NIH Pragmatic Trials Collaboratory

Enabling pragmatic clinical trials embedded in healthcare systems
The NIH Collaboratory Story

History: Initiated through the NIH Common Fund in 2012
Selected as the Pragmatic and Implementation Studies for the Management of Pain to Reduce Opioid Prescribing (PRISM) Resource Coordinating Center in 2019

Goal: Strengthen the national capacity to implement cost-effective large-scale research studies that engage health care delivery organizations as research partners

Vision: Support the design and execution of innovative pragmatic clinical trial Demonstration Projects to establish best practices and proof of concept
Embedded PCTs Bridge Research Into Clinical Care

- Study designed with input from health system stakeholders
- Data collected through EHR in healthcare settings
- Intervention incorporated into routine clinical workflow
- Outcomes important to decision makers
- Diverse, representative study populations
The NIH Collaboratory began as an NIH Common Fund–initiated program. It includes centralized operational support for its pragmatic trial Demonstration Projects from a Coordinating Center and its Core Working Groups.
NIH Collaboratory Structure: 2017-2019

- Starting in 2017, individual NIH Institutes and Centers began providing funding for Demonstration Projects and the Coordinating Center, along with the Common Fund.
Starting in 2019, the NIH HEAL Initiative began providing some Coordinating Center and Demonstration Project funding, in addition to existing funding mechanisms.
Collaboratory Structure: 2022-Present

- Starting in 2022, the program is entirely funded by the NIH HEAL Initiative, along with individual NIH Institutes and Centers.
Demonstration Projects

- Pragmatic trials embedded in healthcare systems to address questions of major public health importance
- Projects span multiple NIH Institutes, Centers, and Offices
- One-year planning phase followed by implementation phase
# Completed Demonstration Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Population</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABATE</strong></td>
<td>Non-ICU patients</td>
<td>Decolonization strategies</td>
<td>MRSA and VRE clinical cultures</td>
</tr>
<tr>
<td><strong>EMBED</strong></td>
<td>Patients with opioid use disorder</td>
<td>User-centered computerized clinical decision support</td>
<td>Rate of emergency department–initiated buprenorphine/naloxone; referral for ongoing medication assisted treatment</td>
</tr>
<tr>
<td><strong>LIRE</strong></td>
<td>Low back pain</td>
<td>Insertion of epidemiologic benchmarks in lumbar spine imaging reports</td>
<td>Relative value unit for spine-related interventions</td>
</tr>
<tr>
<td><strong>PPACT</strong></td>
<td>Nonmalignant chronic pain</td>
<td>Multidisciplinary behavioral care management</td>
<td>Brief Pain Inventory</td>
</tr>
<tr>
<td><strong>PROVEN</strong></td>
<td>Nursing home residents</td>
<td>Advance care planning video (behavioral program)</td>
<td>Hospitalizations; presence of advance directives</td>
</tr>
<tr>
<td><strong>SPOT</strong></td>
<td>Suicidal ideation or depression</td>
<td>Collaborative care behavioral program (care management &amp; skills training)</td>
<td>Suicide attempts</td>
</tr>
<tr>
<td><strong>STOP CRC</strong></td>
<td>Adults aged 50-75 years</td>
<td>Direct mail colorectal cancer (CRC) screening program (FIT kit)</td>
<td>CRC screening rates</td>
</tr>
<tr>
<td><strong>TiME</strong></td>
<td>Patients initiating dialysis</td>
<td>Dialysis session of at least 4.25 hours</td>
<td>All-cause mortality, hospitalization</td>
</tr>
<tr>
<td><strong>TSOS</strong></td>
<td>Traumatic injury</td>
<td>Collaborative care management program</td>
<td>PTSD checklist; PHQ-9 scale; alcohol use disorders; SF-12/36</td>
</tr>
</tbody>
</table>
ABATE  Active Bathing to Eliminate Infection

- Cluster trial comparing 2 quality improvement strategies to reduce multidrug-resistant organisms and healthcare-related infections in non-ICU population
- 53 hospitals
- 331,584 patients
EMBED Pragmatic Trial of User-Centered Clinical Decision Support to Implement Emergency Department-Initiated Buprenorphine for Opioid Use Disorder

- Cluster trial testing the effect of user-centered computerized clinical decision support on rates of emergency department–initiated buprenorphine/naloxone and referral for ongoing medication-assisted treatment in patients with opioid use disorder

- 3 health systems
- 5,047 patients
Cluster trial evaluating whether inserting epidemiologic benchmarks into lumbar spine imaging reports reduces subsequent tests and treatments.

- 98 clinical sites
- 246,289 patients
PPACT  Collaborative Care for Chronic Pain in Primary Care

- Mixed-methods cluster trial evaluating integration of multidisciplinary services within the primary care environment to improve chronic pain management
- 3 regional health systems
- 2,000 patients
PROVEN Pragmatic Trial of Video Education in Nursing Homes

- Evaluating the effectiveness of advance care planning video shown in nursing homes of 2 large health care systems
- 359 nursing homes
- 211,469 patients
SPOT Suicide Prevention Outreach Trial

- Collaborative care model to test treatments intended to reach large groups of **adult patients who have serious thoughts of suicide**
- 4 clinical sites
- 18,644 patients
STOP CRC  
*Strategies and Opportunities to Stop Colorectal Cancer*

- Cluster trial testing a culturally tailored, health care system–based program to **improve CRC screening rates** in community-based collaborative network
  - 30 clinical sites
  - 62,155 patients
TiME  Time to Reduce Mortality in End-Stage Renal Disease

- Cluster trial testing whether a longer hemodialysis session can improve survival & quality of life for patients with kidney failure who require chronic treatment with dialysis
  - 256 clinical sites
  - 7,053 patients
TSOS Trauma Survivors Outcomes and Support

- Stepped-wedge cluster trial testing innovative intervention for patients with PTSD and comorbidity
- 25 level 1 trauma centers
- 960 patients
Data and Resource Sharing

- Completed projects expected to share data and resources publicly
  - Study tools
  - Datasets and documentation
- Materials added to NIH Collaboratory website at project closeout
## Summary of UH3 Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Population</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP PEACE</td>
<td>Patients with advanced cancer</td>
<td>Clinician communication skills training and patient video decision aids for advanced care planning</td>
<td>Advance care plans completion; medical orders for resuscitation preferences; palliative care consultations; hospice use</td>
</tr>
<tr>
<td>GGC4H</td>
<td>Parents of early adolescents</td>
<td>Anticipatory guidance curriculum</td>
<td>Behavioral health problems; health service utilization</td>
</tr>
<tr>
<td>HiLo</td>
<td>Patients undergoing hemodialysis</td>
<td>Liberalizing serum phosphate target</td>
<td>Rate of hospitalization</td>
</tr>
<tr>
<td>ICD-Pieces</td>
<td>Comorbid diabetes, chronic kidney disease, hypertension</td>
<td>Collaborative primary care program</td>
<td>All-cause hospitalizations for 3 conditions</td>
</tr>
<tr>
<td>IMPACt-LBP</td>
<td>Adults with low back pain</td>
<td>Primary Spine Practitioner (PSP) Model using doctors of chiropractic and physical therapists as first-line providers</td>
<td>Improve physical function, decrease pain, decrease opioid prescriptions, improve patient satisfaction, and decrease costs and utilization of health care services when compared with usual medical care</td>
</tr>
<tr>
<td>INSPIRE</td>
<td>Non–critically ill hospitalized patients with abdominal infections or skin and soft tissue infections</td>
<td>Predictive algorithm integrated into the computerized provider order entry system, plus audit and feedback</td>
<td>Reduction in prescribing of unnecessary extended-spectrum antibiotics while maintaining good clinical outcomes as measured by length of stay and transfer to an intensive care unit</td>
</tr>
</tbody>
</table>
## Summary of UH3 Projects (continued)

<table>
<thead>
<tr>
<th>Project</th>
<th>Population</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nudge</td>
<td>Patients with chronic cardiovascular (CV) conditions</td>
<td>Text messages and chat bot</td>
<td>Adherence to CV medications</td>
</tr>
<tr>
<td>PRIM-ER</td>
<td>Older adults (&gt;65 years)</td>
<td>Palliative care education; simulation-based workshops; clinical decision support; provider audit and feedback</td>
<td>Healthcare utilization and survival</td>
</tr>
</tbody>
</table>
ACP PEACE  
Advance Care Planning: Promoting Effective and Aligned Communication in the Elderly

- Cluster trial testing whether clinician communication skills training and patient video decision aids will increase **advance care plan completion** in patients >65 with advanced cancer
- 36 oncology clinics across 3 health systems
- 4,500 expected patients
GGC4H Guiding Good Choices for Health

- Cluster trial testing whether an anticipatory guidance curriculum for parents of early adolescents will reduce behavioral health problems and health service utilization
- 3 health systems
- 72 pediatricians and 4,500 families expected
HiLo Pragmatic Trial of Higher vs. Lower Serum Phosphate Targets in Patients Undergoing Hemodialysis

- Cluster trial testing whether less stringent control of serum phosphate levels will yield noninferior rates of all-cause hospitalization in patients with end-stage renal disease undergoing hemodialysis
- >100 dialysis facilities
- 4,400 expected patients
ICD-Pieces  Improving Chronic Disease Management with Pieces™

- Novel platform to test effective ways to reduce heart problems, hospitalizations & deaths in patients with multiple chronic conditions
- 94 clinical sites
- 10,991 expected patients
IMPACT-LBP Implementation of the American College of Physicians Guideline for Low Back Pain

- Refine and implement a multidisciplinary collaborative care model for low back pain
- Evaluate the effectiveness of this care model compared to usual medical care for low back pain
- 3 academic health care systems
INSPIRE  INtelligent Stewardship Prompts to Improve Real-time Empiric Antibiotic Selection for Patients

- 2 cluster randomized trials using personalized clinical decision support to improve judicious antibiotic prescribing for non–critically ill patients hospitalized with abdominal infections or skin and soft tissue infections
- 90,000 expected patients
Nudge Personalized Patient Data and Behavioral Nudges to Improve Adherence to Chronic Cardiovascular Medications

- Patient-level randomized pragmatic trial comparing the effects of digital interventions (text messages and chat bot) on medication adherence in patients with chronic cardiovascular conditions
- 3 health systems
PRIM-ER  Primary Palliative Care for Emergency Medicine

- Cluster trial testing the effects of implementing primary palliative care in emergency medicine on healthcare utilization and survival
- 35 emergency departments across 18 health systems
PRISM Demonstration Projects

- Embedded PCTs of non-opioid interventions for treating pain, improving pain management, and reducing reliance on opioids
- Aim is to improve availability of, effectiveness of, and adherence to evidence-based, nonpharmacologic pain management.
- PRISM is funded through the Helping to End Addiction Long-termSM Initiative, or NIH HEAL InitiativeSM, which supports a wide range of programs to develop new or improved prevention and treatment strategies for opioid addiction.
<table>
<thead>
<tr>
<th>Project</th>
<th>Population</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>BackInAction</td>
<td>Older adults with low back pain</td>
<td>Standard and enhanced 12-week courses of acupuncture</td>
<td>Back-related function at 26 weeks; cost-effectiveness</td>
</tr>
<tr>
<td>FM-TIPS</td>
<td>Fibromyalgia</td>
<td>Addition of transcutaneous electrical nerve stimulation (TENS) to physical therapy</td>
<td>Fibromyalgia symptoms; adherence to therapy; meeting therapeutic goals; medication use</td>
</tr>
<tr>
<td>NOHARM</td>
<td>Postoperative pain</td>
<td>EHR-embedded tools to aid shared decision making about pain management</td>
<td>Postoperative opioid use, pain, function</td>
</tr>
<tr>
<td>OPTIMUM</td>
<td>Chronic low back pain</td>
<td>Group-based mindfulness in outpatient clinical settings</td>
<td>Pain, physical and psychological function; opioid prescriptions for chronic low back pain</td>
</tr>
<tr>
<td>BeatPain Utah</td>
<td>Adults with back pain in federally qualified health centers in Utah</td>
<td>Brief pain teleconsult and phone-based physical therapy</td>
<td>Pain management; reduction of disparities; evaluation of implementation strategies</td>
</tr>
<tr>
<td>GRACE</td>
<td>Patients with sickle cell disease</td>
<td>Acupuncture and guided relaxation</td>
<td>Pain control; effective treatment sequence; evaluation of implementation strategies</td>
</tr>
</tbody>
</table>
BackInAction  Pragmatic Trial of Acupuncture for Chronic Low Back Pain in Older Adults

- Evaluating the safety and effectiveness of acupuncture in older adults with chronic low back pain
- 4 performance sites
- 828 expected patients
FM-TIPS  *Fibromyalgia TENS in Physical Therapy Study*

- Testing the feasibility and effectiveness of **adding TENS** to treatment of patients with fibromyalgia in a **real-world physical therapy practice setting**
- 5 physical therapy health systems
NOHARM Nonpharmacologic Options in Postoperative Hospital-based and Rehabilitation Pain Management

- Testing the feasibility of EHR-embedded patient- and clinician-facing decision support for non-pharmacologic pain care after surgery
- 4 health systems
OPTIMUM  Group-Based Mindfulness for Patients With Chronic Low Back Pain in the Primary Care Setting

- Evaluating effectiveness of a group-based mindfulness intervention for patients with chronic low back pain in a usual care setting
- 3 health systems
- 450 expected patients
BeatPain Utah Nonpharmacologic Pain Management in Federally Qualified Health Centers Primary Care Clinics

- Testing the feasibility of a telehealth strategy that provides a brief pain teleconsult along with phone-based physical therapy
- Federally Qualified Health Centers in Utah
GRACE Hybrid Effectiveness-Implementation Trial of Guided Relaxation and Acupuncture for Chronic Sickle Cell Disease Pain

- Testing the effectiveness of **guided relaxation and acupuncture** to improve pain control and determine the most appropriate and effective treatment sequence for **patients with sickle cell disease pain**

- 3 health systems
NIH Collaboratory Project Resources

Publications, Presentations & Study Snapshots available on the Demonstration Project pages of the Living Textbook
Flow of Information

- Demonstration Projects
  - Core Working Groups
  - Teleconferences
  - Steering Committee Meetings
  - Partner Organizations

- Lessons
  - Living Textbook & Knowledge Repository
  - Grand Rounds, Presentations & Social Media
  - Guidance Documents & Journal Publications
Partner Organizations

- Grand Rounds
  - Shared NIH Collaboratory–PCORnet forum
  - Frequent presentations by partner organizations

- Collaboration on
  - Workshops
  - Ethics & regulatory publications

- Shared tools & resources
  - Links to external resources in the Living Textbook
Distributed Research Network

- Enables investigators to collaborate in the use of electronic health data while safeguarding protected health information.

Curated Distributed Data Using a Common Data Model

- Baseline data to support planning of studies
- Retrospective & prospective observational studies
- Clinical trials

Queries
Results

DISTRIBUTED NETWORK GOVERNANCE
Weekly webinars on a wide range of research topics
- 420+ presentations since inception
- Average >250 attendees per session
- Timely, high-interest topics such as COVID-19
- Feature NIH Collaboratory work

Podcasts of featured expert interviews
ePCT Training Resources

- Learning modules for self-paced study
- Workshop recordings and materials
- Quick Start Guides for investigators
- Essentials starter kit
- NIH Collaboratory overview
- ePCT factsheet

rethinkingclinicaltrials.org/training-resources
For More Information

Living Textbook

- Comprehensive information on design, conduct, and dissemination of embedded PCTs
  - rethinkingclinicaltrials.org

Monthly Newsletter

- Convenient monthly wrap-up of NIH Collaboratory news
  - rethinkingclinicaltrials.org/newsletter-subscribe

Twitter

- Follow us! @Collaboratory1