

# STRENGTHENING THE IMPACT OF COMMUNITY HEALTH WORKERS ON HIV CARE AND VIRAL SUPPRESSION IN THE U.S. CONFERENCE

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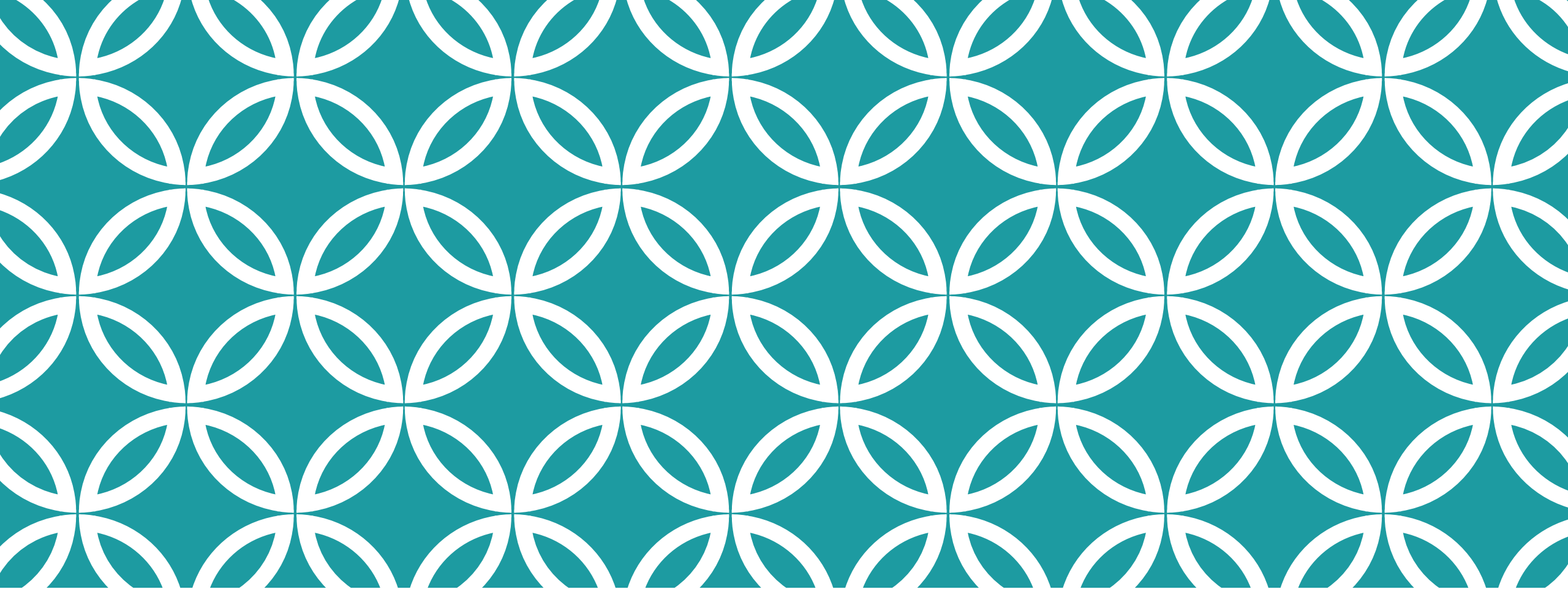
Practice-driven Research to Evaluate and  
Optimize an HIV Care Coordination  
Intervention

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*presenting for the CHORDS & PROMISE study  
teams*





# **BACKGROUND: THE NYC HIV CARE COORDINATION PROGRAM**

# NYC HIV Care Coordination Program (CCP)

Launched in 2009 with Ryan White Part A funding at 28 agencies

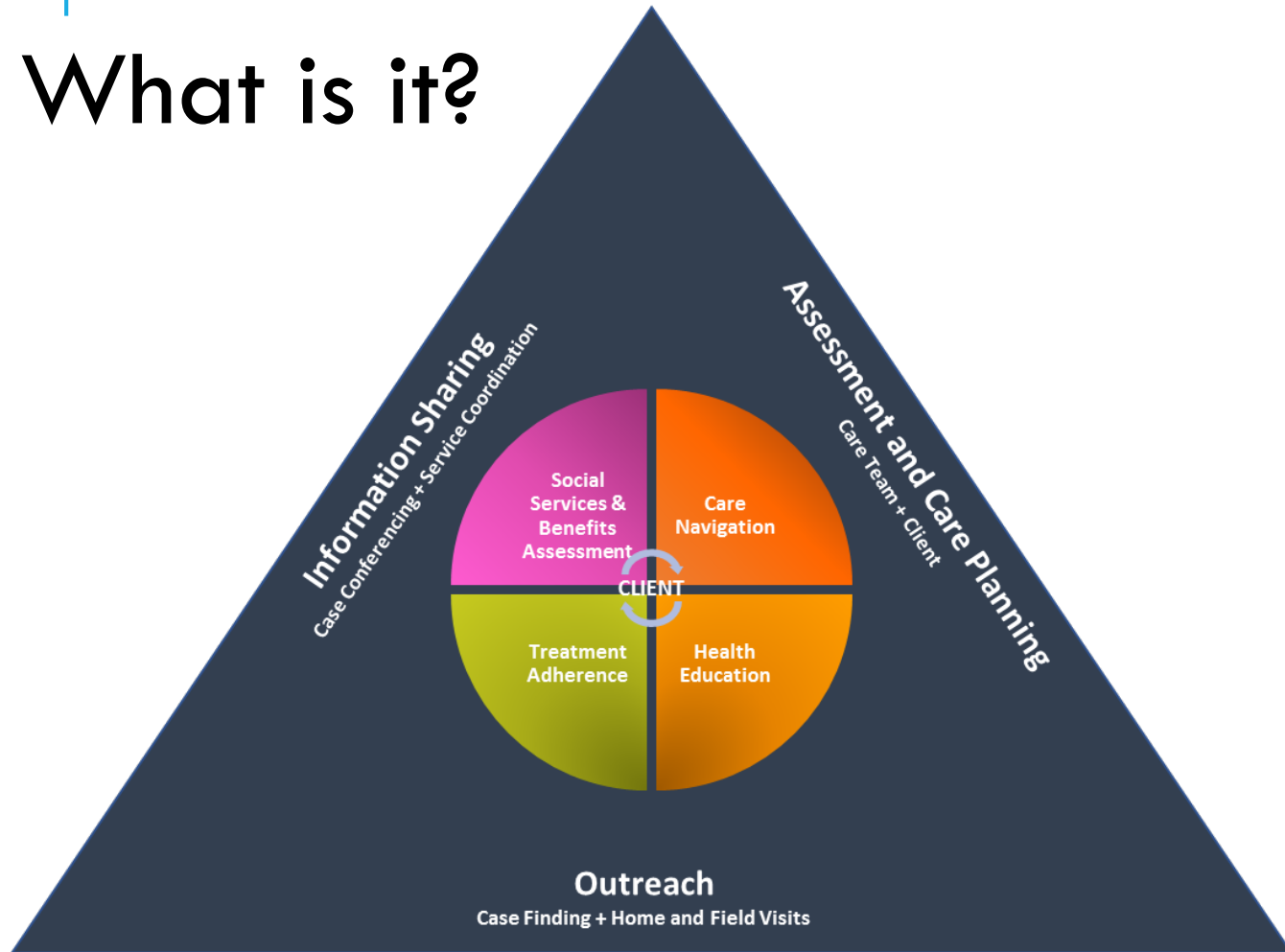
Based in HIV clinics and in community-based organizations that have formal partnerships with HIV primary care providers

Provides *comprehensive medical case management* to PLWH who are:

- newly diagnosed
- lost to care or sporadically in care
- new to care
- new to treatment
- struggling with ART adherence

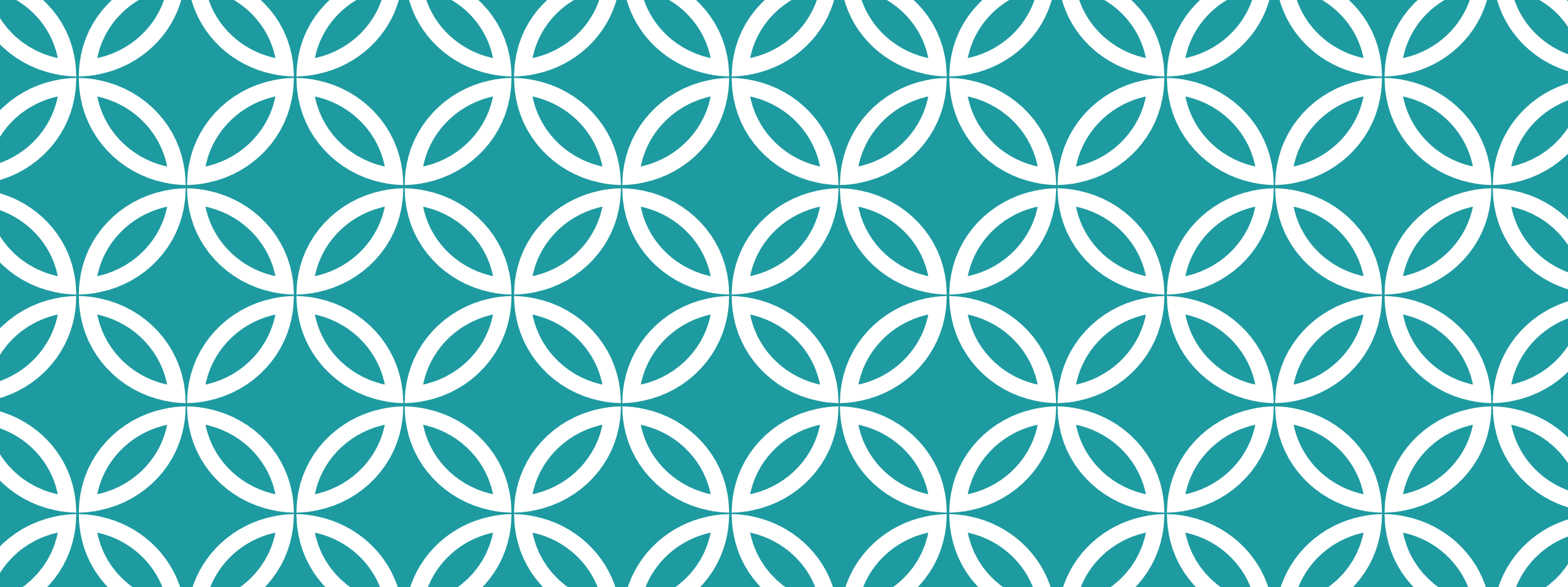
# THE CCP MODEL

What is it?



Who is it?





# THE CHORDS STUDY (2013-19)

**Costs, Health Outcomes and Real-world Determinants of Success in HIV Care Coordination (R01 MH101028, Principal Investigators: M. Irvine<sup>1</sup>, D. Nash<sup>2</sup>)**

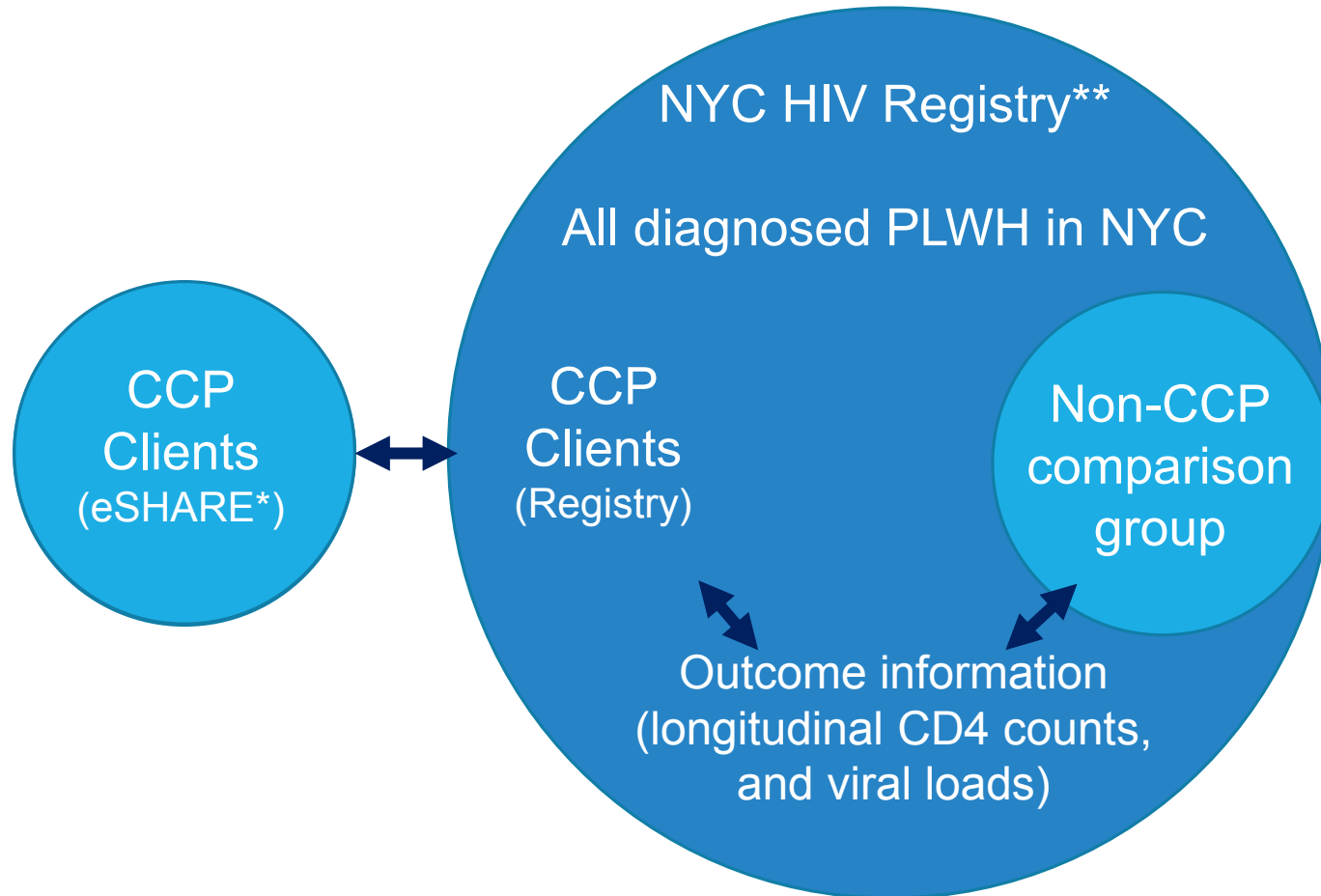
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# METHODS — DATA SOURCES

1. Provider reporting in eSHARE (local HIV services database)
  - Contains information on all CCP enrollees
  - CCP providers contractually required to submit programmatic data
  
2. NYC HIV surveillance registry
  - Contains information on all HIV diagnoses in NYC
  - Including comprehensive laboratory information (CD4 and VL data) for individuals who receive HIV medical care

# METHODS – DESIGN



\*Electronic System for HIV/AIDS Reporting and Evaluation (eSHARE) contains program reporting.

\*\*The NYC HIV Registry contains information on new HIV diagnoses, diagnosis date, demographics, risk factors, history of AIDS, longitudinal viral load and CD4 count results, and vital status.

# 'USUAL-CARE' COMPARISON GROUP

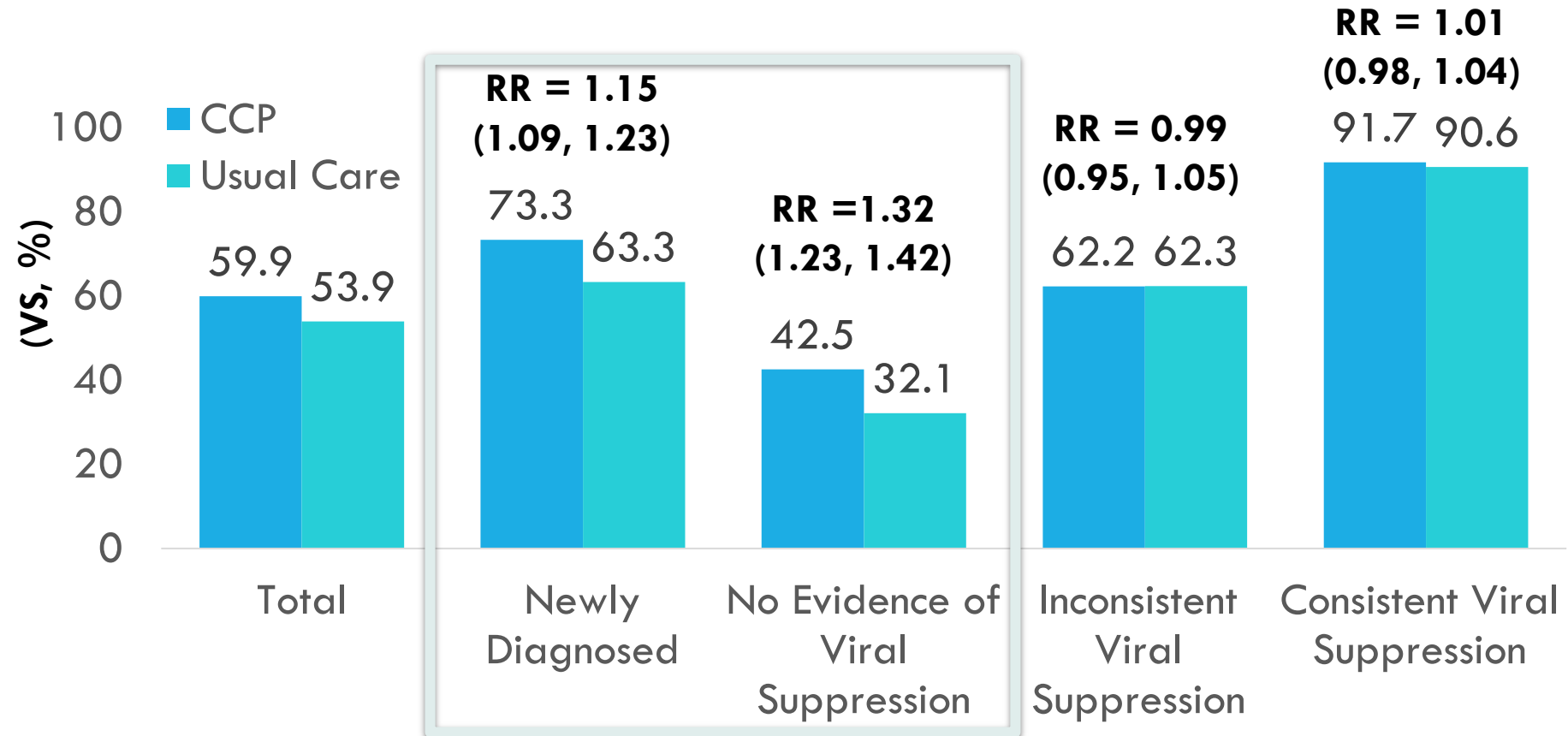
- A. Randomly assigned a pseudo-enrollment date to people who appeared eligible but not enrolled in CCP
  
- B. Matched CCP enrollees to those in the usual-care group on
  - 1. Propensity for CCP enrollment
  - 2. Pseudo-enrollment/enrollment dates and
  - 3. Treatment status at enrollment

## Variables in Propensity Score

Demographic variables	Sex, race/ethnicity, age, country of birth, HIV transmission risk
Clinical variables	Year of diagnosis, baseline VL, baseline CD4, linkage to care, concurrent AIDS and HIV diagnoses, number of VLs in 12 months prior to enrollment
Neighborhood variables	ZIP code at enrollment, HIV prevalence and poverty levels within ZIP code at enrollment

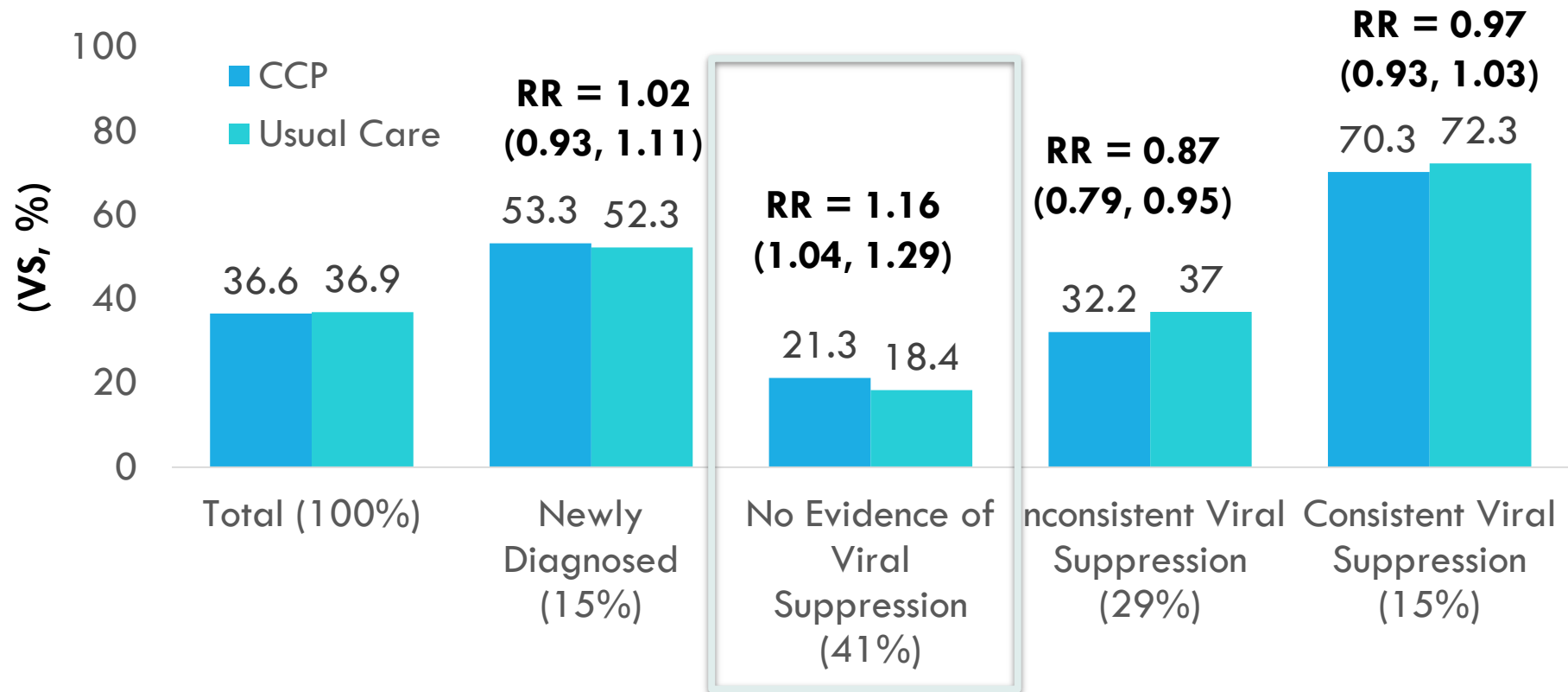


## RESULTS: VIRAL SUPPRESSION (VS, %) AT 12 MONTHS AFTER ENROLLMENT — CCP VERSUS USUAL CARE, BY BASELINE TREATMENT STATUS



Viral Suppression: latest-dated VL within 12 months after enrollment/pseudo-enrollment  $\leq 200$  copies/ $\mu$ L

# RESULTS: DURABLE VIRAL SUPPRESSION (DVS, %) AT 13-36 MONTHS AFTER ENROLLMENT – CCP VERSUS USUAL CARE, BY BASELINE TREATMENT STATUS



Durable Viral Suppression:  $\geq 1$  VL in each 12-month period of follow-up and All VLs  $\leq 200$  copies/ $\mu$ L from 13-36 months

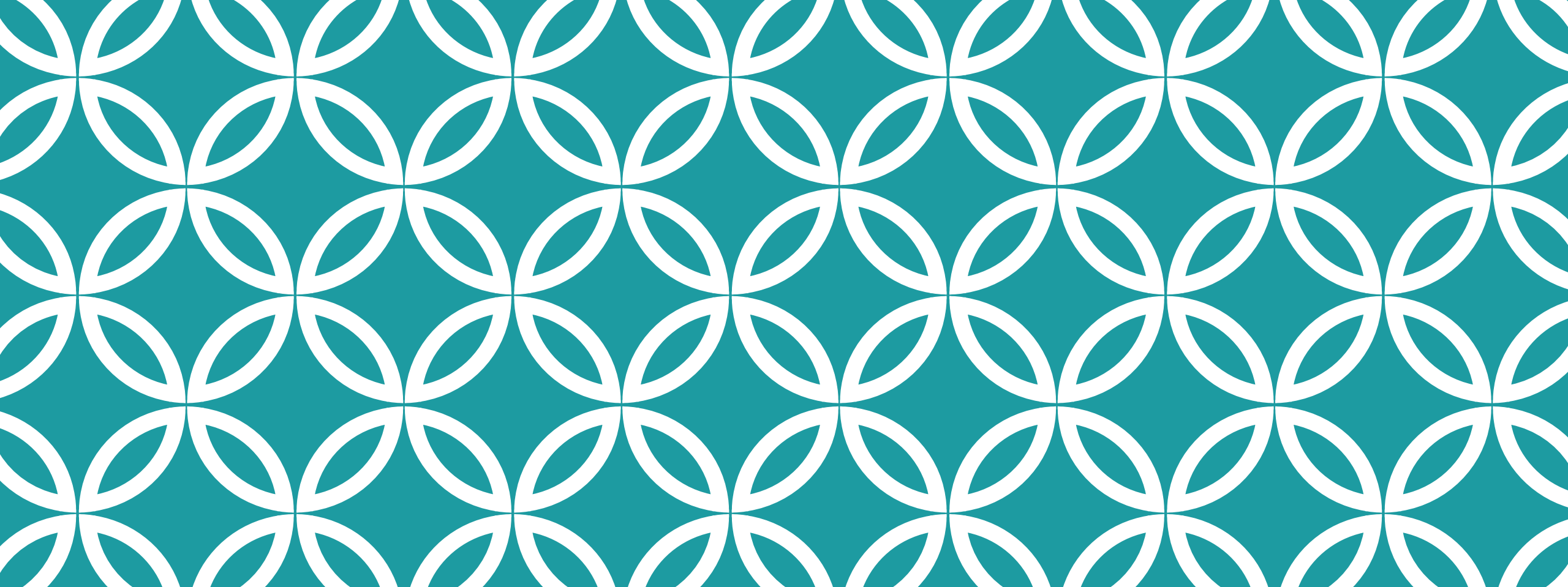
# CHORDS CONCLUSIONS

**The CCP has shown short- and long-term benefits (in terms of VS) among previously unsuppressed PLWH, as well as short-term benefits among newly diagnosed individuals.**

**However, there remains room for improvement.**

- CCP providers have identified program features that curb engagement
- Over one-third of clients drop out of the program in the first year
- The proportion with DVS was very low (37%), despite 90% of the cohort (CCP and non-CCP) achieving VS at least once in months 13-36
- Among clients *without* evidence of VS in the year prior to enrollment, only 43% achieve VS at 12-month follow-up, and only 21% achieve DVS
- Findings suggest a substantial need for sustained, and perhaps more intensive, adherence support in this population

**The potential for short- and long-term impact, and desirability of further scale-up, could be increased through some strategic changes to the CCP...**



# PROMISE (2018-23)

**Program Refinements to Optimize Model Impact and Scalability based on Evidence** (R01 MH117793, Principal Investigators: M. Irvine, D. Nash)

# PROMISE BACKGROUND

Context: In response to implementation barriers and the evolving literature, program revisions were integrated into a late-2017 Health Department request for proposals (RFP) initiating a competitive selection process for future Care Coordination contracts.

Objective: *To study the impact and implementation of course corrections to an already evidence-informed intervention.*

Premise: Revisions will minimize logistical and administrative barriers to service delivery and increase program engagement (among staff and clients), reach, fidelity and effectiveness.

# CHANGES: ORIGINAL VS. REVISED MODEL

Added flexibility & tools to match services to current client needs

	Added Components			Changed		Removed
	Self-management assessment	Use of video chat tools (optional)	iART (optional)	Eligibility criteria	Payment structure	Rigid program tracks
Uptake (provider)						X
Fidelity (provider )		X			X	X
Engagement (client)	X	X				X
Effectiveness	X	X	X		X	X
Reach/impact	X	X	X	X	X	X

# PROMISE AIMS

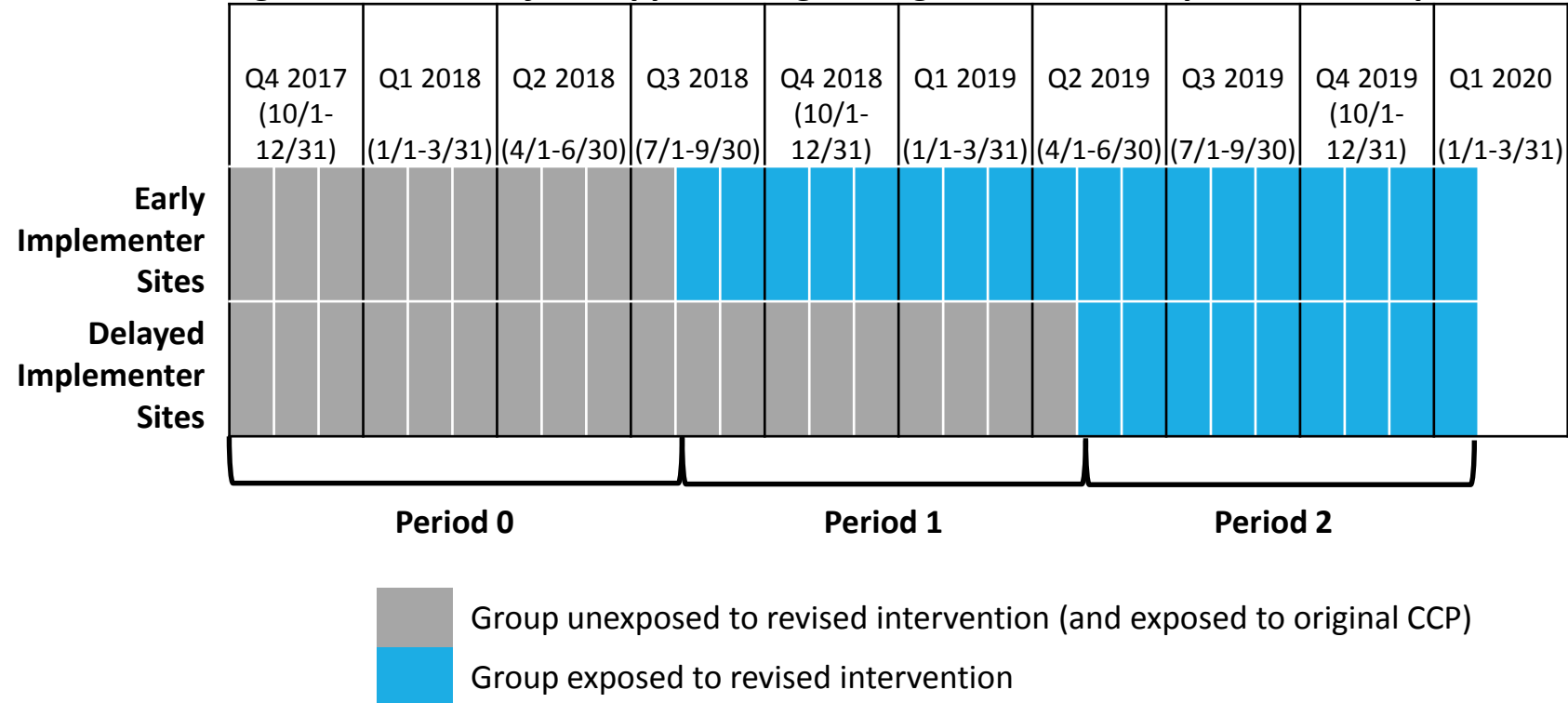
## Aim 1: Stepped-wedge Design to Compare Original vs. Revised Model Effects on Timely VS

- Focuses on 17 re-awarded (“experienced”) CCP sites
- Agencies matched based on type, borough & program size
  - Due to odd #, two smaller programs matched to one larger one
  - Matching was finalized with programmatic leads at BHIV
- Random number generator used to assign each site in matched pair to Phase 1 or Phase 2 (starting 9 mos. apart)
  - Phase 2 sites provide original model until their assigned start date

# METHODS

## Aim 1: Paired Stepped-wedge Design

**Figure 1: Timeline for stepped-wedge design with three implementation periods**



The 9-month gap in contract starts allows side-by-side assessment of the short-term VS effect of the revised model vs. the original



# PROMISE AIMS (CONTINUED)

## Aim 2: Assess Longer-term Effects on VS

- Apply CHORDS comparison-group methods









## Aim 3: Study Implementation Experiences

- Mixed-methods study of factors shaping implementation & preferences for model features, *via agency partnerships*
  - Discrete choice experiments (DCEs) elicit preferences for practice (N=150 staff) and receipt (N=200 clients)
    - Held 3 focus groups in March to help develop DCE tools
  - Qualitative interviews with ~25 providers and ~30 clients will cover first-hand implementation experiences

# PROMISE DCE EXAMPLE QUESTION

Imagine that you had to choose between two programs with the features below.  
Select the one you would prefer.

(5 of 10)

	Option A	Option B
<b>Help with Taking Medication</b>	 You receive reminders by phone or text to take your medication	 You don't receive medication reminders, but a staff member works with you on sticking to a medication schedule
<b>Help with Primary Care Appointments</b>	 A staff member only reminds you about primary care appointments	 A staff member reminds you and arranges transportation for you to get to your primary care appointments
<b>Help with Issues other than Primary Care</b>	 Staff help with medical care from specialists (cardiologists, oncologists, neurologists, ear-nose-throat doctors, etc.)	 Staff help with securing housing and food assistance
<b>Where Program Visits Happen</b>	 A staff member meets you in person at your home	 A staff member meets you by phone or video chat
	Select	Select

# PROMISE: EARLY LESSONS

Experimental design can be implemented in the context of real-world service delivery and even in the context of a large government agency administering multiple contracts.

‘Phasing in’ an intervention with random assignment to early or delayed implementation offers a means of rigorously evaluating a set of changes to a major public-services program, while ensuring fair, uninterrupted access to its benefits in the eligible population.

## Challenges:

- This is not “business as usual” for a health department.
- Acceptability of randomization (even at the agency level) is low.

# CONCLUSIONS

Health department-university partnerships that include joint planning of research in advance of key policy or practice initiatives can produce answers to locally important public health research questions

- without substantially slowing the pace of desired change
- with methods that support knowledge generation and generalizability

Inclusion of direct service providers in these partnerships is critical

- to understanding how program initiatives are implemented
- to planning study design and data collection
- to ensuring that findings will be relevant to future intervention delivery

Evidence-based programs may continue to evolve

- and studying that evolution and its effects can inform adoption and scale-up

# CARE COORDINATION RESOURCES

HIV Care Coordination Program Tools (Accessed September 18 2019, at <https://www1.nyc.gov/site/doh/health/health-topics/aids-hiv-care-coord-tools.page>)

STEPS to Care online toolkit (Accessed September 18 2019, at <https://effectiveinterventions.cdc.gov/en/care-medication-adherence/group-4/steps-to-care>)

HIV Care Coordination Program: Evidence-Informed for Retention in HIV Care. 2015. (Accessed Nov 22 2015, at [http://www.cdc.gov/hiv/pdf/prevention/research/compendium/cdc-hiv-HIVCCP\\_EI\\_Retention.pdf](http://www.cdc.gov/hiv/pdf/prevention/research/compendium/cdc-hiv-HIVCCP_EI_Retention.pdf))

Irvine MK, Chamberlin SA, Robbins RS, et al. Improvements in HIV care engagement and viral load suppression following enrollment in a comprehensive HIV care coordination program. *Clinical Infectious Diseases* 2015;60:298-310.

Irvine MK, Chamberlin SA, Robbins RS, Kulkarni SG, Robertson MM, Nash D. Come as you are: Improving care engagement and viral load suppression among HIV care coordination clients with lower mental health functioning, unstable housing, and hard drug use. *AIDS and behavior* 2017;21:1572-9.

Robertson MM, Waldron L, Robbins RS, et al. Using Registry Data to Construct a Comparison Group for Programmatic Effectiveness Evaluation: the New York City HIV Care Coordination Program. *American Journal of Epidemiology* 2018;187:1980–9.

Nash D, Robertson MM, Penrose K, et al. Short-term effectiveness of HIV care coordination among persons with recent HIV diagnosis or history of poor HIV outcomes. *PLoS One* 2018;13:e0204017.

Robertson MM, Penrose K, Irvine MK, et al. Impact of an HIV Care Coordination Program on Durable Viral Suppression. *JAIDS Journal of Acquired Immune Deficiency Syndromes* 2019;80:46–55.

# ACKNOWLEDGMENTS

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