



Effectiveness of Data-to-Care Activities for Improving HIV Care Outcomes: A Systematic Review

Kristin Tansil Roberts, MSW
Behavioral Scientist
Division of HIV Prevention

Continuum 2024 • June 9-11, 2024 • Puerto Rico



PREVENTION RESEARCH
SYNTHESIS



DISCLAIMERS

#CONTINUUM2024



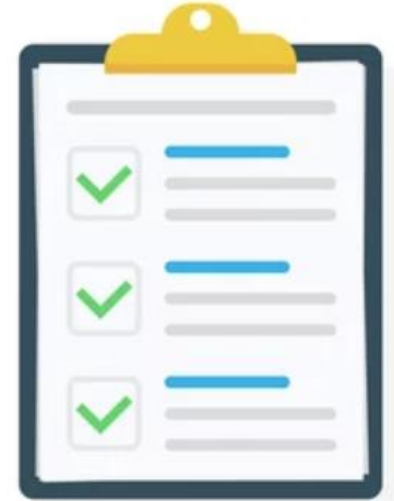
- **The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.**
- **This work was supported by the Division of HIV Prevention at the U.S. Centers for Disease Control and Prevention and was not funded by any other organization.**

OVERVIEW

#CONTINUUM2024



- **Background**
- **Methods**
- **Results**
- **Conclusions, Limitations, and Implementation Considerations**
- **Acknowledgements**





19th International
Conference on
HIV TREATMENT
AND PREVENTION
ADHERENCE

BACKGROUND

2019 PLAN: ENDING THE HIV EPIDEMIC (EHE) IN THE U.S.

#CONTINUUM2024



HHS aims to reduce new infections by 90% by 2030



Diagnose



Treat



Prevent



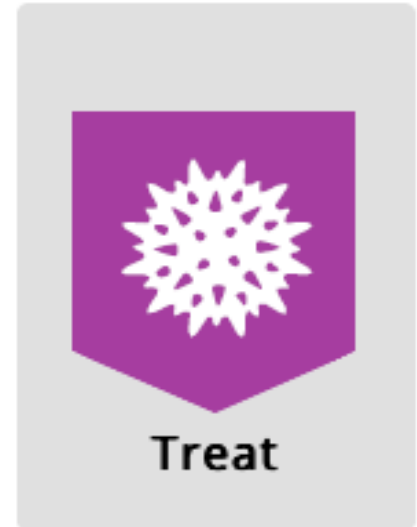
Respond

DATA-TO-CARE (D2C)

#CONTINUUM2024



- **Public Health Strategy**
- **Uses**
 - HIV Surveillance Data
 - Other Data Sources: Clinic data, HIV Program Data (e.g., AIDS Drug Assistance Program (ADAP), Ryan White Care service data, pharmacy data)
- **In Order To**
 - Identify people with HIV (PWH) that are out of care (OOC)
 - Re-engage them in care



D2C RELINKAGE STAFF

#CONTINUUM2024



- **Relinkage staff**
 - Use data sources to locate PWH who are OOC
 - Contact and encourage PWH to link or re-engage in HIV care
 - Structural interventions are used to assess and address barriers (e.g., transportation)
- **Relinkage staff position titles vary per D2C program**
 - Social workers
 - Disease intervention specialists
 - Linkage care specialists
 - Patient navigators

D2C SYSTEMATIC REVIEW RESEARCH QUESTIONS

#CONTINUUM2024



- **What is the demographic composition of participants reached by D2C interventions?**
- **What are commonly reported HIV care status categories?**
 - Examples: Current to care, deceased
- **How effective are D2C interventions at:**
 - Linking or re-engaging OOC PWH to care?
 - Improving viral suppression?
 - Reducing the length of time to care



METHODS

D2C INCLUSION AND EXCLUSION CRITERIA

#CONTINUUM2024



INCLUSION

- **Describes a D2C intervention:**
 - Uses a data source to identify PWH who are potentially OOC, AND
 - Implements an activity to link or re-engage people to care (e.g., patient navigation)
- **Intervention implemented in the U.S.**
- **Uses U.S.-based surveillance or local data (e.g., clinical medical records)**
- **Published between January 2009-January 2021**
- **All study designs**

EXCLUSION

- **Systematic reviews**

D2C COMMON HIV CARE STATUSES

#CONTINUUM2024



Initial PWH OOC List



Current to Care

Not Located

Incarcerated

Deceased

Out of Jurisdiction

Truly OOC



Link or
Re-engage in Care

This example is for visual purposes only and is not based on real numbers.

PRIMARY D2C INTERVENTION OUTCOMES

#CONTINUUM2024



- **Engagement in care:**
 - A HIV health care visit or documented laboratory test result (e.g., VL)
- **Retention in care:**
 - Multiple (i.e., ≥ 2) HIV health care visits or documented laboratory test results within a timeframe
- **Viral suppression (VS):**
 - A VL test result < 200 copies/mL

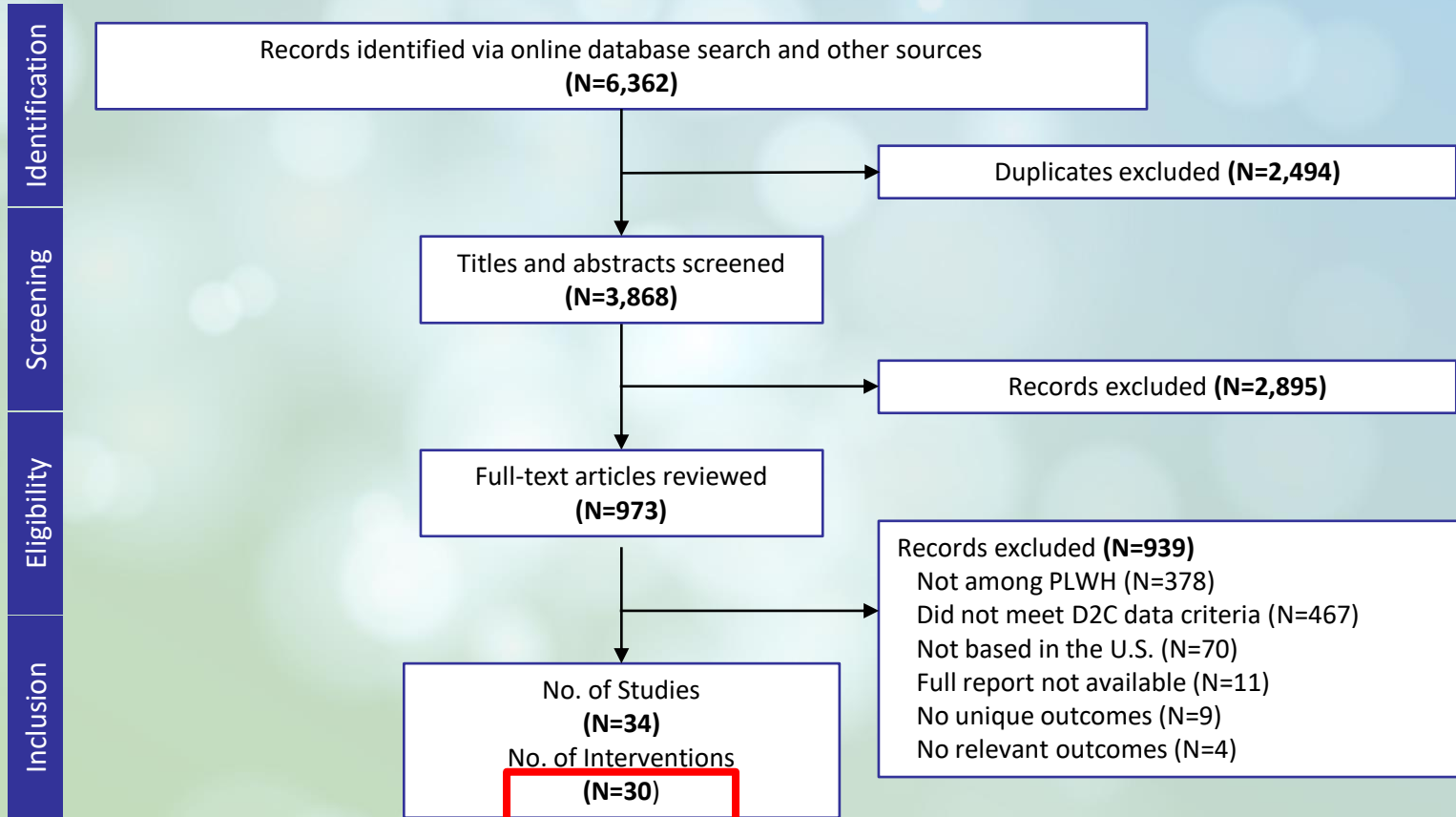


19th International
Conference on
**HIV TREATMENT
AND PREVENTION
ADHERENCE**

RESULTS

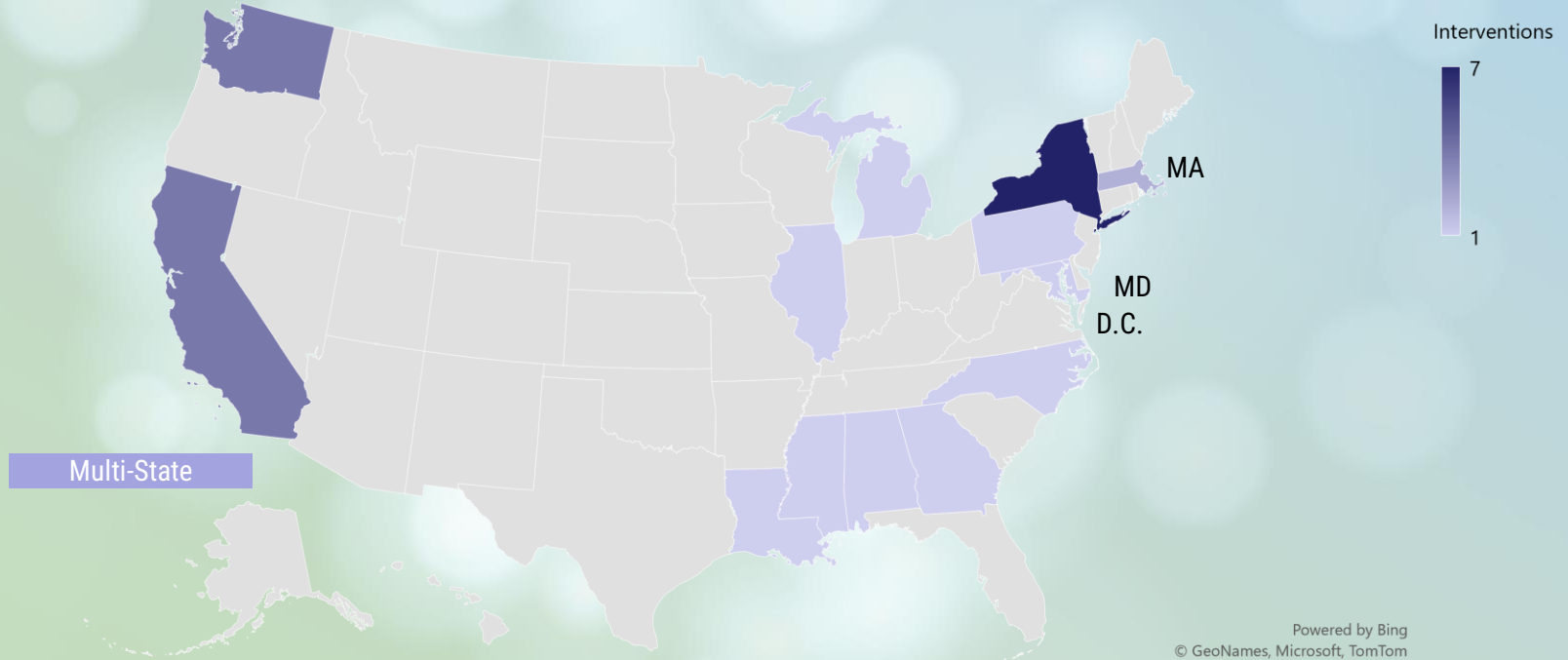
PRISMA FLOW DIAGRAM, JAN 2009-JAN 2021

#CONTINUUM2024



D2C INTERVENTION LOCATIONS, N=30

#CONTINUUM2024

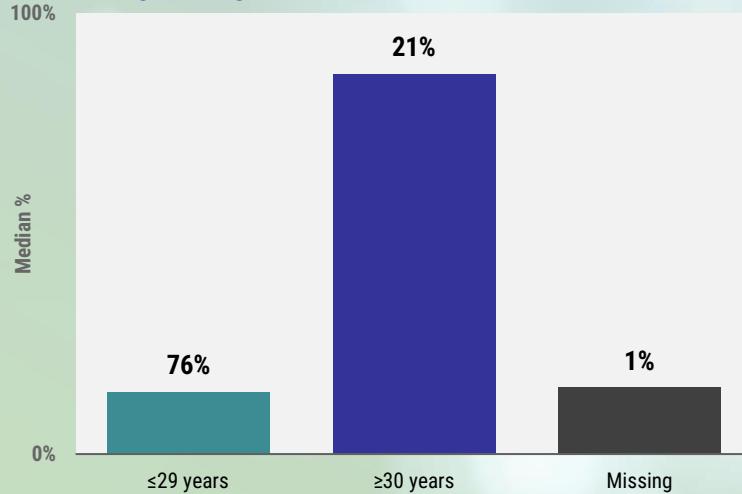


PARTICIPANTS' DEMOGRAPHIC CHARACTERISTICS (OF 30 INTERVENTIONS)

#CONTINUUM2024

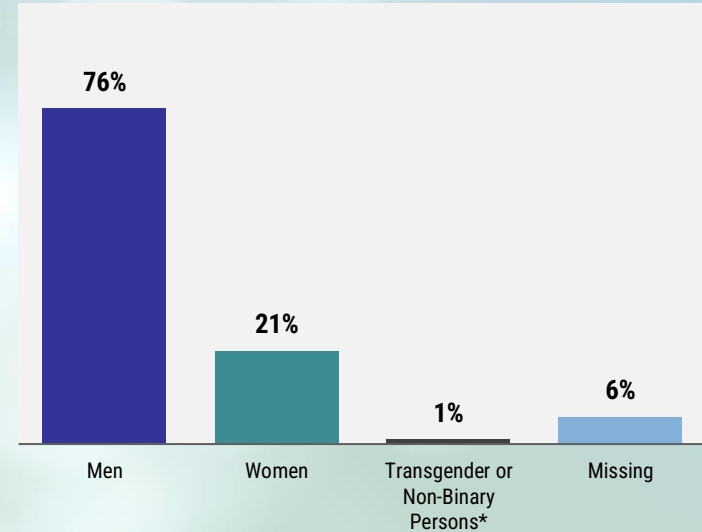


Age Categories, n=12



- n=9 reported "Other" data type
- n=8 age was not reported (NR)

Sex/Gender Categories, n=24



- n=1 "Other" data type
- n=5 sex/gender was NR

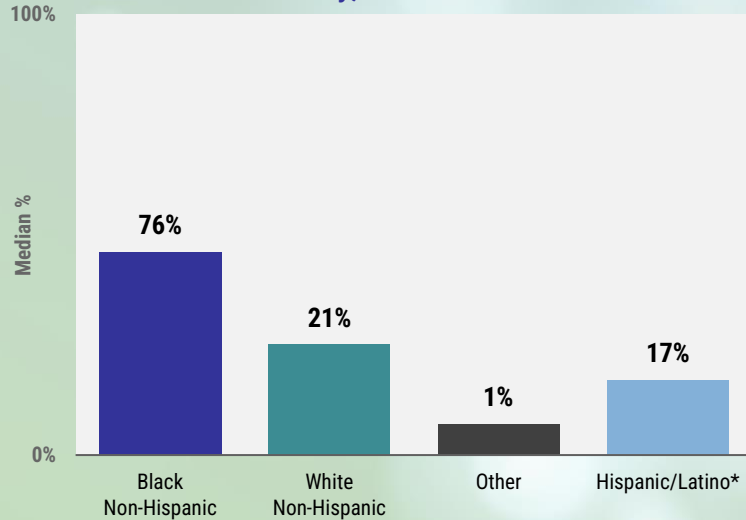
*As reported by authors

DEMOGRAPHIC CHARACTERISTICS (OF 30 INTERVENTIONS)

#CONTINUUM2024



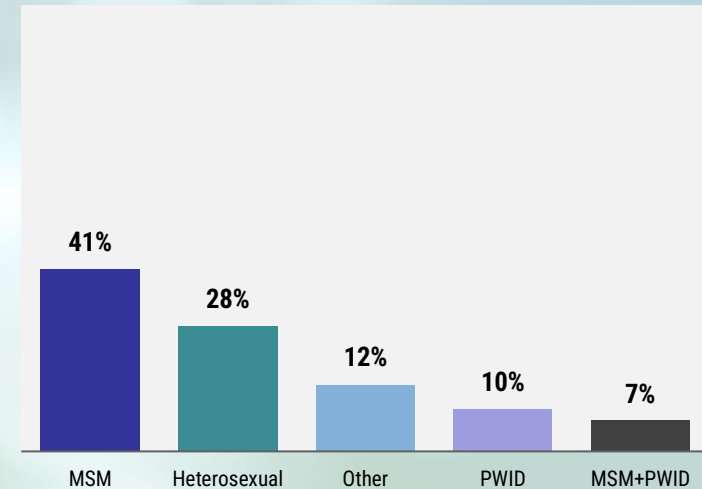
Race and Ethnicity, n=23



- n=1 reported “Other” data type
- n=6 race/ethnicity was NR

*As reported by authors

Transmission Risk, n=20

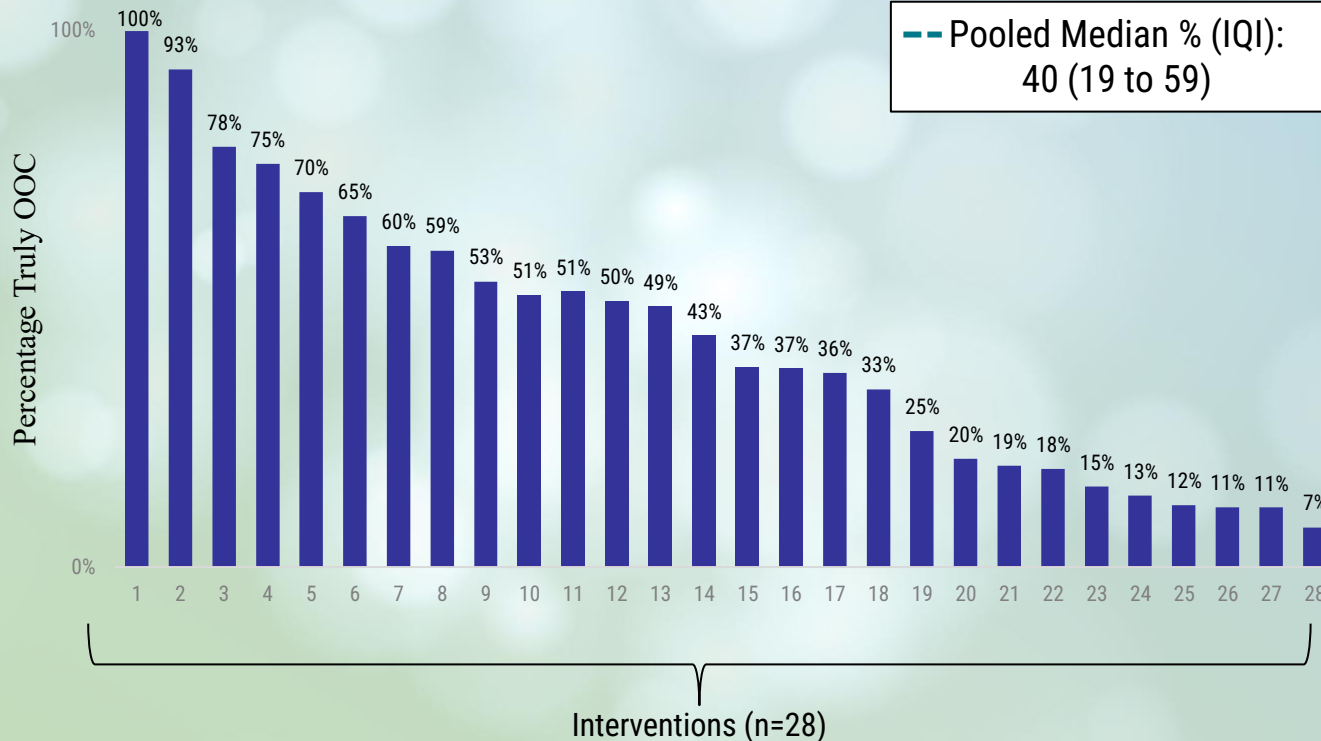


- n=2 reported “Other” data type
- n=8 transmission risk was NR

MSM: men who have sex with men; PWID: people who inject drugs

HIV CARE STATUS: WHO IS TRULY OOC?

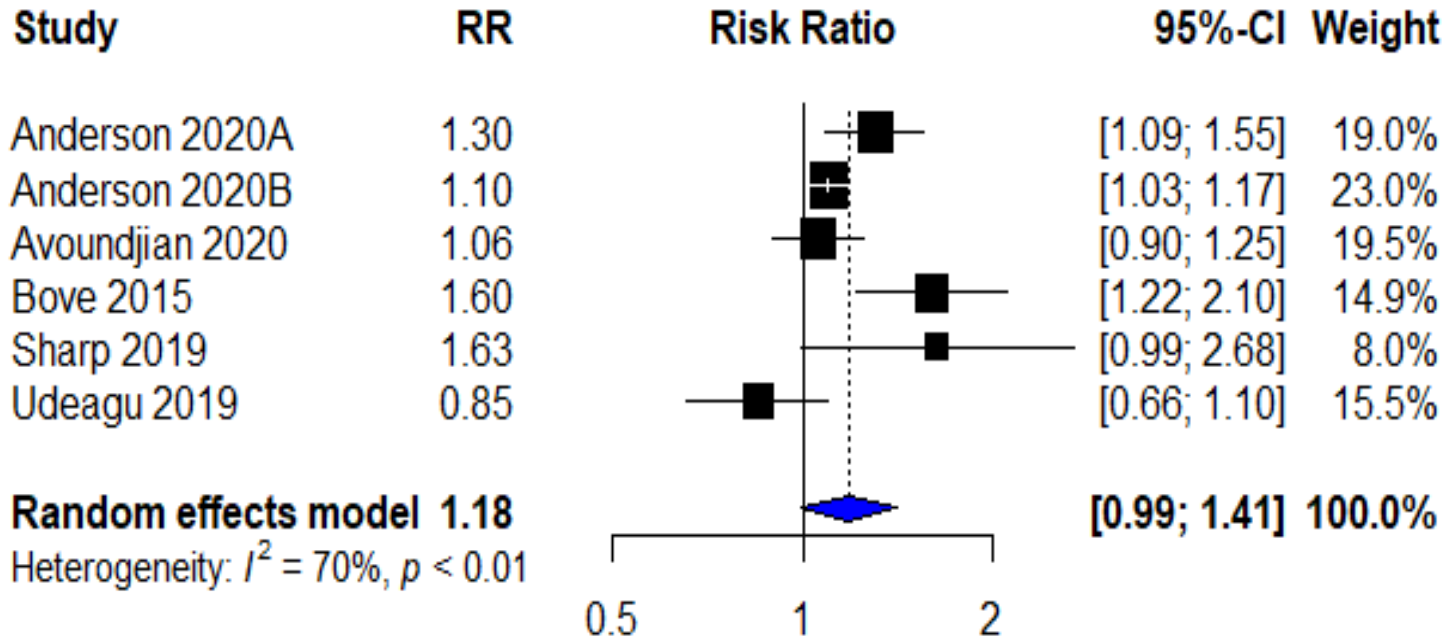
#CONTINUUM2024



Intervention numbers (i.e., x-axis) are for visual purposes only, and hold no quantitative value.

HOW EFFECTIVE IS D2C IN IMPROVING ENGAGEMENT TO CARE?

#CONTINUUM2024



ADDITIONAL EVIDENCE FOR IMPROVING ENGAGEMENT TO CARE

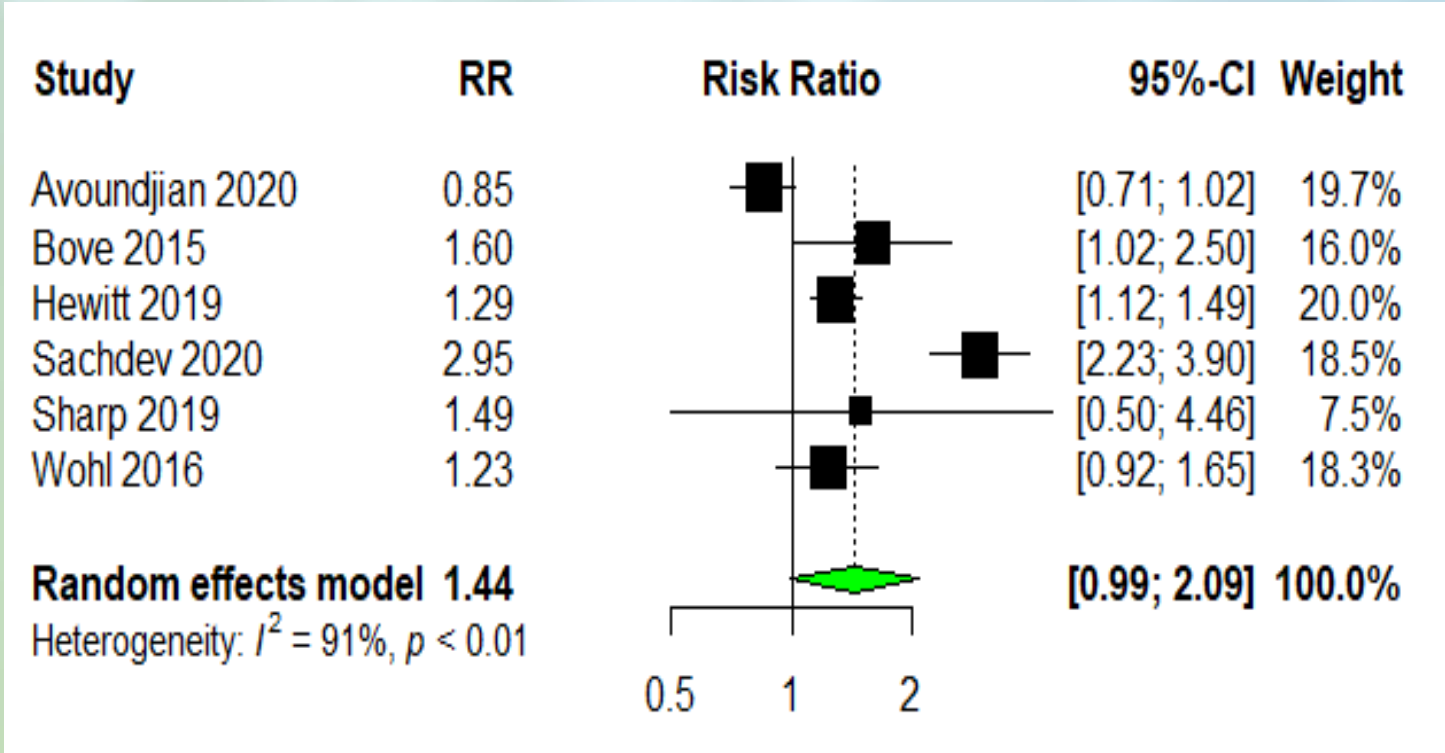
#CONTINUUM2024



Interventions	Study Design	Intervention vs. Comparison	Results
1	RCT	Intervention vs. Control	OR (95% CI): 2 (1 to 3)
2	nRCT	Intervention vs. Control	19% vs. 23%*
3	nRCT	Intervention vs. City	84% vs. 34%
4	Cohort	Intervention vs. State	78% vs. 74%
5	Cohort	Intervention vs. In-Care Control	OR (95% CI): 2 (1 to 3)**
6 & 7	Cohort	Intervention 1 vs. Intervention 2	63% vs. 78%***
8-26	Post-Only	N/A	Pooled Median % (IQR): 63 (45 to 81)

*outcomes measure: missed visits; **Due to comparison condition, closer to 1 is ideal; ***Compared two D2C models

HOW EFFECTIVE IS D2C IN IMPROVING VIRAL SUPPRESSION?



ADDITIONAL EVIDENCE FOR IMPROVING VIRAL SUPPRESSION

#CONTINUUM2024



Interventions	Study Design	Measurement	Results
1-14	Post-Only	<200 copies/mL	Pooled Median % (IQI): 39% (25 to 57%)

RETENTION IN CARE, N=7

#CONTINUUM2024



Interventions	Measurement	Timeframe	Median % (IQI)
1	≥2 CD4/VL test	≥60 days apart	12%
2	≥2 CD4/VL test	≥90 days apart	28%
3	≥2 CD4/VL test	≥90 days apart	48%
4	≥2 CD4/VL test	<365 days	48%
5	≥2 labs (VL or CD4 cell count)	≥90 days apart	54%
6	2 visits/year; lab as marker	>90 days apart	55%
7	≥2 labs (VL or CD4 cell count)	>90 days apart	82%
			48% (38-55%)

IQI: Interquartile Interval; Intervention column are for visual purposes only, and holds no quantitative value.

TIME TO HIV CARE, N=4

#CONTINUUM2024



Interventions	Measurement	Median Days (IQR)
1	Time from initial contact with relinkage staff to: 1 st labs (CD4 or VL test)	97 (NR)
2	Time from initial contact to: 1 st medical visit	78 (74)
3	Time to re-engaged I care	53 (73)
4	Time from case assignment to: 1 st clinic appoint	25 (46)

IQR: Interquartile Range; Intervention column is for visual purposes only, and holds no quantitative value.



CONCLUSIONS, LIMITATIONS, & IMPLEMENTATION CONSIDERATIONS

CONCLUSIONS

#CONTINUUM2024



- **D2C activities may help PWH who are OOC to engage in HIV care.**
 - Although evidence is limited (4 interventions), after contact with relinkage staff, D2C may be helpful with linking PWH to care within 100 days.
- **D2C activities may help retain PWH who are OOC in HIV care (7 interventions).**
- **D2C activities may help people to become virally suppressed.**

LIMITATIONS

#CONTINUUM2024



Varying definitions of engagement in care

- Relinked to care
- Attending an appointment
 - Attending an appointment and/or collection of labs

Varying focus of D2C studies

- Primary focus of paper could have been surveillance with little information about engagement activities or vice versa

Limited reporting of data

- Demographics
- Retention in care and time to care outcomes
- Lack of D2C details (e.g., data source strategies or engagement activities and intensities)

IMPLEMENTATION CONSIDERATIONS

#CONTINUUM2024



- **Difficulty identifying truly OOC populations**
 - Multiple rounds of data cleaning
 - Relinkage staff may need to clean data as well

- **D2C is resource intensive**
 - Accurate OOC list
 - Correct contact information
 - Availability of engagement staff

ACKNOWLEDGEMENTS

#CONTINUUM2024



■ D2C Systematic Review Team

- Kristin Tansil Roberts
- Theresa Sipe
- Darrel Higa
- Mary Mullins
- Megan Mallett
- Megan Wichser
- Christa Denard
- Jayleen Gunn, Division of Global HIV and TB
- Briana Nguyen
- Former interns

■ CDC Division of HIV Prevention (DHP)

- Linda Koenig
- Adrian Szakallas
- DHP D2C Work Group

Thank You!



Kristin Roberts
iwh9@cdc.gov