Maximizing Diversity in PCTs-What Can We Learn from Implementation Trials?

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NIH NATIONAL CANCER INSTITUTE

Key Terms

- ***Implementation Science*** is the study of methods to promote the integration of research findings and evidence into healthcare policy and practice.
- ***Dissemination research*** is the scientific study of targeted distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to understand how best to spread and sustain knowledge and the associated evidence-based interventions.
- ***Implementation research*** is the scientific study of the use of strategies to adopt and integrate evidence-based health interventions into clinical and community settings in order to improve patient outcomes and benefit population health.

Optimizing Benefit of All Interventions

REACH
How do I reach the targeted population?

EFFECTIVENESS
How do I know my intervention is effective?

ADOPTION
How do I develop the institutional support to deliver my intervention?

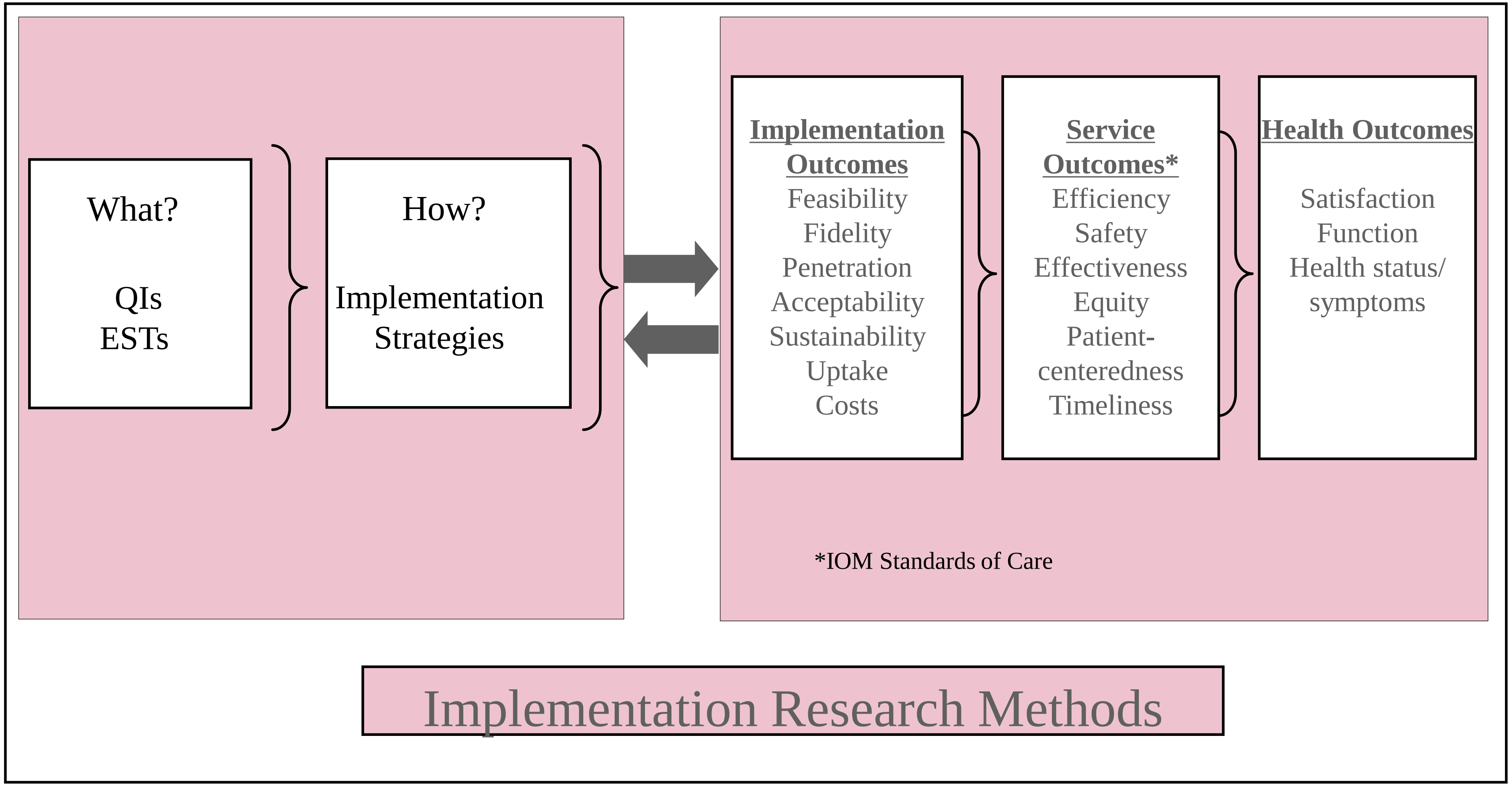
IMPLEMENTATION
How do I ensure the intervention is delivered properly?

MAINTENANCE
How do I incorporate the intervention so it is delivered over the long term?

RE-AIM
Translating Research into Action
re-aim.org

Glasgow, Vogt, & Boles (1999)

Studying Implementation



What?

QIs
ESTs

How?

Implementation Strategies

Implementation Outcomes
Feasibility
Fidelity
Penetration
Acceptability
Sustainability
Uptake
Costs

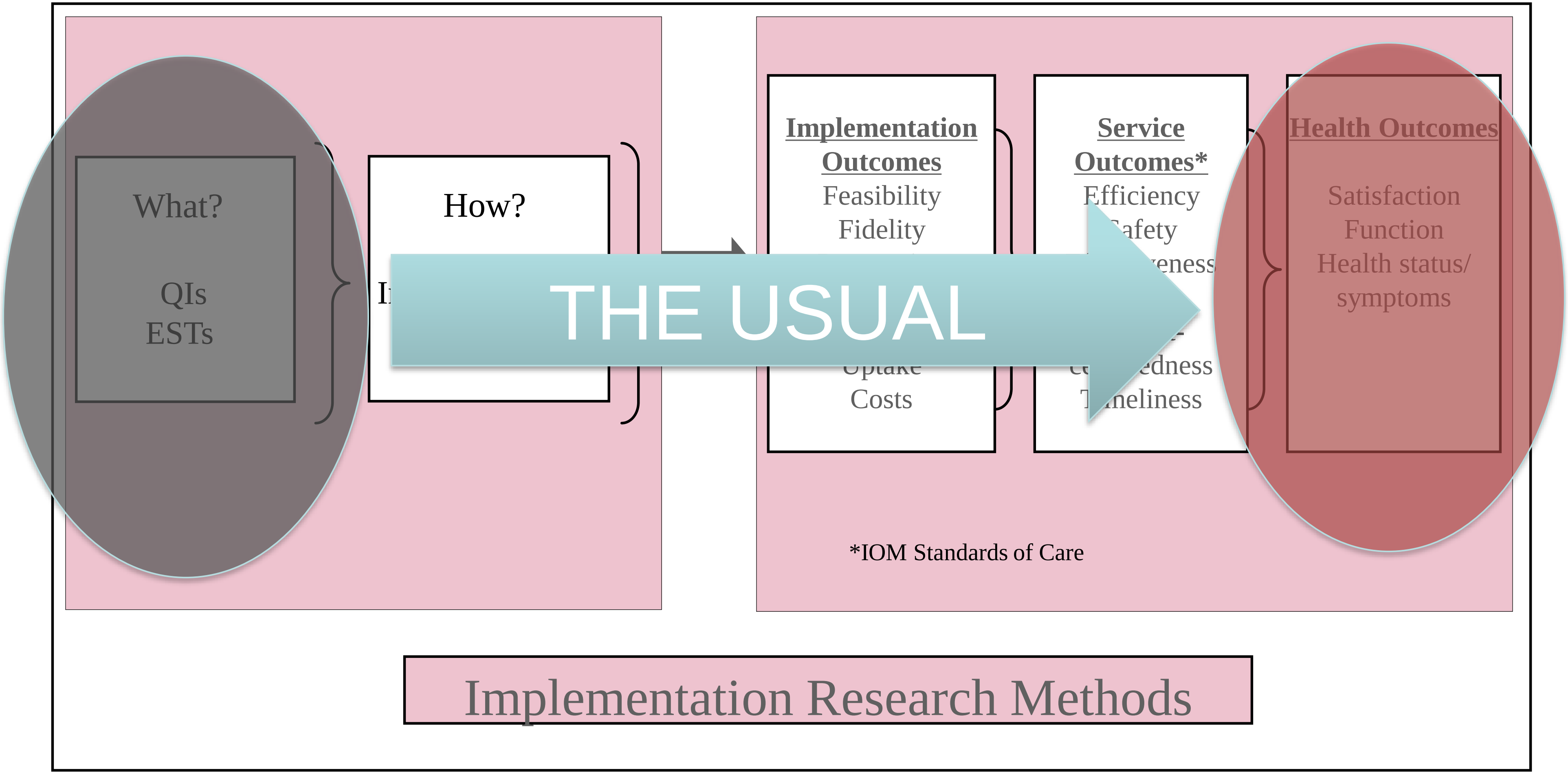
Service Outcomes*
Efficiency
Safety
Effectiveness
Equity
Patient-centeredness
Timeliness

Health Outcomes
Satisfaction
Function
Health status/ symptoms

*IOM Standards of Care

Implementation Research Methods

Studying Implementation



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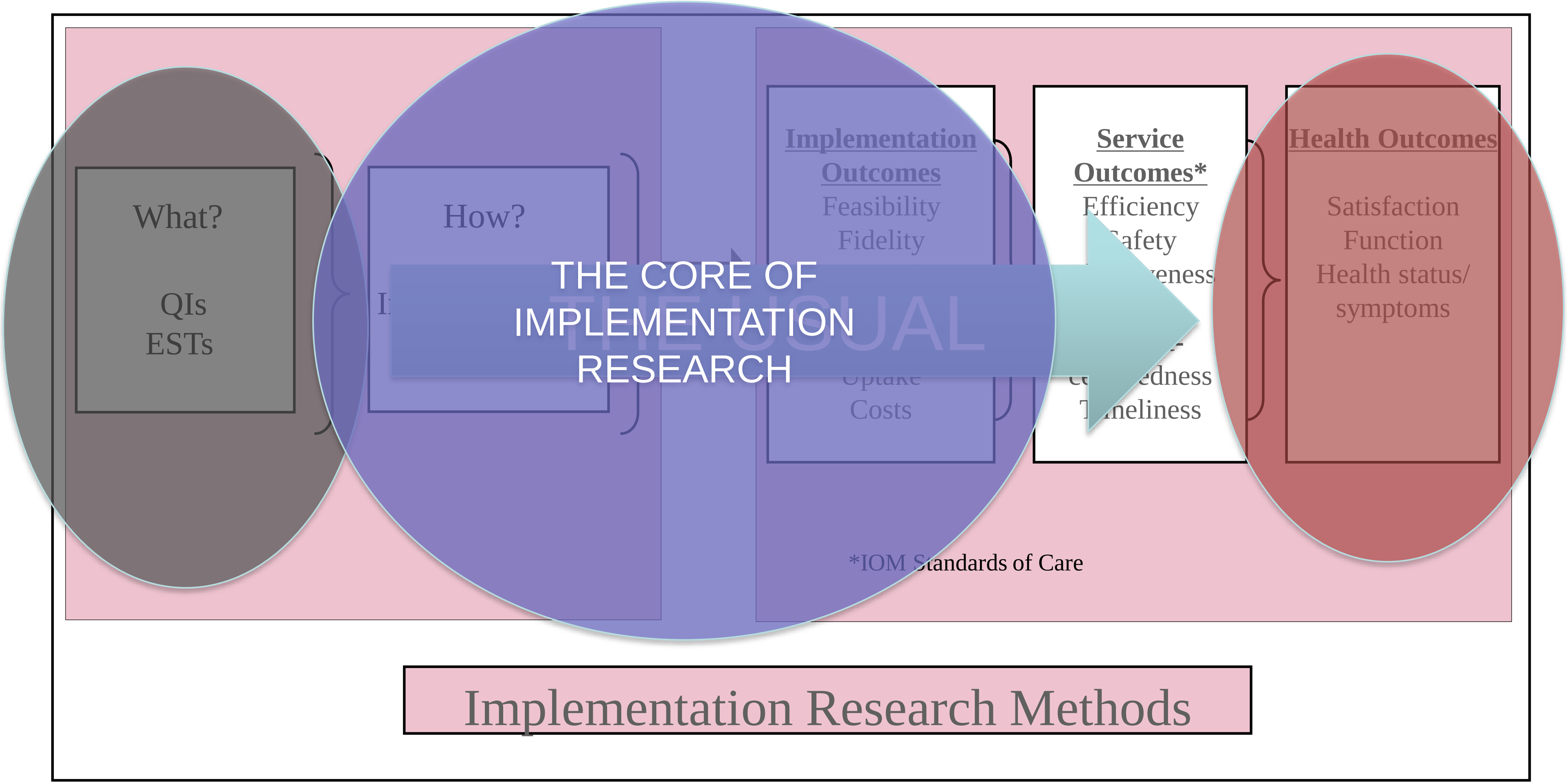

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THE CORE OF IMPLEMENTATION RESEARCH

THE USUAL

*IOM Standards of Care

Implementation Research Methods

Implementation Strategies

1. Evaluation and iterative strategies

- Assess readiness
- Identify barriers and facilitators

2. Interactive assistance

- Facilitation
- Technical assistance

3. Adapting and tailoring to context

- Tailor strategies
- Promote adaptability

4. Develop stakeholder relationships

- Identify local opinion leaders
- Build coalitions

5. Train/educate stakeholders

- Conduct training
- Develop educational materials

6. Supporting clinicians

- Audit and feedback
- Revise professional roles

7. Engage consumers

- Involve end-users
- Use mass media

8. Use financial strategies

- Alter incentive structures
- Develop disincentives

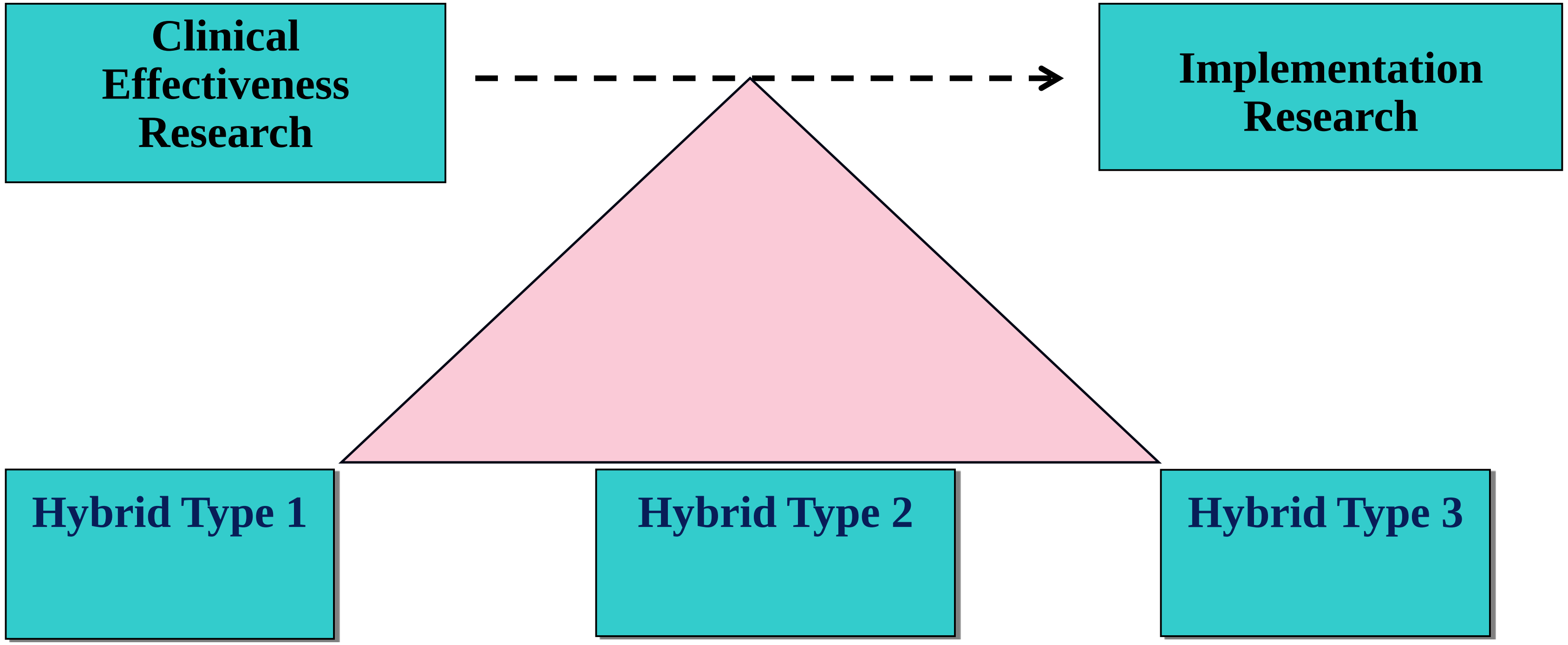
9. Change infrastructure

- Mandate change
- Change physical structures

Powell et al., 2012; Waltz, et al., 2015

Slide credit: P Adsul, W. Norton

Hybrid Effectiveness-Implementation Designs



Clinical Effectiveness Research

Implementation Research

Hybrid Type 1

Hybrid Type 2

Hybrid Type 3

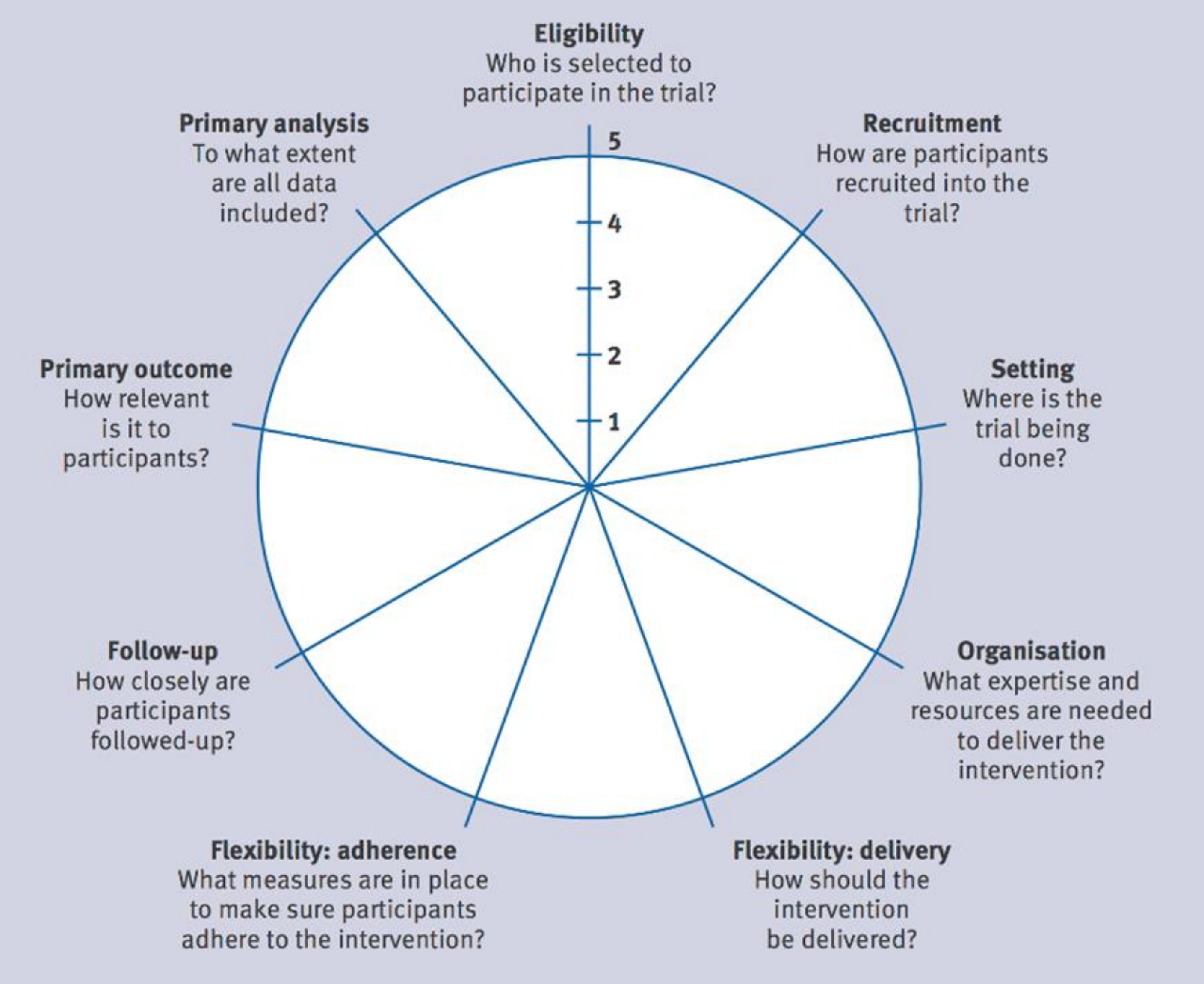
Hybrid Type 1
Test clinical/prevention intervention, observe/gather information on implementation

Hybrid Type 2
Test clinical/prevention intervention, test/study implementation strategy

Hybrid Type 3
Test implementation strategy, observe/gather information on clinical/prevention outcomes

Curran et al, 2012, *Medical Care*

Designing Trials With Diversity in Mind…



PRECIS-2: Pragmatic-Explanatory Continuum Indicator Summary;
Loudon et al., 2015; 1 = Very explanatory, 5 = Very pragmatic

Using Implementation Science to Advance Health Equity

RADx^{SM} Underserved Populations (RADx-UP)

The overarching goal of the RADx-UP initiative is to understand the factors associated with disparities in COVID-19 morbidity and mortality and to lay the foundation to reduce disparities for those underserved and vulnerable populations who are disproportionately affected by, have the highest infection rates of, and/or are most at risk for complications or poor outcomes from the COVID-19 pandemic.

Budget: $500 Million

Funding Opportunity Title	Transformative Research to Address Health Disparities and Advance Health Equity (U01 Clinical Trial Allowed)
Activity Code	U01 Research Project – Cooperative Agreements

NIH Collaboratory *Rethinking Clinical Trials®*

Health Care Systems Research Collaboratory

NIH Collaboratory Diversity Workshop

Maximizing Diversity in PCTs: What Can We Learn From Implementation Trials?

Amanda Midboe, PhD
Anne Trontell, MD, MPH
David Chambers, DPhil (moderator)

July 16, 2021 • 1:00 pm ET

@Collaboratory1 #pctGR

rethinkingclinicaltrials.org

Patient-Centered Outcomes Research: An Approach to Increasing Diversity, Equity, and Inclusive Health

NIH Collaboratory Grand Rounds
July 16, 2021

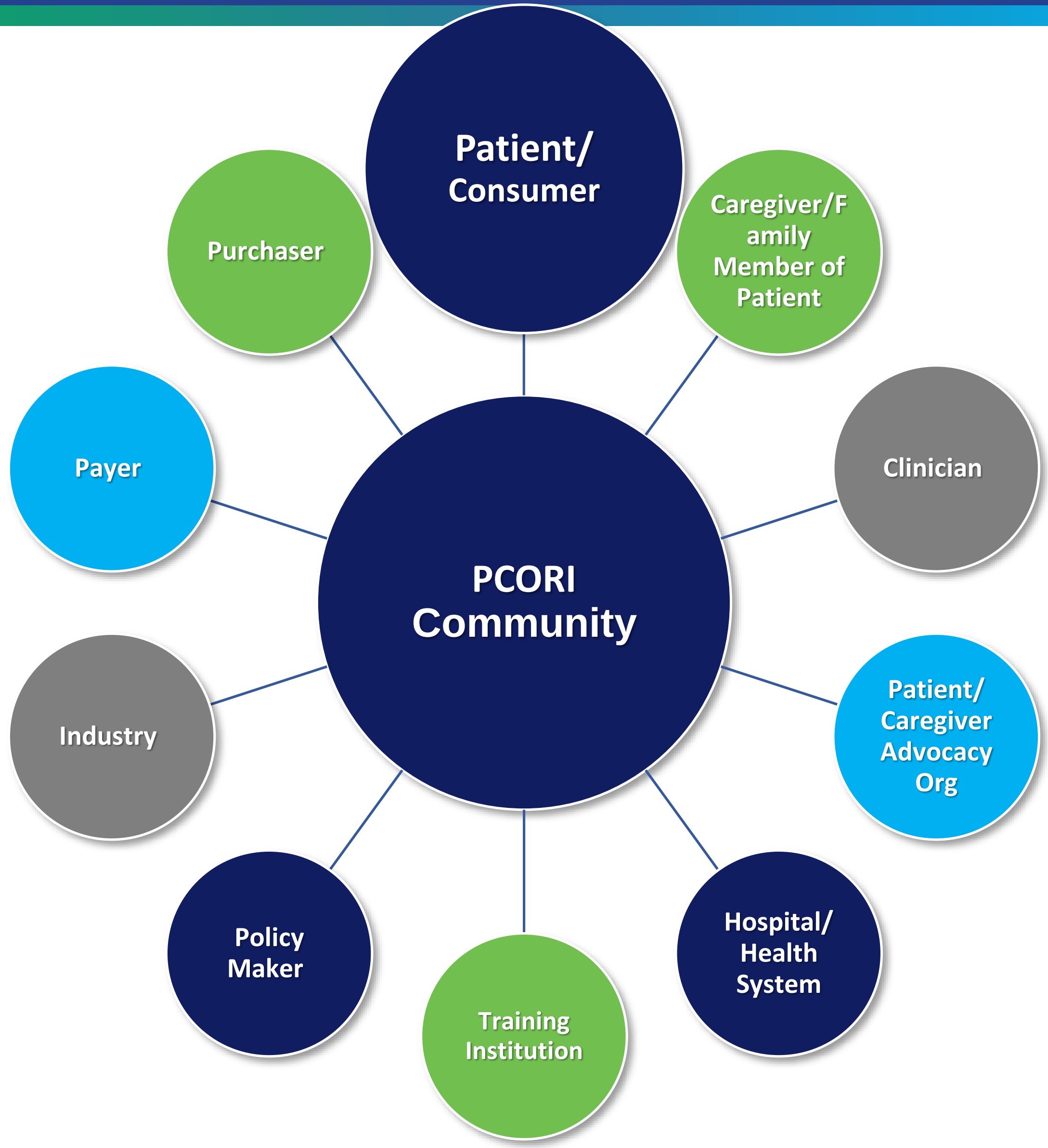
Anne Trontell, MD, MPH
Patient-Centered Outcomes Research Institute
Associate Director, Clinical Effectiveness & Decision Sciences

Patient Centered Outcomes Research Institute (PCORI)

- An independent, non-profit research institute governed by a Board comprised of diverse health care stakeholders
- Funds comparative clinical effectiveness research (CER) of $\geq$2 options to care for a clinical condition or of ways to improve health care delivery
  - As of Mar 2021, > 1800 research & dissemination-related awards totaling > $2.9 billion USD
- All funded research is pragmatic: stakeholder-driven questions, diverse and inclusive populations, conduct in real-world care settings, and use of routine clinical practices
- Foundational requirements of PCORI-funded research
  - Real-world questions that will inform decisions by patients and other health care stakeholders
  - Focus on meaningful patient-centered outcomes that consider patient circumstances and concerns
  - Attention to subgroup differences, disparities, and vulnerable populations
  - Engagement of patients and stakeholders throughout the research process

Engagement of Patients and Stakeholders

- Patient-centeredness and inclusiveness are fostered through continuous and active engagement
- Patients act as partners in research, not "subjects"
- PCORI supports researchers to carry out active and meaningful engagement with patients and stakeholders



Benefits of Purposeful Engagement

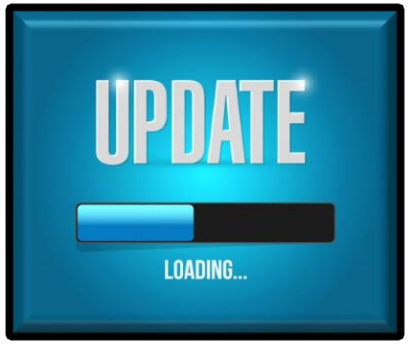
- To influence research to be patient-centered, relevant, and useful
- To establish trust and a sense of legitimacy in research findings
- To encourage successful uptake and use of research results

- To support partnerships that embody diversity, equity, and inclusion

PCORI Offers Guidance in its Engagement Rubric

Built upon Community Based Participatory Research and grounded in PCOR Engagement Principles:

- Trust
- Transparency
- Honesty
- Reciprocal relationships
- Co-learning
- Partnership



Offers concrete suggestions and practical tips on effective engagement of patient and stakeholder partners from research concept to dissemination of findings

https://www.pcori.org/document/engagement-rubric

Partnership, Reciprocal Relationships, and Co-Learning Support Improved Depression Care in Racial/Ethnic Minorities

Cluster PCT trial of 95 health care and community social service organizations in LA County serving >90% racial/ethnic minority populations with >70% below the Federal poverty level

Compared 2 mechanisms to support organizations' implementation of a collaborative care toolkit for depression

- Technical assistance (webinar series + site visit)
- Supported development of multisector coalitions of organizations to implement and adapt the toolkit to the local culture, resources, and assets
  - Coalition co-leadership by community members and academic partners
  - Incorporated community guidance, additional outcomes, and recommended follow-up analyses
- Included >1200 individuals screening positive for depression

Findings

- Achieved significant participation with 94% of eligible adults consenting to participate
- At 3 years, coalition support improved physical health-related QoL and reduced behavioral health hospitalization days. At 4 years, it increased the likelihood of clinical and community-defined remission for depressed adults versus the technical assistance model.

AJPH 109, no. S3 (June 1, 2019): pp. S205-S213.

PCORI Comparative Effectiveness Research & Implementation Trials

- Few implementation trials per se, but more combining CER with Type I/II implementation trials are anticipated
- Examples of trials from our research portfolio addressing disparities in health and health care and examining factors affecting the inclusion of diverse vulnerable populations
  - Racial & ethnic minorities
  - Older adults
  - Low income
  - Residents of rural areas
  - Women
  - Children
  - LQBTQ persons
  - Veterans of the Armed Forces
  - People with limited literacy, numeracy, or English proficiency
  - People with special health care needs (e.g., disabilities, multiple chronic conditions, rare diseases)

Disproportionate Asthma Burdens Among Disadvantaged Populations

African-American and Latinx populations have worse asthma morbidity and mortality

- PREPARE: Focuses upon improving asthma outcomes in AA and Latinx individuals with poorly controlled asthma despite a prescription for regular use of an inhaled corticosteroid (ICS) to prevent and control asthma exacerbations
- Examining real-world effectiveness of symptom-triggered use of ICS with rescue inhaler use
- 1200 patients prescribed an ICS with an exacerbation in the past year receive training with videos in English or Spanish on asthma treatment and management
  - Enhanced usual care: Online clinician training on guideline-based asthma care
  - Enhanced usual care + symptom-triggered, 1:1 use of ICS with each use of rescue (quick-relief) inhaler
- Primary outcome: Number of asthma exacerbations, with secondary outcomes of days lost from school or work
- Designed with a single study visit to enroll patients, then monthly questionnaire follow-up customized to patient preferences and access (e.g., computer, tablet, smart phone, postal mail, or telephone) with EHR supplementation as necessary

https://www.pcori.org/research-results/2016/comparing-asthma-treatments-study-focusing-african-american-hispanic-and

Focus on Disproportionate Disease Burdens Among Disadvantaged Populations - Asthma

PREPARE actively engaged individuals with lived experience of asthma (and 4 other stakeholder groups)

- Investigators meet monthly to hear from 2 groups, 1 in English and 1 Spanish, with one member of each group participating in study governance via its Executive Committee
- Patient input shaped implementation and participation in multiple ways
  - Modified the patient educational and study videos to improve understanding
  - Trimmed nonessential & burdensome data collection
  - Developed a medication pouch to house the dual inhalers to facilitate/remind participants about 1:1 use
  - Informed investigators about patients' use of nonstandard names for their inhalers, leading to personalization of the participant data capture system so questionnaires used each participant's own nomenclature. This informed clinician stakeholders about the risk of poor communication with patients about their asthma treatment
- Enrollment complete with results pending

https://www.pcori.org/research-results/2016/comparing-asthma-treatments-study-focusing-african-american-hispanic-and

Advance Care Planning (ACP) for End-of-Life Care and Racial Differences in Use

ACP is limited, especially among African Americans who more commonly experience poor quality end-of-life care

EQUAL ACP: Examines if culture, knowledge, or access play a role in disparate use

- Mixed-methods, cluster PCT of 10 clinics in the Southern US with 800 seriously ill adults 65 years of age or older, split between African-American & White individuals
- Primary outcome: Completion of a formal advance care planning (ACP) document OR informal communication with doctors, family, or caregivers about values and preferences for care
- CER of two ACP approaches chosen based on stakeholder input and preferences
  - Respecting Choices (structured approach with in-person or phone-based facilitator)
  - Five Wishes (patient-guided, self-management with phone-based facilitation)
- Comparisons planned of the 2 ACP approaches as well as of outcome disparities by race and the impact of racial concordance/discordance of participant/facilitator
- Continuing enrollment after making COVID-related virtual adaptations to in-person delivery of Respecting Choices

https://www.pcori.org/research-results/2017/comparing-ways-encourage-and-improve-end-life-care-planning

Focus on Factors Affecting Mental Health Care and Outcomes in Under-resourced Rural Settings

Rural Community Health Centers (CHCs) are challenged to provide complex psychiatric care for PTSD and Bipolar Disorder (BD) due to limited staff specialists & and geographic, cultural, and financial barriers to specialty care in the community

SPIRIT: Study to Promote Innovation in Rural Integrated Telepsychiatry

- Based in 15 CHCs in AR, MI, WA providing primary care to rural areas where 96% adults live in poverty
- Examining mental health-related QoL at 12 mo in 500 patients with PTSD and 500 with BD
- Mixed methods, individually randomized SMART design initially comparing
  - Initial video telepsychiatry visit in the CHC with collaborative care treatment and follow up by CHC staff
  - Initial and ongoing video telepsychiatry in the CHC
- 2nd stage randomization if inadequate response to ongoing video telepsychiatry after 6 months
  - Continued video telepsychiatry in the CHC
  - Switch to phone telepsychiatry in the patient’s home

https://www.pcori.org/research-results/2015/comparing-two-approaches-provide-complex-mental-health-care-patients-rural

Focus on Facilitators to Engagement & Adherence in Community Health Center Care of PTSD and BD

Analyses

- Quantitative comparison of treatment experience, engagement, and self-reported clinical and recovery-related outcomes
- In-depth, qualitative comparison of patients' and providers' treatment experience with the 3 forms of treatment

Enrollment complete, draft findings submitted to PCORI peer review

https://www.pcori.org/research-results/2015/comparing-two-approaches-provide-complex-mental-health-care-patients-rural

Focus on Clinician, System, and Participant Factors to Encourage Smoking Cessation in Individuals with SMI

Individuals with schizophrenia, bipolar disorder, or major depressive disorder often smoke and experience smoking-related illnesses. Mental health (MH) providers infrequently address or assist smoking cessation needs

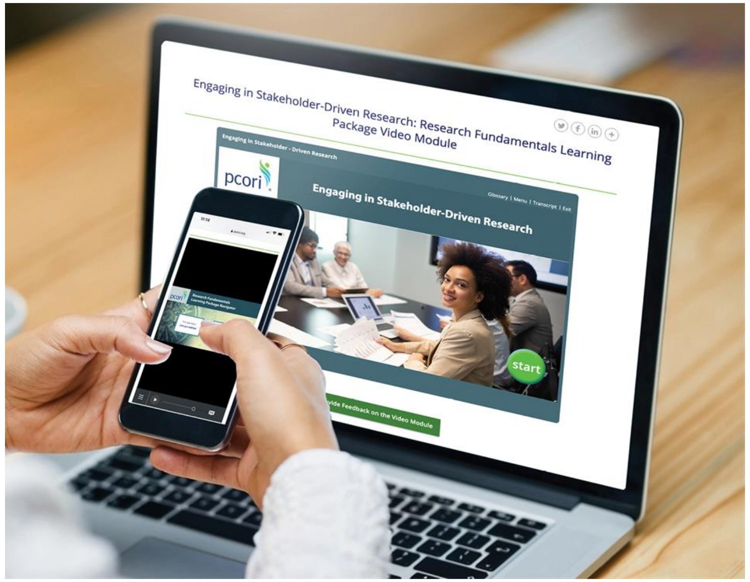
- Integrated Smoking Cessation Treatment for Smokers with Serious Mental Illness (SMI)
- Explores ways to overcome clinician and patient obstacles to smoking cessation efforts & medications
- Cluster randomized PCT of MH clinics treating >1100 patients
- Primary outcome of tobacco abstinence at year 2 compared across 3 intervention arms
  - Usual care of mental and medical health
  - Academic detailing of MH prescribers on integrated medication/behavioral treatment & barriers
  - Academic detailing combined with community health worker support of patients
- Enrollment complete, completing of analyses of the primary outcome and differences in advice to quit, use of smoking cessation pharmacotherapy, prescriptions received and fulfilled, and patient-reported health and well-being

https://www.pcori.org/research-results/2016/helping-people-serious-mental-illness-stop-smoking

Overall Lessons Learned on DE&I in Patient-Centered Comparative Effectiveness

- Early and continuous commitment and investment to engaging patients, stakeholders, and communities in research supports increased diversity, equity, and inclusiveness
- Focused research attention on disparities within health conditions, settings, and in health care access by underrepresented groups to assist equity goals in health care delivery and health outcomes
- Research examining sociocultural and logistical barriers influencing the provision, access, and receipt of care can inform ways to improve inclusiveness and diversity and ultimately **equity in health outcomes and well-being**

Free Resources to Support Multi-Stakeholder Research Teams



Research Fundamentals

- Provides **foundational knowledge in PCOR/CER** to **non-scientist participants** on research and other projects.

- **Available at** *www.pcori.org/research-fundamentals*

Building Effective Multi-Stakeholder Research Teams

- For **new and experienced researchers and stakeholder partners**, offers **practical guidance and resources to support multi-stakeholder teams** in effectively working together.
- **Available at** *www.pcori.org/research-teams*

Engagement Resources on PCORI website

- Ambassadors Program
- Research Fundamentals
- Building Effective Multi-Stakeholder Research Teams
- PCORI Engagement Rubric
- Compensation Framework
- Budgeting for Engagement Activities
- Engagement Plan (Updated Template)
- Engagement Tool and Resource Repository for Patient-Centered Outcomes Research
- Engagement in Health Research Literature Explorer

COMING SOON:
Guidebook on Engaging with Research Partners about Data and Analysis

Thank you

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PCORI's National Priorities for Health: Proposed Priorities for Public Comment

https://www.pcori.org/webform/pcoris-national-priorities-health-proposed-priorities-public-comment

Maximizing Diversity: Lessons from Implementation Trials

Amanda Midboe, PhD

Presentation for Collaboratory Grand Rounds Diversity Workshop Series, 7/16/21

Ci2i
CENTER FOR INNOVATION
TO IMPLEMENTATION

Overview of today’s presentation

- What do I mean by diversity?
- An unexpected success
- Lessons from implementation trials

Diversity

- Caveat: depends on your trial
- Individuals who are potentially vulnerable to adverse health outcomes

An unexpected success: Background

- Individuals living with HIV are disproportionately in racial/ethnic minority groups - Black/African American (AA) and Hispanic Latino communities in particular[1]
  - New infections among Black/AA women are disproportionately higher than other racial/ethnic groups
- Evidence for lower adherence to anti-retroviral therapy (ART) among racial/ethnic minority groups, particularly Black/AA men[2]
- Lower engagement in tethered personal health record registration and use[3]

An unexpected success: Method

1. Administrative data to streamline identification of sites and participants
2. Ongoing support from Veteran stakeholder group
3. Targeted engagement methods
    a) Tailored mailings, follow-up
    b) Monetary incentives
    c) Flexible data collection (phone, in clinic)

An unexpected success: Method

1. Veterans Health Administration (VHA) data for >140 VHA facilities; site selection was prioritized based on:
   - Number of veterans in a racial/ethnic minority group receiving care for HIV care at a site
   - Number of women veterans receiving HIV care
   - Sites in certain regions/areas of the country (e.g., South, rural/remote urban)
   - *Note*: Sites were initially identified as low- or high-performing on key metrics

2. Early and regular collaboration with veterans and other networks
   - Local veteran engagement board
   - A veteran consultant in the study team
   - Women's health practice-based research network (PBRN)[4,5]

3. Outreach process
   - Introductory letter with opt-out card, followed by study team contact if no opt out
   - Phases of mailing

An unexpected success: Results

Veterans living with HIV in our sample

- 53% White
- 47% non-White
- 73% men
- 27% women (~4.5% of veterans living with HIV are women)

Area for improvement

- 27% of our sample was Black/AA veterans living with HIV, BUT 49% of veterans living with HIV in VHA are Black/AA

Lessons from Implementation Trials

- Large scale implementation trial of medication for veterans with opioid use disorder (OUD)

1. Leveraged administrative data to target low-performing sites and monitor performance
2. Diverse, 13-member veteran engagement board meets regularly with project teams to provide feedback
    - Some members were interviewed for videos used for outreach to other veterans and providers - https://www.youtube.com/playlist?list=PL3AQ_JVoBEyy2VbMmeMMdnwzyGDdTRkXx

Lessons from Implementation Trials

- Implementation trial to provide veterans access to evidence-based non-pharmacologic treatment for chronic pain

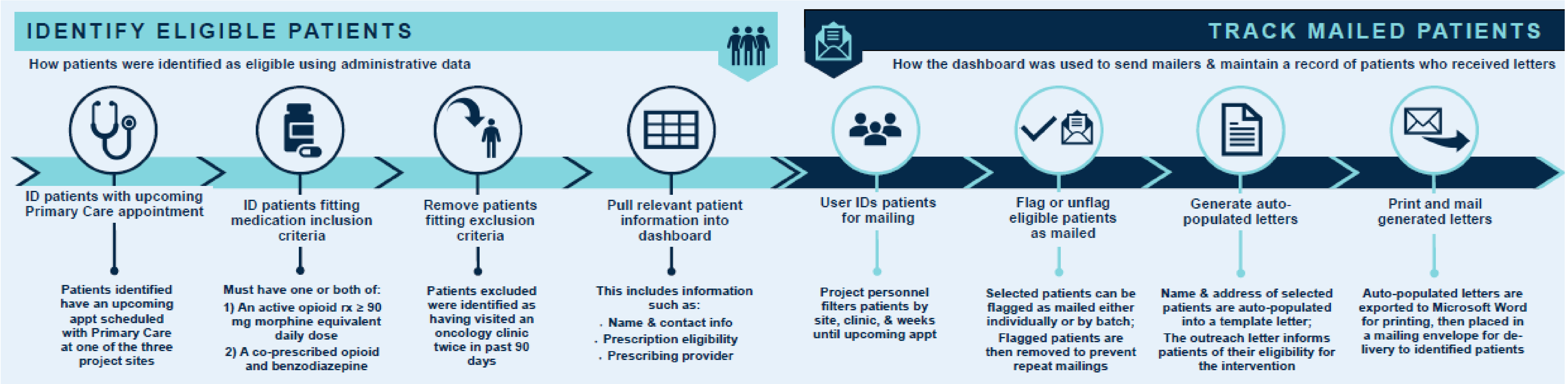
    1. Leveraged administrative data to create a case-finding dashboard of all eligible patients[6]

    2. Direct-to-consumer outreach implementation strategy

VA Quality Enhancement Research Initiative

EVIDENCE INTO PRACTICE

Case-Finding Dashboard Flow



IDENTIFY ELIGIBLE PATIENTS

How patients were identified as eligible using administrative data

ID patients with upcoming Primary Care appointment

Patients identified have an upcoming appt scheduled with Primary Care at one of the three project sites

ID patients fitting medication inclusion criteria

Must have one or both of:
1) An active opioid rx ≥ 90 mg morphine equivalent daily dose
2) A co-prescribed opioid and benzodiazepine

Remove patients fitting exclusion criteria

Patients excluded were identified as having visited an oncology clinic twice in past 90 days

Pull relevant patient information into dashboard

This includes information such as:
- Name & contact info
- Prescription eligibility
- Prescribing provider

TRACK MAILED PATIENTS

How the dashboard was used to send mailers & maintain a record of patients who received letters

User IDs patients for mailing

Project personnel filters patients by site, clinic, & weeks until upcoming appt

Flag or unflag eligible patients as mailed

Selected patients can be flagged as mailed either individually or by batch; Flagged patients are then removed to prevent repeat mailings

Generate auto-populated letters

Name & address of selected patients are auto-populated into a template letter; The outreach letter informs patients of their eligibility for the intervention

Print and mail generated letters

Auto-populated letters are exported to Microsoft Word for printing, then placed in a mailing envelope for delivery to identified patients

So, what does this mean for *pragmatic clinical trials*?

Increasing Diversity

1. Identify what diversity means for your trial

2. Leverage administrative data to determine where to target efforts to reach diverse individuals
    - e.g., rural vs urban; women vs men; Black/AA vs White

3. Involve patients and the surrounding community targeted by the trial as early as possible and throughout
    - Advisory board and/or part of the team
    - Community-based outreach, Direct-to-consumer outreach[7,8,9]
    - Endorsement of evidence-based practice by key community members
    - Provide tangible support when needed - incentives for initial enrollment; childcare for families

4. Tailor outreach materials and adapt for the setting of interest
    - Based on patient-/provider-level feedback

5. Tailor engagement efforts of diverse populations based on a comprehensive mixed-methods evaluation[10]

References

[1]Simoni JM, Huh D, Wilson IB, et al. Racial/Ethnic disparities in ART adherence in the United States: findings from the MACH14 study. *J Acquir Immune Defic Syndr*. 2012;60(5):466-472.

[2]Richardson KK, Bokhour B, et al. Racial Disparities in HIV Care Extend to Common Comorbidities: Implications for Implementation of Interventions to Reduce Disparities in HIV Care. *J Natl Med Assoc*. 2016 Winter;108(4):201-210.e3.

[3]Javier, SJ, Troszak, LK, Shimada, SL, McInnes, DK, Ohl, ME, Avoundjian, T, Erhardt, TA, Midboe, AM, Racial and ethnic disparities in use of a personal health record by veterans living with HIV, *Journal of the American Medical Informatics Association*, Volume 26, Issue 8-9, August/September 2019, Pages 696–702.

[4]Frayne, S.M., Carney, D.V., Bastian, L. *et al.* (2013). The VA Women's Health Practice-Based Research Network: Amplifying Women Veterans' Voices in VA Research. *J GEN INTERN MED* **28,** 504–509.

[5]Getrich CM, Sussman AL, Campbell-Voytal K, et al. Cultivating a cycle of trust with diverse communities in practice-based research: a report from PRIME Net. *Ann Fam Med*. 2013;11(6):550-558.

[6]Erhardt, T., Avoundjian, T., Becker, W., & Midboe, A. (2018). Novel use of a case-finding dashboard as an implementation tool. Poster Presentation at the *11th Annual Conference on the Science of Dissemination and Implementation*, Washington, DC, December 4.

[7]Lee D, Begley CE. Racial and ethnic disparities in response to direct-to-consumer advertising. *Am J Health Syst Pharm*. 2010 Jul 15;67(14):1185-90.

[8]Yang Y, Gourley DR, Gourley GA, Faris RJ, Womeodu RJ, Yang J, Likens CC. African American patients' attitudes toward proactive health behaviors after exposure to direct-to-consumer advertising. *J Natl Med Assoc*. 2010 May;102(5):408-15.

[9]Karlin BE, Brenner LA. Improving engagement in evidence-based psychological treatments among Veterans: Direct-to-consumer outreach and pretreatment shared decision-making. *Clinical Psychology: Science and Practice*. 2020;27.

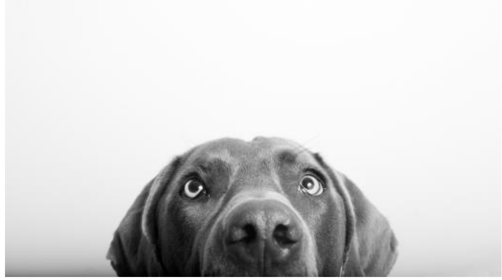
[10]Midboe AM, Gray C, Cheng H*, et al* Implementation of health-focused interventions in vulnerable populations: protocol for a scoping review *BMJ Open* 2020

Acknowledgments

- Veterans, including those who are part of various advisory boards

- Dr. Ernest Moy, Office of Health Equity, VHA
- Dr. Sarah Javier, VA Palo Alto HCS, Ci2i

- Findings discussed in this study were supported by Merit Award 101 HX002051-01A2 from the United States (US) Department of Veterans Affairs, Health Services Research and Development Service and QUERI funding awards.



Thank you!
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