Laboratory Markers Overestimate Retention in HIV Care

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Background

- The continuum of HIV care begins with HIV diagnosis and linkage to care. Once linked, retention in care is essential to receive ART and to reinforce adherence to ART, which leads to improved clinical outcomes (1).
- It is important to monitor retention in care because missed clinic visits have been shown to predict an AIDS defining CD4 count, a detectable viral load(2) and increased mortality (3).
- Attending clinic visits was associated with a 3 fold reduced odds of participating in risky behavior associated with HIV transmission (4).
- HIV specific laboratory markers include CD4 counts and viral loads.
- Lab Markers are often used as a measure of retention because they are easier to collect than actual visit attendance and can be collected at a state level due to reporting requirements.
- Non-HIV providers, such as emergency, inpatient, or specialty providers, can order these lab markers, and therefore they may not always represent actual outpatient HIV visits.
- The National HIV/AIDS Strategy has a goal of increasing retention in care from 73 to 80% by 2015 and adherence guidelines recommend routine monitoring of retention in care (5). Validating the accuracy of these lab markers as a measure of actual retention is necessary.

Purpose

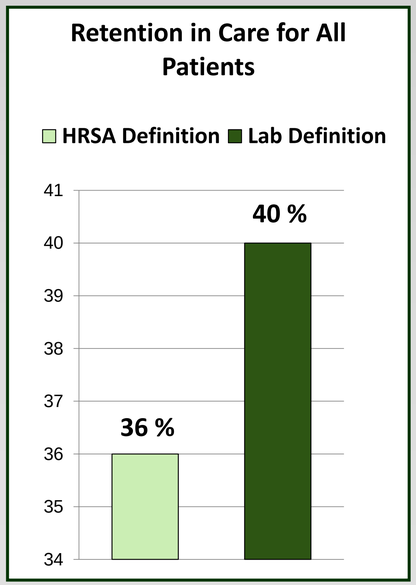
- The purpose of this study is to determine the accuracy of these markers at predicting retention in care in an urban HIV clinic.

Methods

- A retrospective cohort study was conducted using the medical records of patients who were newly diagnosed with HIV in the emergency department.
- Retention in care, congruent with the HRSA (Health Resources and Services Administration) definition, is defined as 2 clinical visits to an HIV provider separated by 3 months within a 1 year period.
- Retention by lab markers was 2 documented labs, either a CD4 count or an HIV viral load, separated by 3 months within the same 1 year period.

Results

- Ninety-nine patients were newly diagnosed with HIV in the emergency department.
  - By the HRSA definition 36 patients (36%) were retained at 1 year and 40 patients (40%) using the lab marker definition.
    - The sensitivity and specificity of using lab markers to predict retention were 100% and 93.7% respectively.
    - The positive predictive value (PPV) and negative predictive value (NPV) were 90% and 100% respectively.
  - Lab markers predicted retention in 4 patients who did not meet HRSA definition of retention, but all patients who met the HRSA definition of retention were also retained by the lab criteria.
- Among the 99 patients, 56 were linked to the HIV clinic associated with our hospital.
  - Among linked patients, 63% (36) were retained at year 1 using the HRSA definition and 70% (39) using the lab marker definition.
    - The sensitivity and specificity of using lab markers to predict retention among linked patients were 100% and 85% respectively.
    - The PPV and NPV were 92% and 100% respectively.



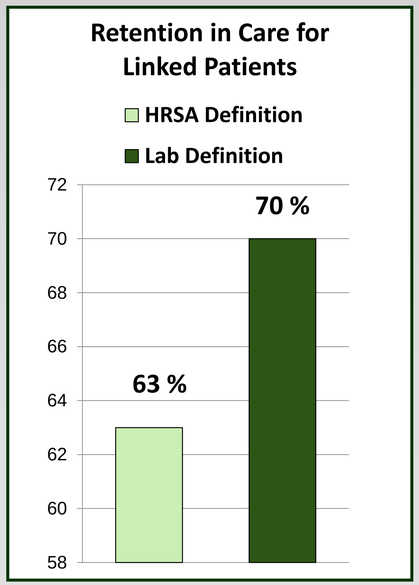


Table 1. Demographics

	Newly Diagnosed N=%(99)	Linked to Care N=%(56)
Age- mean (range)	39 (19-61)	41 (19-61)
Male	69% (68)	54% (30)
Race		
African-American	78% (77)	89% (50)
Caucasian	16% (16)	7% (4)
Insurance at Diagnosis		
Any insurance including Medicaid	23% (23)	27% (15)
Uninsured	42% (42)	18% (10)
Free Care	34% (34)	55% (31)
CD4 count < 200 at time of Test	49% (49)	43% (24)
Mean CD4 (95% CI)	214 (170 - 258)	265 (204-325)

Table 2. Retention in All Patients (n=99)

	HRSA Retention Met	HRSA Retention not Met	
Lab Definition Met	36	4	PPV 90%
Lab Definition not Met	0	59	NPV 100%
	Sensitivity 100%	Specificity 93.7%	

Table 3. Retention in Linked Patients (n=56)

	HRSA Retention Met	HRSA Retention not Met	
Lab Definition Met	36	3	PPV 92%
Lab Definition not Met	0	17	NPV 100%
	Sensitivity 100%	Specificity 85%	

Conclusions

- Lab markers over estimate currently accepted definitions of retention, but the absence of lab markers was highly predictive for not being in care.
- Since multiple providers can measure these labs, the use of lab markers may be more representative of a patient's overall contact with the medical system.
- All retained patients met the lab definition since HIV providers measure CD4 counts and viral loads in routine disease monitoring.

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The authors have no conflicts to disclose.