Using Implementation Science to Address HIV Needs: Examples from NIH, CDC, and HRSA

Session ID# 20994

August 25, 2022

2022

NATIONAL RYAN WHITE CONFERENCE ON HIV CARE & TREATMENT

AGENDA

- **Fostering Program-Science Collaboration in Implementation Research through Enhanced Federal Collaborations: Ending the HIV Epidemic in the U.S. Initiative** – Chris Gordon, NIMH; Ann Namkung Lee, NIAID
- **Organizational-level Factors Associated with Provider and Staff Burnout in HIV Clinics at the Epicenter of the United States HIV Epidemic: The Added Value of Trauma Informed Care –** Jessica Sales, Emory University
- **Harnessing Implementation Science in HRSA's Ryan White HIV/AIDS Program –** Stacy Cohen, HRSA HAB
- **Using Evidence-Informed Interventions to Improve Health Outcomes Among People Living with HIV –** Janet Myers and Beth Bourdeau, UCSF
- **Implementation Science in the CDC's Division of HIV Prevention –** Linda J Koenig, CDC DHP
- **A longitudinal mixed-methods examination of Positive Health Check: Implementation results from a Type 1 effectiveness-implementation hybrid trial –** Bryan R. Garner, The Ohio State University; Megan A. Lewis, RTI International
- **Q&A**

Learning Objectives

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At the conclusion of this activity, participants will be able to:

1. **Describe how National Institutes of Health (NIH) funded research sites are using implementation science to develop interventions and strategies to address the Ending the HIV Epidemic in the U.S. (EHE) initiative.**
2. **Describe how the Health Resources and Services Administration (HRSA) is leveraging implementation science to identify, test, and evaluate effective interventions that will improve outcomes for people with HIV and advance the work of the Ryan White HIV/AIDS Program (RWHAP).**
3. **Describe how the Centers for Disease Control and Prevention (CDC) is using technology-based interventions to improve health outcomes and implementation research to assure effective interventions can be successfully delivered in practice.**

Disclosures

Christopher Gordon, PhD has no relevant financial interests to disclose.
Ann Namkung Lee, MPH has no relevant financial interests to disclose.
Linda Koenig, PhD has no relevant financial interests to disclose.
Stacy Cohen, MPH has no relevant financial interests to disclose.
Janet Myers, PhD, MPH has no relevant financial interests to disclose.
Beth Bourdeau, PhD has no relevant financial interests to disclose.
Jessica Sales, PhD has no relevant financial interests to disclose.
Megan Lewis, PhD has no relevant financial interests to disclose.
Bryan Garner, PhD has no relevant financial interests to disclose.

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Fostering Program-Science Collaboration in Implementation Research through Enhanced Federal Collaborations: Ending the HIV Epidemic in the U.S. Initiative

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2022

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Priority Jurisdictions and NIH Centers

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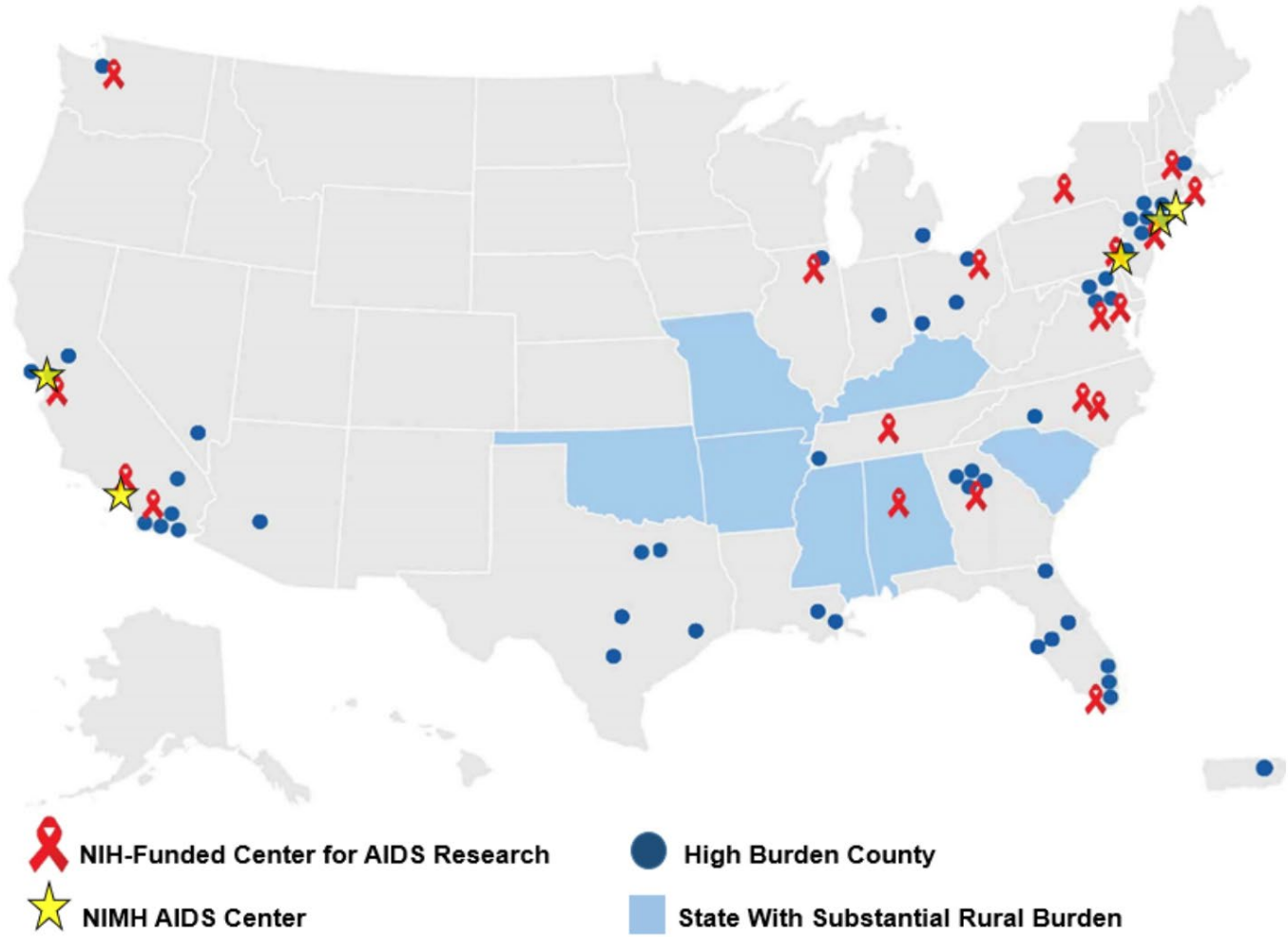
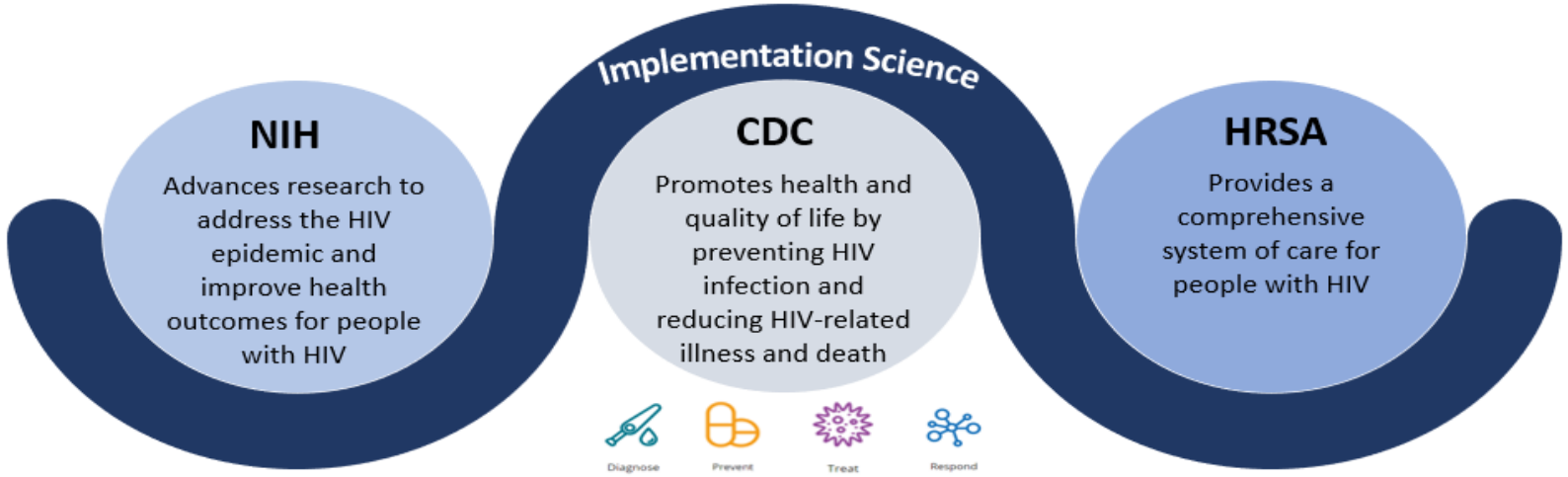
Ending the HIV Epidemic

GOAL:

75% reduction in new HIV infections in 5 years and at least 90% reduction in 10 years.



Federal Roles and Collaboration in EHE



Roles in the EHE Plan

- Fund implementation research to inform HHS and partners on evidence-based practices and effectiveness
- Coordinate efforts to expand high impact HIV prevention to health departments and CBOs
- Assist jurisdictions to address workforce gaps
- Expand access to HIV care, treatment, and support services
- Provide PrEP through community health centers

Interagency Processes to Accelerate and Optimize Effective Implementation

Federal Implementation Science Workgroup

- CDC, NIMH, & HRSA-HAB have been working together on implementation science since 2018
- This IS WG grew out of a CDC-NIMH WG established in 2016 on the role of behavioral science in HIV prevention
- First activities in 2018 included developing a charter, defining implementation science, and setting a roadmap of planned activities and coordination.

Snapshot of CFAR/ARC EHE Projects (N=135)

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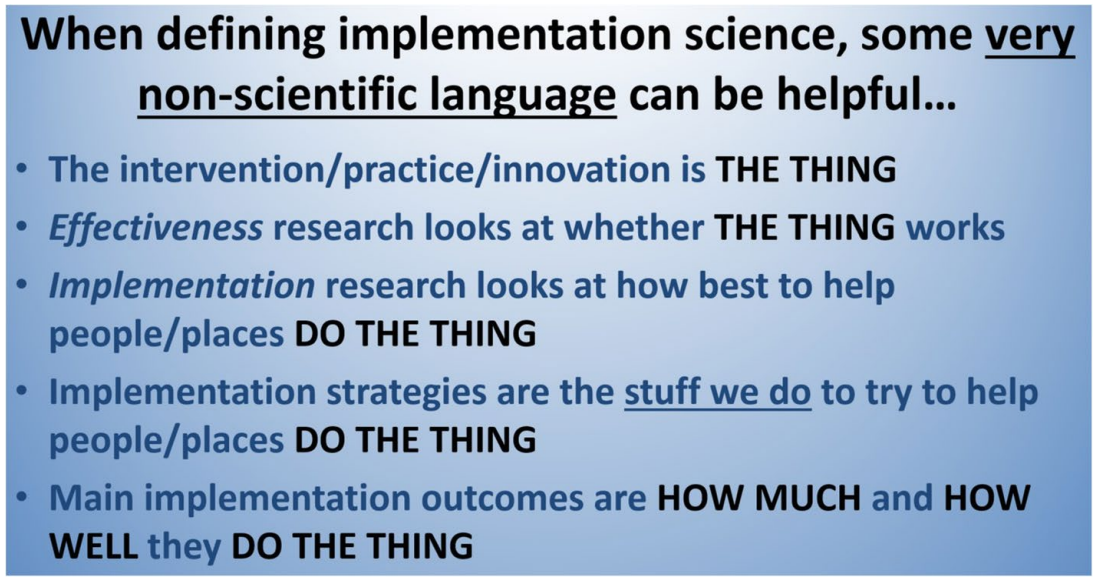
Item	FY19	FY20	FY21
Number and duration	**65 one-year projects**	**34 projects:** • 12 two-year projects (selected from FY19 cohort) • 22 one-year projects	**36 projects:** • 36 one-year projects • Continued funding year 2 of 12 projects
Special focus areas	• Planning (65) • Strategic partnerships working with racial/ethnic minority populations	• Cisgender heterosexual women (7) • Data-driven communication strategies (6) • Team-initiated (9)	• Addressing social/structural determinants of HIV using an intersectional framework (21) • Team-initiated (15)
Pillars (inclusive)	Diagnose: 19% Prevent: 33% Treat: 33% Respond: 15%	Diagnose: 26% Prevent: 79% Treat: 35% Respond: 9%	Diagnose: 33% Prevent: 61% Treat: 56% Respond: 11%

What is Implementation Science?

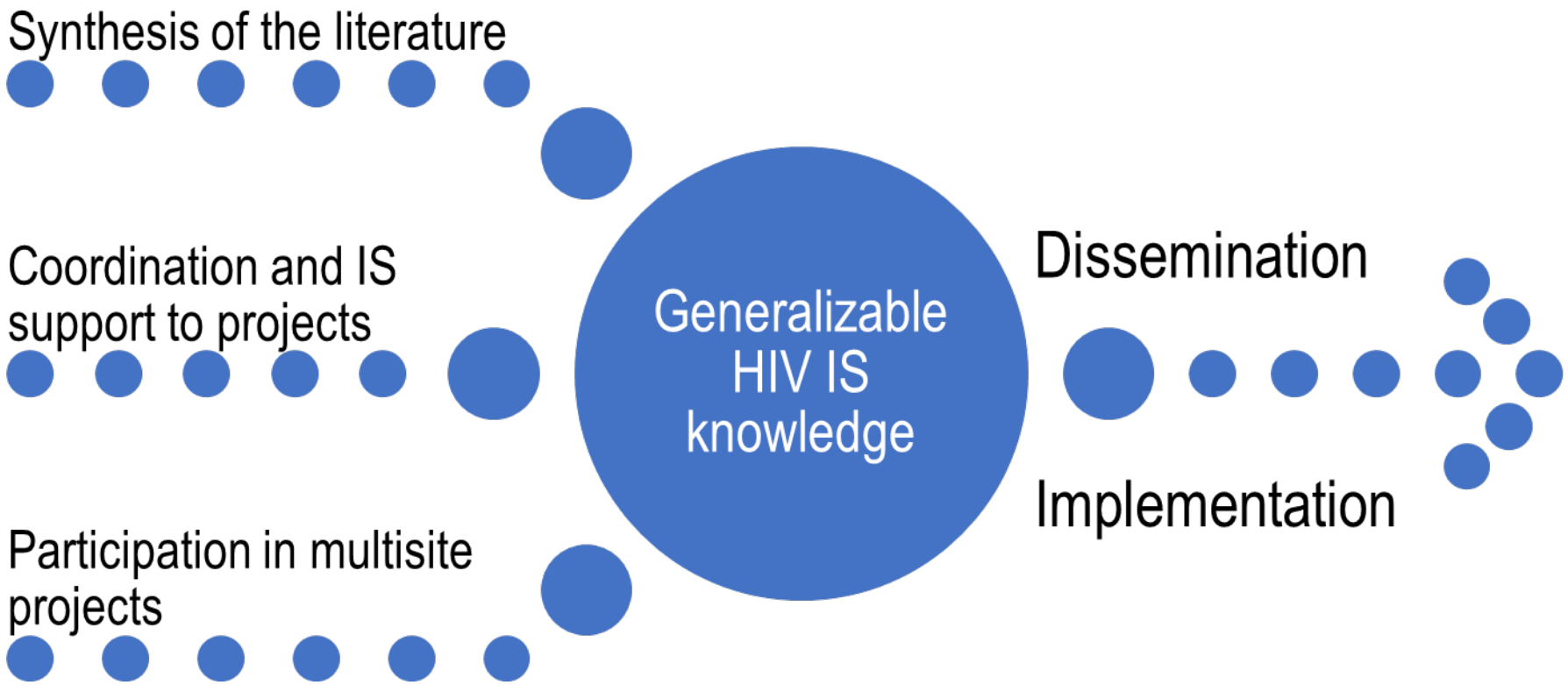


When defining implementation science, some very non-scientific language can be helpful…

- The intervention/practice/innovation is THE THING
- Effectiveness research looks at whether THE THING works
- Implementation research looks at how best to help people/places DO THE THING
- Implementation strategies are the stuff we do to try to help people/places DO THE THING
- Main implementation outcomes are HOW MUCH and HOW WELL they DO THE THING

Source: Curran GM. Implementation science made too simple: a teaching tool. *Implement Sci Commun*. 2020;1:27. Published 2020 Feb 25. doi:10.1186/s43058-020-00001-z

ISC³I/Hubs Pathway to Generalizable Knowledge



Ending The HIV Epidemic

Dissemination and Implementation

- JAIDS supplement in June 2022 with 27 articles reporting findings from single EHE supplements, groups of supplements with similar foci, other high-quality HIV IS studies, and commentaries.
- Develop on-line, searchable databases from scoping reviews:
  - Identify the collection of implementation barriers and facilitators, strategies, and implementation outcomes for evidence-based interventions (EBIs) identified in the literature
- Develop a “living”, determinant–strategy online matching tool for key HIV EBIs implemented in different contexts. Based on empirical evidence from the literature, the tool will help:
  - Inform researcher’s design and test implementation strategy effectiveness for specific HIV EBIs and settings
  - Implementation providers identify effective strategies to successfully scale-up EBIs

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Thank you!

Organizational-level Factors Associated with Provider and Staff Burnout in HIV Clinics at the Epicenter of the United States HIV Epidemic: The Added Value of Trauma Informed Care

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This research was supported by a grant from the NIMH to Jessica M. Sales and Ameeta Kalokhe (R56MH119903)

Presentation Objectives

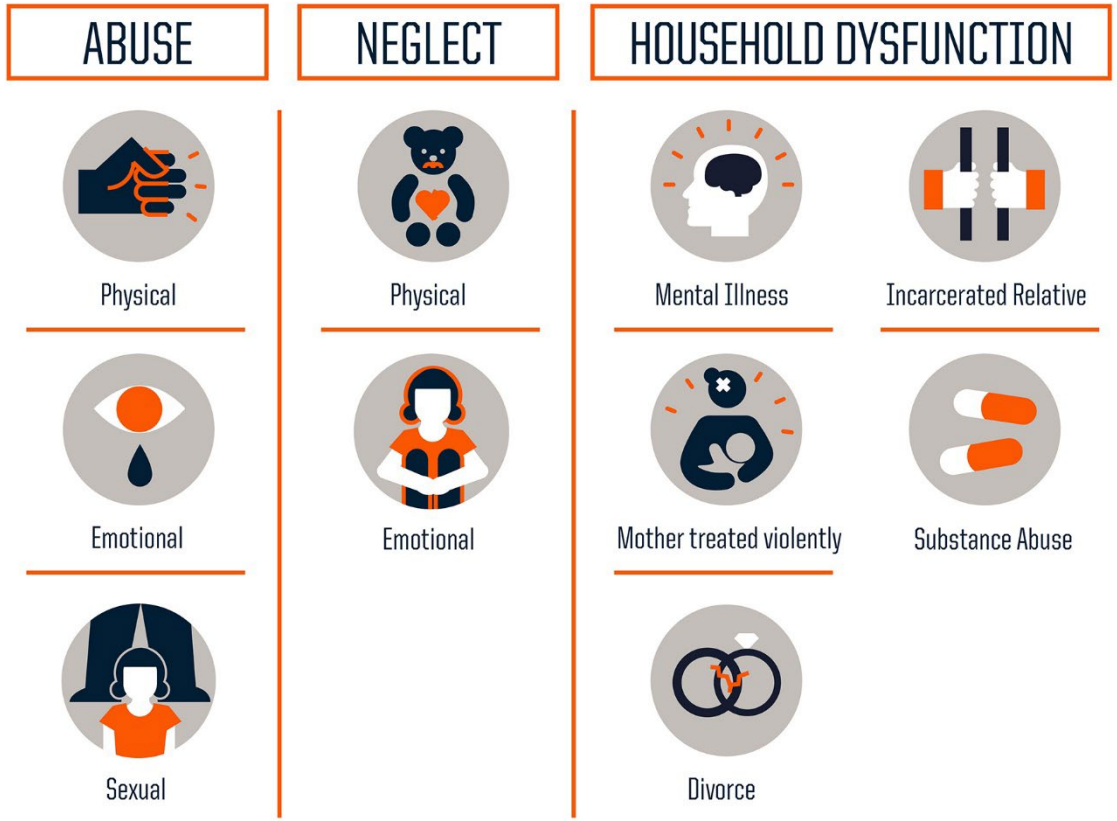
At the conclusion of this activity, participants will be able to:

1. Understand how trauma impacts patients, providers and staff
2. Describe how training and staff support are essential elements for the adoption and implementation of trauma-informed care
3. Identify organizational factors that contribute to the adoption of trauma-informed practice that alleviate provider/staff burnout in HIV care settings

Adverse Childhood Experiences

ACEs

Adverse childhood experiences



1998

Traumatic experience: event(s)/circumstances *"**experienced** by an individual **as physically or emotionally harmful** or life threatening and that has **lasting adverse effects** on the individual's functioning and mental, physical, social, emotional, or spiritual well-being."*

- Substance Abuse and Mental Health Services Administration (SAMHSA)

Trauma includes (but is not limited to):

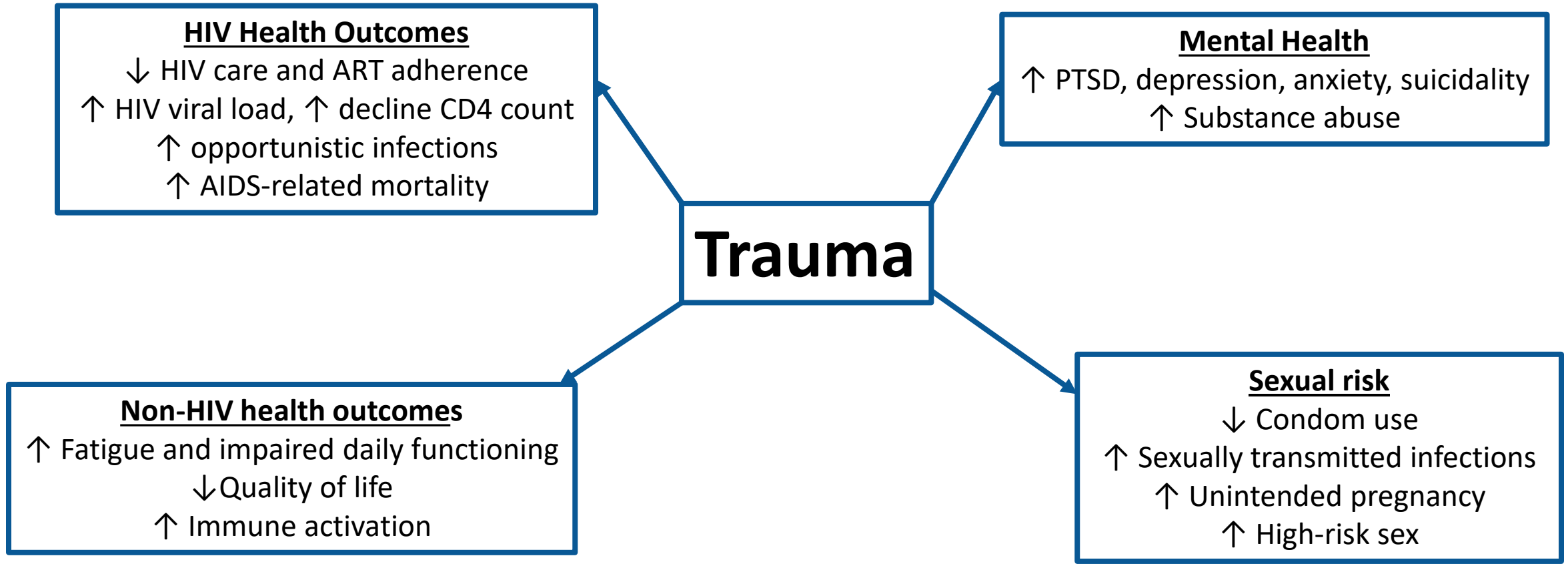
- childhood abuse, sexual assault, intimate partner violence
- school violence, community violence, bullying
- military trauma, natural disasters, forced displacement
- traumatic grief and separation

Trauma among people with HIV?

Trauma is highly prevalent among people with HIV

- Childhood sexual and physical abuse
- Intimate partner/interpersonal violence
- Trauma post-HIV-diagnosis higher than general population
- Community-level trauma …racism, homophobia, transphobia, etc

Why address trauma in HIV care settings?



Impact of Trauma on Healthcare Providers

- Vicarious trauma (secondary traumatic stress): Effect on perspective/world view through indirect exposure to a traumatic event (e.g., narration)

- Compassion fatigue: emotional/physical fatigue from feeling compassion for patients without adequate time away to refuel and care for self

- Burnout: prolonged response to chronic emotional and interpersonal stressors on the job

What is Trauma-Informed Care (TIC)?

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The Four R's of TIC

1

Realize

All people at all levels have a basic **realization** about trauma, and how it can affect individuals, families, and communities.

2

Recognize

People within organizations are able to **recognize** the signs and symptoms of trauma.

3

Respond

Programs, organizations and communities **respond** by practicing a trauma-informed approach.

4

Resist Re-Traumatization

Organizational practices may compound trauma unintentionally, trauma informed organizations avoid this **re-traumatization**.

Trauma-Informed Care: Key Domains

	Supporting Staff Development	Creating a Safe and Supportive Environment	Assessing and Planning Services	Involving Patients	Adapting Policies
Example Activities to Implement per TIC domain	• Agency-wide training about trauma and trauma-related topics • Staff support outlets (e.g., built-in opportunities to debrief) • Promote or provide opportunities for self-care among staff/providers	• Establish a safe physical environment • Establish a supportive environment (cultural competence; privacy & confidentiality) • Written safety & crisis prevention plans	• Screening and assessment for trauma and trauma symptoms (PTSD) - conducted routinely • Developing goals and plans • Offering services and trauma-specific interventions • Strengthening referral to trauma-services	• Involve patients in selection of services to be offered • Involve patients as peer-advocates • Involve patients in policy decisions • Allow multiple outlets for patients to provide feedback	• Create policies that address issues of safety (e.g., threats made to patients) • Policy outlining program's response to patient crisis. • Regularly review policies and modify as needed.

Study Objectives

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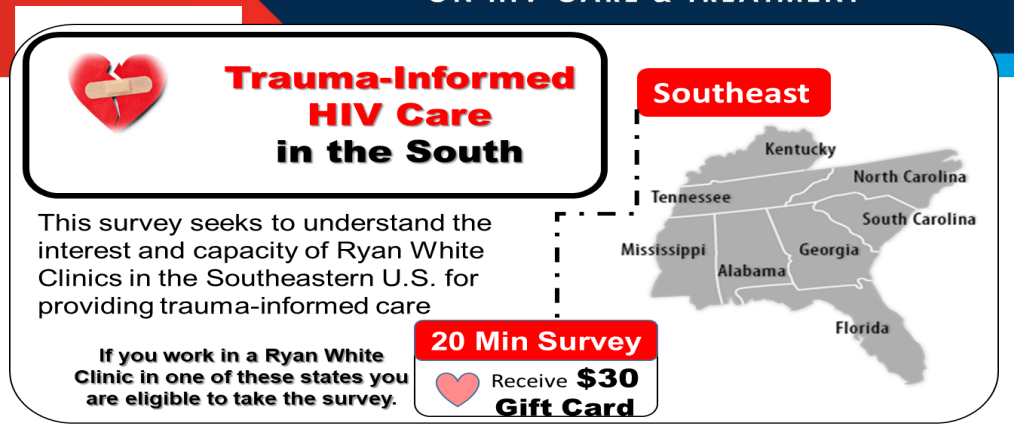
This study aims to:

1. Examine the association between adoption of TIC practices focused on staff/provider well-being (training on boundary setting and staff support) within HIV clinics and burnout among healthcare professionals

2. Explore organizational factors associated with adoption of TIC practices supportive of provider/staff well-being

Methods



- Setting: DHHS Region IV Ryan White Clinics

- Identification/Recruitment:
  - Publicly available data for all Region IV RW-funded grant holders and state-level RW grant holders → emailed directly
  - Region IV Southeast AIDS Education and Training Centers newsletter
  - RW National Clinical Conference (Dec 2019, New Orleans)
- Emailed link to web-based survey: TI-HIV Care Organizational Assessment and Consolidated Framework for Implementation Research (CFIR) constructs
- Subset of respondents were purposively sampled for key informant interviews to ensure representation by urbanicity, state, clinic type, and role
  - Recorded, conducted by Zoom, transcribed, and dual-coding (underway)
  - Explored CFIR constructs and barriers/facilitators to TIC delivery

TI-HIV Care in the Southeast: Survey Participant Characteristics (n=318, 46 RWCs)

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Participant Characteristics	No. (%)
Age, mean (SD), years	41.5 (10.8)
Gender • Female • Male • TG, queer, non-binary	 264 (83) 43 (13) 3 (1)
Race • White • Black • Asian	 138 (43) 128 (39) 8 (3)
Ethnicity – Latinx	27 (9)
Tenure in clinic, mean (SD), years	5.7 (5.9)

Participant Characteristics	No. (%)
Clinical provider	52 (16)
Nurse	49 (15)
Manager/Administrator	46 (14)
Administrative/Office	46 (14)
Social worker/Case Manager	38 (12)
Health educator, peer counselor, patient navigator	28 (9)
Medical assistant	18 (6)
Clinical research	13 (4)
Multiple	23 (7)
Other/not specified	8 (2)

TI-HIV Care in the Southeast: Qualitative sample

- 38 Total interviews
  - 10 Administrators, 17 providers and 11 staff
  - AL: 5, FL: 4, GA: 9, KY: 3, MS: 2, NC: 8, SC: 2, TN: 5

- Interview duration: 60 - 120 mins

Survey Findings

Individual characteristics:

(1) Age

(2) Gender

(3) **Race**

(4) Role

(5) Tenure in clinic

Patient characteristics:

(1) **Perceived level of trauma among patients (Artic)**

Clinic adoption of TIC practices focused on staff/providers:

(1) **Provide training on boundary setting**

(2) **Offer staff support practices (Staff Support sub-scale of TIC Org. Assess.)**

Burnout:

ProQOL

Survey Findings continuted

CFIR constructs:

(1) Structural characteristics

(2) Culture

(3) **Leadership Engagement**

(4) **Implementation Climate**

(5) **Available Resources**

Clinic adoption of TIC practices focused on staff/providers:

(1) **Provide training on boundary setting**

(1) **Offer staff support practices (Staff Support sub-scale of TIC Org. Assess.)**

Themes from Qualitative Data

- Factors that contribute to and alleviate stress and burnout
- Positive and negative impacts of working with patients who've experienced trauma
- Existing strategies RWCs use to support well-being and reduce burnout
- Suggestions to further enhance well-being, prevent and address burnout of RWC staff and providers

Alleviated Stress/Burnout

- Flexible schedule/work environment
- Opportunities to discuss patient issues among staff
- Having effective tools and resources to help patients
- Having effective tools to manage one's own emotional well-being

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" You know, honestly, like a little check-in meeting about all the patients would be really helpful, because then the stress might not pile up so much" (Nurse Practitioner)

" By giving us the tools to help our patients and that's definitely an anti-burnout element" (Physician)

"Once a month we would have a venting session and one of our clinic psychologists would be present to help us kind of talk through ..But we haven't been able to do that in a while, so those probably need to start up again.." (Physician)

Contributed to Stress/Burnout

- High volume of patients/workload
- Negative work environment
- Tension between quantity and quality of care
- Poor leadership
- Lack of effective tools/systems to meet patients needs

" [about leadership] they don't come from an HIV background, and I don't' think they understand our patient populations, and the needs they have. And I think their more about the numbers than the patients."

(Nurse/Patient Coordinator)

" Because the leadership and the majority of folks in [the clinic] are not trauma-informed, they are running in circles trying to put fires out…and not realizing that they're not getting to the root and it's just causing us to repeat cycles of staff being overwhelmed"

(Nurse)

Conclusions

- TIC has been identified by numerous leaders in HIV care as necessary to address trauma-related needs of people living with HIV, thereby improving patients' physical and mental well-being.
- Less discussed are the potential benefits of adopting TIC for the well-being of HIV care providers/staff.
- HIV healthcare professionals are critical for the delivery of integrated evidence-based care to improve patient mental and physical health outcomes.
- Our findings suggest that the adoption of TIC staff/provider well-being practices is associated with reduced burnout.
- Identifying and bolstering organizational factors associated with adoption of TIC practices that support healthcare professionals' well-being is urgently needed, yet under studied. Our research begins to fill this gap.

Thank you!

Study Team

- Elizabeth Adam
- Jonathan Colasanti
- Cam Escoffery
- Caroline Kokubun
- Melvin Livingston III
- Olivia Manders
- Mahitha Murali
- Brianne Woods-Jaeger
- Chris Root
- Shanti Varma-Lenz

All of the staff and providers at RWCs across the Southeast who participated in our study!!

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HRSA
Health Resources & Services Administration

Harnessing Implementation Science in HRSA's Ryan White HIV/AIDS Program

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Vision: Healthy Communities, Healthy People

Health Resources and Services Administration (HRSA)

Overview

Supports more than 90 programs that provide health care to people who are geographically isolated, economically or medically challenged

HRSA does this through grants and cooperative agreements to more than 3,000 awardees, including community and faith-based organizations, colleges and universities, hospitals, state, local, and tribal governments, and private entities

Every year, HRSA programs serve tens of millions of people, including people with HIV/AIDS, pregnant women, mothers and their families, and those otherwise unable to access quality health care

HRSA Ryan White HIV/AIDS Program

HRSA's HIV/AIDS Bureau Vision and Mission

Vision

Optimal HIV care and treatment for all to end the HIV epidemic in the U.S.

Mission

Provide leadership and resources to advance HIV care and treatment to improve health outcomes and reduce health disparities for people with HIV and affected communities.

HRSA's Ryan White HIV/AIDS Program (RWHAP) Overview

- **Provides a comprehensive system of HIV primary medical care, medications, and essential support services for low-income people with HIV.**
- **Funds grants to states, cities, counties, and local community-based organizations to improve health outcome and reduce HIV transmission.**
  - Recipients determine service delivery and funding priorities based on local needs and planning process.
- **Provided services to nearly 562,000 people in 2020—more than half of all people with diagnosed HIV in the United States.**
- **89.4% of RWHAP clients receiving HIV medical care were virally suppressed in 2020, exceeding national average of 64.6%[i].**

HRSA Ryan White HIV/AIDS Program

i. Centers for Disease Control and Prevention. Core indicators for monitoring the Ending the HIV Epidemic initiative (early release): National HIV Surveillance System data reported through December 2020; and pre-exposure prophylaxis (PrEP) data reported through September 2020. HIV Surveillance Data Tables [Table 5a] 2021;2(No. 2). http://www.cdc.gov/hiv/library/reports/surveillance-data-tables/vol-2-no-2/index.html. Published March 2021.

2020 Ryan White HIV/AIDS Program By the Numbers

RYAN WHITE HIV/AIDS PROGRAM (RWHAP) SERVED

561,416 clients in 2020

MORE THAN 50% of people with **diagnosed HIV in the United States**

89.4% of RWHAP clients receiving HIV medical care **reached viral suppression* in 2020**

73.6% of clients are from **racial/ethnic** minority populations**

6.9% **TEMPORARY HOUSING**

4.8% **UNSTABLE HOUSING**

47.9% of RWHAP clients are **aged 50 and older**

60.9% of clients are living at or below **100%** of the **Federal Poverty Level**

23.6% of clients identified as **Hispanic/Latino**

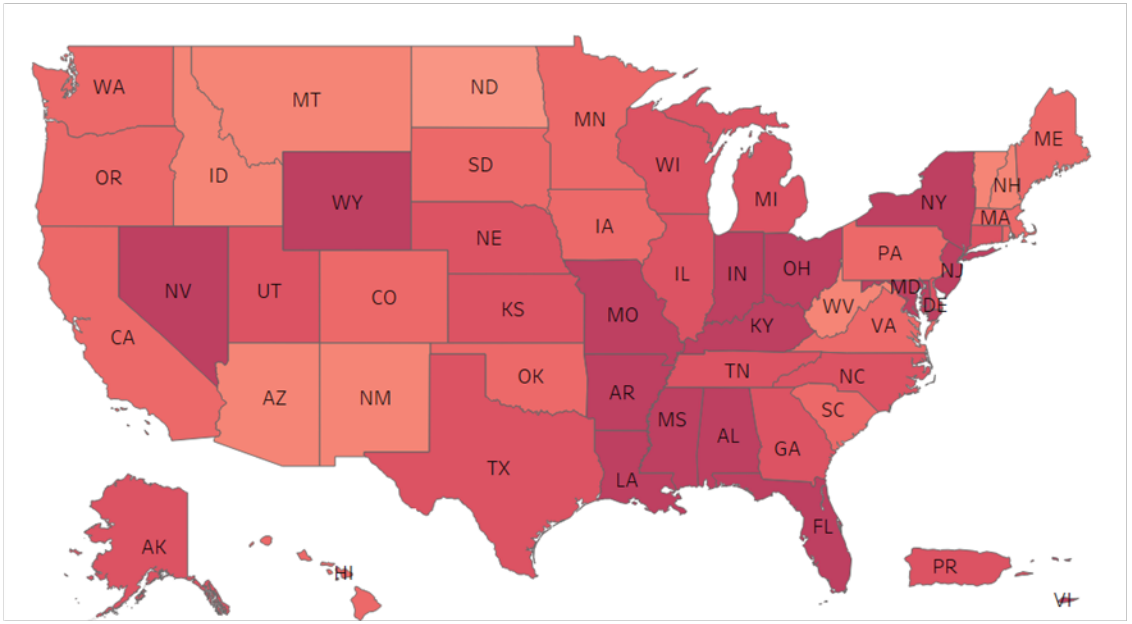
46.6% of clients identified as **Black/African American**

https://ryanwhite.hrsa.gov/data/reports

HRSA Ryan White HIV/AIDS Program

Source: HRSA. Ryan White HIV/AIDS Program Data Report (RSR) 2020. Does not include AIDS Drug Assistance Program data.

Viral Suppression among RWHAP Clients, by State, 2010 and 2020—United States and 2 Territories[a]



IN 2010

69.5%

VIRALLY SUPPRESSED

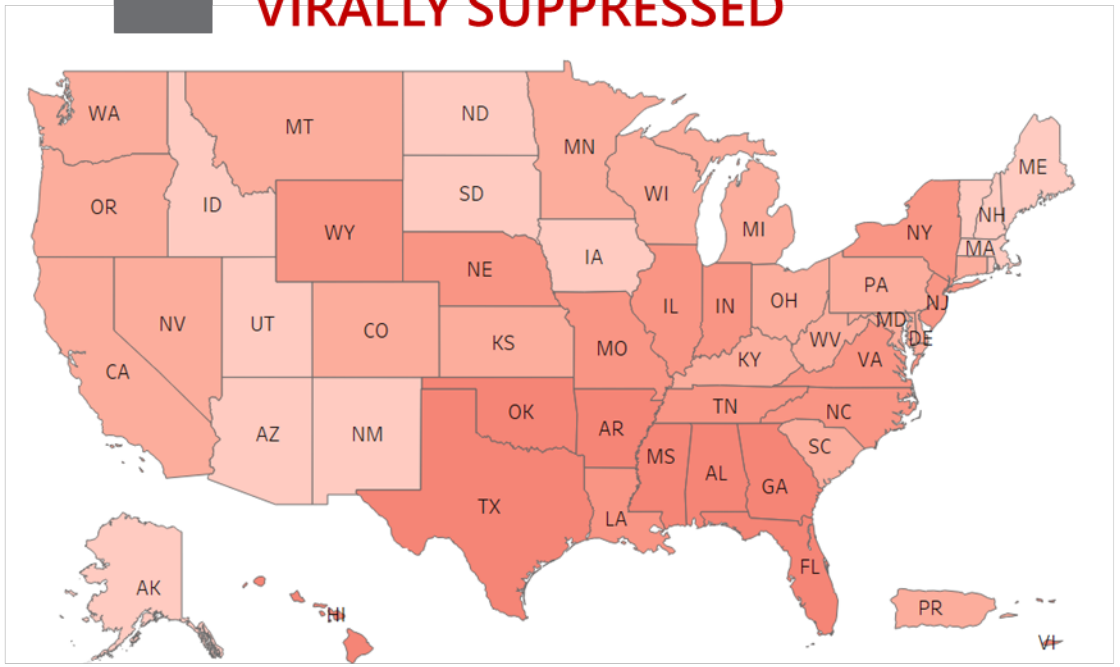
Viral Suppression (%)

- 52.9-66.9
- 70.0-72.9
- 73.0-79.9
- 80.0-87.9
- 88.0-89.9
- 90.0-92.9
- 93.0-98.8

IN 2020

89.4%

VIRALLY SUPPRESSED



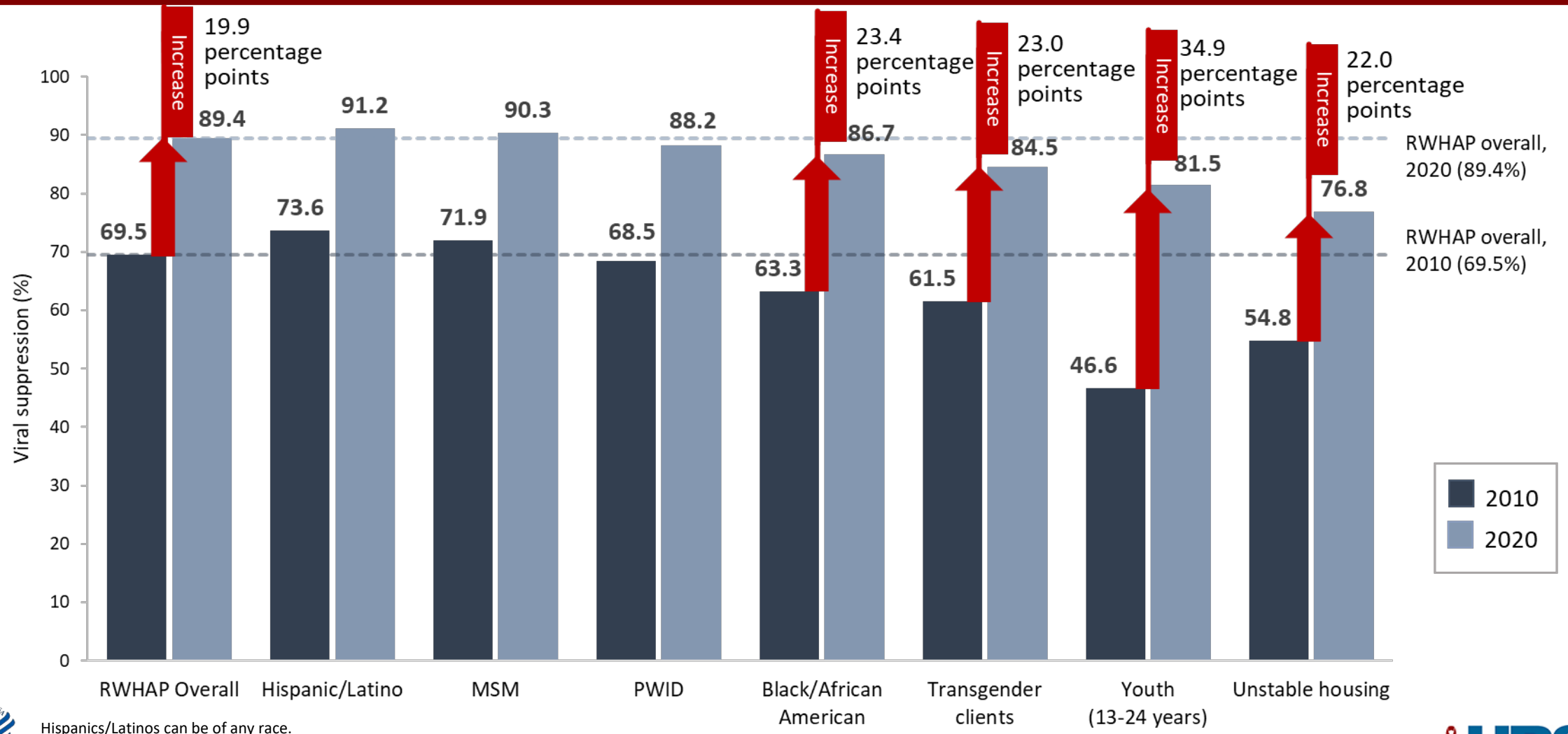
Viral suppression: ≥1 OAHS visit during the calendar year and ≥1 viral load reported, with the last viral load result <200 copies/mL.

[a] Puerto Rico and the U.S. Virgin Islands.

HRSA Ryan White HIV/AIDS Program

Source: HRSA. Ryan White HIV/AIDS Program Data Report (RSR) 2020. Does not include AIDS Drug Assistance Program data.

Significant progress has been made in viral suppression among priority populations, but inequities remain, particularly among Black/African American clients, transgender clients, youth aged 13–24 years, and clients with unstable housing.



Hispanics/Latinos can be of any race.

Viral suppression: ≥1 OAHS visit during the calendar year and ≥1 viral load reported, with the last viral load result <200 copies/mL.

[a] Guam, Puerto Rico, and the U.S. Virgin Islands.

HRSA Ryan White HIV/AIDS Program

Source: HRSA. Ryan White HIV/AIDS Program Data Report (RSR) 2020. Does not include AIDS Drug Assistance Program data.

Promoting Health Equity

Engage the Community: We engage community directly, have developed a community engagement framework, and the RWHAP legislation has requirements for community engagement and partnership.

Support Continuous Quality Improvement: We help our recipients set goals, monitor performance measures, and oversee quality improvement projects.

Service Delivery: The RWHAP addresses Social Determinants of Health such as housing, food, and transportation, as well as clinical services.

Utilize data: We use data to inform decision making to address health disparities, and the RWHAP legislation requires the same of our recipients.

Employ Implementation Science: We use implementation science in practice, program, and policy. This includes:

- ✓ Collating and disseminating evidence-informed interventions
- ✓ Building capacity of community-based organizations

HRSA Ryan White HIV/AIDS Program

Approaches to supporting program implementation in the RWHAP

Framework for RWHAP Part F – Special Projects of National Significance (SPNS)

Demonstrate or Implement

Fund recipients to respond to emerging needs of people with HIV using evidence-based, evidence-informed, and emerging interventions

Fund special programs to develop a standard electronic client information data system to improve the ability of recipients to report data

Evaluate & Document

Use an implementation science framework to identify effective interventions to improve HIV outcomes among Ryan White HIV/AIDS Program clients

Evaluate and document specific strategies for successfully integrating interventions in RWHAP sites

Coordinate, Replicate & Integrate

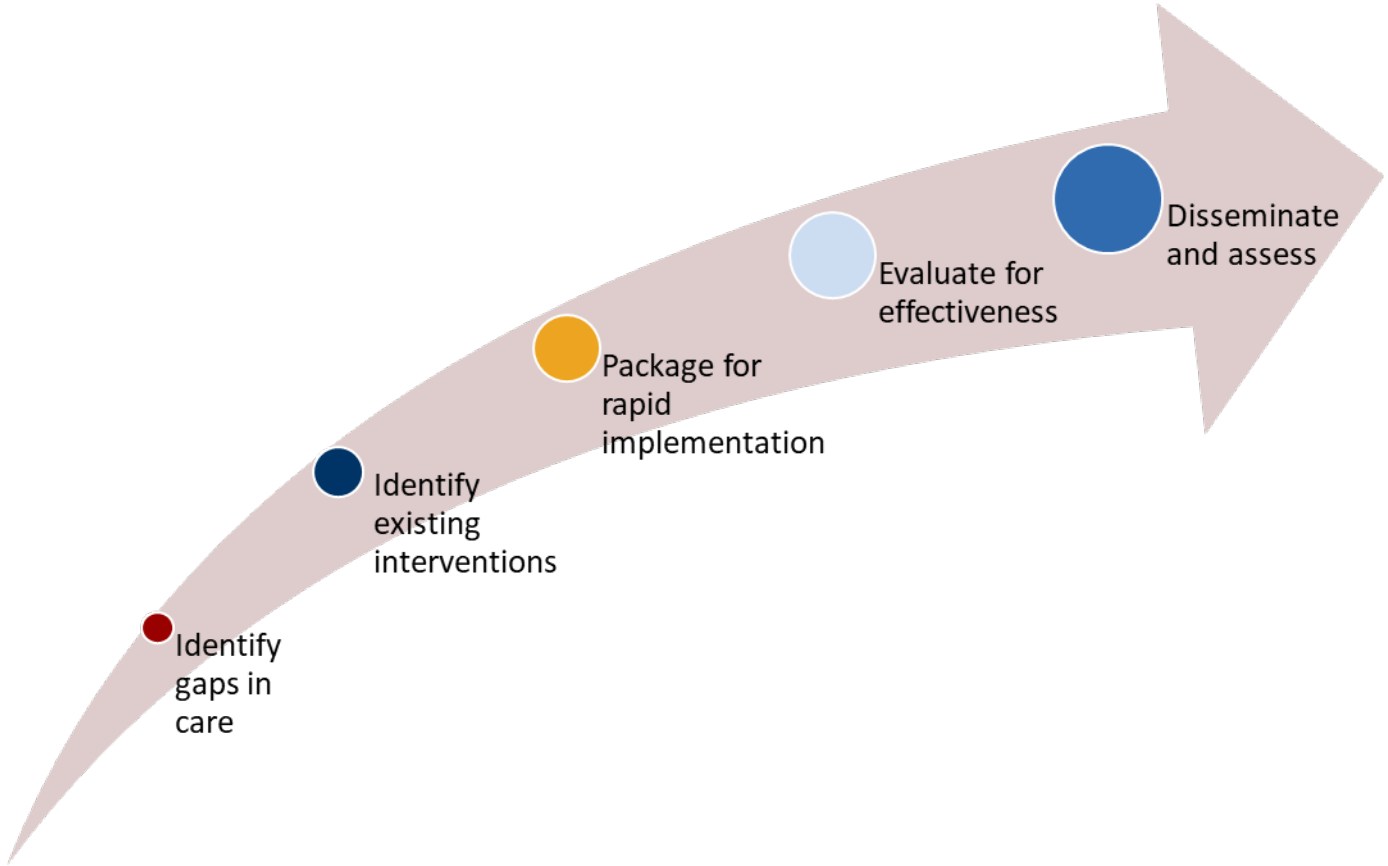
Develop guides and manuals, interactive online tools/toolkits, publications, and instructional materials that describe how to coordinate, replicate, and integrate interventions and strategies for RWHAP providers

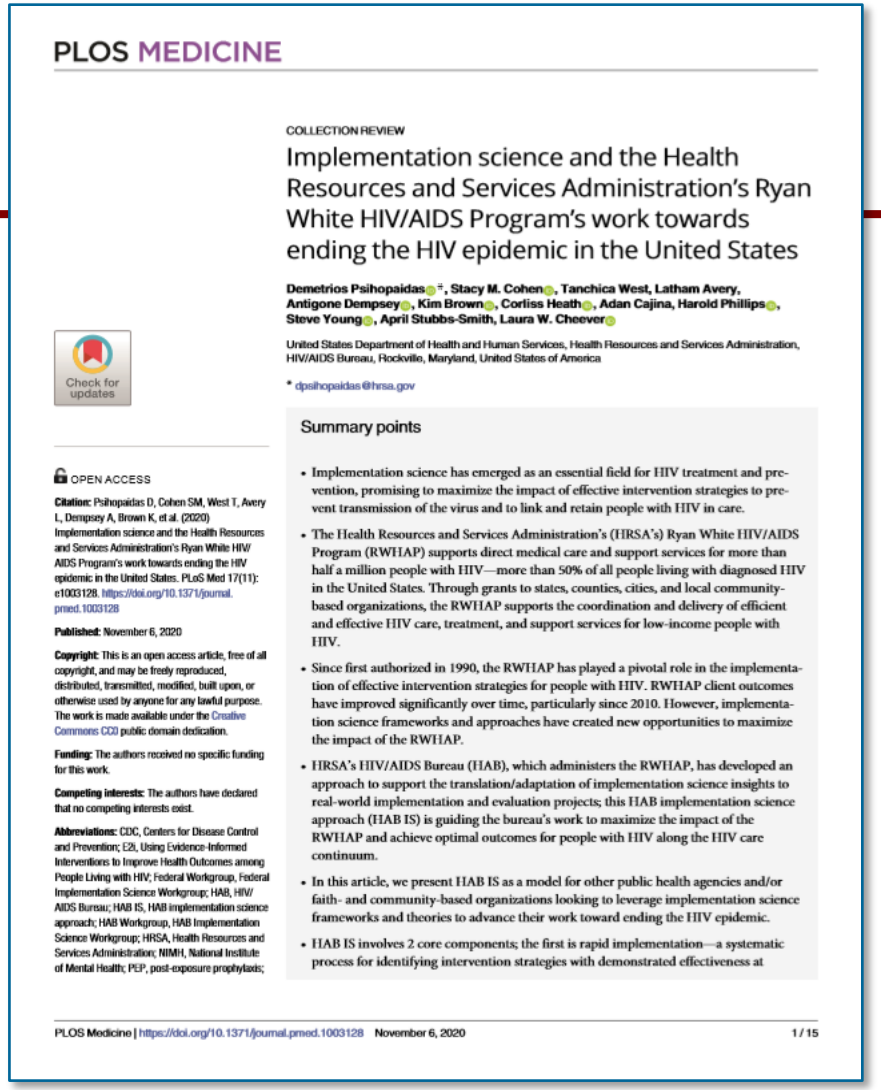
Streamline access to materials and promote replication through the Best Practices Compilation

HRSA Ryan White HIV/AIDS Program

Spotlight: The HAB Implementation Science framework and the E2i initiative

The HAB IS Framework





PLOS MEDICINE

COLLECTION REVIEW

Implementation science and the Health Resources and Services Administration's Ryan White HIV/AIDS Program's work towards ending the HIV epidemic in the United States

Demetrios Psihopaidas, Stacy M. Cohen, Tanchica West, Latham Avery, Antigone Dempsey, Kim Brown, Corliss Heath, Adan Cajina, Harold Phillips, Steve Young, April Stubbs-Smith, Laura W. Cheever

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Check for updates

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Citation: Psihopaidas D, Cohen SM, West T, Avery L, Dempsey A, Brown K, et al. (2020) Implementation science and the Health Resources and Services Administration's Ryan White HIV/AIDS Program's work towards ending the HIV epidemic in the United States. PLoS Med 17(11): e1003128. https://doi.org/10.1371/journal.pmed.1003128

Published: November 6, 2020

Funding: The authors received no specific funding for this work.

Competing interests: The authors have declared that no competing interests exist.

Abbreviations: CDC, Centers for Disease Control and Prevention; EBI, Using Evidence-Informed Interventions to Improve Health Outcomes among People Living with HIV; Federal Workgroup, Federal Implementation Science Workgroup; HAB, HIV/AIDS Bureau; HAB IS, HAB implementation science approach; HAB Workgroup, HAB Implementation Science Workgroup; HRSA, Health Resources and Services Administration; NIMH, National Institute of Mental Health; PEP, post-exposure prophylaxis;

Summary points

- Implementation science has emerged as an essential field for HIV treatment and prevention, promising to maximize the impact of effective intervention strategies to prevent transmission of the virus and to link and retain people with HIV in care.
- The Health Resources and Services Administration's (HRSA's) Ryan White HIV/AIDS Program (RWHAP) supports direct medical care and support services for more than half a million people with HIV—more than 50% of all people living with diagnosed HIV in the United States. Through grants to states, counties, cities, and local community-based organizations, the RWHAP supports the coordination and delivery of efficient and effective HIV care, treatment, and support services for low-income people with HIV.
- Since first authorized in 1990, the RWHAP has played a pivotal role in the implementation of effective intervention strategies for people with HIV. RWHAP client outcomes have improved significantly over time, particularly since 2010. However, implementation science frameworks and approaches have created new opportunities to maximize the impact of the RWHAP.
- HRSA's HIV/AIDS Bureau (HAB), which administers the RWHAP, has developed an approach to support the translation/adaptation of implementation science insights to real-world implementation and evaluation projects; this HAB implementation science approach (HAB IS) is guiding the bureau's work to maximize the impact of the RWHAP and achieve optimal outcomes for people with HIV along the HIV care continuum.
- In this article, we present HAB IS as a model for other public health agencies and/or faith- and community-based organizations looking to leverage implementation science frameworks and theories to advance their work toward ending the HIV epidemic.
- HAB IS involves 2 core components; the first is rapid implementation—a systematic process for identifying intervention strategies with demonstrated effectiveness at

Psihopaidas, Demetrios, et al. "Implementation science and the Health Resources and Services Administration's Ryan White HIV/AIDS Program's work towards ending the HIV epidemic in the United States." *PLoS medicine* 17.11 (2020): e1003128.

HRSA Ryan White HIV/AIDS Program

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Using Evidence-Informed Interventions to Improve Health Outcomes Among People Living with HIV

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Beth Bourdeau, PhD, Academic Research Specialist

Center for AIDS Prevention Studies

University of California, San Francisco

2022

NATIONAL RYAN WHITE CONFERENCE ON HIV CARE & TREATMENT

Funding

This project is supported by the Health Resources and Services Administration's (HRSA) HIV/AIDS Bureau (HAB) of the U.S. Department of Health and Human Services (HHS) under grant number U90HA31099. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.

Objectives for this Presentation

This talk will help you:

1. Understand how implementation science is used to measure, document and support uptake of evidence informed interventions.
2. Apply lessons learned from an initiative using implementation science to meet the needs of people with HIV.
3. Specify outcomes associated with implementation of programs for Black MSM, transgender women, people with behavioral health needs and people with trauma.

Initiative Overview

- Four-year, HRSA-funded initiative to facilitate implementation of evidence-informed interventions to reduce HIV health disparities and improve HIV health outcomes among people living with HIV

- Interventions that focus on four priority areas:
  - Improving HIV health outcomes for *transgender women*
  - Improving HIV health outcomes for *Black MSM*
  - *Integrating behavioral health* with primary medical care for PLWH
  - Identifying and addressing *trauma* among PLWH

- Overall goal was dissemination of findings, including best practices and lessons learned.

Interventions Implemented

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Transgender Women

Healthy Divas
- CAL-PEP (CA)
- Rutgers New Jersey Medical School (NJ)
- Birmingham AIDS Outreach Inc. (AL)

Transgender Women Engagement and Entry to Care Project (T.W.E.E.T.)
- CrescentCare (LA)
- Henry Ford Health System (MI)
- Centro Ararat (PR)

Black Men who have Sex with Men

Client-Oriented New Patient Navigation to Encourage Connection and Treatment (CONNECT)
- AIDS Taskforce of Greater Cleveland (OH)

Tailored Motivational Interviewing (TMI)
- HOPE Center (GA)
- Broward House, Inc. (FL)
- University of Mississippi Medical Center (MS)

Text Messaging Intervention to Improve Antiretroviral Adherence Among HIV Positive Youth (TXTXT)
- UNIFIED-HIV Health & Beyond (MI)
- SUNY HEAT Program (NY)

Trauma Informed Care

Trauma-Informed Approach & Coordinated HIV Assistance and Navigation for Growth and Empowerment (TIA/CHANGE)
- Alaska Native Tribal Health Consortium (AK)
- Chicago Women's AIDS Project (IL)

Cognitive Processing Therapy
- Western North Carolina Community Health (NC)
- Positive Impact Health Centers (GA)

Seeking Safety
- Multicultural AIDS Coalition (MA)
- The Regents of the Univ. of Calif., U.C. San Diego (CA)

Behavioral Health Integration

Collaborative Care Management (CoCM)
- La Clínica del Pueblo, Inc (DC)
- Health Emergency Lifeline Programs (MI)
- Oklahoma State University Center Health Sciences (OK)
- Our Lady of the Lake Hospital, Inc. (LA)

Integrated Buprenorphine Tx
- Consejo de Salud de Puerto Rico Inc. dba Med Centro (PR)
- Greater Lawrence Family Health Center (MA)

Screening, Brief Intervention and Referral to Treatment (SBIRT)
- The Poverello Center Inc. (FL)
- North Jersey Community Research Initiative (NJ)

E2i Toolkits

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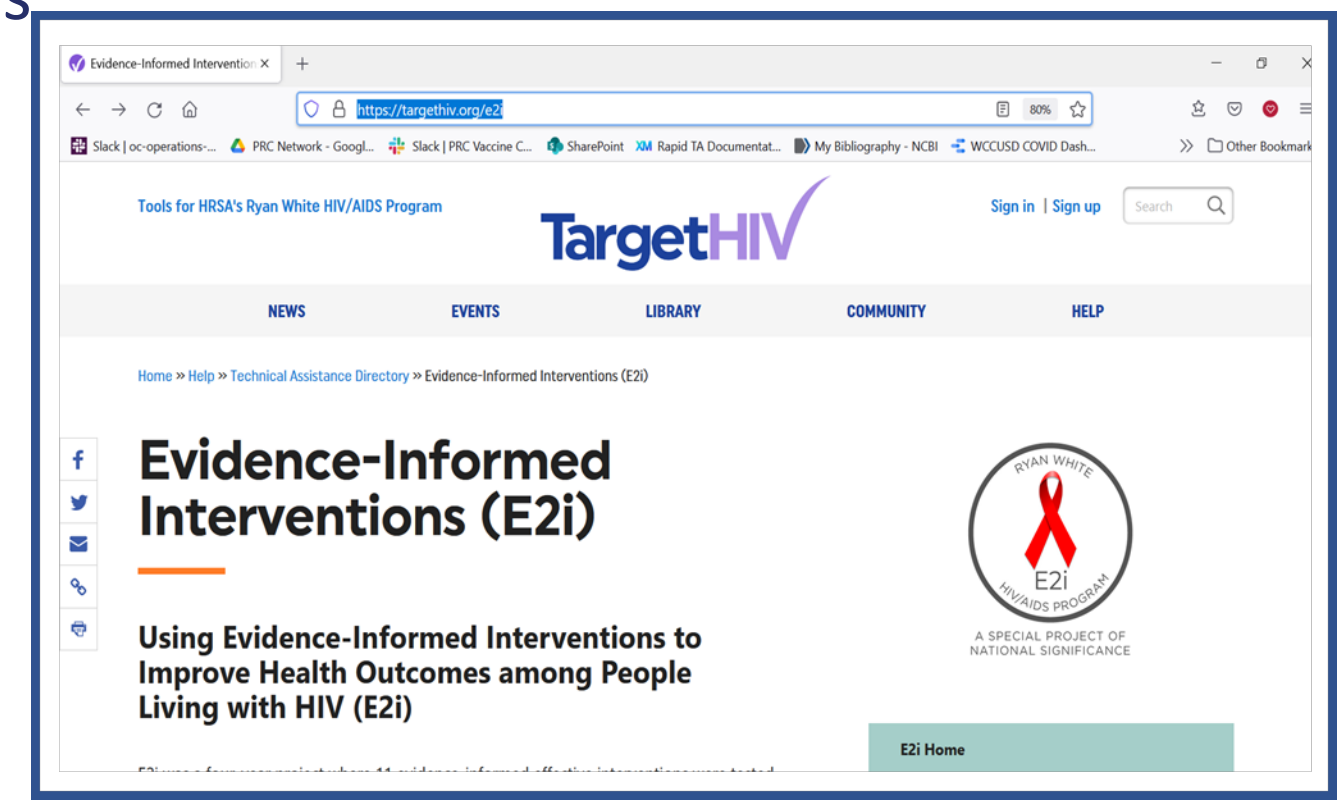
Intervention Implementation Guides

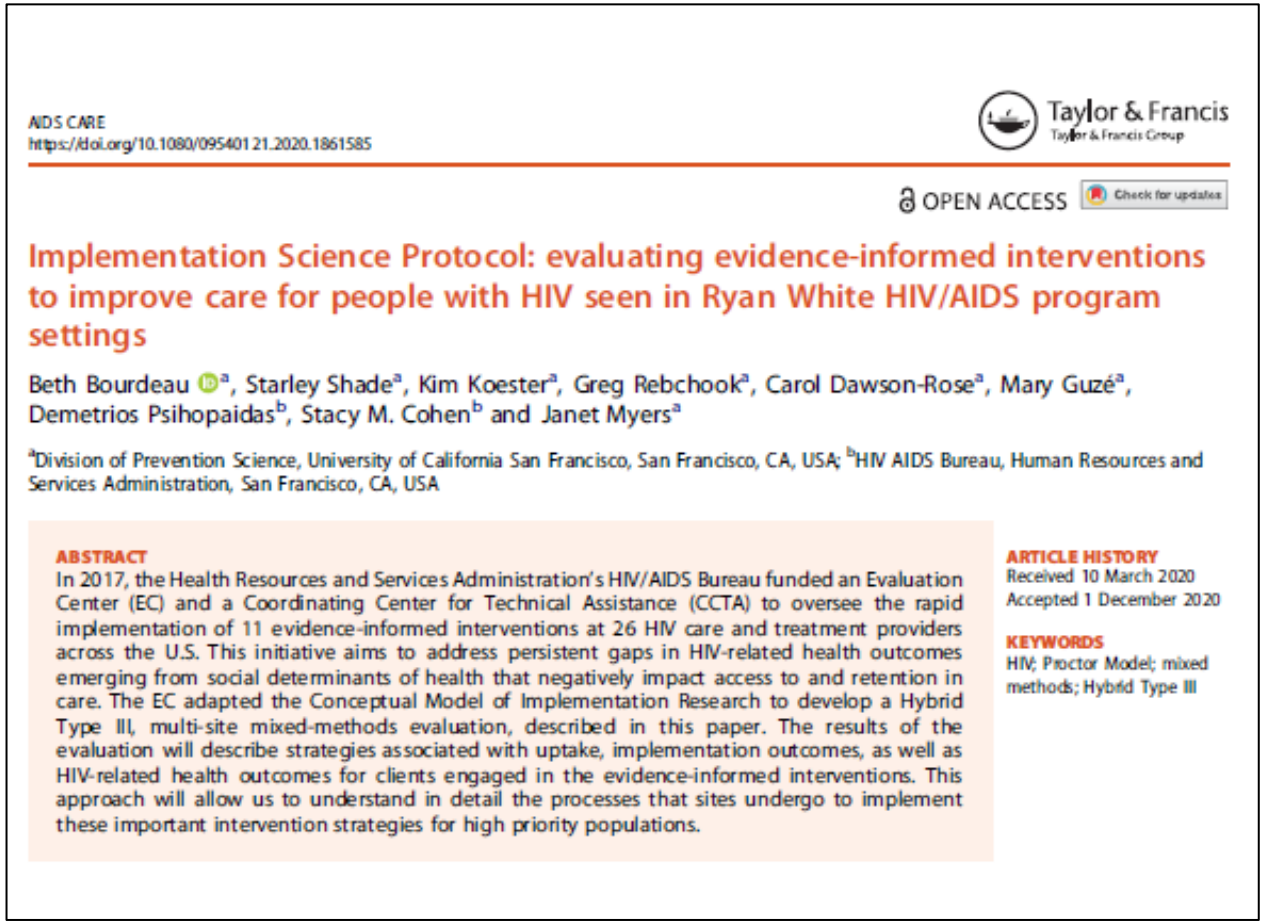
https://targethiv.org/e2i



E2i Evaluation

Evaluation Protocol available in *AIDS Care* 2021

https://doi.org/10.1080/09540121.2020.1861585



AIDS CARE
https://doi.org/10.1080/09540121.2020.1861585

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Implementation Science Protocol: evaluating evidence-informed interventions to improve care for people with HIV seen in Ryan White HIV/AIDS program settings

Beth Bourdeau[a], Starley Shade[a], Kim Koester[a], Greg Rebchook[a], Carol Dawson-Rose[a], Mary Guzé[a], Demetrios Psihopaidas[b], Stacy M. Cohen[b] and Janet Myers[a]

[a]Division of Prevention Science, University of California San Francisco, San Francisco, CA, USA; [b]HIV AIDS Bureau, Human Resources and Services Administration, San Francisco, CA, USA

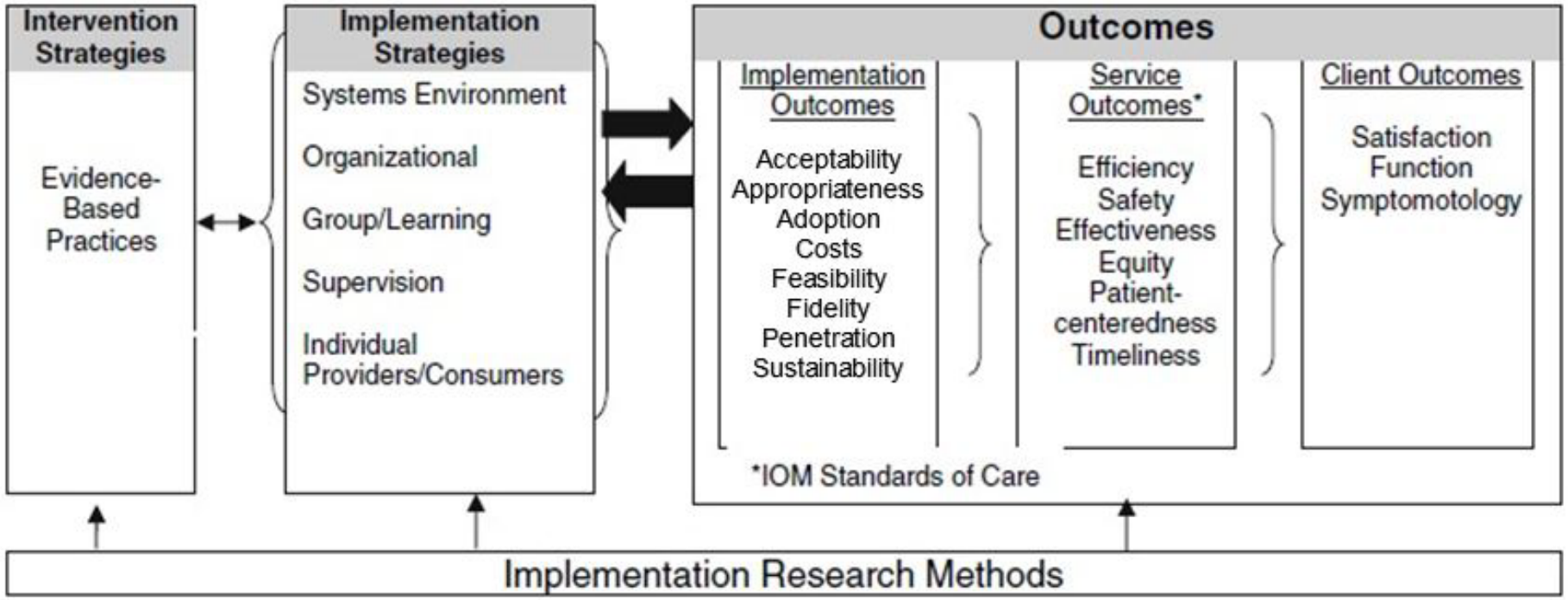
ABSTRACT

In 2017, the Health Resources and Services Administration's HIV/AIDS Bureau funded an Evaluation Center (EC) and a Coordinating Center for Technical Assistance (CCTA) to oversee the rapid implementation of 11 evidence-informed interventions at 26 HIV care and treatment providers across the U.S. This initiative aims to address persistent gaps in HIV-related health outcomes emerging from social determinants of health that negatively impact access to and retention in care. The EC adapted the Conceptual Model of Implementation Research to develop a Hybrid Type III, multi-site mixed-methods evaluation, described in this paper. The results of the evaluation will describe strategies associated with uptake, implementation outcomes, as well as HIV-related health outcomes for clients engaged in the evidence-informed interventions. This approach will allow us to understand in detail the processes that sites undergo to implement these important intervention strategies for high priority populations.

ARTICLE HISTORY
Received 10 March 2020
Accepted 1 December 2020

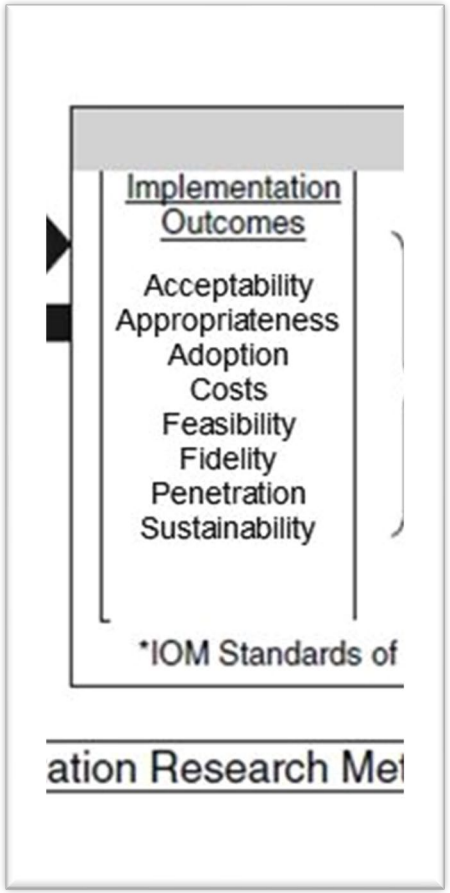
KEYWORDS
HIV; Proctor Model; mixed methods; Hybrid Type III

The Proctor Model



Methods to assess

Implementation Outcomes

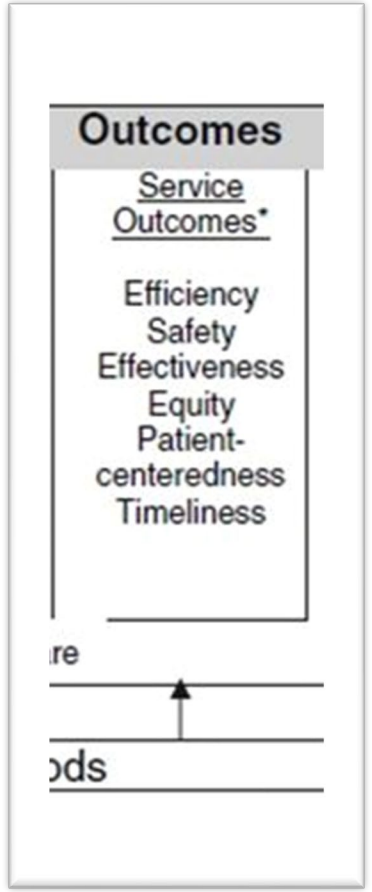


Organizational Assessment

- Proctor Model Concepts Assessed:
  - Acceptability, Adoption, Appropriateness, Feasibility, Fidelity, Penetration and Sustainability
- Questions derived from literature and other multi-site evaluations
- Checklist for Assessing Readiness for Implementation of Evidence-based Practices (CARI, modified)
- Leadership staff entered the responses via secure Data Portal every six months (6 total)

Methods to assess

Service Outcomes

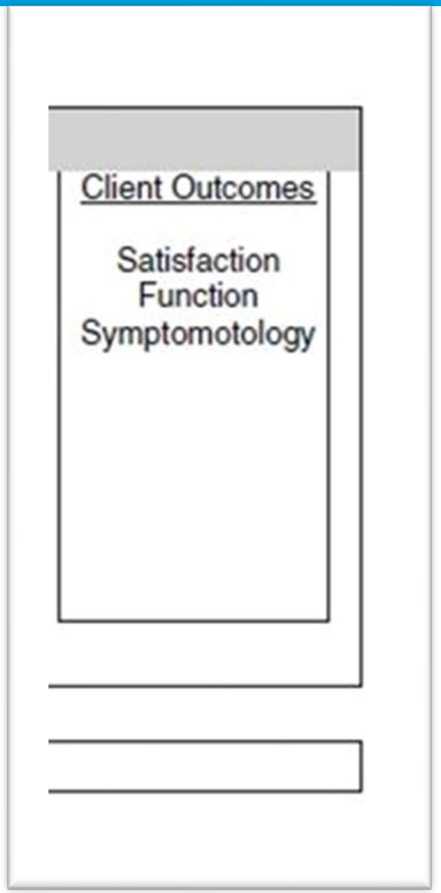


Intervention Delivery Data

- Proctor Model Concepts Assessed:
  - Efficiency, effectiveness, equity, timeliness
- Questions developed by UCSF staff
- Sites submitted data in real time (electronic) or monthly (paper)
- Participant Enrollment (demographics, date of enrollment and entry into care)
- Intervention type and description

Methods to assess

Client Outcomes



Medical Record Data

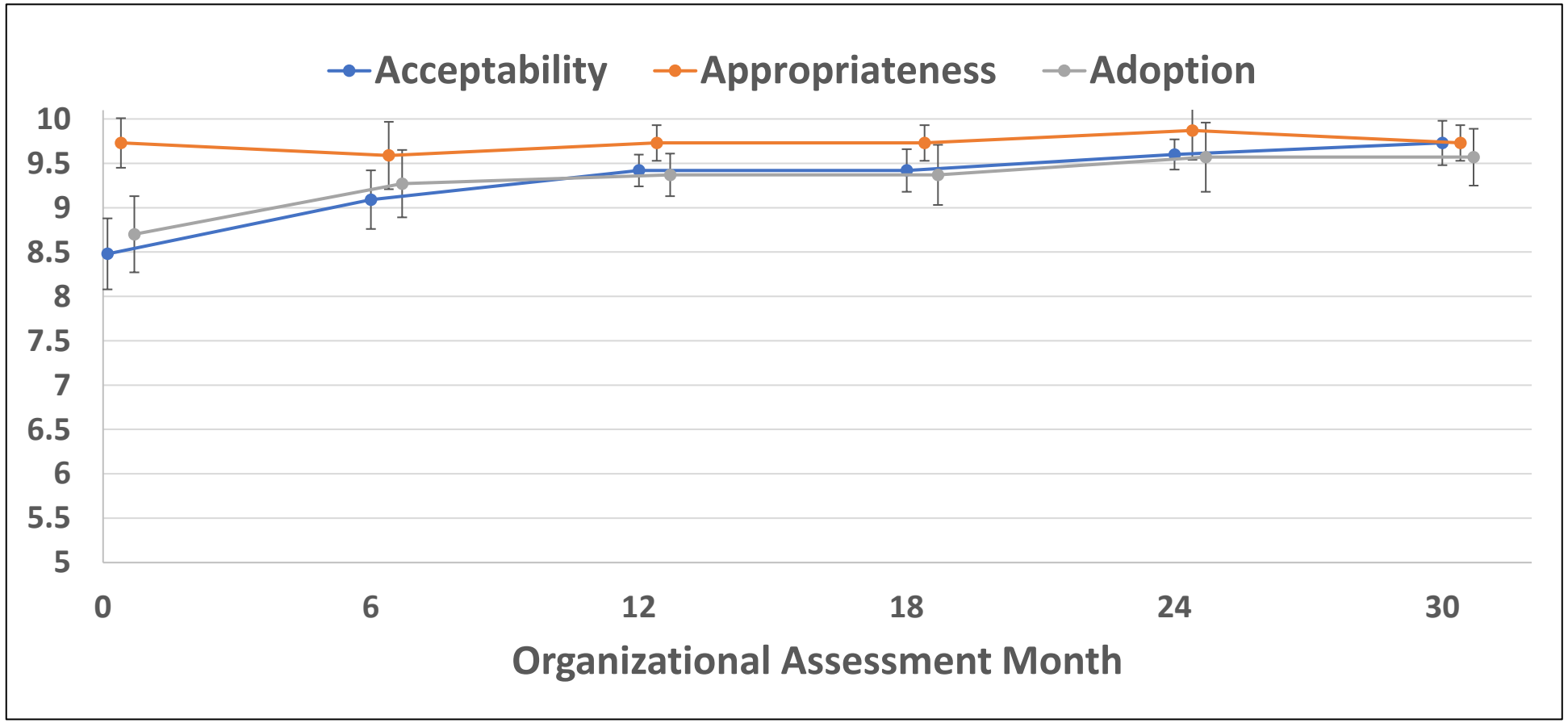
- Proctor Model Concepts Assessed
  - Function and Symptomatology
- Period for each client
  - 12 months before and after enrollment
- Data submitted every six months via secure data portal
- Standardized across interventions (dates, HIV care continuum measures)

Results

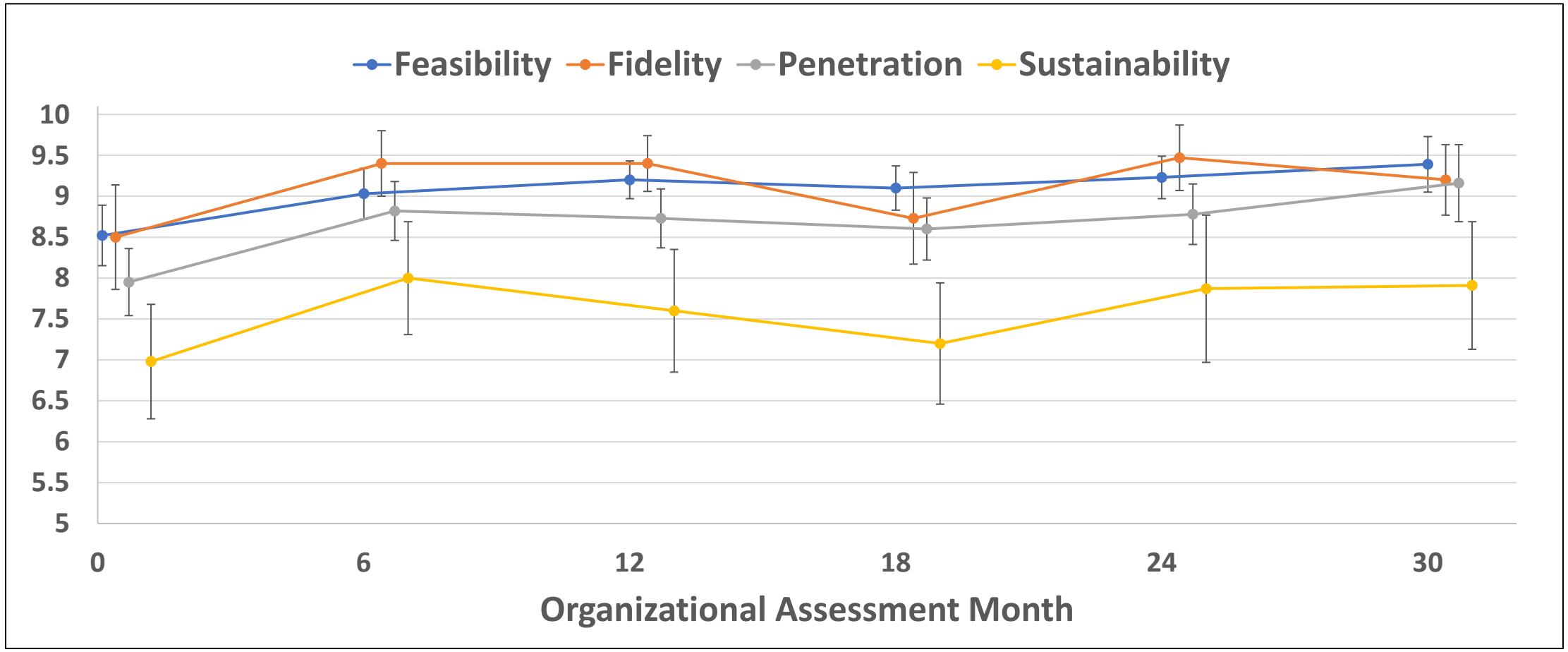
E2i Sites

-	Behavioral Health Integration	Black MSM	Trauma-Informed Care	Transgender Women
Number of sites	8	6	6	6
Organization Type	2 hospital/univ clinic, 2 CHC, 4 CBOs	2 hospital/univ clinic, 4 CBOs	2 hospital/univ clinic, 2 CHC, 2 CBOs	2 hospital/univ clinic, 2 CHC, 2 CBOs
Year established	1923-1987	1955-1992	1988-2015	1915-2001
Overall staff	22-600	18-93	7-2,870	11-264

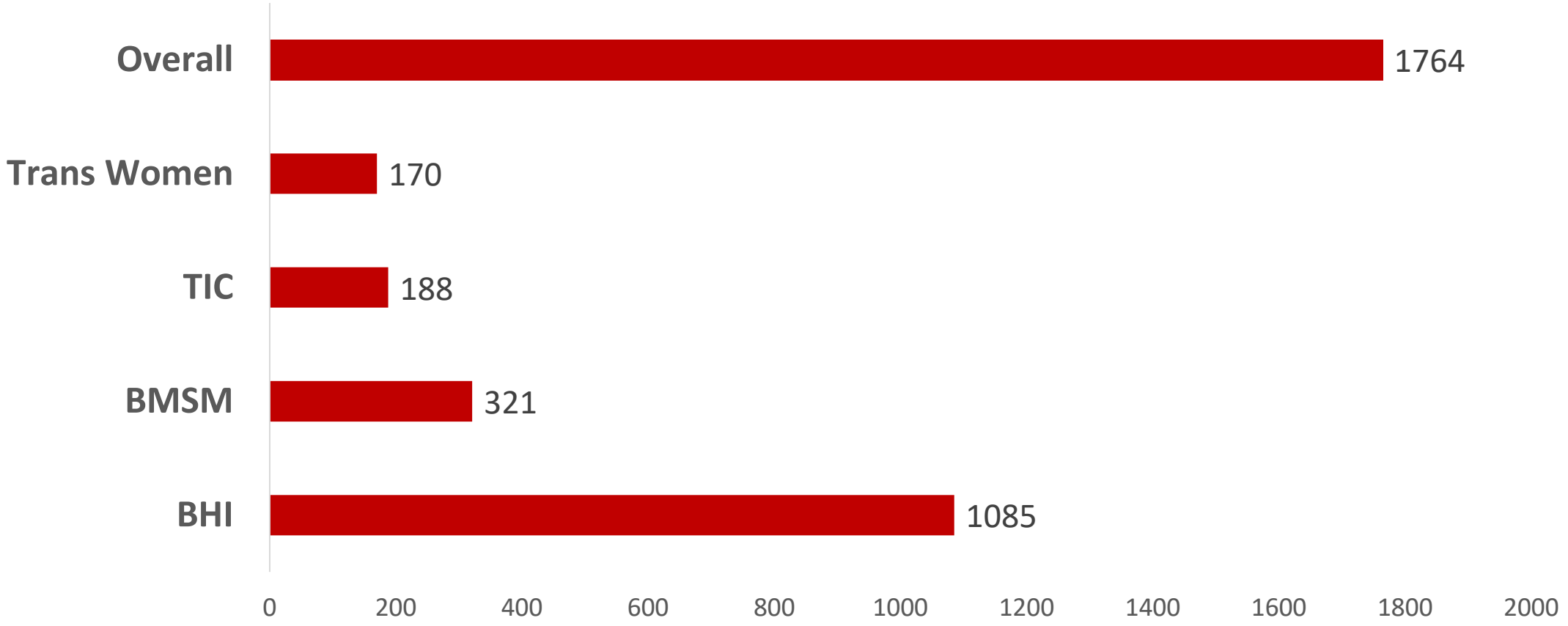
Early Implementation Outcomes



Mid/Late Implementation Outcomes



Enrollment


Overall
1764
Trans Women
170
TIC
188
BMSM
321
BHI
1085
0
200
400
600
800
1000
1200
1400
1600
1800
2000

TW: Intervention Outcomes

-	Overall N (%)	DIVAS N (%)	TWEET N (%)
Median number of any exposure (IQR)	8 (3 – 12)	9 (6 – 14)	5 (2 – 11.5)
Median number of core exposures (IQR)	3 (0 – 7)	6 (2 – 7)	1.5 (0 – 6)
Number clients completed intervention (%)	60 (35)	43 (59)	17 (18)

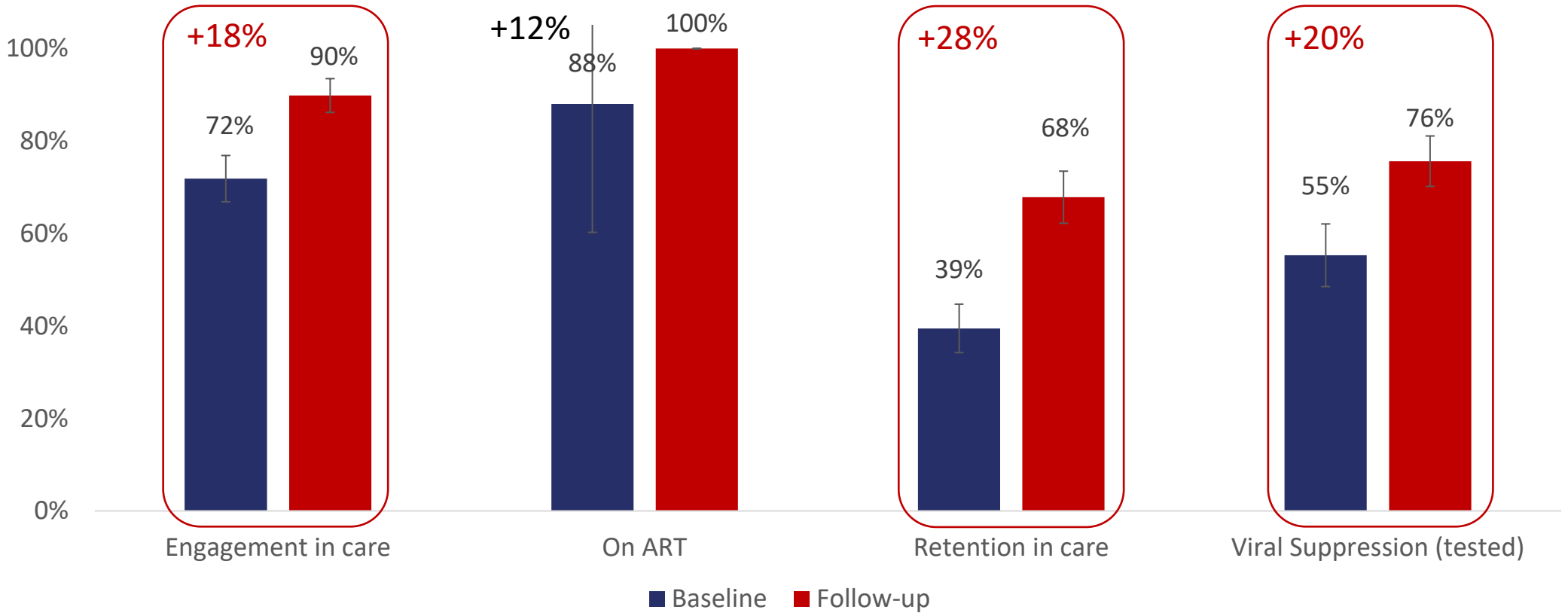
BMSM: Intervention Outcomes

-	Overall N (%)	Connect N (%)	MI Peers N (%)	TXTXT N (%)
Median number of any exposure (IQR)	4 (2 – 11)	14 (7 – 22)	3 (1 – 4)	11 (6 – 12)
Median number of core exposures (IQR)	3 (1 – 5)	10 (5 – 18)	2 (1 – 4)	3 (1 – 5)
Number clients completed intervention (%)	44 (18)	19 (31)	25 (14)	n/a

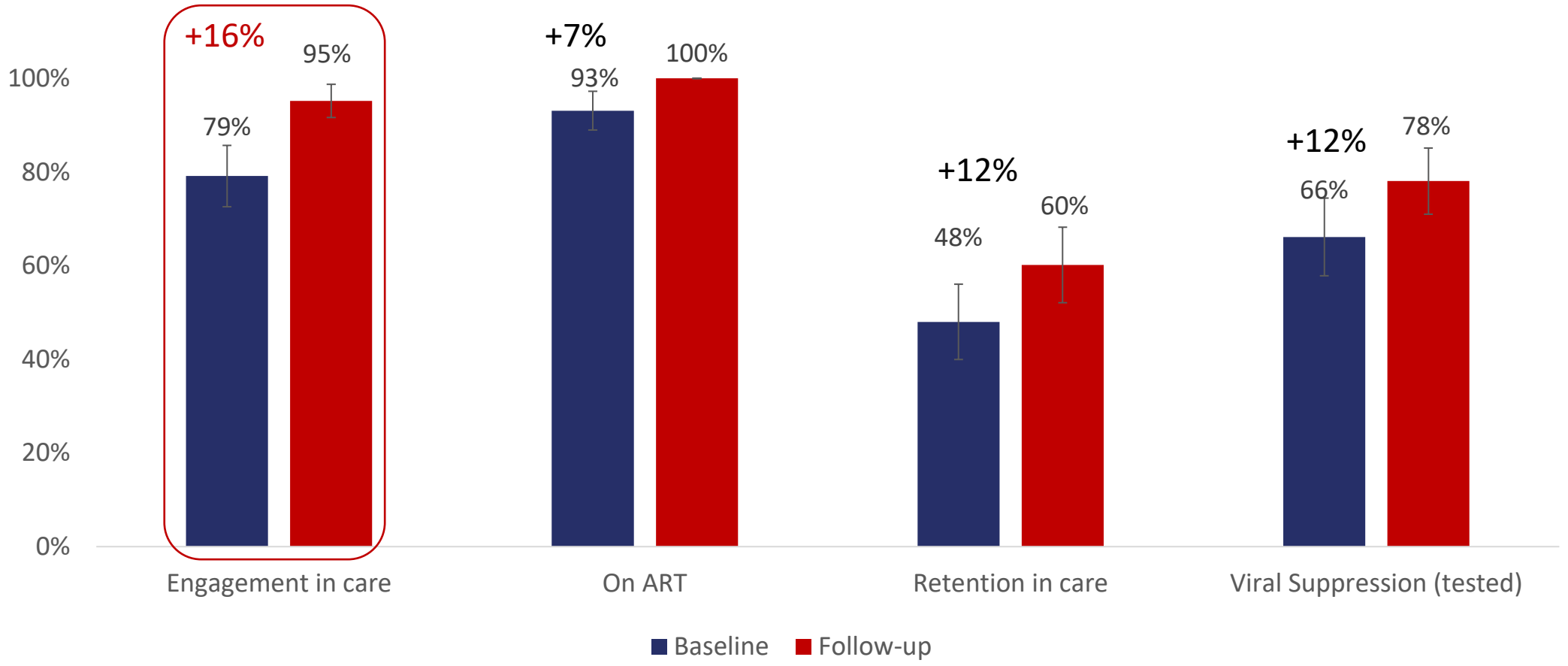
Client Outcomes

- Engagement in care: at least one visit during the measurement period
- On ART: current ART prescription during the measurement period
- Retention in care: At least two visits separated by more than 90 days during the measurement period
- Viral Suppression (all): Among all clients, most recent viral load test during the measurement period with result <200 copies.
  - If no viral load test assumed to not be virally suppressed
- Viral Suppression (tested): Among clients with a viral load test during the measurement period, most recent test with result <200 copies

BMSM: Client Outcomes

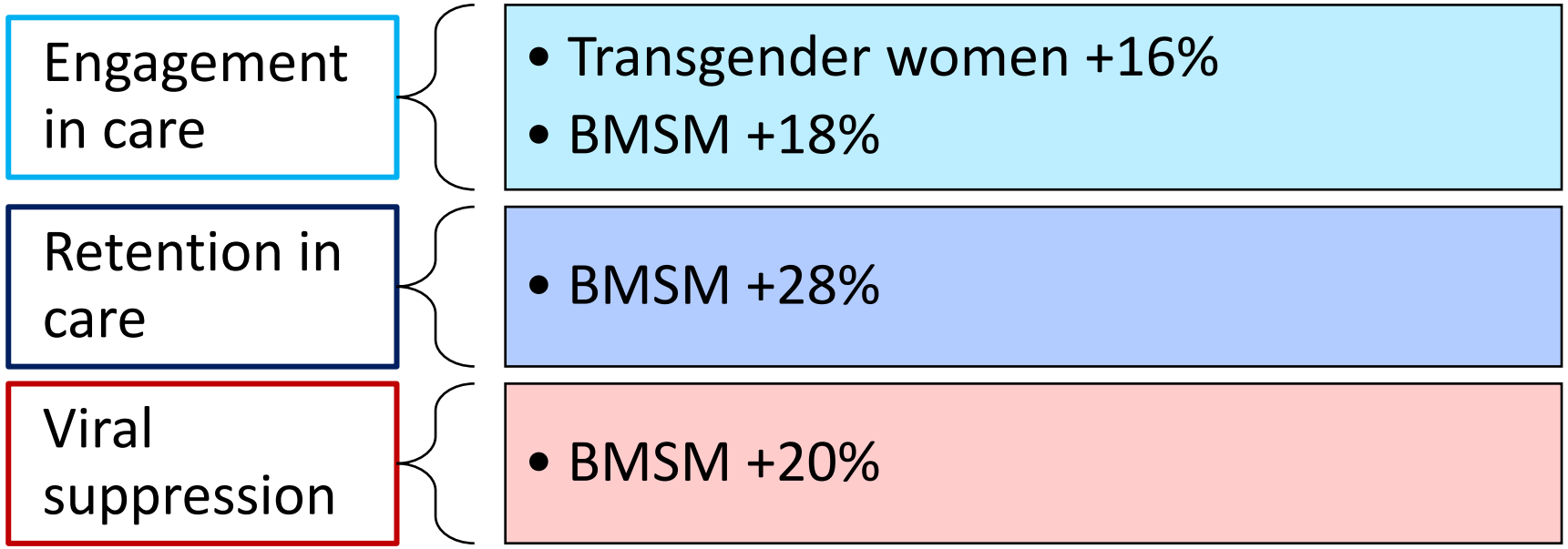


Trans Women: Client Outcomes



Client Outcomes Summary

Significant increases is HIV care continuum outcomes were found for:



No significant changes in ART Rx, but nearly all clients on ART at follow-up, across initiative

Implications of our Implementation Science Findings

- Implementation outcomes:
  - Sites experienced the most growth in the first year.
- Service outcomes:
  - Client completion varied widely by intervention.
  - The amount and duration of non-core activities delivered also varied by intervention.
- Client outcomes:
  - Interventions for black MSM showed impact across the care continuum.
  - Clients had high ART to start, limiting analysis.
- *These implementation science findings can help others to choose and optimize the delivery of the E2i's interventions.*

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Thank you!

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Division of HIV Prevention (DHP)

Centers for Disease Control and Prevention (CDC)

2022

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Disclaimer

- The findings and conclusions in this presentation are those of the author and do not represent the official position of the Centers for Disease Control and Prevention.

Vision and Mission

- Vision: A future free of HIV

- Mission: To promote health and quality of life by preventing HIV infection and reducing HIV-related illness and death in the United States

Five Core Functions

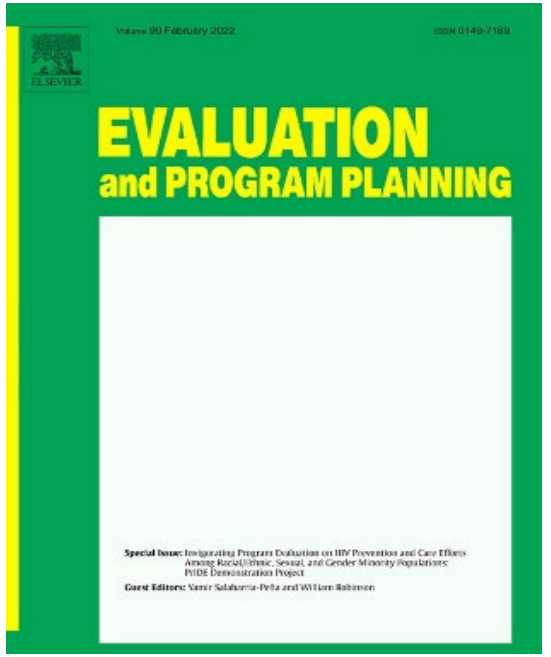
- Research and Development is one of these core functions
- However, Surveillance, and Program Implementation, Evaluation & Capacity Building, play a larger role in our mission

Supporting HIV Programs

- Larger portion of our funding supports program
- Annually, CDC provides approximately:
  - $540M in integrated surveillance and program support to health departments
  - $16M for capacity building
  - $64M to community-based organizations

Program with an implementation science lens

- For that reason, we've been thinking more about how to view program with an implementation science lens.
- Particularly within health department programs through stand-alone or integrated demonstration projects
- For example, some of the programs implemented through PS15-1506, the PrIDE Demonstration Projects, evaluated implementation in roll out of PrEP services for MSM and Transgender persons.



https://www.sciencedirect.com/journal/evaluation-and-program-planning/vol/90

Collaborating with Federal Partners

- In 2018, HRSA/HAB, CDC and NIH/NIMH initiated the Federal Implementation Science Work Group as platform for dialog across federal agencies
- Supporting Goal 4 of the National Strategic Plan (2021-2025)
- Expanded to include multiple institutes and federal partners

National Strategic Plan
A Roadmap to End the Epidemic
for the United States | **2021–2025**

Goal 4: Achieve Integrated, Coordinated Efforts That Address the HIV Epidemic among All Partners and Stakeholders

Implementation Research

- Qualitative work on barriers and facilitators to treatment and prevention services
- Hybrid intervention trials
- Uptake and acceptability of technology-driven interventions (e.g., mobile apps, web-based counseling tools, online ordering of HIV test kits) to extend reach and increase scale
- Implementation research that is embedded within health department programs

Today's Presentation

- Highlighting a technology-based intervention and a hybrid trial
- PS15-001 "Development and Evaluation of a Web-based Intervention Tool for Use with Persons Living with HIV Attending Routine Care" (Positive Health Check)
- Pleased to introduce Drs. Megan Lewis and Bryan Garner who will be presenting the implementation outcomes from the Positive Health Check trial

A longitudinal mixed-methods examination of Positive Health Check: Implementation results from a Type 1 effectiveness-implementation hybrid trial

Bryan R. Garner, PhD
Professor, Department of Internal Medicine
The Ohio State University

Megan A. Lewis, PhD
Senior Fellow, Translational Health Sciences Division
RTI International

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Presentation objectives

This talk will help you understand:

1. The Positive Health Check intervention.
2. The differences between Hybrid Trials.
3. Longitudinal mixed method design.

Presentation Overview

- Brief overview of the study design and Positive Health Check (PHC)
- Brief overview of the Aim 1 primary outcome findings for viral suppression and retention in care
- Information about Aim 2 methods, analysis, and results, which examined implementation outcomes

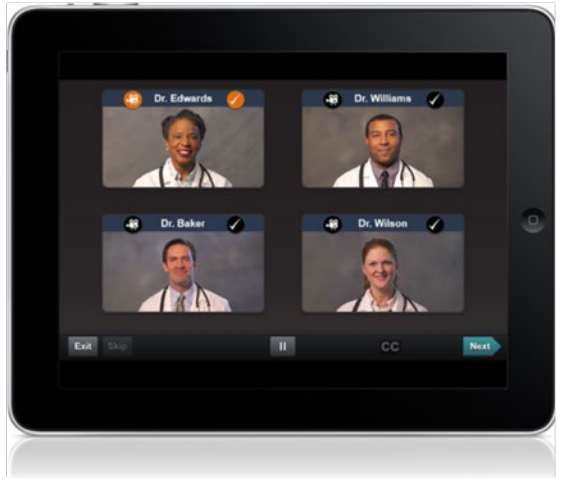
Overview of the PHC Evaluation Trial Design

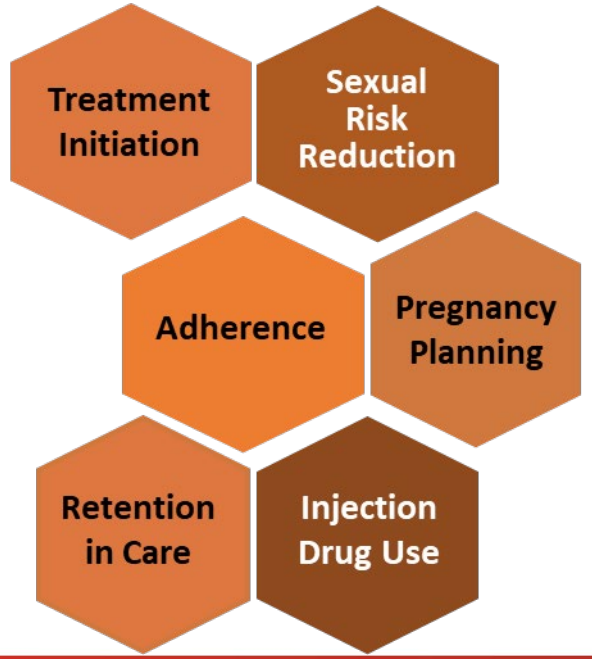
- The project used a Hybrid Type 1 design in which the primary aim was focused on testing the effectiveness of the PHC intervention on client outcomes and the secondary aim was focused on examining several key implementation outcomes overtime:
  - Aim 1: Test the effectiveness of PHC+Standard of Care (SOC) versus the SOC in 4 HIV primary care clinics.
  - Aim 2: Examine implementation outcomes over the course of the trial–the main focus of this presentation.
  - Aim 3: Examine intervention costs and cost-effectiveness.
  - Aim 4: Assess the standard of care in each clinic.

What is Positive Health Check?

positive health check

An online intervention that delivers tailored messages to people with HIV through a series of brief interactive videos that focus on:





Overview of Aim 1 Clinical Outcome Results

- When we compared the PHC+SOC to SOC, we found no statistically significant results between study arms for viral load (VL) suppression or retention in care using intent-to-treat analyses.
- In a priori sub-group analyses, we found that:
  - Men in the PHC+SOC versus SOC arm had greater VL suppression (aRR [95% CI]=1.14 [1.00, 1.29], p=0.046).
  - When retention in care is measured as a 6-month visit gap, we found those 18 to 29 years old (aRR [95% CI] =0.55 [0.33, 0.92], p=0.024) and 60 to 81 years old (aRR [95% CI] =0.49 [0.30, 0.81], p=0.006). Among the youngest age group, 29% receiving PHC+SOC and 48% receiving SOC had visit gaps, while these values were 29% and 54% among the oldest age group.

Hybrid Trials

ANNALS OF HSR

Effectiveness-implementation Hybrid Designs

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

Geoffrey M. Curran, PhD, Mark Bauer, MD,† Brian Mittman, PhD,‡ Jeffrey M. Pyne, MD,* and Cheryl Stetler, PhD,‡*

Objectives: This study proposes methods for blending design components of clinical effectiveness and implementation research. Such blending can provide benefits over pursuing these lines of research independently; for example, more rapid translational gains, more effective implementation strategies, and more useful information for decision makers. This study proposes a "hybrid effectiveness-implementation" typology, describes a rationale for their use, outlines the design decisions that must be faced, and provides several real-world examples.

Results: An effectiveness-implementation hybrid design is one that takes a dual focus a priori in assessing clinical effectiveness and implementation. We propose 3 hybrid types: (1) testing effects of a clinical intervention on relevant outcomes while observing and gathering information on implementation; (2) dual testing of clinical and implementation interventions/strategies; and (3) testing of an implementation strategy while observing and gathering information on the clinical intervention's impact on relevant outcomes.

Conclusions: The hybrid typology proposed herein must be considered a construct still in evolution. Although traditional clinical effectiveness and implementation trials are likely to remain the most common approach to moving a clinical intervention through from efficacy research to public health impact, judicious use of the proposed hybrid designs could speed the translation of research findings into routine practice.

Key Words: diffusion of innovation, implementation science, clinical trials, pragmatic designs

(*Med Care* 2012;50: 217–226)

From the *Central Arkansas Veterans Healthcare System, and Department of Psychiatry, University of Arkansas for Medical Sciences, Little Rock, AR; †VA Boston Healthcare System, Harvard Medical School, Boston, MA; and ‡Center for Implementation Practice and Research Support (CIPRS), VA Greater Los Angeles Healthcare System, Los Angeles, CA.

Supported by a research grant for the Department of Veterans Affairs, Health Services Research and Development Service: MNT-05-152 (Pyne, PI) and also funded by a research grant from the National Institute on Drug Abuse: K01 DA15102 (Curran, PI).

The authors declare no conflict of interest.

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ISSN: 0025-7079/12/5003-0217

Much has been written about the nature of health care science-to-service gaps both in general[1–3] and relative specifically to health promotion[4] and numerous medical specialties.[5–9] Thus far, the literature indicates that gaps between research and practice can result from multiple factors, including educational/knowledge deficiencies and/or disagreements,[10,11] time constraints for practitioners,[12,13] lack of decision support tools and feedback mechanisms,[13] poorly aligned incentives,[14] and a host of other organizational climate and cultural factors.[2,15,16]

In addition to these provider-level and systems-level barriers to rapid translation, Glasgow et al[4] and others[17–20] argue that the time lag between research discovery and routine uptake is also inflated by the dominant developmental approach; that is, one that encourages delimited, step-wise progressions of research through clinical efficacy research, then clinical effectiveness research, and finally implementation research. In addition, it has been suggested that current conceptions of research designs fail to "maximize clinical utility for practicing clinicians and other decision makers"[18]; for example, through a failure to focus on external validity or implementation-related barriers and facilitators to routine use and sustainability of "effective" practices.[4,21,22]

Wells[19] and Glasgow et al[4] suggested that a blending of the efficacy and effectiveness stages of intervention development could improve the speed of knowledge creation and increase the usefulness and policy relevance of clinical research. We propose that a blending of the design components of clinical effectiveness trials and implementation trials also is feasible and desirable. Such blending can provide benefits over pursuing these lines of research independently; for example, more rapid translational gains in clinical intervention uptake, more effective implementation strategies, and more useful information for researchers and decision makers. This study describes the elements of such "effectiveness-implementation hybrid designs," discusses the indications for such approaches, outlines the design decisions that must be faced in developing such protocols, and provides several examples of funded hybrid studies to illustrate the concepts.

DEFINING TERMINOLOGY

Terminology in this study has been informed by a glossary provided by the Department of Veterans Affairs Quality Enhancement Research Initiative (VA QUERI)[22];

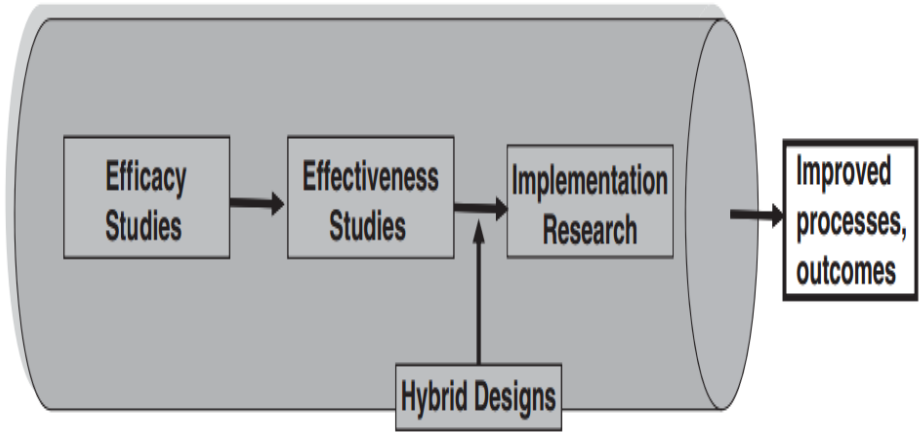
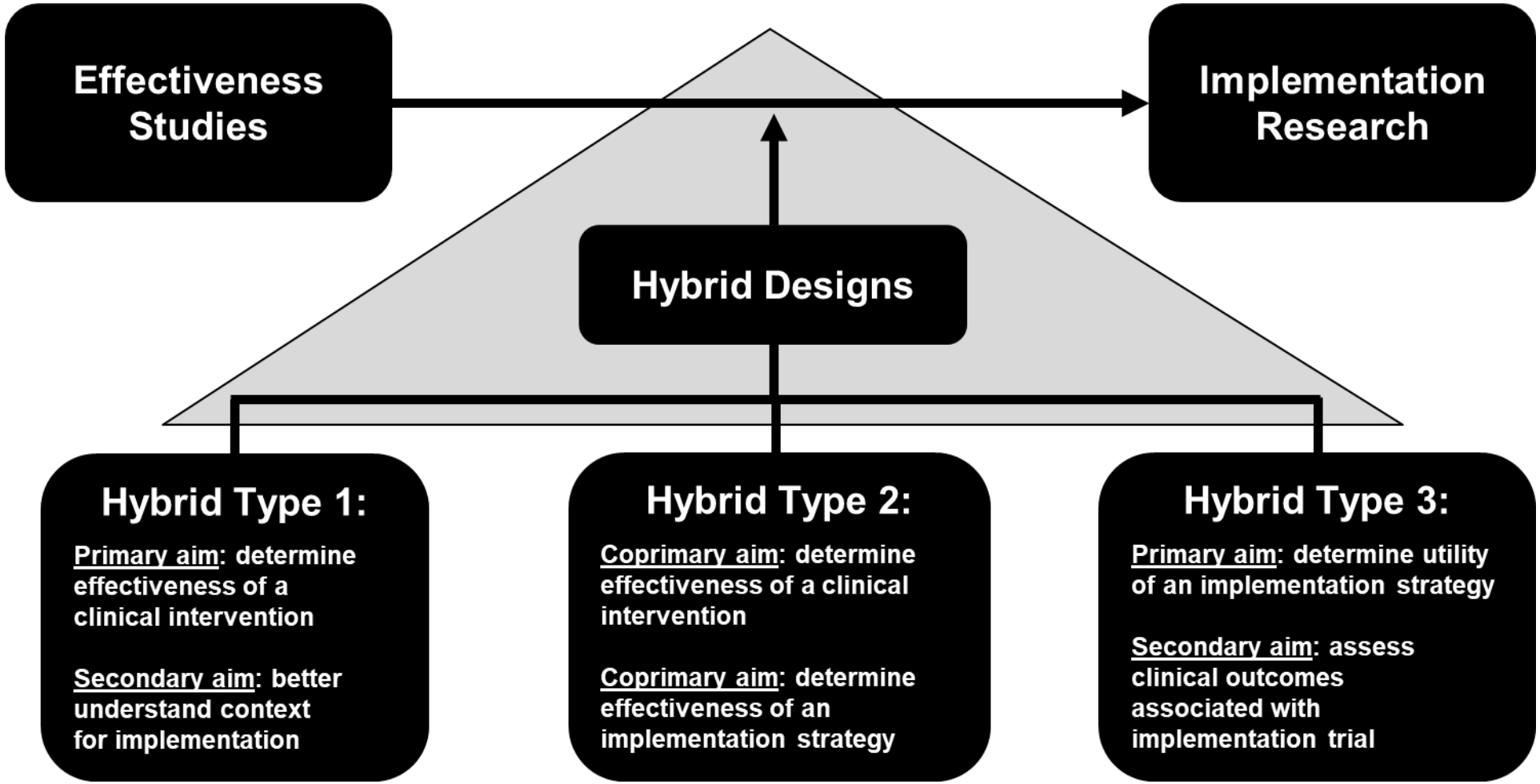


FIGURE 1. Research pipeline.

Hybrid Trials



Positive Health Check: Study Protocol

Contemporary Clinical Trials 96 (2020) 106097

Contents lists available at ScienceDirect

Contemporary Clinical Trials

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

Positive Health Check evaluation: A type 1 hybrid design randomized trial to decrease HIV viral loads in patients seen in HIV primary care

Megan A. Lewis[a,*], Camilla Harshbarger[b], Carla Bann[a], Olivia Burrus[a], Susana Peinado[a], Bryan R. Garner[a], Olga Khavjou[a], Ram K. Shrestha[b], Shawn Karns[a], Craig B. Borkowf[b], Brittany A. Zulkiewicz[a], Alexa Ortiz[a], Carla A. Galindo[b], Michelle DallaPiazza[c], Pam Holm[d], Vincent C. Marconi[e,f], Charurut Somboonwit[g], Shobha Swaminathan[c], for the Positive Health Check Study Team

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ARTICLE INFO

Keywords:
HIV
Type 1 hybrid trial
Viral load
Medication adherence
Retention in care
Video doctor intervention

ABSTRACT

For people with HIV, important transmission prevention strategies include early initiation and adherence to antiretroviral therapy and retention in clinical care with the goal of reducing viral loads as quickly as possible. Consequently, at this point in the HIV epidemic, innovative and effective strategies are urgently needed to engage and retain people in health care to support medication adherence. To address this gap, the Positive Health Check Evaluation Trial uses a type 1 hybrid randomized trial design to test whether the use of a highly tailored video doctor intervention will reduce HIV viral load and retain people with HIV in health care. Eligible and consenting patients from four HIV primary care clinical sites are randomly assigned to receive either the Positive Health Check intervention in addition to the standard of care or the standard of care only. The primary aim is to determine the effectiveness of the intervention. A second aim is to understand the implementation potential of the intervention in clinic workflows, and a third aim is to assess the costs of intervention implementation. The trial findings will have important real-world applicability for understanding how digital interventions that take the form of video doctors can be used to decrease viral load and to support retention in care among diverse patients attending HIV primary care clinics.

1. Introduction

HIV transmission continues to be an urgent public health challenge. According to the Centers for Disease Control and Prevention (CDC), more than one million people in the United States are living with HIV, with nearly 38,000 new infections annually [1]. Because of advances in antiretroviral therapy (ART), which suppresses the plasma HIV-1 viral load (VL), more people are living with and managing HIV as a chronic health condition. Early initiation and adherence to ART and retention in clinical care are important transmission prevention strategies because people with HIV (PWH) who are treated with ART and maintain VL suppression have effectively no risk of sexually transmitting HIV [2–5], and they experience a life expectancy similar to people not infected with HIV [6]. In 2017, of all PWH in the United States, 85.8% knew they were diagnosed and 62.7% were virally suppressed [1]. Consequently, to decrease sexual transmission of HIV, effective interventions are needed to engage PWH in regular health care that supports ART adherence and retention in medical care [4].

Abbreviations: ART, antiretroviral therapy; CDC, Centers for Disease Control and Prevention; CWA, Clinic Web Application; EMR, electronic medical record; ICER, incremental cost-effectiveness ratios; PWH, people with HIV; PHC, Positive Health Check; PRECIS, Pragmatic-Explanatory Continuum Indicator Summary; SQL, Structured Query Language; STD, sexually transmitted disease; VAMC, Veteran Affairs Medical Center; VL, viral load

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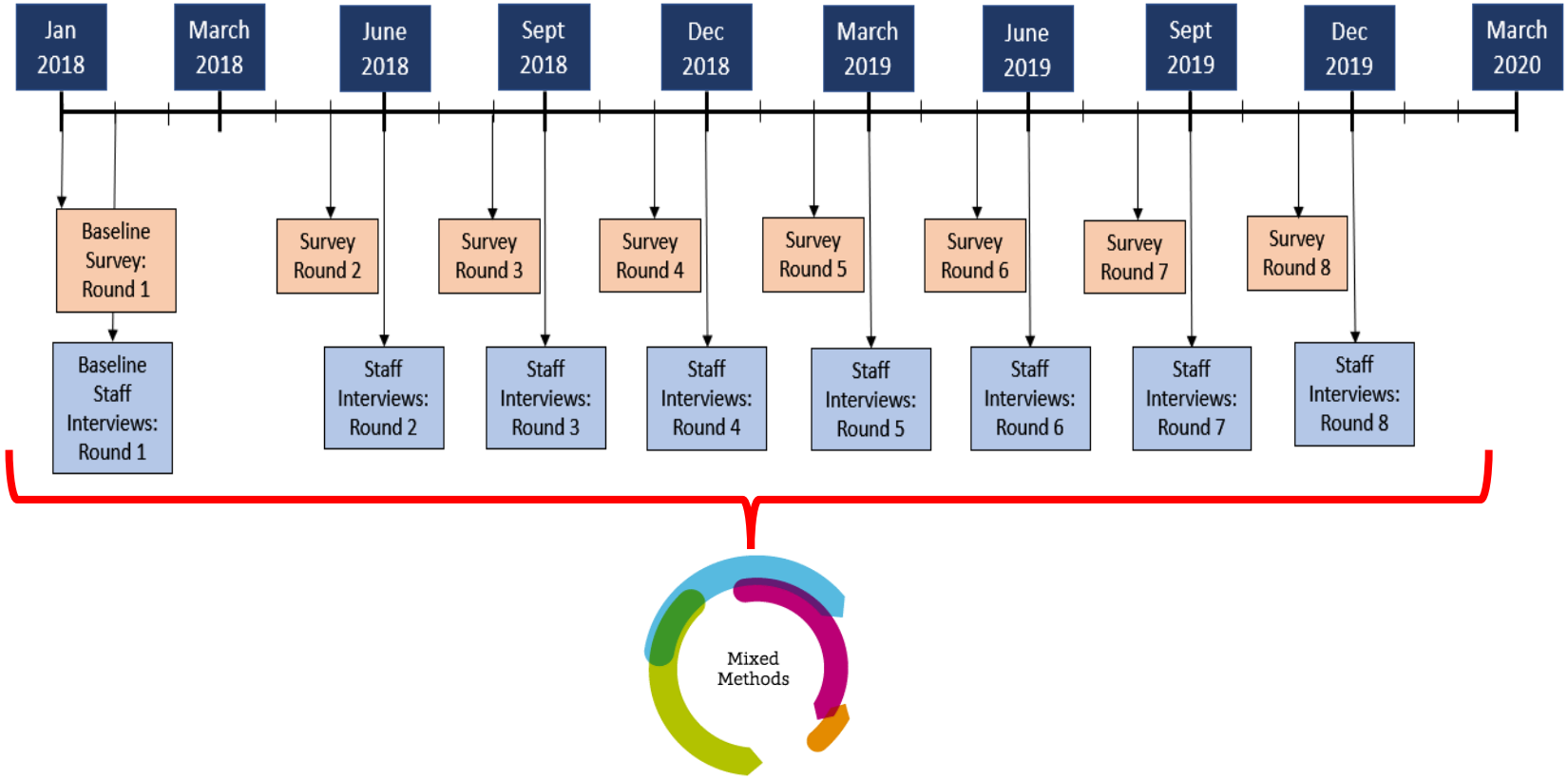
https://doi.org/10.1016/j.cct.2020.106097
Received 7 April 2020; Received in revised form 20 July 2020; Accepted 27 July 2020
Available online 29 July 2020

Aim 2. Examine PHC implementation longitudinally to assess changes over time in the implementation context for PHC.



Measures of Implementation Context: Organizational Readiness for Implementing Change

Shea et al. Implementation Science 2014, 9:7
http://www.implementationscience.com/content/9/1/7

IMPLEMENTATION SCIENCE

RESEARCH Open Access

Organizational readiness for implementing change: a psychometric assessment of a new measure

Christopher M Shea[1,2*], Sara R Jacobs[1], Denise A Esserman[4,5], Kerry Bruce[1,6] and Bryan J Weiner[1,2,3]

Abstract

Background: Organizational readiness for change in healthcare settings is an important factor in successful implementation of new policies, programs, and practices. However, research on the topic is hindered by the absence of a brief, reliable, and valid measure. Until such a measure is developed, we cannot advance scientific knowledge about readiness or provide evidence-based guidance to organizational leaders about how to increase readiness. This article presents results of a psychometric assessment of a new measure called Organizational Readiness for Implementing Change (ORIC), which we developed based on Weiner's theory of organizational readiness for change.

Methods: We conducted four studies to assess the psychometric properties of ORIC. In study one, we assessed the content adequacy of the new measure using quantitative methods. In study two, we examined the measure's factor structure and reliability in a laboratory simulation. In study three, we assessed the reliability and validity of an organization-level measure of readiness based on aggregated individual-level data from study two. In study four, we conducted a small field study utilizing the same analytic methods as in study three.

Results: Content adequacy assessment indicated that the items developed to measure change commitment and change efficacy reflected the theoretical content of these two facets of organizational readiness and distinguished the facets from hypothesized determinants of readiness. Exploratory and confirmatory factor analysis in the lab and field studies revealed two correlated factors, as expected, with good model fit and high item loadings. Reliability analysis in the lab and field studies showed high inter-item consistency for the resulting individual-level scales for change commitment and change efficacy. Inter-rater reliability and inter-rater agreement statistics supported the aggregation of individual level readiness perceptions to the organizational level of analysis.

Conclusions: This article provides evidence in support of the ORIC measure. We believe this measure will enable testing of theories about determinants and consequences of organizational readiness and, ultimately, assist healthcare leaders to reduce the number of health organization change efforts that do not achieve desired benefits. Although ORIC shows promise, further assessment is needed to test for convergent, discriminant, and predictive validity.

Keywords: Readiness for change, Measure development, Psychometrics

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During the past 3 months PHC project staff implementing PHC...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Don't know
A. ...want to implement this intervention.	1	2	3	4	5	6
B. ...are committed to implementing this intervention.	1	2	3	4	5	6
C. ...understand the benefits to patients for implementing PHC.	1	2	3	4	5	6
D. ....are motivated to implement this intervention	1	2	3	4	5	6
E. ...will do whatever it takes to implement this intervention.	1	2	3	4	5	6
F. ...feel confident that they can keep track of progress in implementing this intervention.	1	2	3	4	5	6
G. ...feel confident that the clinic management can keep staff invested in implementing this intervention.	1	2	3	4	5	6
H. ...feel confident that they can coordinate tasks so that implementation goes smoothly.	1	2	3	4	5	6
I. ... feel confident that the organization can support staff as they adjust to implementing this intervention.	1	2	3	4	5	6
J. ...feel confident that they can keep implementing this intervention according to protocol.	1	2	3	4	5	6
K. ...feel confident that they can handle the challenges that might arise in implementing this intervention.	1	2	3	4	5	6
L. ...feel confident that they can manage implementing this intervention in a busy clinic environment with multiple competing demands.	1	2	3	4	5	6

Across the eight time points, coefficient alpha was .92 (SD = .03).

Measures of Implementation Context: Implementation Climate

Jacobs et al. Implementation Science 2014, 9:46
http://www.implementationscience.com/content/9/1/46

IMPLEMENTATION SCIENCE

RESEARCH Open Access

Context matters: measuring implementation climate among individuals and groups

Sara R Jacobs[1*], Bryan J Weiner[2] and Alicia C Bunger[3]

Abstract

Background: It has been noted that implementation climate is positively associated with implementation effectiveness. However, issues surrounding the measurement of implementation climate, or the extent to which organizational members perceive that innovation use is expected, supported and rewarded by their organization remain. Specifically, it is unclear whether implementation climate can be measured as a global construct, whether individual or group-referenced items should be used, and whether implementation climate can be assessed at the group or organizational level.

Methods: This research includes two cross-sectional studies with data collected via surveys at the individual level. The first study assessed the implementation climate perceptions of physicians participating in the National Cancer Institute's (NCI) Community Clinical Oncology Program (CCOP), and the second study assessed the perceptions of children's behavioral health clinicians implementing a treatment innovation. To address if implementation climate is a global construct, we used confirmatory factor analysis. To address how implementation climate should be measured and at what level, we followed a five-step framework outlined by van Mierlo and colleagues. This framework includes exploratory factor analysis and correlations to assess differences between individual and group-referenced items and intraclass correlations, interrater agreements, and exploratory factor analysis to determine if implementation climate can be assessed at the organizational level.

Results: The confirmatory factor analysis demonstrated that implementation climate is a global construct consisting of items related to expectations, support and rewards. There are mixed results, however, as to whether implementation climate should be measured using individual or group-referenced items. In our first study, where physicians were geographically dispersed and practice independently, there were no differences based on the type of items used, and implementation climate was an individual level construct. However, in the second study, in which clinicians practice in a central location and interact more frequently, group-referenced items may be appropriate. In addition, implementation climate could be considered an organizational level construct.

Conclusions: The results are context-specific. Researchers should carefully consider the study setting when measuring implementation climate. In addition, more opportunities are needed to validate this measure and understand how well it predicts and explains implementation effectiveness.

Keywords: Implementation climate, Organizational context, Measurement of global constructs, Measurement of group level phenomenon

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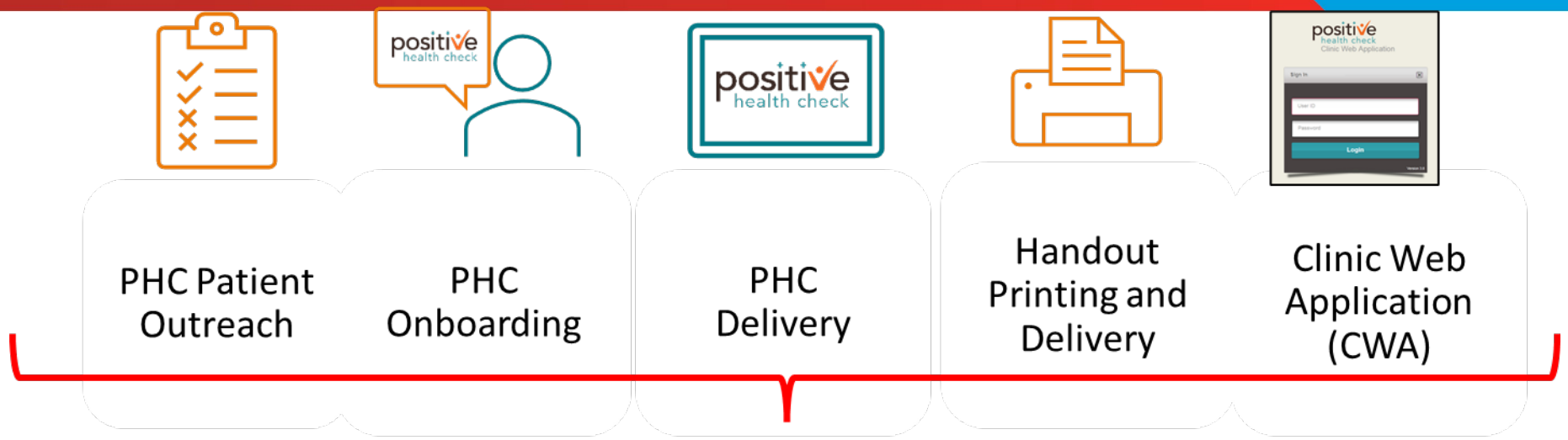
1. During the past 3 months PHC project staff implementing PHC...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Don't know
A. ...were expected to enroll a certain number of patients in Positive Health Check study	1	2	3	4	5	6
B. ...were expected to help the clinic meet its goals for implementing Positive Health Check	1	2	3	4	5	6
C. ...got the support they need to identify potentially eligible patients for Positive Health Check.	1	2	3	4	5	6
D. ...got the support from clinic management they need to use Positive Health Check with eligible patients.	1	2	3	4	5	6
E. ...received recognition for helping eligible patients use Positive Health Check.	1	2	3	4	5	6
F. ...received appreciation for using Positive Health Check with eligible patients.	1	2	3	4	5	6

Across the eight time points, coefficient alpha was .76 (SD = .11).

Measure(s) of Innovation-Values Fit



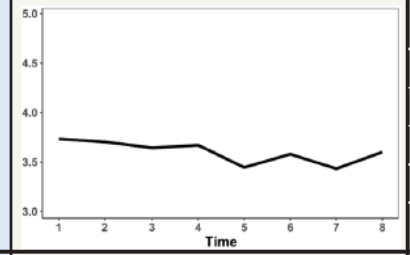
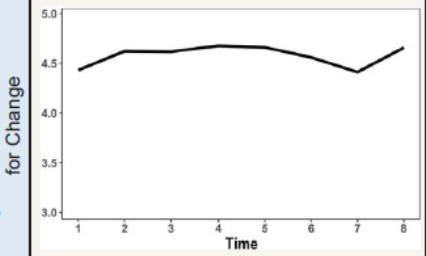
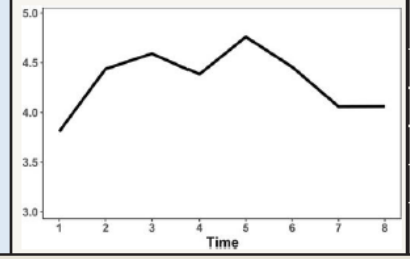
Innovation-Values Fit

		Not at All				Highest Extent Possible	Don't Know
G.	...fit your clinic workflow?	0	1	2	3	4	5
H.	...fit your clinic values?						
I.	...fit your clinic treatment philosophy?						
J.	...was accepted by staff within your clinic?	0	1	2	3	4	5
K.	...was well-matched to your clinic environment?	0	1	2	3	4	5

Across the eight time points, coefficient alpha was .95 (SD = .02).

Positive Health Check: Aim 2 Results

Table 1: Overall trajectories for innovation-values fit, organizational readiness for change, and implementation climate

	Cross-Clinic Trajectories	*Beta*	*PHC Staff Experiences*
Innovation-Values Fit		Intercept: 4.18* Time: −0.25 Time²: 0.03	• Three of the four clinics reported few major ongoing barriers with integrating PHC into the clinic workflow. • Communication and collaboration with front office staff as well as the PHC staff's physical location within the clinic emerged as key factors for integrating PHC into the clinic workflow. • Addressing Internet connectivity issues and printer access at two clinics and space concerns at one clinic align with the slight increase in perceived fit at T4 (see Table 2).
Organizational Readiness for Change		Intercept: 4.42* Time: 0.11 Time²: −0.02	• Three of the four clinics noted a slight decrease in organizational readiness at T7 due to clinic providers misunderstanding PHC requirements (Clinic B), a nondirect chain of communication Clinic C, and staff turnover Clinic D.
Implementation Climate		Intercept: 3.95* Time: 0.55* Time²: −0.09*	• Clinics had not started implementing the intervention at T1. The initial trend upward may be due to ramp-up time. • The most common leadership method used to support PHC was advocating for the study in clinical site meetings. • All four clinics noted receiving support from site health care providers. • Implementation climate dipped in the end for many reasons, including decreased engagement from champions and difference in priorities between research and clinic staff.

Notes: *p<0.05 indicates a significant change over time. Time refers to measurement time point, T1 to T8. The Time variable indicates how fast the outcome is increasing over time. The Time² variable indicates how fast the outcome starts moving back to values from earlier in the study. The combination of these two effects describes the upside-down "u" shape of the trajectory over time.

Acknowledgements

Our co-authors:

- Olivia Burrus, MPH
- Alexa Ortiz, MSN
- Stephen Tueller, PhD
- Susana Peinado, PhD
- Haley Hedrick, BA
- Camilla Harshbarger, PhD
- Carla Galindo, MPH
- Cari Courtnenay-Quirk, PhD

Clinical site Champions

- Michelle Dalla Piazza, MD
- Vincent Marconi, MD
- Charurut Somboonwit, MD
- Shoba Swaminathan, MD

This research is supported by a Cooperative Agreement from the
Centers for Disease Control and Prevention (U18PS004967) to Megan Lewis, PhD, Principal Investigator

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