

Background

- Optimal retention in care (RIC) improves HIV clinical outcomes and reduces transmission^{1,2}
- Clinical decision support systems may help retain people with HIV (PWH)³
- CHORUS™ is a web portal and mobile app translating health record data into actionable alerts for clinicians

Objective

To evaluate the effectiveness of the CHORUS™ Retention in Care Module at the AIDS Healthcare Foundation (AHF) in the US

Methods

Intervention

- Automated alerts (Fig. 1) generated daily in CHORUS for PWH at-risk of falling out of care
 - Flags: Consecutive period in which a PWH met criteria for ≥ 1 alert
- Prompts to re-engage PWH at-risk of falling out of care and schedule an appointment

Trial Design

- Parallel, cluster randomized controlled trial of 20 randomly selected AHF healthcare centers (HCCs)
 - 10 control HCCs: existing retention efforts (monthly list of PWH out of care for ≥ 104 days)
 - 10 intervention HCCs: existing retention efforts + daily alerts in CHORUS
- Alerts recorded from October 2020 to May 2021, follow-up through July 2021

Statistical Analyses

- Outcomes
 - Re-engagement: Completed visit any time or ≤ 2 months after flag
 - Virologic suppression: Viral load < 50 copies/mL
- Association between intervention and visits after a flag: logistic regression with generalized estimating equations (GEE, independent correlation structure)
 - Adjusted for HCC characteristics: census region, # PWH, % Hispanic/Latino PWH and % of PWH with ADAP/Ryan White as payer

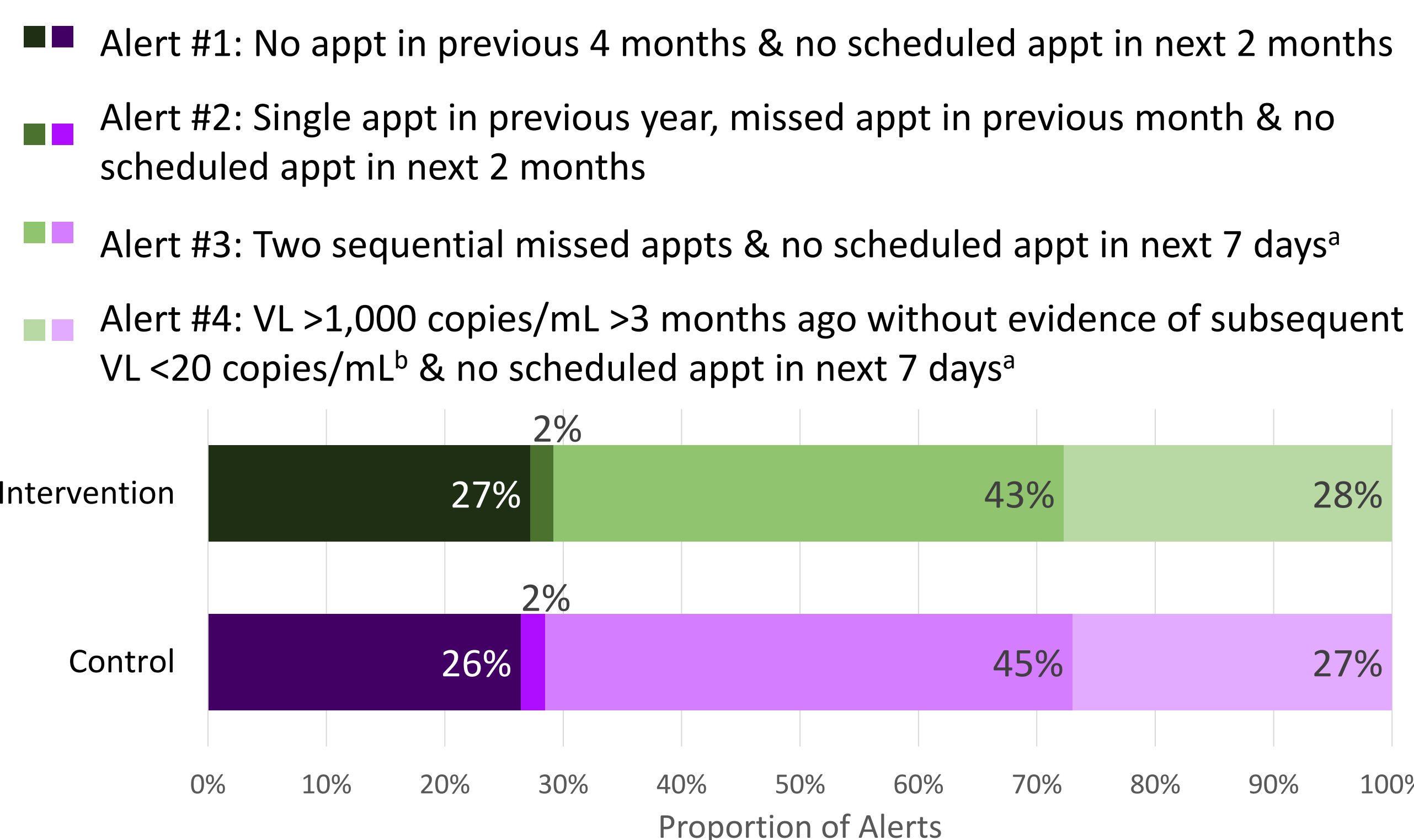
Results

Table 1. Characteristics of Participating Healthcare Centers (HCC)

	Intervention	Control
Total HCC per arm, N	10	10
# HCCs in Southern US, n	7	5
Total PWH per arm, N	8836	7039
# PWH per HCC, median (IQR)	1081 (621, 1812)	1018 (559, 1649)
% PWH with Hispanic/Latino ethnicity per HCC, median (IQR)	18 (7, 34)	20 (9, 23)
% PWH with ADAP/Ryan White as a payer per HCC, median (IQR)	36 (23, 68)	28 (19, 42)

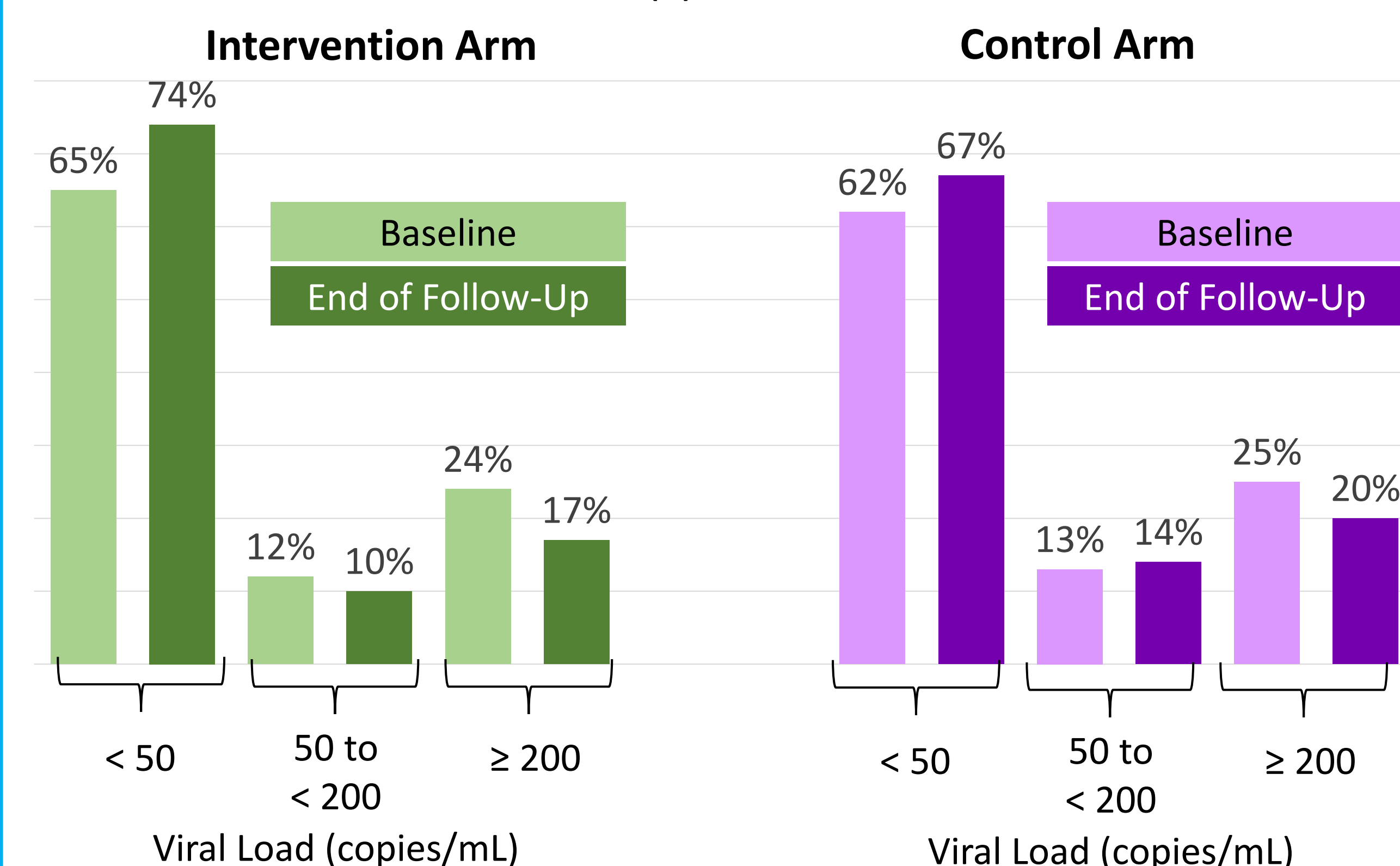
ADAP, AIDS Drug Assistance Program; IQR, interquartile range; PWH, people with HIV

Figure 1. Alert Types and Distribution Over Follow-Up



^a As of April 2021, the window for a subsequent appointment was changed to 14 days due to the impracticality of scheduling patients within 7 days
^b As of April 2021, the threshold for undetectability was changed to <50 copies/mL to better reflect standard of care

Figure 2. HIV Viral Load at Baseline and End of Follow-up Among PWH Who Received ≥ 1 Alert(s)



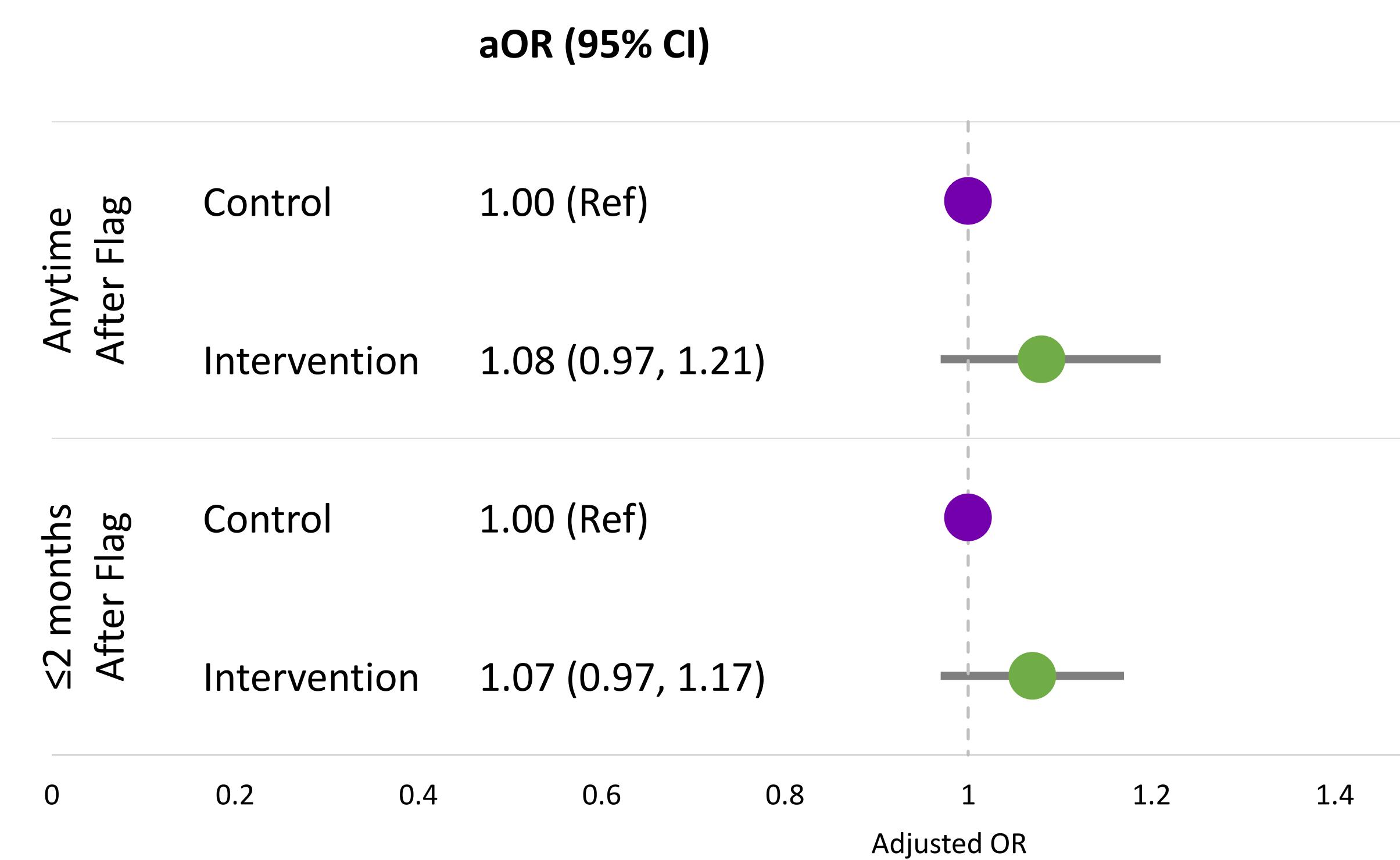
Key Findings

- Despite many challenges (e.g., COVID-19), daily RIC alerts in CHORUS™ improved clinical and retention outcomes at intervention vs. control HCCs
 - PWH at-risk of falling out of care appeared more likely to return for care (Fig. 3)
 - Greater increase in the proportion of PWH with viral load < 50 c/mL from baseline to study end (Fig. 2)
- Sustained use of the CHORUS™ RIC Module has potential to streamline retention efforts, retain more PWH in care, and ultimately decrease transmission of HIV

Table 2. Completed Visits After a Flag

	Intervention	Control
Total number of flags	7,355	5,649
Number of flags with a visit at anytime after a flag (%)	5,580 (76)	4,249 (75)
Days between flag and visit, median (IQR)	32 (15, 60)	30 (12, 59)
Number of flags with a visit ≤ 2 months after a flag (%)	4,200 (75)	3,246 (76)

Figure 3. Adjusted Odds Ratio (aOR) for the association Between the Intervention and Visits After Flags^a



CI, confidence interval; n, number; OR, odds ratio
^a Logistic regression fit with GEE (independent correlation structure)
^b Adjusted for HCC characteristics (census region, # PWH at the HCC, % Hispanic/Latino PWH at the HCC, % PWH with ADAP/Ryan White as payer)

References

- Tripathi A, Youmans E, Gibson JJ, Duffus WA. The impact of retention in early hiv medical care on viro-immunological parameters and survival: A statewide study. *AIDS Res Hum Retroviruses* 2011;27(7): 751-758.
- Skarbinski J, Rosenberg E, Paz-Bailey G, Hall HI, Rose CE, Viall AH, Fagan JL, Lansky A, Mermin JH. Human immunodeficiency virus transmission at each step of the care continuum in the united states. *JAMA Intern Med* 2015;175(4): 588-596
- Robbins GK, Lester W, Johnson KL, Chang Y, Estey G, Surrao D, et al. Efficacy of a clinical decision-support system in an HIV practice: a randomized trial. *Ann Intern Med*. 2012;157(11):757-66

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