Facility-Level Cascades: Uniting Public Health and Clinical Data Through a Government-Led Initiative to Improve Quality of Care*

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BACKGROUND

- Ensuring that all persons living with HIV (PLWH) in New York State receive high-quality HIV care is crucial to reaching statewide epidemic control by 2020 as part of Governor Andrew Cuomo's Ending the Epidemic Initiative.
- Although the HIV treatment cascade has been used as a common public health framework to evaluate programmatic success toward achievement of epidemic control, it is not routinely used by providers to inform clinical care.
- State surveillance data are useful for assessing population-level HIV treatment cascade outcomes, yet their suitability for driving quality improvement (QI) activities at the healthcare facility level is limited. In particular, these data routinely miss unengaged PLWH who present for non-HIV-related services (e.g., emergency care, mental health/substance use services).
- In 2016, the New York State Department of Health (NYSDOH) AIDS Institute adapted the HIV treatment cascade for use in **268** healthcare facilities as part of a statewide quality of care program to drive QI activities that align with national and sub-national HIV treatment targets.

APPROACH

- As part of required data submissions to NYSDOH, healthcare facilities embedded HIV quality of care measures in a cascade framework that entailed identification of PLWH who accessed ***any*** service in a healthcare facility, irrespective of whether it was HIV-related.
- Care status was ascertained for all PLWH, and categorized as "open" (not enrolled in the HIV program) and "active" (enrolled in the HIV program). Separate cascades were required for new patients and previously diagnosed patients, and included measures on linkage, ART prescription, and viral suppression (VS) (**Table 1**). All submissions were accompanied by formal reports on methodology and QI plans.
- QI coaches from NYSDOH provided ongoing technical support to facilities to address implementation challenges.

Table 1. Required measures

Measure	Definition
Linkage to care	% of newly diagnosed patient attended a routine medical visit within 3 days of diagnosis
ART prescription	% of patients with an active prescription for ART
VS	% of patients with viral load (VL) <200 copies at last test

RESULTS

Fig. 1. Example cascade, previously diagnosed patients, New York-Presbyterian

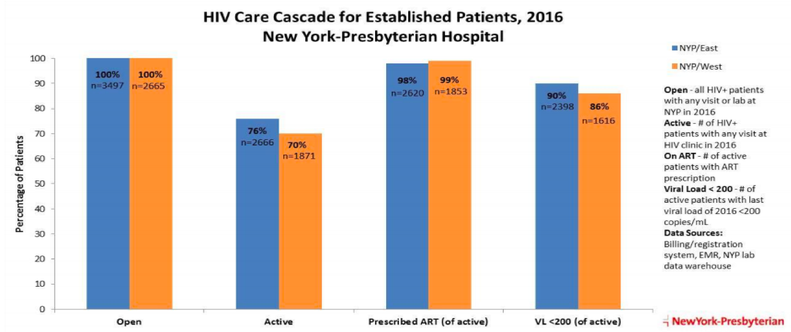
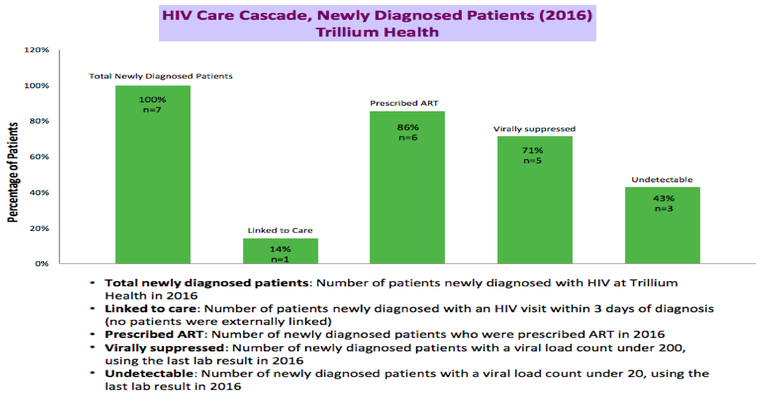


Fig. 2. Example cascade, newly diagnosed patients, Trillium Health



CHALLENGES

- Absence of a common information system to track the care status of patients across organizations.
- Difficulties reconciling multiple data sources (e.g., electronic medical records, insurance claims, mandatory state and federal reporting) to assess the quality of care of PLWH presenting for non-HIV-related services.
- Challenges engaging providers outside HIV programs to track the quality of care delivered to PLWH within an organization.
- Variable capacity of program management to apply QI methods to improvement of the gaps uncovered by facility-level cascades.

- **268** facilities across **81** organizations submitted HIV treatment cascades to the NYSDOH in 2017. Example cascades are presented in **Fig. 1 a**nd **Fig. 2.**
- Organizations reported **60** distinct QI interventions. Identified gaps commonly reported by sites included poor documentation of the care status of "open" patients, disparities in VS by key population, and low rates of linkage to care.
- Sizes of open and active caseloads varied significantly across organizations (**Table 2**). Organizations reported that **21,517** PLWH presenting for services had an unknown care status.
- Mean reported linkage to care rates among newly diagnosed patients was **52%**. Mean reported ART prescription rates among previously diagnosed patients was **94%,** and mean VS was **80%** (**Table 3**).

Table 2. Number of patients by care status, all submissions

Care status	n [IQR]
Newly diagnosed patients	1,777 [4,24]
Open patients	101,367 [217,1056]
Active patients	75,109 [142,795]
Patients with unknown care status	21,517 [3,196]

Table 3. Reported performance measures, all submissions

Measure	Mean [IQR]
Linkage to care (newly diagnosed)	52% [14,97]
ART prescription (previously diagnosed)	94% [93,99]
VS (previously diagnosed)	80% [75,89]

CONCLUSIONS/LESSONS LEARNED

- The facility-level cascade is a valuable framework for linking the content and quality of HIV care at the clinical level to the public health outcome of Ending the Epidemic by engaging providers to identify and link PLWH in their organization who are not enrolled in HIV care.
- Implementation of the facility-level cascades as a government-led initiative is feasible, and can guide policymakers in their improvement of programming with insights that cannot be ascertained through surveillance data alone.
- Future work is needed to ensure that improvements are sustained beyond year 1 of program implementation, and that cascade analysis is integrated into routine quality management activities.

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*The contents of this work are solely the responsibility of the authors and do not necessarily reflect the official view of Health Research, Inc., or the New York State Department of Health.