

Trends in Diagnosis of Acute HIV Infection, New York City, 2010-2017

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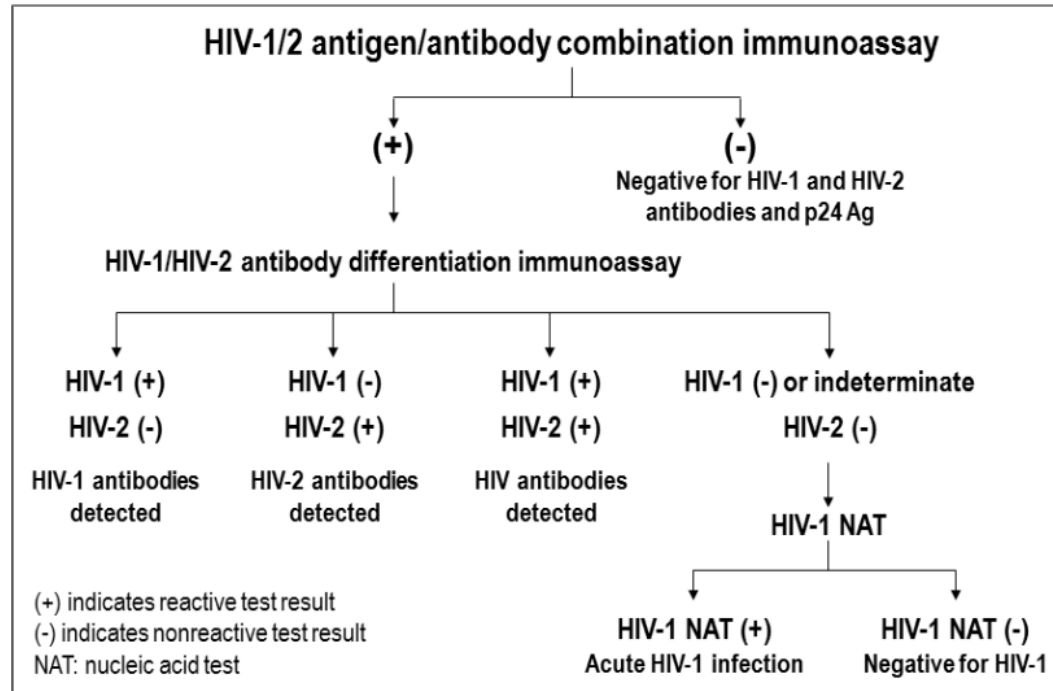
HIV Epidemiology and Field Services Program

New York City Department of Health and Mental Hygiene

Background

- **Detection of Acute HIV (AHI) is a crucial step in ending the HIV epidemic**
 - **High viral load => increased risk of transmission**
 - **Early detection => early treatment => reduced transmission, improved health outcomes**
- **Historically, detection of AHI was difficult and costly**
- **Available only to select, high-risk populations**
 - **In NYC, targeted screening (e.g., at NYC DOHMH's Sexual Health Clinics) using pooled NAAT primarily for MSM and other high-risk groups**
- **Improved diagnostic tests and adoption of CDC's Diagnostic Testing Algorithm (DTA) increased access to AHI screening**

Recommended Laboratory HIV Testing Algorithm for Serum or Plasma Specimens



Surveillance for AHI in NYC

- **Surveillance for AHI since 2007**
- **Maintain and update a local AHI case definition**
- **AHI data stored in a database outside of eHARS (CDC's HIV surveillance registry)**
- **Quarterly analytic dataset incorporates eHARS data, field investigation data, AHI database and a number of other data sources**

NYC AHI CASE DEFINITION

UPDATED JUNE 2015

Must meet the 2014 CDC surveillance case definition for HIV infection among adults and adolescents and have:

Laboratory Evidence of AHI

1. Results of the Diagnostic Testing Algorithm consistent with AHI as follows:

- Positive Step 1 (Ab or Ag/Ab immunoassay)
- Negative Step 2 (HIV-1/HIV-2 antibody differentiation assay or WB)
- Detectable Step 3 (qualitative HIV RNA) within 30 days

OR

2. Negative or Indeterminate Screening (Ab or Ag/Ab) or Supplemental test **AND**

- Detectable Qualitative or Quantitative HIV RNA test (within 30 days) **OR**
- Confirmed positive HIV Antibody test (within 90 days)

AHI CASE DEFINITION CONTINUED

- **Will accept patient self-report of previous negative test**
- **Assume previous negative is antibody test unless otherwise documented**
- **Do not accept as AHI an MD diagnosis or report of symptoms without supporting laboratory evidence**

AHI CASE FLOW AND REVIEW PROCESS

Laboratory Reports Received and Processed

Surveillance Case Investigation Initiated

Field Services Unit Interview Initiated

Evidence of AHI?

- Labs verified
- Patient report of last negative test
- MD notes e.g., signs/symptoms

Routed for Review

AHI DATABASE

Quarterly Analytic
Dataset

Objectives

Using surveillance data

1. **Characterize trends in diagnosis of AHI in NYC over time**
2. **Compare differences in persons diagnosed with AHI in NYC before and after the adoption of the DTA**

Methods (1)

- Use surveillance data reported by March 31, 2018 to analyze proportions of new diagnoses that met the case definition for AHI

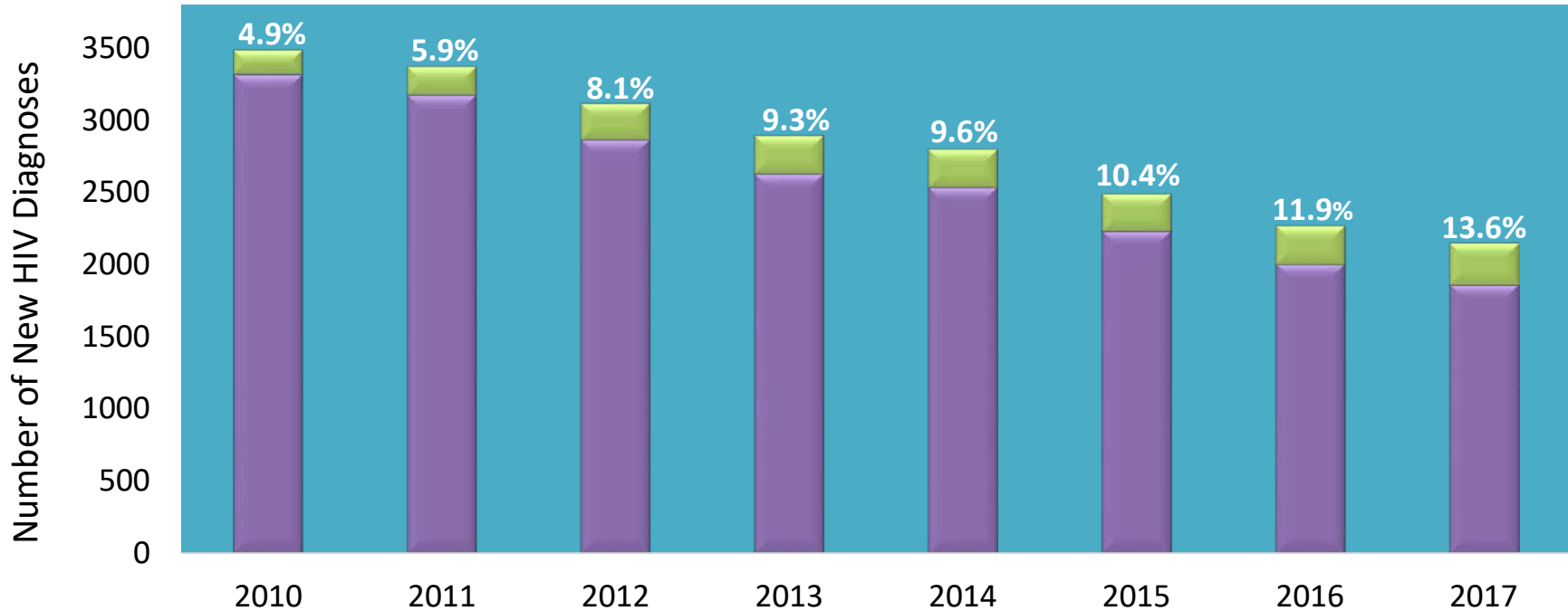
Methods (2)

In order to detect a change in trends in AHI diagnoses before and after widespread adoption of CDC's Diagnostic Testing Algorithm and Ag/Ab Screening Assays we:

- **Divided AHI diagnoses into “Phase 1” (date of diagnoses 2010-2012) and “Phase 2” (date of diagnosis 2015-2017)**
 - Excluded 2013-2014 to allow for transition phase
- **Assigned each AHI case a Diagnosis Method defined as:**
 - **Antibody-Antibody (Ab-Ab+):** Negative antibody test within 90 days of a positive antibody test
 - **Antibody-Viral Load (Ab-VL+):** Negative antibody test within 30 days of a positive NAAT (quantitative or qualitative)
 - **Diagnostic Testing Algorithm (DTA):** Positive Ag/Ab screen, Negative differentiation, Positive NAAT

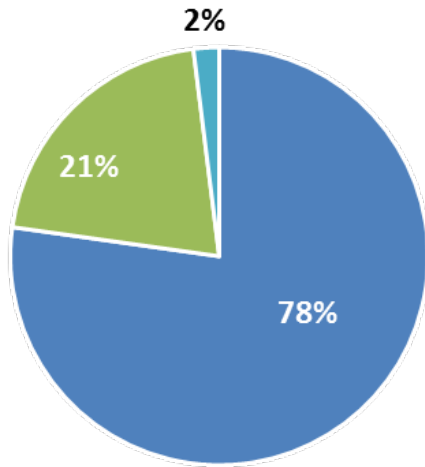
RESULTS – OBJECTIVE 1 – OVERALL TRENDS

Proportion of new HIV diagnoses determined to be AHI New York City, 2010-2017



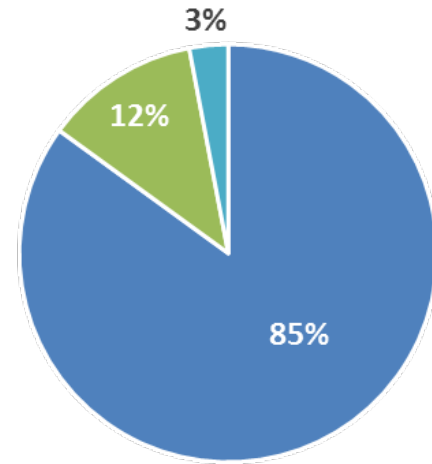
HIV Diagnoses by Gender, NYC 2010-2017

Non-AHI Diagnoses (N=20,628)



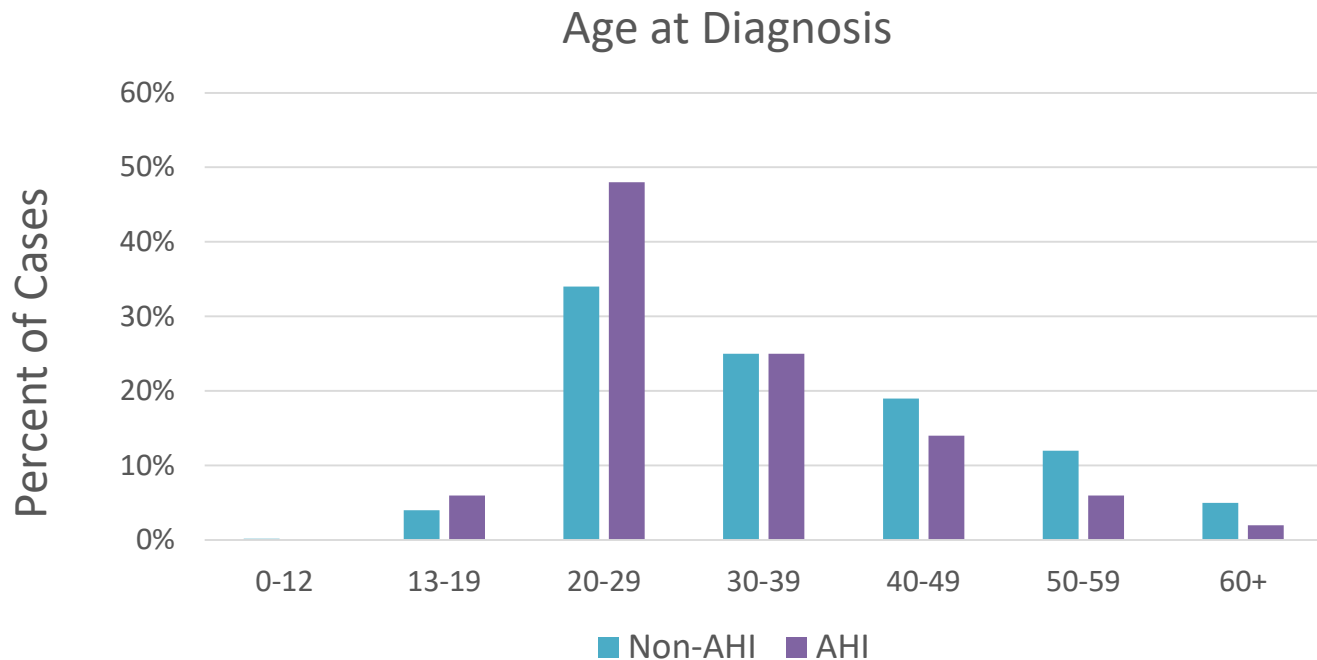
Male Female Transgender

AHI Diagnoses (N=1,985)

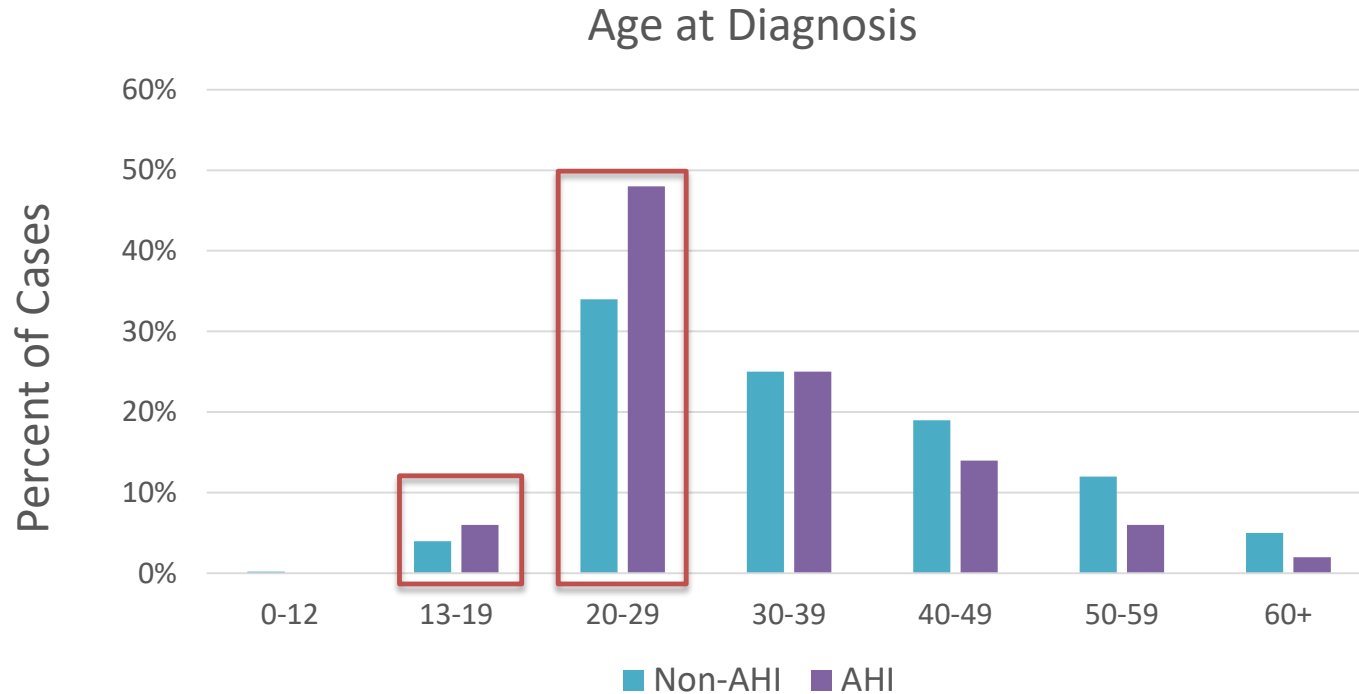


Male Female Transgender

HIV Diagnoses by Age at Diagnosis, NYC 2010-2017

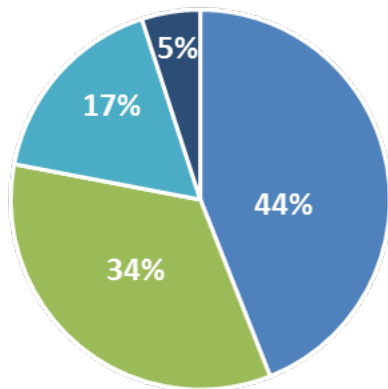


HIV Diagnoses by Age at Diagnosis, NYC 2010-2017



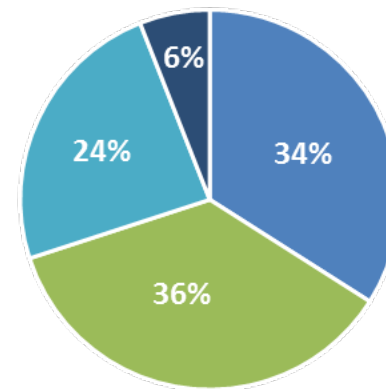
HIV Diagnoses by Race/Ethnicity, NYC 2010-2017

Non-AHI



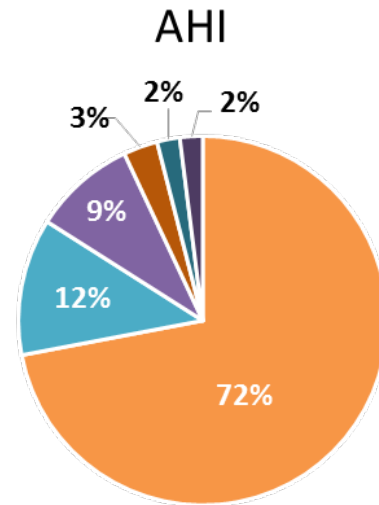
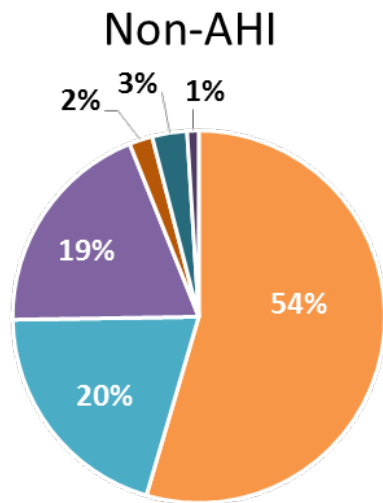
■ Black/African American ■ Latinx/Hispanic
■ White ■ Other*

AHI



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HIV Diagnoses by Transmission Risk, NYC 2010-2017



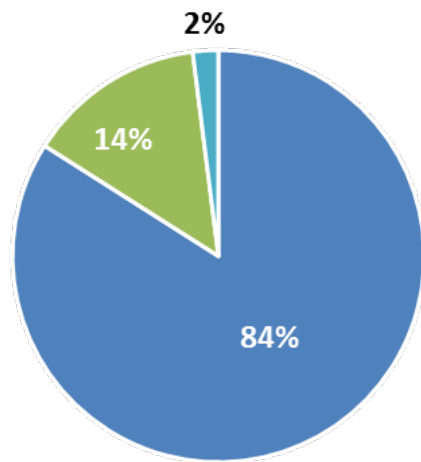
■ MSM ■ Heterosexual ■ Unknown/Other
■ MSM/IDU ■ IDU ■ TG-SC

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RESULTS – OBJECTIVE 2 – PHASE 1 VS PHASE 2

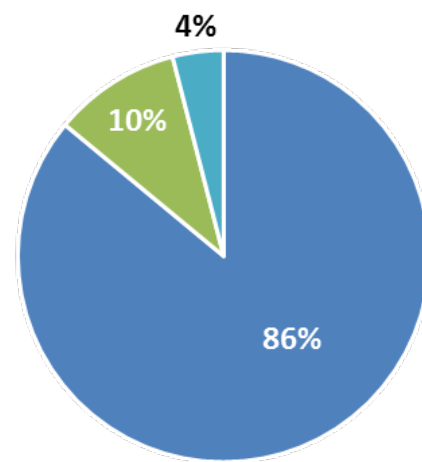
AHI Diagnoses by Gender

Phase 1 (N=623)



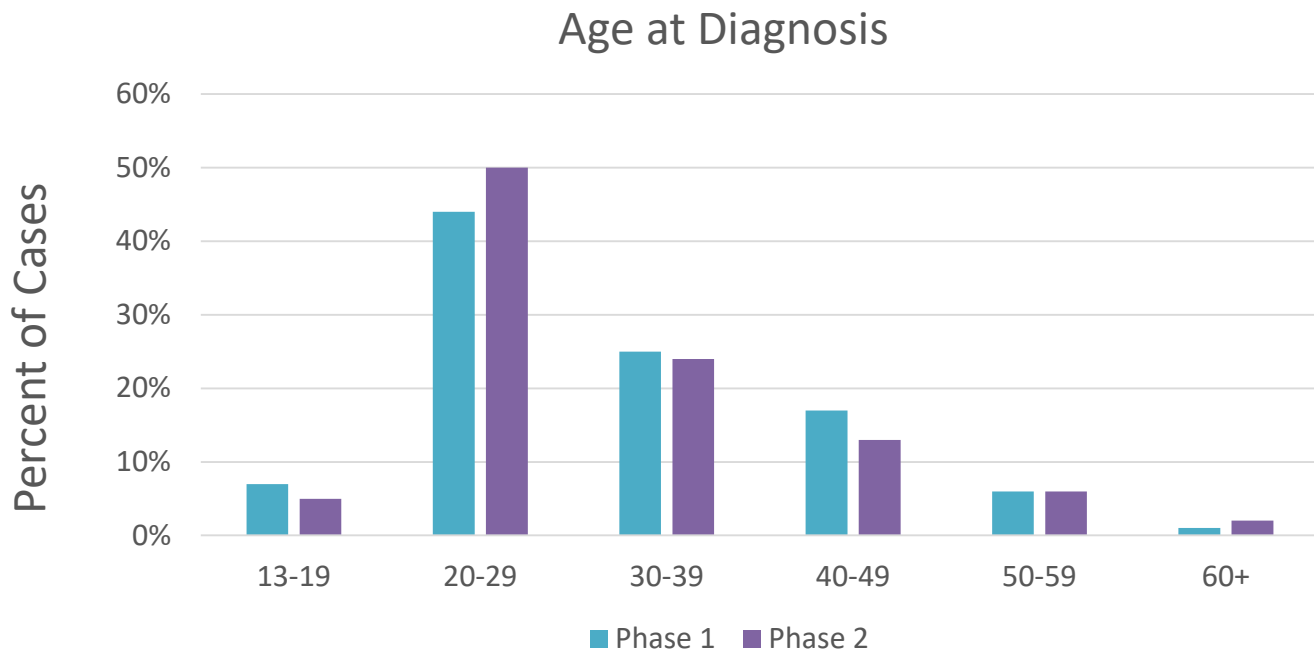
■ Male ■ Female ■ Transgender

Phase 2 (N=825)

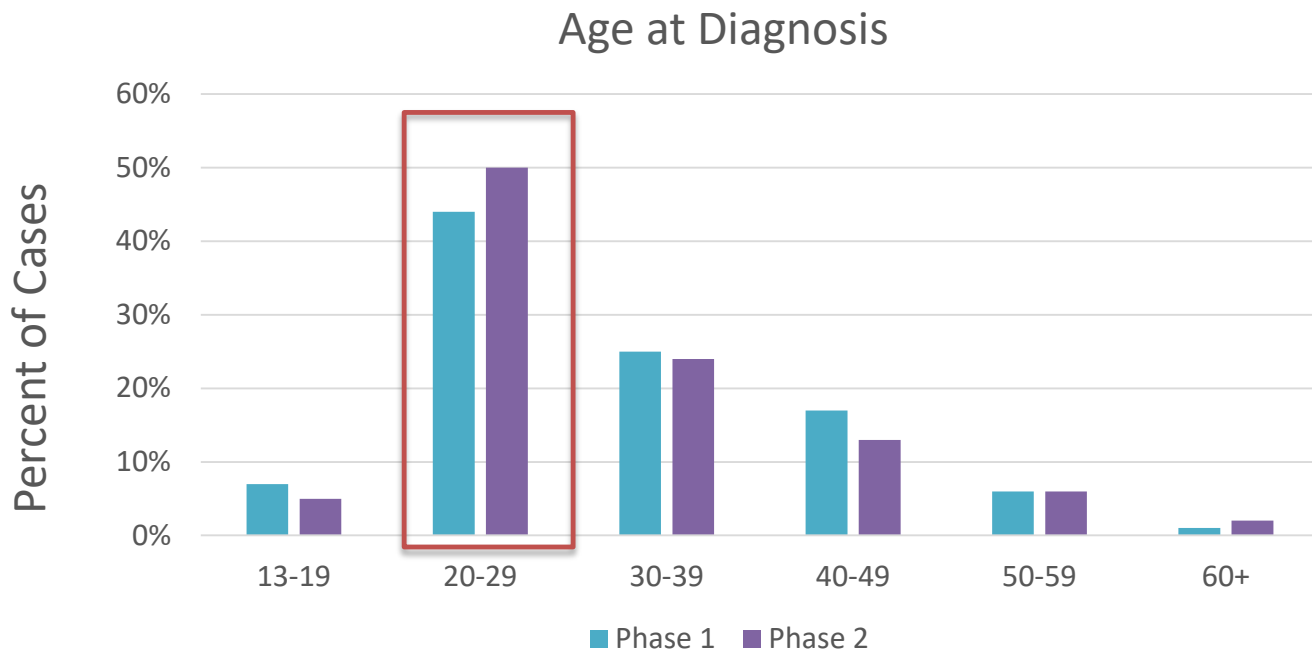


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AHI Diagnoses by Age at Diagnosis

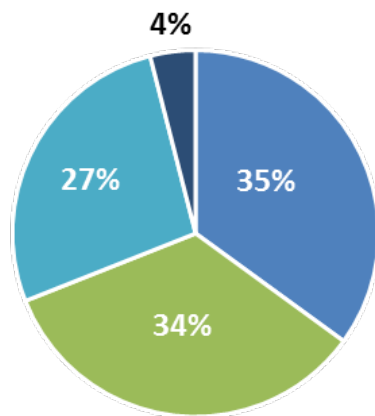


AHI Diagnoses by Age at Diagnosis



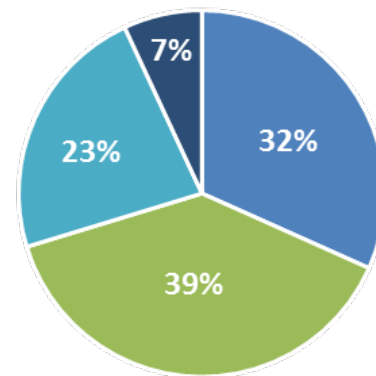
AHI Diagnoses by Race/Ethnicity

Phase 1



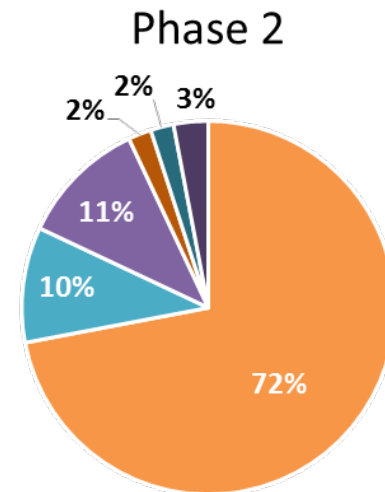
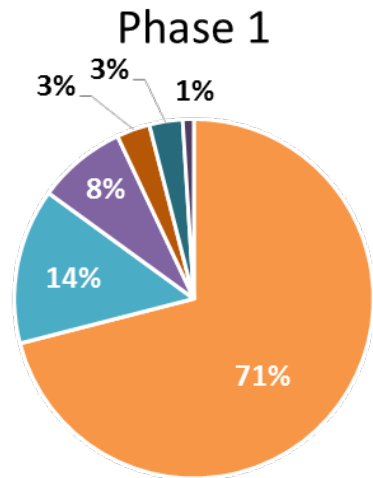
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- Other*

Phase 2



- Black/African American
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- White
- Other*

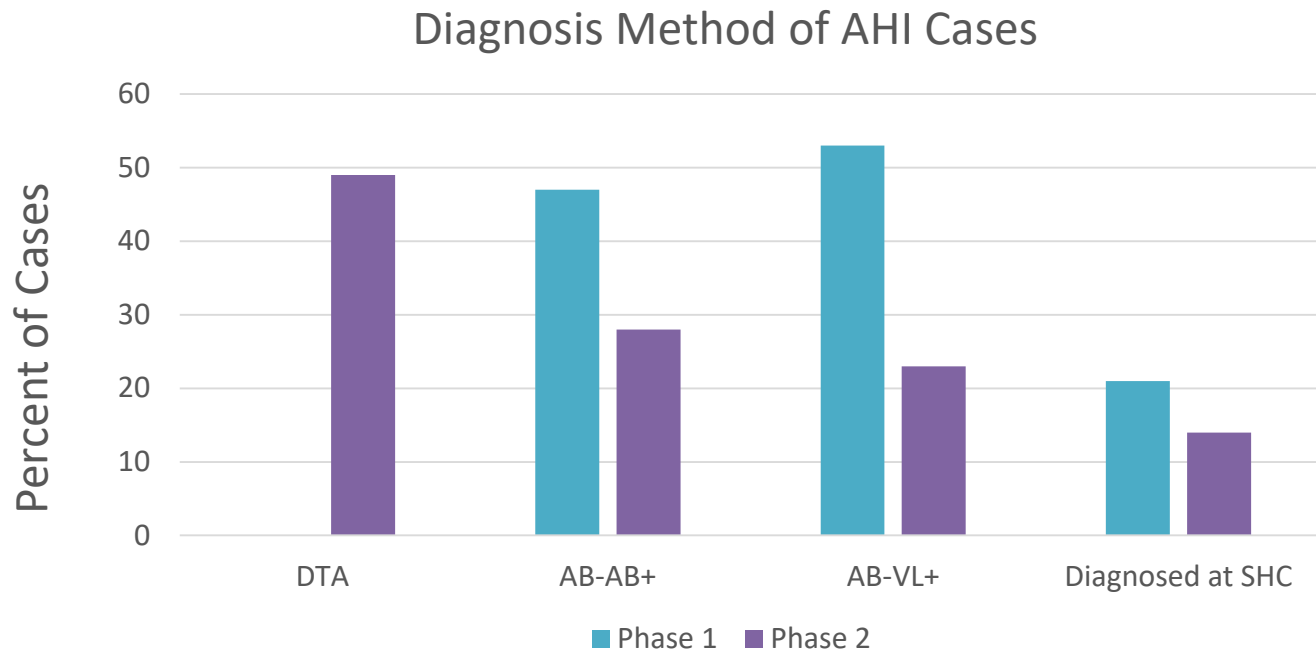
AHI Diagnoses by Transmission Risk



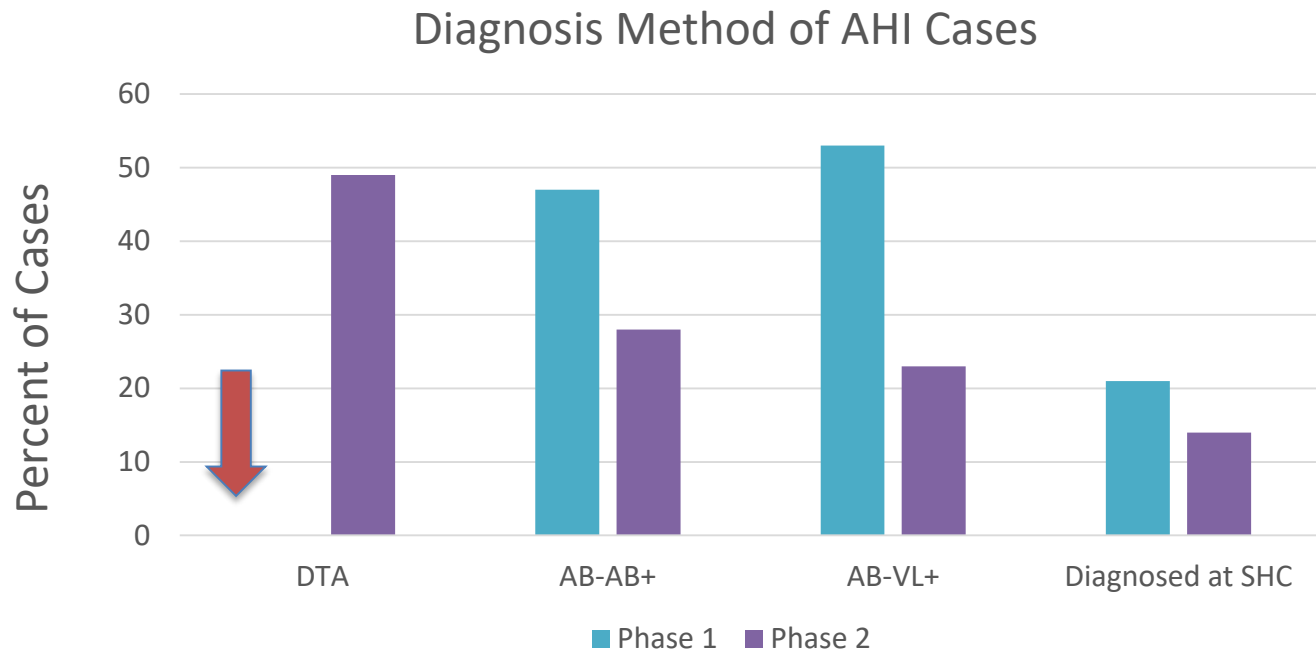
MSM Heterosexual Unknown/Other
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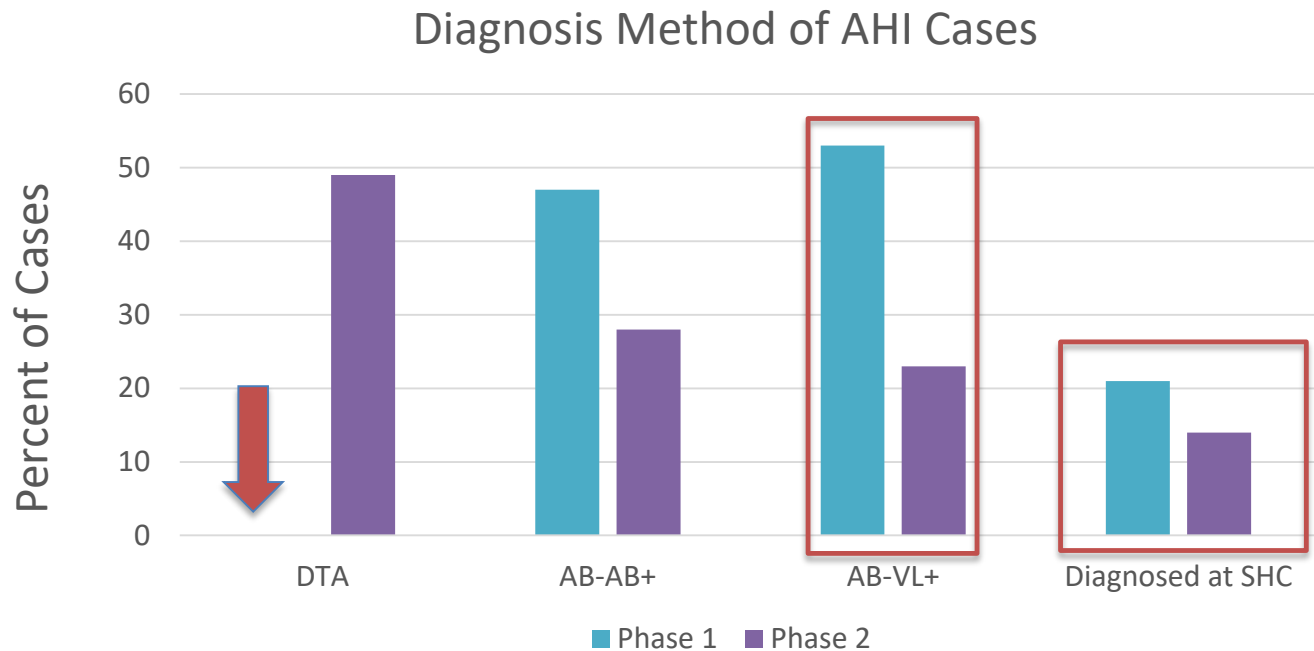
AHI Diagnoses by Diagnosis Method



AHI Diagnoses by Diagnosis Method



AHI Diagnoses by Diagnosis Method



Summary

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- **Frequent testers more likely to have HIV infection detected in acute phase**
 - NYC has robust HIV testing programs with good coverage
 - Role of increased use of PrEP – increased testing frequency for monitoring
 - Specific groups (e.g., MSM) encouraged to test frequently

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 - Role of increased use of PrEP – increased testing frequency
 - Specific groups (e.g., MSM) encouraged to test frequently
- **Large decrease in proportion diagnosed via method of Ab-VL+ suggesting reduced reliance on targeted screening methodologies (e.g., pooled NAAT)**
 - **Decrease in proportion of AHI cases diagnosed at SHC**

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NYC DOHMH HIV Surveillance Data Products

- Annual reports: <http://www1.nyc.gov/site/doh/data/data-sets/hiv-aids-surveillance-and-epidemiology-reports.page>
- Slide sets: <http://www1.nyc.gov/site/doh/data/data-sets/epi-surveillance-slide-sets.page>
- Statistics tables: <http://www1.nyc.gov/site/doh/data/data-sets/hiv-aids-annual-surveillance-statistics.page>
- HIV Care Continuum Dashboards (CCDs): <http://www1.nyc.gov/site/doh/health/health-topics/care-continuum-dashboard.page>

Thank You!

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