

Linkage to care and initiating ART after diagnosis with acute or established HIV infection in 8 US emergency departments

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Background

- HIV testing algorithms based on 4th generation assays are optimized to detect acute HIV infection (AHI) in addition to established HIV infection (EHI)
- Linkage rates following new diagnosis in ED have been variable
 - Baltimore: rapid testing in 2005-09, 108 new dx, 54% linked in 30 d (Rothman, Acad Emerg Med 2012 19(5):497-503)
 - San Francisco: rapid testing in 2008-09, 31 new dx, >95% linked in median 3.5 d (Christopoulos, JAIDS 2013 62(2):e30-8)
 - Birmingham: rapid testing in 2011-13, 252 new dx, 76% linkage in unspecified time (Galbraith Public Health Reports 2016 131(Suppl 1):96-106)
 - Baltimore: mix of rapid (62%) and routine (38%) testing, 29 new diagnoses, 93% linked in unspecified time (Signer, Public Health Rep 2016 131(Suppl 1):82-9)
 - Chicago: 4th gen assay 2012-14, 129 newly diagnosed, half in ED, 77% linked in 90 d (Rucker Public Health Rep 2016 131(Suppl 1):121-9)
 - Systematic review: overall linkage rate of 74%, but is a mix of acute and chronic, rapid and standard, and targeted and routine testing strategies (Menon, Acad Emerg Med 2016 23(7):835-42)
- Rates of linkage to care and initiation of ART for broad sample of persons diagnosed with AHI and EHI after ED screening with routine 4th generation tests are unknown

Objectives

- To determine continuum of care outcomes after diagnosis of HIV infection in the ED
- To compare continuum of care outcomes among persons diagnosed with acute HIV infection (AHI) and established HIV infection (EHI)

Methods

- Retrospective data from 8 EDs from 6 health systems in 5 US cities that initiated routine HIV screening with a 4th generation antigen-antibody immunoassay between November 2012 and July 2015
 - Chicago, IL (2 EDs in 2 systems); Houston, TX (2 EDs in 1 system); New Orleans, LA; Oakland, CA; Philadelphia, PA (2 EDs in 1 system)
- Supplemental testing was performed using an HIV-1&2 antibody differentiation assay when the screening test was positive
- HIV RNA nucleic acid amplification tests (NAAT) were performed when the screen was positive but the differentiation assay was negative
- Established HIV infection (EHI) was defined as positive immunoassay and a positive differentiation test
- Acute HIV infection (AHI) was defined as a positive immunoassay, negative differentiation test, and positive NAAT
- Data abstracted from paper and electronic records onto a standardized data abstraction form

Primary Outcomes and Analysis

- Dates to linkage to care, initiation of ART, and first HIV RNA VL<200 c/mL were recorded from medical records
- Linkage to care: completed visit with a provider outside the ED who can prescribe ART
- Initiation of ART: date of prescription of ART
- Viral load suppression: VL<200 c/mL
- Calculated differences in demographic characteristics and outcomes with Chi-squared testing

Results

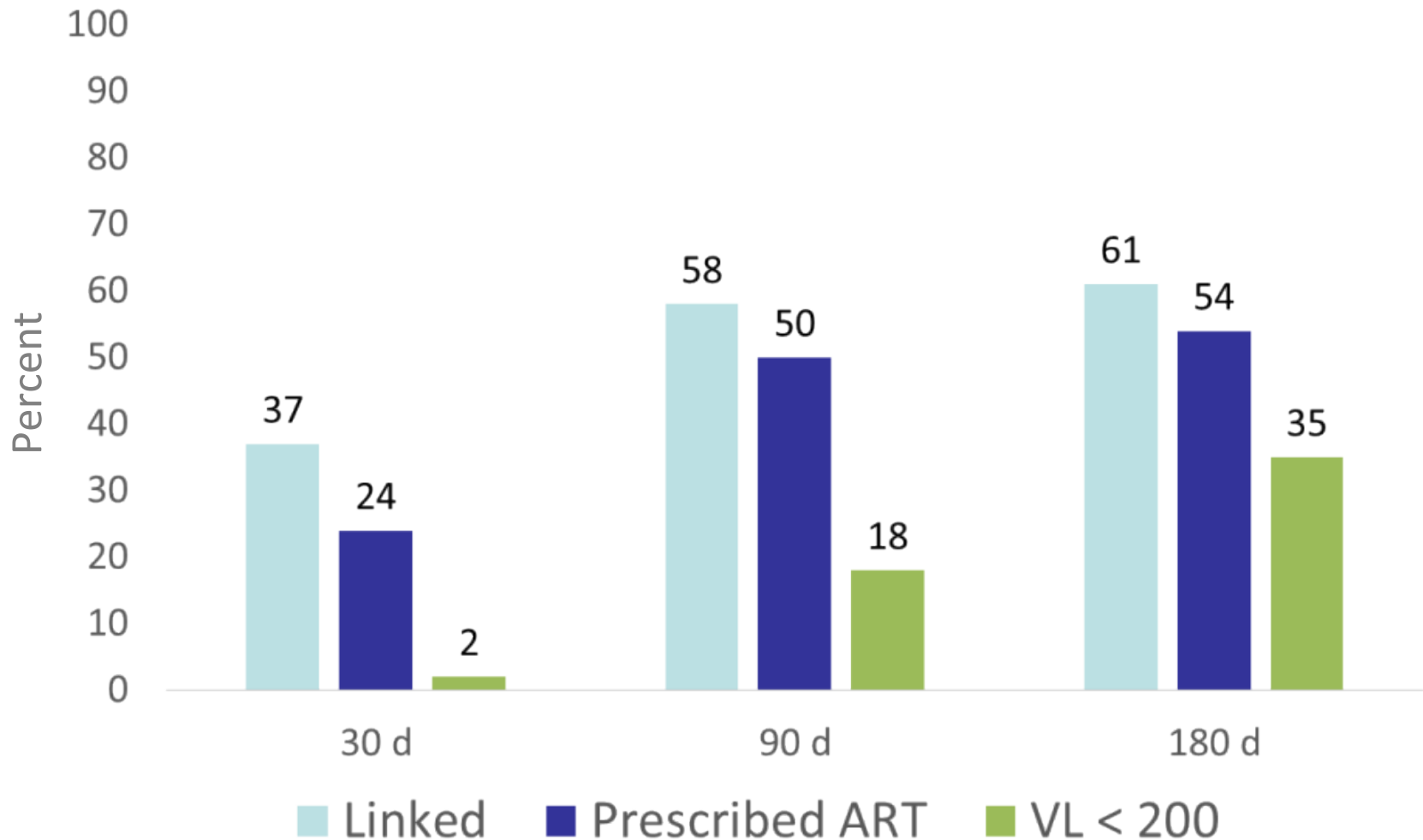
- 159,102 tests performed
- 605 persons newly diagnosed with HIV (0.38%)
 - 507 had EHI
 - 98 (16.2% of new diagnoses; 95% CI 13.3%, 19.1%) had AHI

Characteristic	AHI n=98, %	EHI n=507, %	Total n=605, %
Sex			
Male	71.4	64.3	65.5
Female	28.6	35.7	34.5
Race/Ethnicity			
Hispanic	17.3	16.8	16.9
Black	63.3	64.5	64.3
White	14.3	12.4	12.7
Other	5.1	4.3	4.5
Age Category, years*			
15-24	29.6	14.6	17.0
25-34	33.7	32.5	32.7
35-44	17.3	23.5	22.5
45-54	14.3	18.9	18.2
55-64	4.1	8.1	7.4
65+	1.0	1.4	1.3
Not Reported	0.0	1.0	0.8

*p <.020

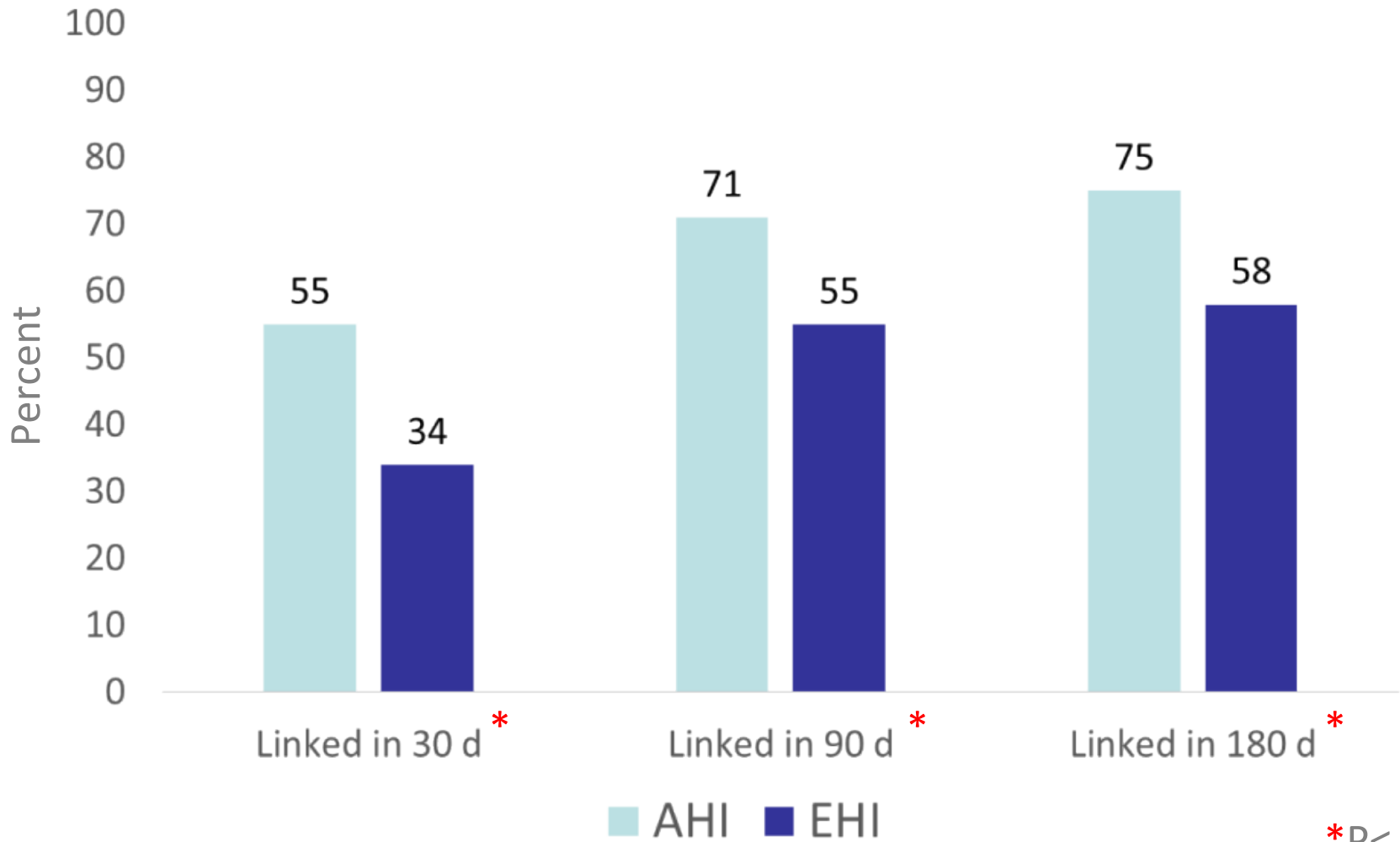
Continuum of Care Outcomes

Continuum of Care Outcomes



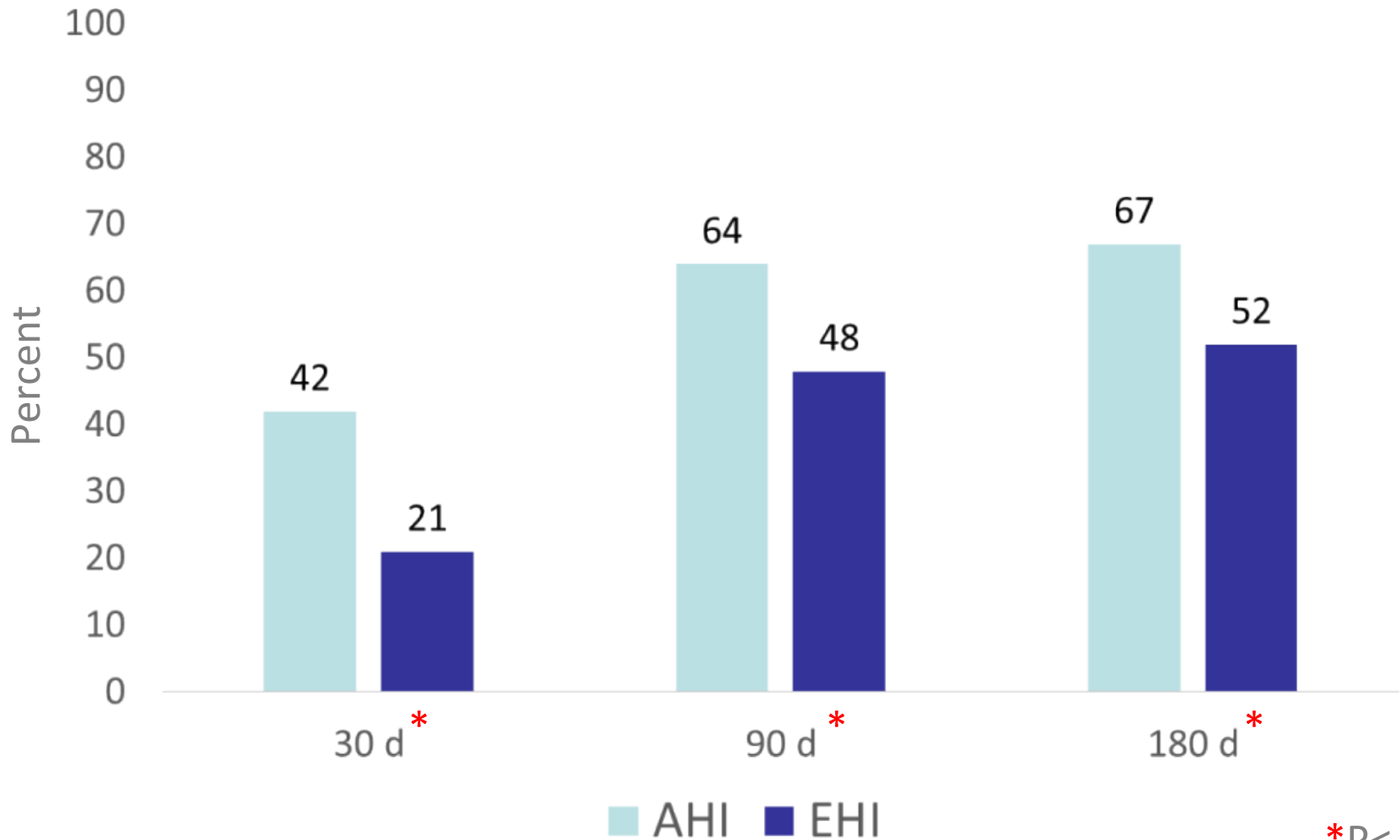
AHI vs. EHI: Linkage to Care

AHI vs. EHI: Linkage to Care



AHI vs. EHI: Prescribed ART

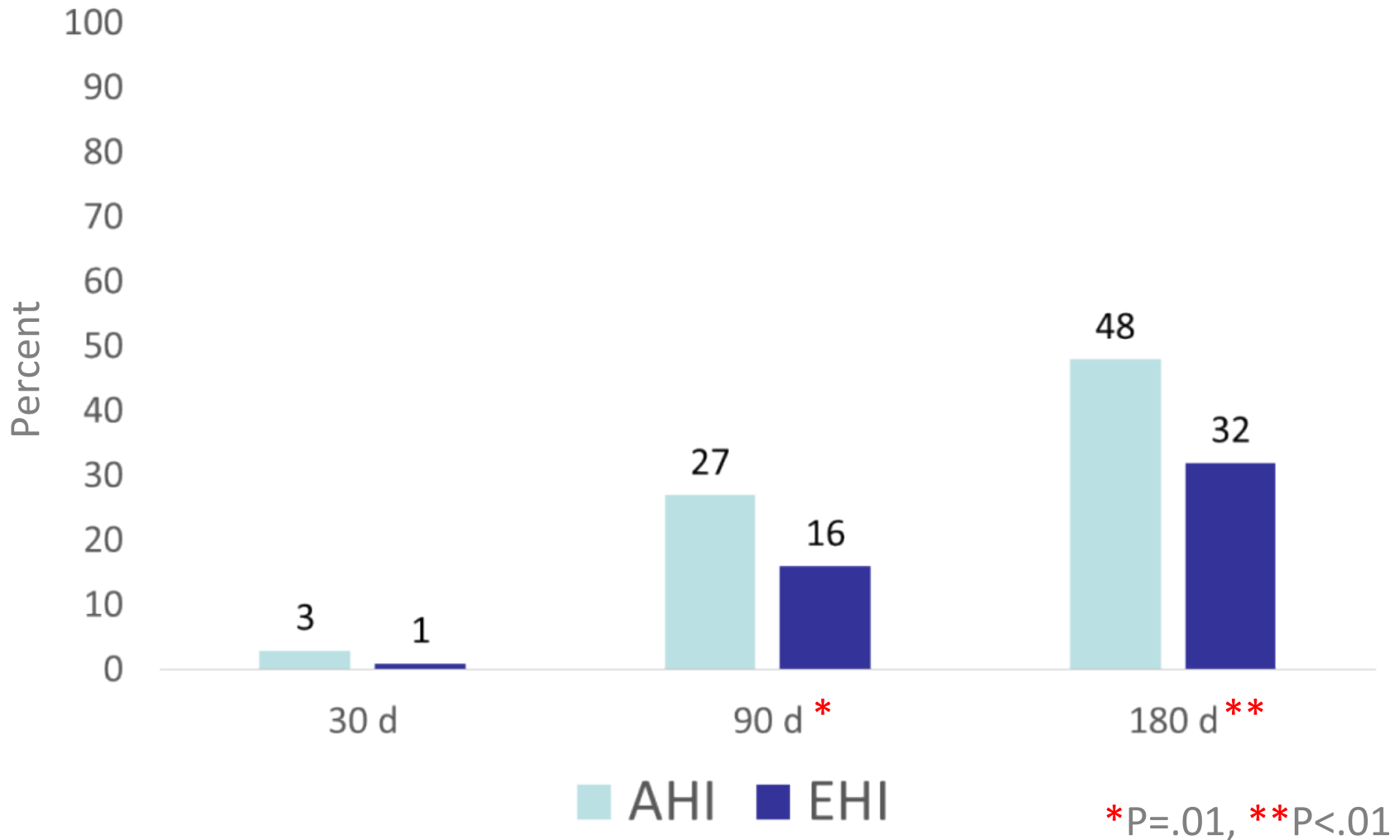
AHI vs. EHI: Prescribed ART



*P<.01

AHI vs. EHI: VL < 200

AHI vs. EHI: VL < 200



Discussion

- Largest study to date reporting outcomes for AHI and EHI
- Linkage rate overall (60%) is lower than in previous studies and compared to most recent CDC data (75%, not restricted to ED)
 - Our data likely represent more universal and less targeted screening since all non-rapid testing
- AHI had higher linkage, possibly due to more symptomatic disease, more likely hospitalized, more attention from clinicians
 - 2 EDs had special protocols to rapidly link AHI to care
- If linked, most started ART, consistent with recommendations, and high proportion suppressed at 180 d
 - But overall, 35% suppressed at 6 m
- Detection of AHI in ED is possible and better outcomes achieved

Limitations

- Retrospective study of observational data
- Protocol for whom to test varied from site to site
- Not all sites confirmed “new diagnosis” status with public health data
- Data on hospitalization, which may have impacted continuum of care outcomes, were not available
- Data from external sites of post-diagnosis care not available, so estimates of outcomes are likely a lower bound

Conclusions

- Persons diagnosed with AHI in these 8 urban EDs have better and earlier linkage to care, ART prescription and VL suppression rates compared with persons newly diagnosed with established HIV infection.
- Lessons learned from successes in persons with AHI could be applied to persons newly diagnosed with established infection in EDs to improve linkage to care, initiation of ART and VL suppression.

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