Core: Evolution of Topics







Health Care Systems Interactions Core: Impact Highlights



Key products

- Collaborated in planning and delivering annual workshops on design and conduct of embedded pragmatic trials
- Collaborated in Living Textbook chapters on:
 - Building successful partnerships
 - Dissemination approaches for different stakeholders
 - Adapting to unexpected events

Major achievements

- Created and maintained a comprehensive issues tracker with challenges and resolutions shared by the NIH Collaboratory Trials
- Developed a typology of trial interactions with health systems
- Shared lessons about building and sustaining trusting partnerships between research teams, health system leaders, clinicians, and staff



Health Care Systems Interactions Core: Key Publications





Health Care Systems Interactions: Evolution of Topics



Minimizing burden on healthcare systems		Value proposition for PCTs			Implementation and sustainment									
2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Building partnerships		Healthcare leadership perspectives			Engaging diverse participants				Posttrial decision-making					



Health Equity Core: Impact Highlights

Key products

- Equitable Language Guide
- Health Equity in Pragmatic Trials Handout
- Fellowship curriculum to increase diversity of ePCT researchers
- Adapted DUSON checklist for integrating a health equity lens in pragmatic trials



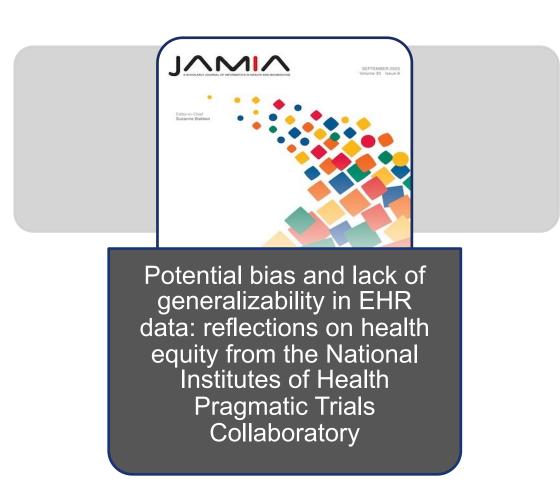
Major achievements

 Consulted with NIH Collaboratory Trials to understand how they are incorporating a health equity lens in their research, and offer tools and strategies



Health Equity Core: Key Publications







Health Equity Core: Evolution of Topics



Diversifying ePCT participants and workforce Structural barriers to healthcare systems

2022 2023 2024 2025

Defining health equity in ePCTs



Core formed in 2022

Implementation Science Core: Impact Highlights



Key products

 Review of implementation-related data collection within the NIH Pragmatic Trials

Major achievements

- Supported NIH Collaboratory Trial teams in considering appropriate implementation science theories, models, and frameworks
- Researched factors affecting posttrial sustainment or de-implementation of ePCT interventions



Implementation Science Core: Key Publications







Factors affecting posttrial sustainment or deimplementation of study interventions: a narrative review Post-trial responsibilities in pragmatic clinical trials: fulfilling the promise of research to drive realworld change Journal of Official Journal of the Society of General Internal Medicine Medicine

Similarities and differences between pragmatic trials and hybrid effectivenessimplementation trials

Implementation Science Core: Evolution of Topics



Sustainment vs In de-implementation decisions a

Implementation frameworks and measures

2022 2023 2024 2025

Posttrial responsibilities

Core formed in 2022

Patient-Centered Outcomes Core: Impact Highlights



Key products

- Roundtable report on capturing patient-reported health data
- Contributed to Users Guide for Integrating Patient-Reported Outcomes in EHRs
- Patient-Reported Outcomes Living Textbook chapter
- Toolkit to support the capture of PROs in diverse study populations

Major achievements

- Conducted surveys and interviews on cultural/linguistic adaptation and acceptability/burden of PROs
- Led workshop to help clinicians implement NIH PROMIS
- Consulted with NIH Collaboratory Trials on selection and collection of PROs
- Convened policy meeting to discuss getting PROs into the EHR



Patient-Centered Outcomes Core: Key Publications



July	lealth A 2014 Vol. 33 No. 7 hea iing Big Dat	lthaffa		Ca	re
	ROM THE EDITOR-IN-CHIEF 1110 Big Data in Health: A New Era For Research And Patient Care Alan R. Weil	1132	Early Experiences With Big Data At An Academic Medical Center John D. Halamka	BUILDING RAPID-LEARNING SYSTEMS	
1110				1171	Pediatric Learning Health
ENTRY POINT		1139	The Legal And Ethical Concerns That Arise From Using Complex Predictive Analytics In Health		System is Being Expanded Into A National Network Christopher B. Forrest,
1111	For Big Data, Big Questions Remain Dawn Fallik		Care I. Glenn Cohen, Ruben Amarasingham, Anand Shah, Bin Xie, and Bernard Lo		Peter Margolis, Michael Seid, and Richard B. Colletti
	RVIEW			1178	Illustrate The Potential For A Shared National Multipurpose
1115	Creating Value In Health Care Through Big Data:	1148	Implementing Electronic Health Care Predictive Analytics: Considerations And Challengee Ruben Amarasingham, Rachel E. Patzer, Marco Huesch, Nam Q. Nguyen, and Bin Xic		Big-Data Network Lesley H. Curtis, Jeffrey Brown and Richard Platt
	Opportunities And Policy Implications Joachim Roski, George W. Bo-Linn, and Timothy A. Andrews			1187	Node In The Learning Health Care System Paul J. Wallace, Nilay D. Shah, Taylor Dennen,
PRE	DICTIVE ANALYTICS		ID-LEARNING AGENDA		Paul D. Bleicher, and William H. Crown
	Big Data In Health Care:	1155	Rapid Learning: A Breakthrough Agenda	_	OF BIG DATA



Assessing the value of patient-generated data to comparative effectiveness research Clarifying the meaning of clinically meaningful benefit in clinical research: noticeable change vs valuable change Collecting patient-reported outcome measures in the electronic health record: Lessons from the NIH Pragmatic Trials Collaboratory

Patient-Centered Outcomes Core: Evolution of Topics



Initiating and implementing PRO measures

Collecting PROs in the EHR

PROs as a surrogate for patient engagement

2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025

PRO instruments Cultural and linguistic adaptation PROs and health equity

Collection of PROs in rural and underserved populations



Disseminating Knowledge and Best Practices



Living Textbook Content and Reach

30+ chapters









Design

- Developing a Grant
- Experimental Designs
- Building Partnerships
- Patient Engagement
- What Is a Pragmatic Trial
- Endpoints & Outcomes
- Using EHR Data
- Intervention Complexity

Dissemination

- Data Sharing
- Dissemination
- Implementation

TOPICS INCLUDE:

Data, Tools, and Conduct

- Assessing Feasibility
- Acquiring & Assessing Real-World Data
- Study Startup
- Participant Recruitment
- Monitoring Fidelity
- Clinical Decision Support
- Patient-Reported Outcomes
- Mobile Health

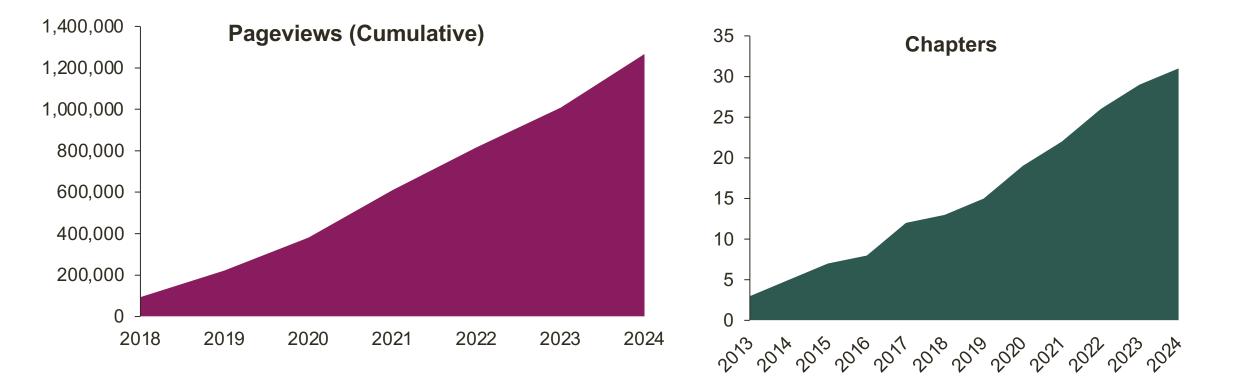
Ethics and Regulatory

- Privacy
- Consent, Waiver, & Notification
- Collateral Findings
- Data & Safety Monitoring
- Single IRB

NIH PRAGMATIC TRIALS

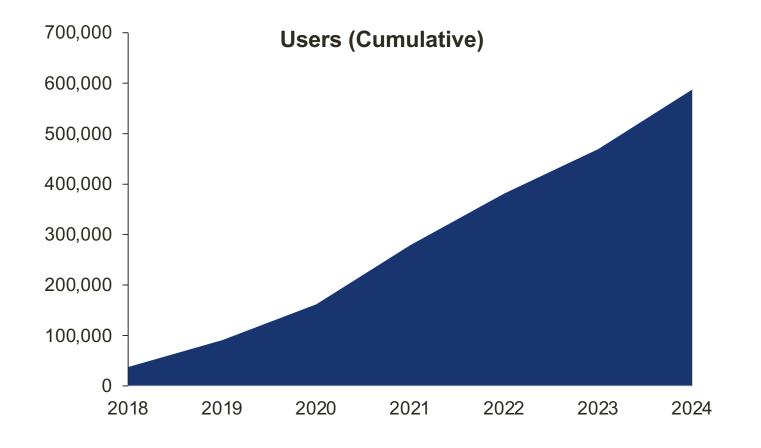


Living Textbook Growth





Living Textbook Users Over Time





Living Textbook: Most Popular Topics

Chapter	Pageviews in 2024
Experimental Designs and Randomization Schemes	36,696
What Is a Pragmatic Trial?	9958
Endpoints and Outcomes	7770
Acquiring Real-World Data	6316
Analysis Plan	5999
Clinical Decision Support	4011
EHR-Based Phenotyping	3922
Patient-Reported Outcomes	2179
Consent, Waiver, and Notification	2017
Monitoring Intervention Fidelity and Adaptations	1886

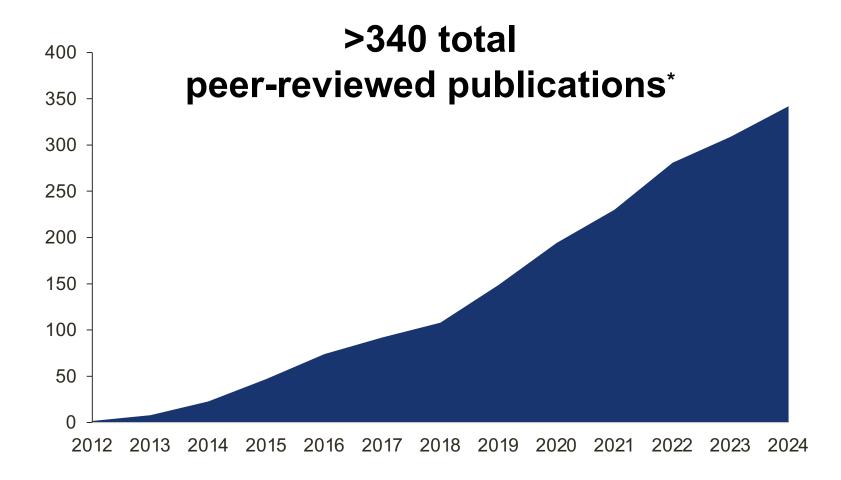
Publications*





*As of January 30, 2025

Publications Over Time





*As of January 31, 2024

Where We Published Most

























TRANSLATIONAL BEHAVIORAL MEDICINE

PRACTICE, POLICY, RESEARCH



High-Profile Articles



The NEW ENGLAND JOURNAL of MEDICINE

PERSPECTIVE

Is Learning Worth the Trouble? — Improving Health Care System Participation in Embedded Research



Think Pragmatically: Investigators' Obligations to Patient-Subjects When Research Is Embedded in Care

Do Clinicians Have a Duty to Participate in Pragmatic Clinical Trials?



Electronic health records based phenotyping in next-generation clinical trials: a perspective from the NIH Health Care Systems Collaboratory



Two weights make a wrong: Cluster randomized trials with variable cluster sizes and heterogeneous treatment effects

Annals of Internal Medicine

IDEAS AND OPINIONS

Data Sharing and Embedded Research



NIH Relative Citation Ratio (RCR)

 Measure of an article's influence

 Citation rate normalized by field and time, benchmarked to a value of 1.0





National Institutes of Health Office of Portfolio Analysis

Less influence More influence 5.6 1.0Research JAMA Surgery | Original Investigation Stepped Collaborative Care Targeting Posttraumatic Stress Disorder Symptoms and Comorbidity for US Trauma Care Systems A Randomized Clinical Trial Douglas Zatzick, MD; Gregory Jurkovich, MD; Patrick Heagerty, PhD; Joan Russo, PhD; Doyanne Darnell, PhD; Lea Parker, BA; Michelle K. Roberts, MPH; Rddhi Moodliar, BA; Allison Engstrom, MSW; Jin Wang, PhD; Eileen Bulger, MD; Lauren Whiteside, MD; Deepika Nehra, MD; Lawrence A. Palinkas, PhD; Kathleen Moloney, BA; RCR = 5.6Ronald Maier, MD Invited Commentary page 442 IMPORTANCE To date, few multisite investigations have evaluated early interventions for This article from the TSOS trial injured patients with posttraumatic stress disorder (PTSD) symptoms. Supplemental content **OBJECTIVE** To simultaneously assess the effectiveness and implementation of a brief stepped collaborative care intervention targeting PTSD and comorbidity. has received 5.6 times as many DESIGN, SETTING, AND PARTICIPANTS A stepped-wedge cluster randomized clinical trial was conducted at 25 US level I trauma centers. Participants included hospitalized survivors of physical injury who underwent a 2-step evaluation for PTSD symptoms. Patients reporting citations per year as the median high levels of distress on the PTSD Checklist (PCL-C) were randomized (N = 635) per the stepped-wedge protocol to enhanced usual care control (n = 370) or intervention (n = 265) conditions. The study was conducted from January 4, 2016, through November 2019. Data NIH-funded article in its field. analysis was performed from November 4, 2019, to December 8, 2020. INTERVENTIONS The Trauma Survivors Outcomes and Support collaborative care intervention included proactive injury case management that assisted patients transitioning from hospital inpatient to outpatient and community settings. The intervention also integrated evidence-based pharmacotherapy and psychotherapeutic elements targeting PTSD symptoms and comorbidity. MAIN OUTCOMES AND MEASURES The primary study outcome was PTSD symptoms assessed with the PCL-C at baseline in the surgical ward and at 3, 6, and 12 months postinjury. Secondary outcomes included depressive symptoms, alcohol use, and physical function. Subgroup analyses examined the effect of baseline risk factors for enduring PTSD and quality of protocol implementation on study outcomes. Primary statistical analyses were conducted using the intent-to-treat sample. RESULTS A total of 327 men (51.5%) were included in analysis; mean (SD) age was 39.0 (14.2) years. The investigation attained follow-up of 75% to 80% of the participants at 3 to 12 months. The intervention lasted a mean (SD) of 122 (132) minutes. Mixed model regression analyses revealed statistically significant changes in PCL-C scores for intervention patients NIH PRAGMATIC TRIALS compared with control patients at 6 months (difference, -2.57; 95% CI, -5.12 to -0.03; effect size, 0.18; P < .05) but not 12 months (difference, -1.27; 95% CI, -4.26 to 1.73; effect COLLABORATORY size, 0.08; P = .35). Subgroup analyses revealed larger PTSD treatment effects for patients with 3 or more baseline risk factors for enduring PTSD and for patients, including firearm injury survivors, treated at trauma centers with good or excellent protocol implementation. Rethinking Clinical Trials® Intervention effects for secondary outcomes did not attain statistical significance.

Impact of NIH Collaboratory Trial Publications*

Main Outcomes Study Design All Papers (N = 337)(N = 11)(N = 18)Mean RCR Mean RCR Mean RCR 2.9 1.9 5.2 Median RCR Median RCR Median RCR 1.1 4.9 1.7 Weighted RCR Weighted RCR Weighted RCR 881 46.6 31.5

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https://icite.od.nih.gov/results?search_id=3glpu609s2w22e48



https://icite.od.nih.gov/results?search_id=m82vpjoj54c49f19

*As of January 31, 2024

Training Activities

>700 attendees

48 presenters

13 workshops



84 hours of presenter-led training AUDIENCES REACHED

- Academic researchers
- Funding agencies
- Investigators
- Health system leaders
- Healthcare practitioners
- Other ePCT partners











Training Resources





55 videos in library





20 resources (handouts, checklists, etc)



Training Resources

Learning Modules

The NIH Pragmatic Trials Collaboratory Learning Modules offer a series of self-paced, guided learning for researchers interested in pragmatic clinical trials. These modules are organized by topic and can be watched sequentially or individually. Learn from our experts as they answer common questions about pragmatic clinical trials.

Learn More

Videos

View our training videos, which feature NIH Pragmatic Trials Collaboratory experts and guest speakers presenting on topics that cover every phase of a pragmatic clinical trial.

Resources

•

Access downloadable resources developed by the NIH Pragmatic Trials Collaboratory, including educational handouts, guidance documents, and worksheets that provide information about pragmatic clinical trials.

Workshops

Learn about upcoming NIH Pragmatic Trials Collaboratory workshops and view materials from past workshops, such as agendas, recordings, slides, participant guides, and more.



Upcoming Learning Opportunities

November 17 @ 1:00 pm - 2:00 pm Grand Rounds November 17, 2023: Personalized Patient Data and Behavioral Nudges to Improve Adherence to Chronic Cardiovascular Medications: Results from the Nudge Study (Michael Ho, MD, PhD; Sheana Bull, PhD)

November 24 @ 1:00 pm - 2:00 pm Grand Rounds November 24, 2023: No Presentation (Holiday)

November 28 @ 1:00 pm - 3:00 pm

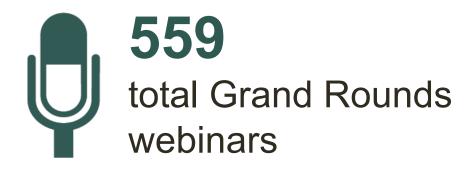
Exploratory and Inferential Spatial Statistical Methods: Tools To Understand the Geography of Health Across the U.S.

December 1 @ 1:00 pm - 2:00 pm

Grand Rounds Biostatistics Series December 1, 2023: Guidelines for Design and Analysis of Stepped-Wedge Trials (Jim Hughes, PhD; Moderator: Patrick Heagerty, PhD)

View Calendar of All Events

Rethinking Clinical Trials® Grand Rounds





>87,000 total attendees

21,400 total plays



Rethinking Clinical Trials[®] Grand Rounds: Highest Attended Sessions

All Time

870 [▶]

May 1, 2020 Advances at the Intersection of Digital Health, Electronic Health Records, and Pragmatic Clinical Trials: Keynote—Can the COVID-19 Crisis Lead to Reformation of the Evidence Generation Ecosystem? (Robert Califf)

650 March 20, 2020

Clinical Trials in the Time of COVID-19 (Susanna Naggie, Adrian Hernandez, Eric Perakslis)

605 May 8, 2020

Advances at the Intersection of Digital Health, Electronic Health Records, and Pragmatic Clinical Trials: Real World Evidence: Contemporary Experiences and Future Directions (Patrick Heagerty, Jacqueline Corrigan-Curay, Joshua Denny)

Past Year

- **375** July 12, 2024 Causal Estimands: Should We Ask Different Causal Questions in Randomized Trials and in the Observational Studies That Emulate Them? (Miguel Hernan)
 - **310** January 26, 2024 Advancing the Safe, Effective and Equitable Use of Al in Healthcare (Mark Sendak, Suresh Balu)

295 February 23, 2024

Virtual Vigilance: Monitoring of Decentralized Clinical Trials (Adrian Hernandez, Christopher J. Lindsell)

Grand Rounds Podcast: Most Played Episodes

All Time

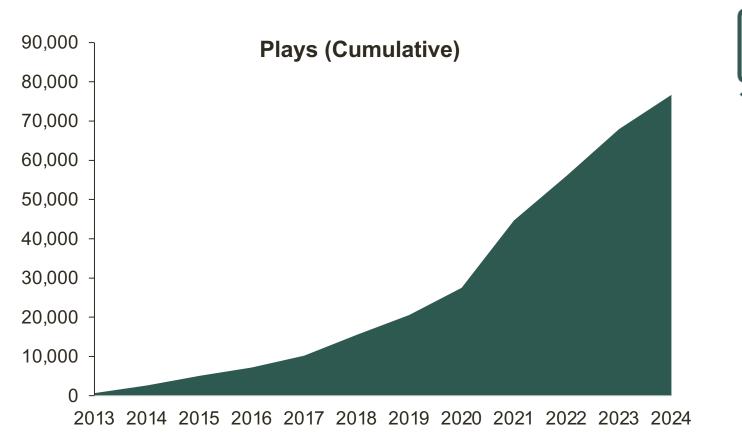
- **1069** Podcast 40: Survivor Corps: Long-Term COVID-19 Patient Engagement
 - **996** Podcast 42: FDA Draft Guidance on Real-World Evidence
 - **751** Podcast 41: Searching for a Unicorn: Selecting Outcomes for Outpatient Trials

Past Year

- **439** Podcast 50: Waiver of Consent
- **346** Podcast 48: Digital, Decentralized and Democratized: Lessons From the Yale PaxLC Trial
- **278** Podcast 49: Public-Private Partnerships in the Trustworthy Health AI Ecosystem











Email Newsletter





36% average open rate, consistently higher than industry benchmarks





March 2024 • Subscribe to the Newsletter • Living Textbook • Grand Rounds Hub

News From the NIH Pragmatic Trials Collaboratory

Health Equity Core Announces Reference for Equitable Language in Pragmatic Clinical Trials



The NIH Pragmatic Trials Collaboratory's Health Equity Core developed a guide for inclusive language. "When collaborating with distinct individuals or communities in the scope of research, it's important to defer to their personal preferences for identification. This reference guide offers essential guidelines in instances where direct input is not an option," said Rosa Gonzalez-Guarda, cochair of the Core. The <u>Equitable Language Cheat Sheet</u> will be updated as terminology and guidance evolve.

New Report Sets Out Posttrial Responsibilities in Pragmatic Clinical Trials: In a <u>new report from the NIH</u> <u>Pragmatic Trials Collaboratory</u>, a team of bioethicists and implementation scientists argue for a "presumptive default" that the results of pragmatic clinical trials should be incorporated into healthcare delivery processes. This responsibility arises from a key rationale for conducting pragmatic trials: that they can facilitate uptake of their results by relevant decision-makers.





Registration Opens for Pragmatic Trials Workshop at SCT 45th Annual Meeting: The NIH Pragmatic Trials Collaboratory will offer a preconference workshop at the 45th Annual Meeting of the Society for Clinical Trials in Boston









Launched August 2023









NIH PRAGMATIC TRIALS COLLABORATORY

Rethinking Clinical Trials®