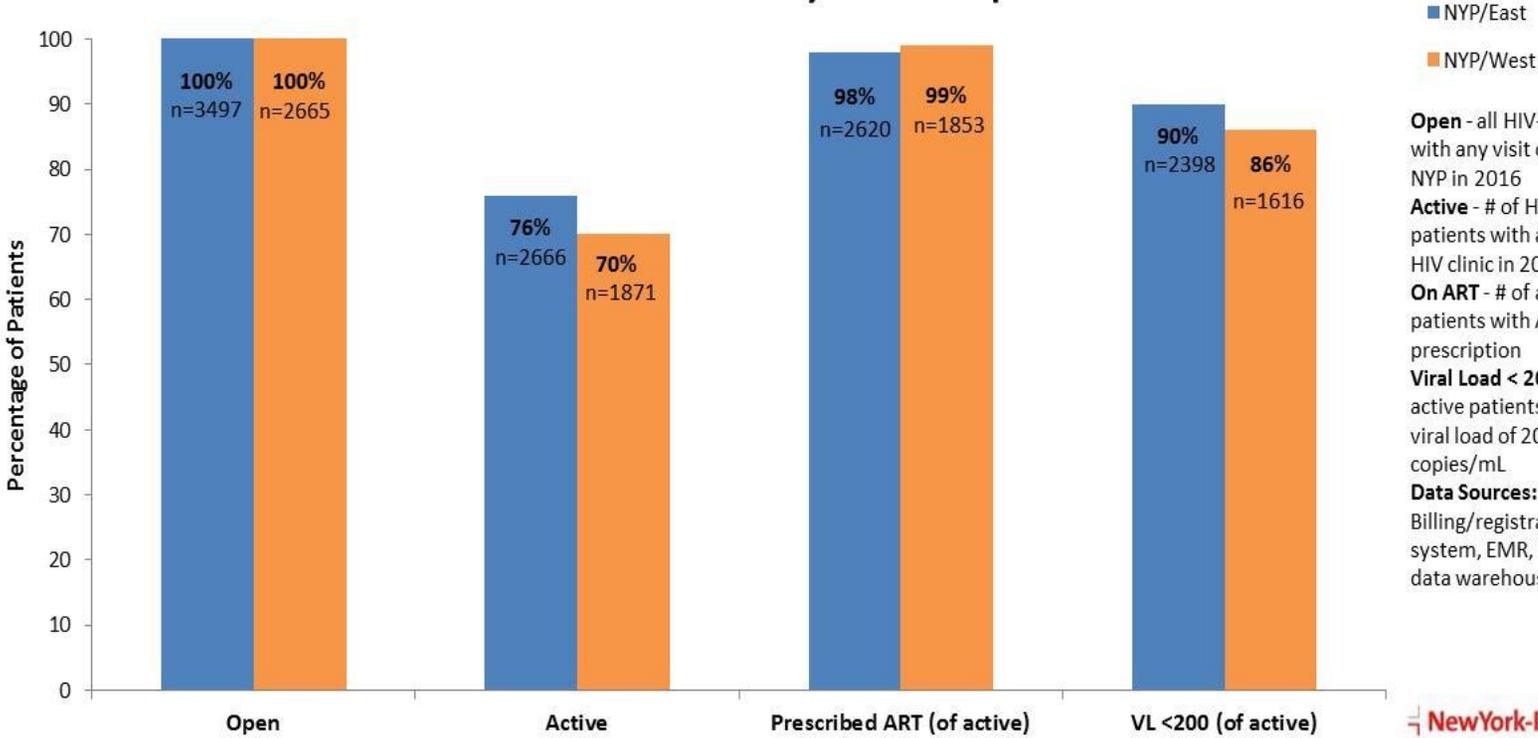
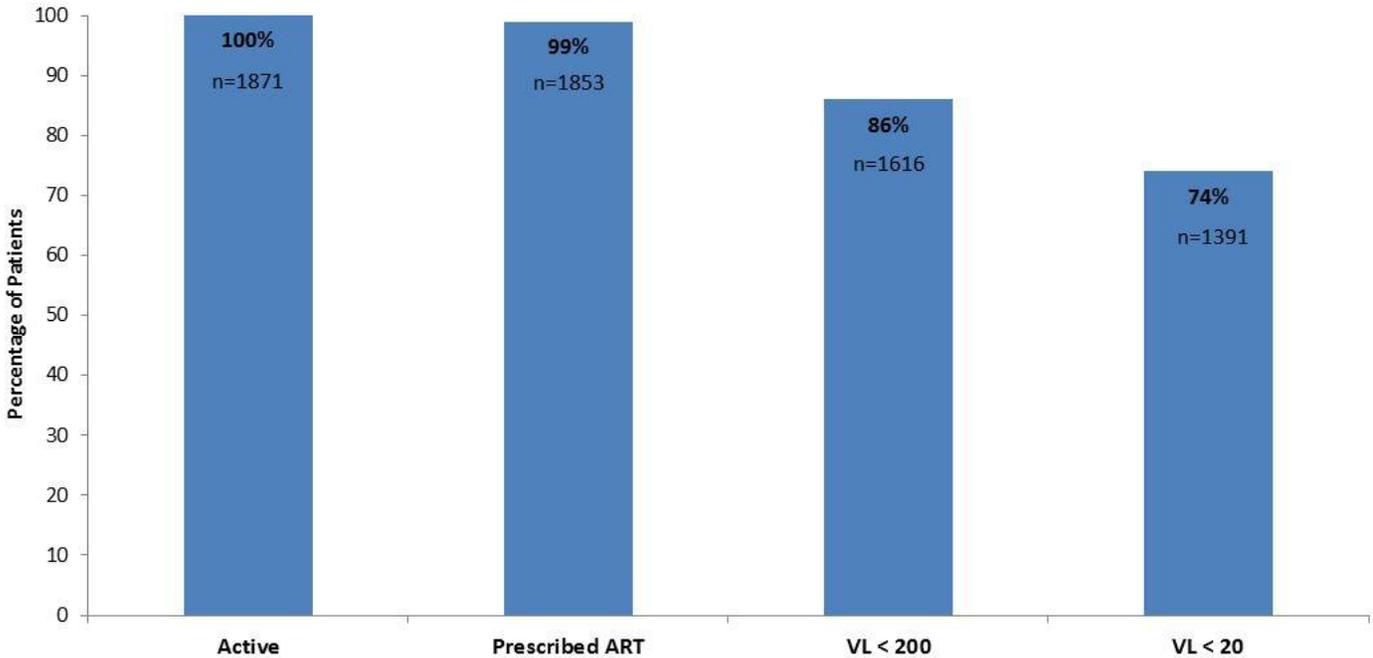


HIV Care Cascade for Established Patients, 2016 New York-Presbyterian Hospital



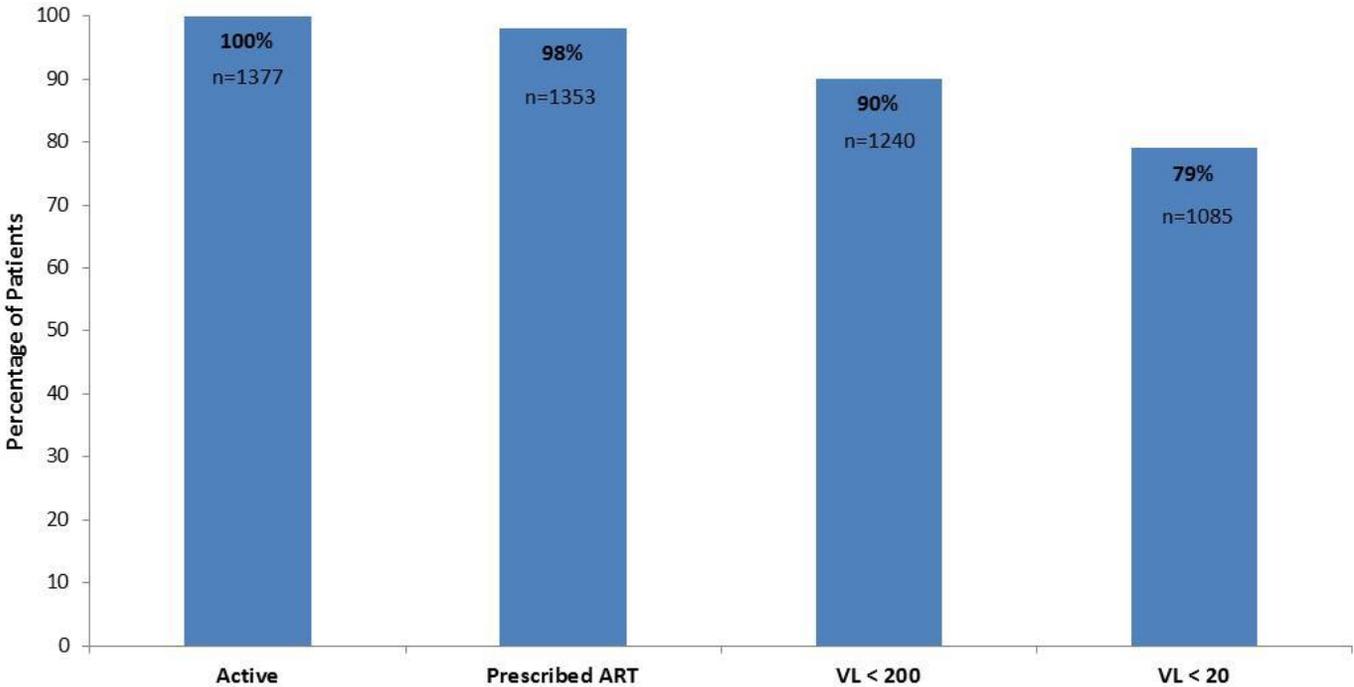
Open - all HIV+ patients with any visit or lab at NYP in 2016
Active - # of HIV+ patients with any visit at HIV clinic in 2016
On ART - # of active patients with ART prescription
Viral Load < 200 - # of active patients with last viral load of 2016 <200 copies/mL
Data Sources: Billing/registration system, EMR, NYP lab data warehouse

HIV Care Cascade for Established Patients, 2016 Comprehensive Health Program



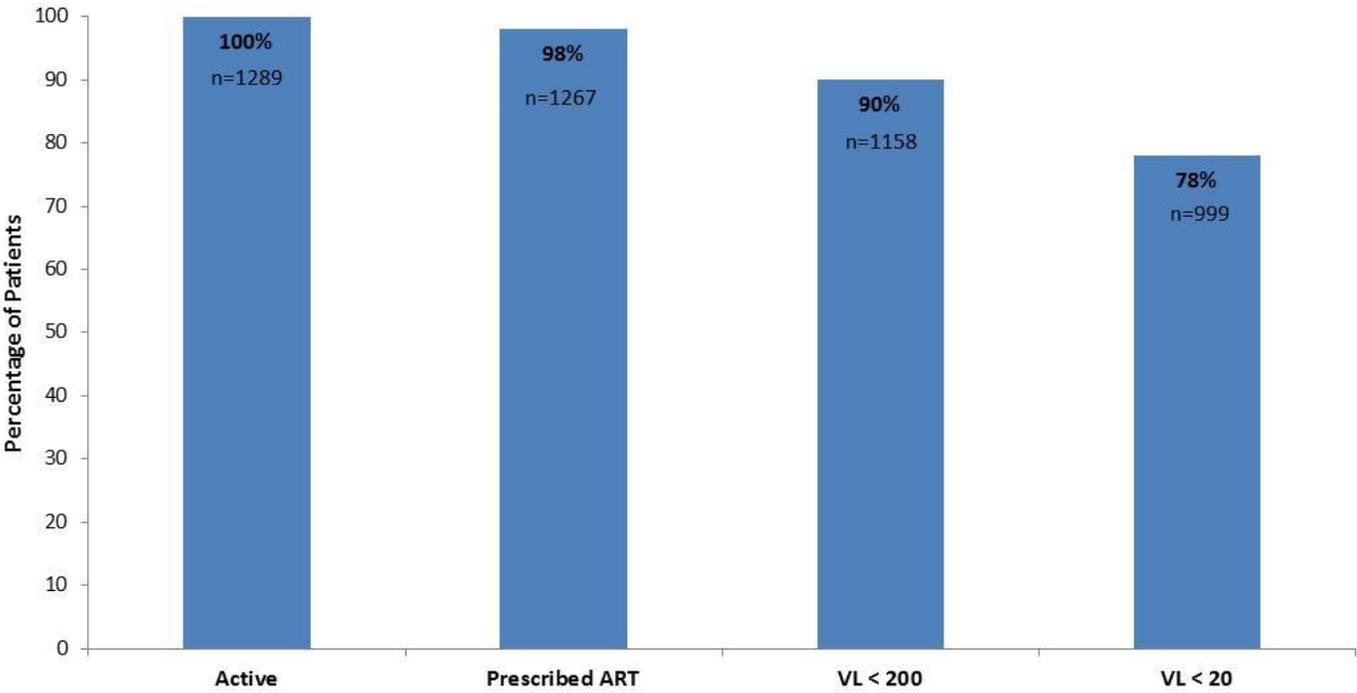
Active - # of HIV+ patients with any visit at CHP in 2016
On ART - # of active patients with ART prescription
Viral Load < 200 - # of active patients with last viral load of 2016 <200 copies/mL
Viral Load < 20 - # of active patients with last viral load of 2016 <20 copies/mL
Data Sources: EMR, billing/registration system, NYP lab data warehouse

HIV Care Cascade for Established Patients, 2016 Center for Special Studies, Baker



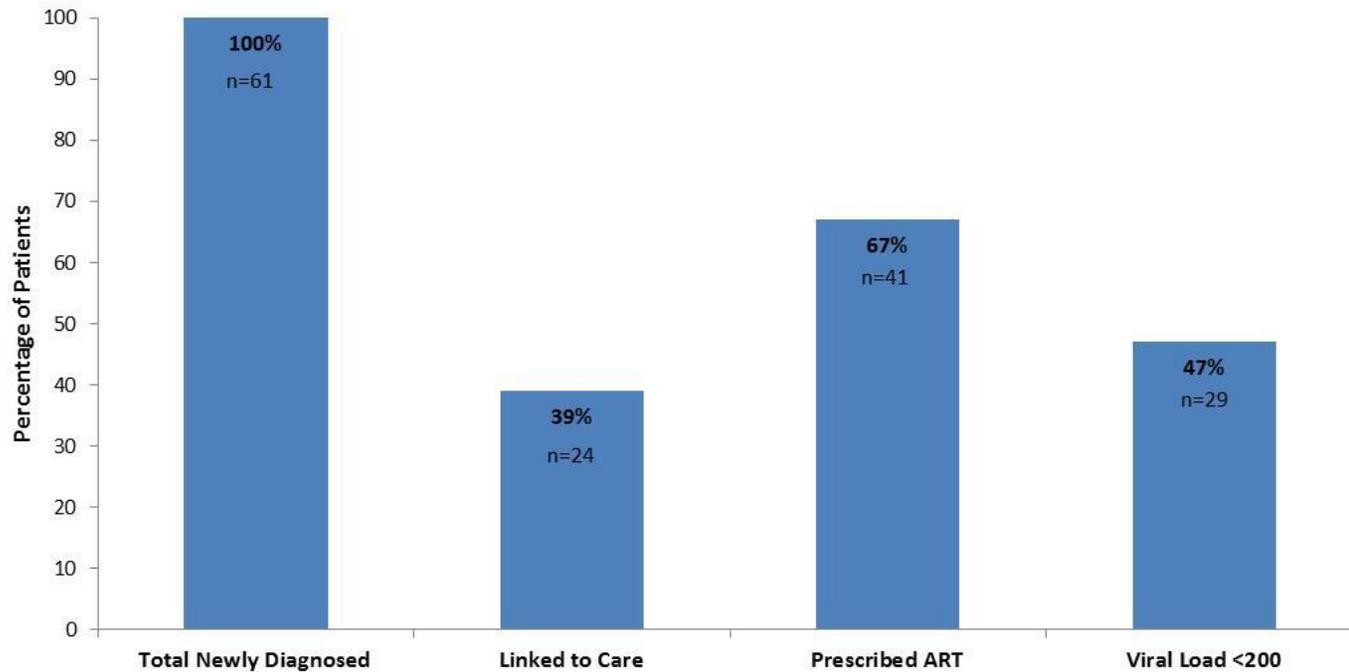
Active - # of HIV+ patients with any visit at CSS Baker site in 2016
On ART - # of active patients with ART prescription
Viral Load < 200 - # of active patients with last viral load of 2016 <200 copies/mL
Viral Load < 20 - # of active patients with last viral load of 2016 <20 copies/mL
Data Sources: EMR, NYP lab data warehouse

HIV Care Cascade for Established Patients, 2016 Center for Special Studies, Chelsea



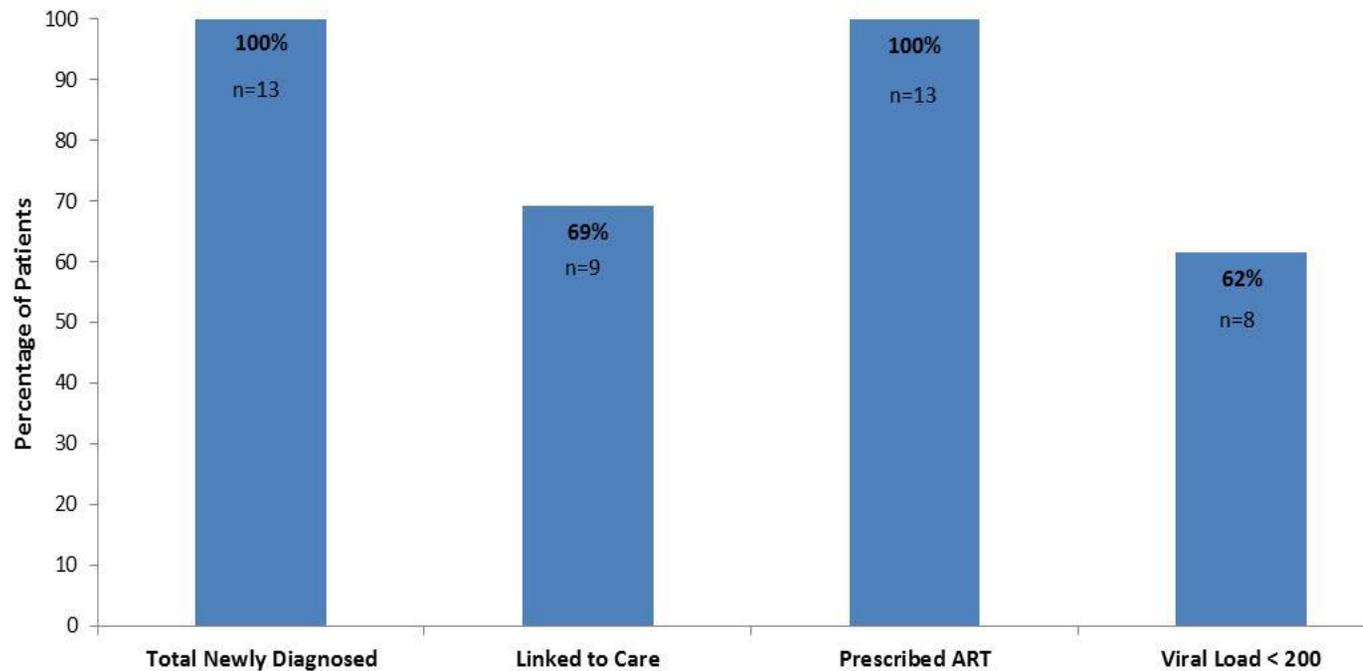
Active - # of HIV+ patients with any visit at CSS Chelsea site in 2016
On ART - # of active patients with ART prescription
Viral Load < 200 - # of active patients with last viral load of 2016 <200 copies/mL
Viral Load < 20 - # of active patients with last viral load of 2016 <20 copies/mL
Data Sources: EMR, NYP lab data warehouse

HIV Care Cascade for Newly Diagnosed Patients, 2016 New York-Presbyterian Hospital, West Campus



Total newly diagnosed patients: # of patients newly diagnosed with HIV at NYP in the last 12 months
Linked to Care: # of newly diagnosed patients with 1 HIV medical visit within 3 days of diagnosis if internally linked, 5 days if externally linked
Prescribed ART: # of newly diagnosed patients prescribed ART
Viral Load <200: # of newly diagnosed patients with viral load <200 copies/mL at last VL test of 2016
Data Sources: Internal tracking spreadsheet, EMR, NYP lab clinical data warehouse

HIV Care Cascade for Newly Diagnosed Patients, 2016 New York-Presbyterian Hospital, East Campus



Total newly diagnosed patients: # of patients newly diagnosed with HIV at NYP in the last 12 months
Linked to Care: # of newly diagnosed patients with 1 HIV medical visit within 3 days of diagnosis if internally linked, 5 days if externally linked
Prescribed ART: # of newly diagnosed patients prescribed ART
Viral Load <200: # of newly diagnosed patients with viral load <200 copies/mL at last VL test of 2016
Data Sources: EMR, NYP lab clinical data warehouse

Reporting Methodology

NYP-wide Institutional Open Caseload

In order to identify the cohort in New York-Presbyterian's institutional open caseload (both East and West campuses), the clinic-level data and quality teams worked closely with NYP's data analytics department. To be included in the open caseload, patients needed to meet the following criteria:

1. HIV positive: Patients were considered HIV positive if they had corresponding ICD 9/10 diagnostic codes recorded in NYP's billing and registration system (Eagle) or EMR (Epic at East Campus, Eclipsys at West Campus). Patients were also included if they had any positive HIV confirmatory test result, any HIV genotype test, or both an HIV viral load and CD4 test at NYP.
2. Touched NYP in 2016: The HIV positive patients identified above were filtered to those with any registration or lab (of any type) at NYP in 2016.

NYP West Campus (Columbia) Cascades

Open:

1. Patients were sorted from the overall caseload to separate West from East campus.
2. The list of West open patients was further sorted to determine patients who had not been seen at the Comprehensive Health Program (CHP), the West campus outpatient HIV clinic.
3. This gave a number defined as "Touched" by the institution but not in care with CHP in 2016.
4. The total Open List was determined by adding "touched" to the "active" caseload (see below).

Active:

1. The institution-wide report described above separated out active patients by identifying those who had a billing registration at CHP, the West Campus HIV clinic. This report from analytics also provided information on demographics, insurance, recent HIV clinical data, recent inpatient and ED utilization, and information about date and provider at last primary care visit.
2. For increased accuracy, the active population above was cross-referenced with a list of active patients extracted from eCOMPAS, CHP's clinic-specific EMR.
3. Once the active population was identified, ARV prescription rates were obtained in 2 ways: if an active client was ever virally suppressed (<200) in 2016, they were considered to be on ART. Data on the remaining patients was obtained by extracting prescription data from the EMR (Eclipsys) and performing chart review on a small number of patients.
4. The last 2016 viral loads for the active caseload were pulled from Cerner Millennium lab data in the NYP clinical data warehouse.

Newly Diagnosed

1. Newly diagnosed patients on the West Campus were identified using a tracking spreadsheet containing all patients with positive confirmatory test results at NYP in 2016. Through chart review in the EMR, this list was filtered to those who were newly diagnosed (as opposed to previously known positives).
2. The linkage date was determined by chart review, since there was no easy way to extract all dates and sites of linkage through a consolidated electronic system.
3. ARV prescription rates were obtained through a combination of electronic prescription data extracted from the EMR and manual chart review.
4. Viral load suppression rates were obtained through a combination of lab data extracted from NYP's clinical data warehouse and manual chart review.

NYP (East Campus) Cornell Cascade Methodology

Open:

1. Overall institutional "Open" cases were determined by the methodology described above, producing a list of all patients with a diagnosis of HIV who touched the institution in any department or location at either the East (Cornell) or West (Presbyterian) campuses.
2. For the purposes of the East Campus this includes other hospitals such as Lower Manhattan, and NYP Westchester, as well as other departments at NYPH-WCMC such as the Emergency Department, Outpatient Surgery, and Inpatient.
3. The overall list of open patients was sorted by location to separate East from West campus.
4. The list of East Open patients was further sorted to determine patients who had not had any 2016 visit at either Chelsea CSS or Baker CSS, the East campus outpatient HIV Clinics.
5. This gave a number defined as "Touched" by the institution but not in care with CSS.
6. Thus the total Open List was determined by adding "touched" to "active" (see below).

Active:

1. CSS Maintains an accurate monthly report derived from a retrieval of our EMR Epic of all patients who had at least one visit with a provider at CSS during the last 12 months along with demographics, payer, date of diagnosis, whether patient has ever had previous visit, if on ART, etc.
2. The active Cascade was determined using this list for each location (CSS Chelsea & Baker).

Newly diagnosed:

1. Patients on the active list with a date of diagnosis in 2016 had a chart review to determine where the diagnosis was made (outside with referral to CSS, or at NYPH) and how many days to linkage with CSS.
2. Because this included patients linked late in the calendar year, although all were on ART, some had not yet had time to suppress.

Limitations/Outstanding Data Gaps

At the time of this cascade submission, the majority of our open but not active NYP patients fall under the category of unknown disposition. This reflects a limitation of our data sources – we are unable to track outside care status, death, or incarceration by extracting data directly from our EMRs. However, we plan to batch submit our open caseload to the HIV Care Status Report (CSR). The CSR is maintained by the NYC DOHMH and allows providers to electronically submit patients who have been out of care for greater than 12 months for a query against the HIV registry. The CSR returns one of four outcomes for each patient: follow-up needed, in care (in NYC), deceased, or non-case. While the CSR will provide important information about death and NYC care status, it does not provide information about incarceration or care status outside of NYC. In order to achieve a more nuanced understanding of our open population in the future, we will need to develop internal systems for tracking this information in a format that can be easily extracted.

Another limitation of our data is an inability to quickly extract information about ARV prescription status for each patient on the West campus. As a result, we used viral load suppression at any point during 2016 as a proxy for being on ART during the year. Actual prescription data was gathered only for patients who were never suppressed or had no viral load in 2016. This highlights a need for the development of a tracking system for ARV status, which will allow us to report more precise data for the entire patient cohort in the future.

Despite the coding algorithms defined above, HIV-negative patients may be present in the open caseload, especially at the East campus. We will need to further refine our methodology for separating out HIV-negative patients from the cohort. Finally, the laboratory data from East Campus appears to be incomplete, with patients with no viral loads in our report having actual viral loads listed in the EMR.

Team Members Involved in Cascade Creation

Creating the cascades was a collaborative effort that spanned a variety of departments and roles at NYP. The following individuals were involved in the extraction, analysis, and presentation of cascade data.

Name	Title
Randi Scott, MA	Data Coordinator, DSRIP
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Peter Gordon, MD	Medical Director, CHP
Susan Olender, MD, MS	Associate Medical Director, CHP
Mila Gonzalez, MPH	Quality Manager, CHP
Steven Chang, NP, MPH	DSRIP Manager
Joselyn Cabrera-Perez, MS	Treatment Adherence Education Supervisor, CHP