Baseline correlates of retention in HIV primary care at six HIV clinics in the U.S.

Results from the Control Arm of a CDC/HRSA Trial to Retain Patients in HIV Primary Care

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Retention in Care Study Design & Intervention

- ❑ **Study Design**
    - ■ 3-arm randomized trial evaluating retention in HIV primary care
    - ■ 6 HIV clinics in the U.S. (minimum 1,000 patients)
    - ■ 12-month intervention delivery period
    - ■ 12 months post-intervention to monitor primary care attendance

- ❑ **Study Trial Arms**
    - ■ <u>**Intervention Arm 1:**</u> HIV education + "enhanced contact"
    - ■ <u>**Intervention Arm 2:**</u> HIV education + "enhanced contact" + skill modules (organization, problem-solving, communication)
    - ■ <u>**Control Arm**</u>: clinical standard of care***

*** Today's presentation will address retention outcomes in the control arm from the first 12 months of the study

Study Enrollment Criteria

❑ **Prior Primary Care Visit History (must meet one of the following to be eligible):**

- 1+ missed (no-show) visits in the 12 months prior to enrollment

- Failed to have ≥1 arrived primary care visit in each 6-month period in 12 months prior to enrollment

- "New" patients (new to HIV care or new patient at clinic)

❑ **Other Enrollment Criteria:**

- HIV-positive patients receiving primary care at the clinic

- 18 years of age or older at time of enrollment

- Able to speak English or Spanish

Clinic study site locations

⭐ **Baltimore, Birmingham, Boston, Brooklyn, Houston, & Miami**
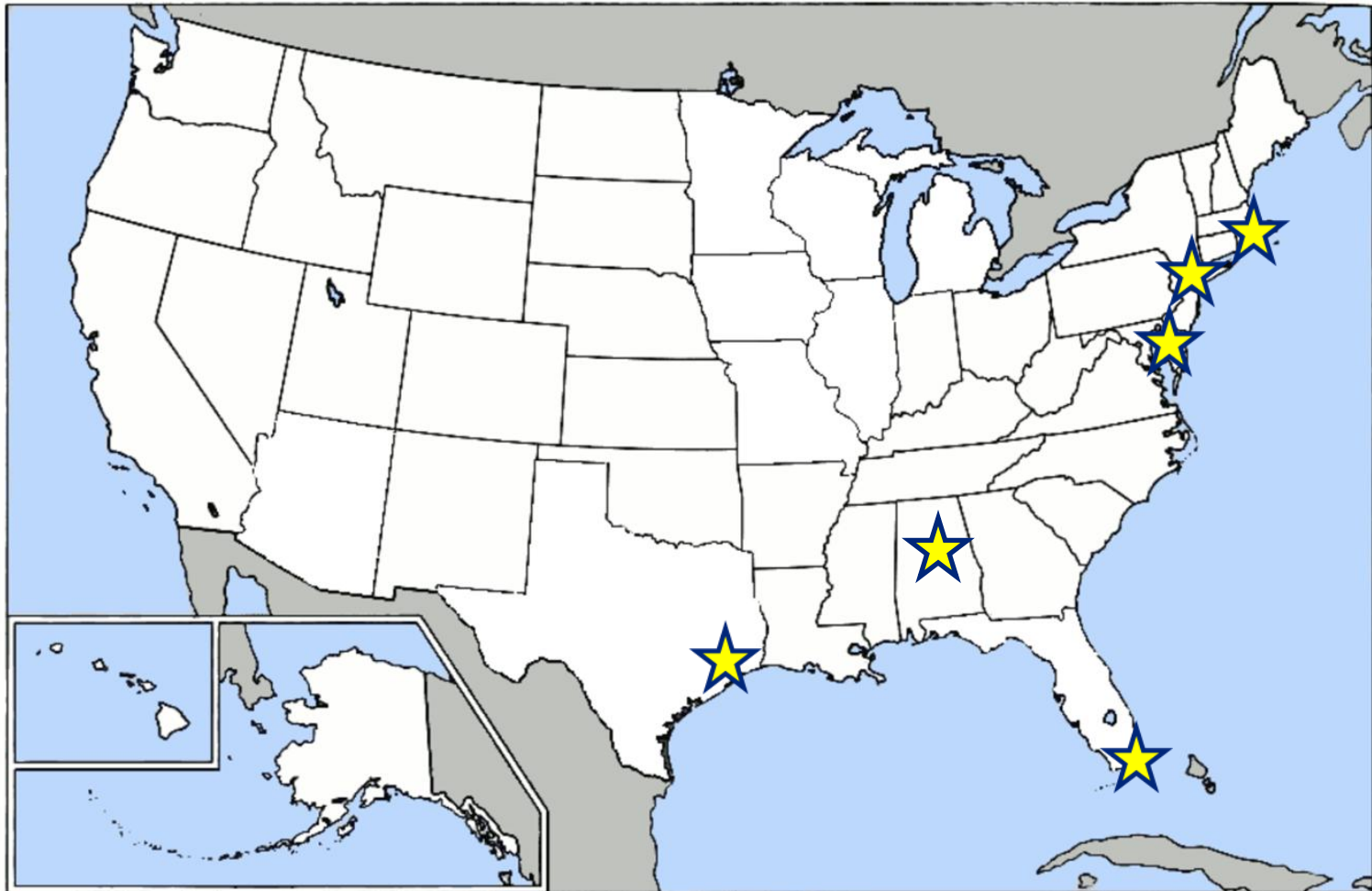
Defining Retention in Care Measures

❑ **Visit Constancy (visit per interval)**

- Measures regularity/consistency of being seen for care

- **4-month visit constancy**: ≥1 primary care visit in each of three consecutive 4-month intervals in 12-mo. period

- Analyzed as dichotomous 0/1 outcome (no/yes)

❑ **Multiple Missed Visits (2 or more missed visits)**

- Measures appointment-keeping behavior

- Defined as 2+ missed (no-show) visits in 12-mo. period

- Analyzed as dichotomous 0/1 outcome (no/yes)

Coding of Missed Visits and Visit Constancy

Patient A
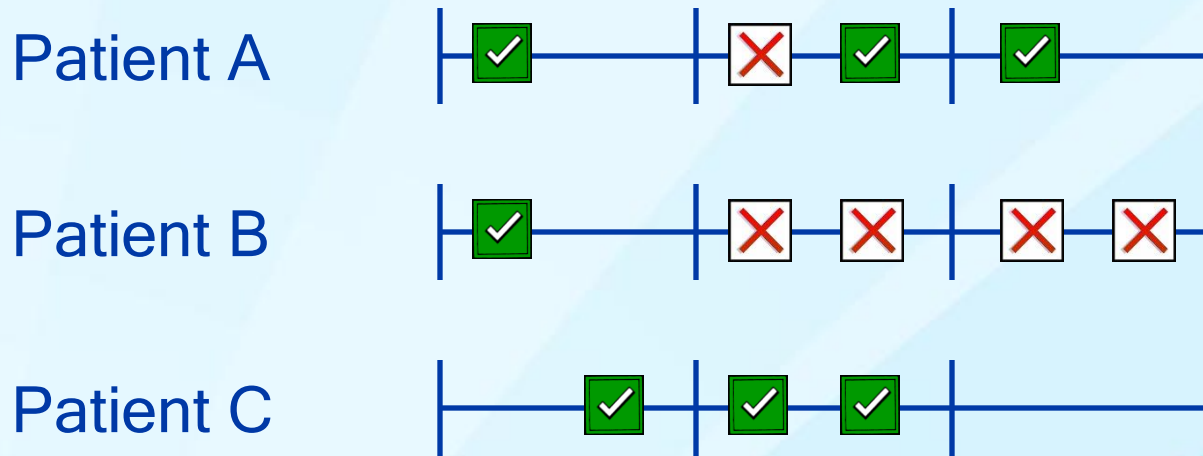
Patient B

Patient C

	2+ Missed	Visit Constancy
Patient A	No	Yes (100%)
Patient B	Yes	No (33.3%)
Patient C	No	No (66.7%)

Adapted from slide courtesy of Dr. Michael Mugavero (UAB)

Independent Variables Investigated

❑ **Demographic: age, sex, race, patient type (new vs. established), insurance, housing**

❑ **Behavioral: HIV risk factor, recent drug and alcohol use (past 3 mo.), recent incarceration (past 6 mo.)**

❑ **Unmet needs (e.g., substance abuse tx, food/groceries, housing, employment assistance, benefits, etc.)**

  ▪ "Unmet needs" – any service the patient needed in the past 6 months that s/he was unable to obtain

❑ **Barriers to care (paying for HIV care, transportation)**

❑ **Clinical variables: baseline CD4/VL*, on ART at baseline**

* Baseline CD4, baseline viral load test window: ±100 days around enrollment date

Methods

- ❑ **Calculated two different retention in care outcomes among 611 control arm trial participants.**

- ❑ **Collected baseline self-reported patient data from a computer survey.**

- ❑ **Baseline clinical data abstracted from medical records.**

- ❑ **Chi square, t-tests (bivariate)**

- ❑ **Multivariate analysis (log-binomial regression) to estimate prevalence ratios**

BASELINE CHARACTERISTICS OF CONTROL ARM PARTICIPANTS

Baseline Demographics (N=611)

Demographics	N	Percent
Patient Type		
New Patients	172	28.2
Established Patients	439	71.8
Sex		
Males	379	62.0
Females	227	37.2
Transgender	5	0.8
Race/ethnicity		
Black/African American	408	66.8
Hispanic/Latino	108	17.7
White	75	12.3
Other (Asian, NH/PI, AI/AN, multi-race)	20	3.3
Age at time of enrollment	609	**Mean (median), range**
		44.1 (45), 20-75
Age, categorical		
18-29	73	12.0
30-39	122	20.0
40-49	211	34.7
50+	203	33.3

Baseline Demographics (2)

Demographics	N	Percent
HIV Risk Factor		
MSM	152	24.9
MSM+IDU	15	2.5
IDU	95	15.6
Heterosexual	299	48.9
Other (e.g., perinatal, blood transfusion, unknown risk factor)	50	8.2
Housing		
Own home/apartment	381	62.5
Someone else's home/apartment	154	25.2
Supported/transitional housing	30	4.9
Other (inc. homeless/no place to stay)	45	7.4
Primary Insurance		
Private	91	14.9
Medicare	129	21.1
Medicaid	232	38.0
Uninsured (includes Ryan White)	139	22.7
None	20	3.3

Baseline Behavioral Variables and Barriers to Care/Unmet Needs

Behavioral	N	Percent
ANY drug use, past 3 months	114	18.7
Binge drinking, past 3 months	121	19.8
Incarcerated, past 6 months	61	10.0

Barriers to care/unmet needs	N	Percent
Any unmet needs, past 6 months	237	38.8
Barrier to care: worried about how to pay for HIV medical care	158	25.9
Barrier to care: transportation	110	18.1

Baseline Clinical Variables

Clinical	N	Percent
Baseline ART (on ART meds?)		
Self-report (ACASI)*	461	75.6
Medical records	472	77.2
Baseline undetectable VL		
<200 copies/mL	339	55.5
Baseline CD4+ T-lymphocyte count		
<200 cells/mL	106	18.4
200-349 cells/mL	125	21.7
≥350 cells/mL	346	60.0
Mean (Median), IQR		Mean (Median), IQR
	577	456 (408), 258-619

* 88% agreement between self-report and medical record review for being on ART at baseline

RETENTION OUTCOME RESULTS FOR CONTROL ARM PARTICIPANTS

Summary of 4-mo. Visit Constancy & Missed Visits in Control Arm Participants (n=611)

Primary care visit attendance in 12-mo. period after enrolling in the study	N	Percent
Did not meet 4-month visit constancy	331	54.2%
2 or more missed visits	265	43.4%

❑ Relationship between the two retention measures: 4-month visit constancy and 2 or more missed visits

- Modest association (Φ coefficient: -0.19)

Baseline Demographic Correlates:*
4-month Visit Constancy and 2+ Missed Visits

	N	Number (%) <u>failing</u> to meet 4-month visit constancy	p-value	Number (%) w/ 2+ missed visits	p-value
Gender					
Male	379	215 (56.7%)	0.08	151 (39.8%)	**0.04**
Female	227	112 (49.3%)		110 (48.5%)	
Race					
Black	408	225 (55.1%)		194 (47.6%)	
Hispanic	108	51 (47.2%)	0.35	40 (37.0%)	**0.02**
White	75	42 (56.0%)		23 (30.7%)	
Other	20	13 (65.0%)		8 (40.0%)	
Age					
18-29	73	40 (54.8%)		41 (56.2%)	
30-39	122	72 (59.0%)	0.67	63 (51.6%)	**0.0059**
40-49	211	111 (52.6%)		85 (40.3%)	
50+	203	107 (52.7%)		75 (36.9%)	

* Unadjusted results

Baseline Demographic Correlates (2):*
4-month Visit Constancy and 2+ Missed Visits

	N	Number (%) failing to meet 4-month visit constancy	p-value	Number (%) w/ 2+ missed visits	p-value
Primary Insurance					
Private	91	40 (44.0%)	0.0023	26 (28.6%)	0.02
Medicare	129	72 (55.8%)		59 (45.7%)	
Medicaid	232	116 (50.0%)		113 (48.7%)	
Uninsured/None	139	86 (61.9%)		58 (41.7%)	
Housing					
Own home/apt	381	200 (52.5%)	0.07	162 (42.5%)	0.53
Other's home/apt	154	92 (59.7%)		74 (48.0%)	
Transitional housing	30	11 (36.7%)		12 (40.0%)	
Other	45	28 (62.2%)		17 (37.8%)	

* Unadjusted results

Baseline Clinical Correlates:*
4-month Visit Constancy and 2+ Missed Visits

	N	Number (%) <u>failing</u> to meet 4-month visit constancy	p-value	Number (%) 2+ missed visits	p-value
Baseline ART Yes No	 472 139	 251 (53.2%) 80 (57.5%)	 0.36	 191 (40.5%) 74 (53.2%)	 0.0076
Baseline viral load <200 copies/mL ≥200 copies/mL	 339 272	 167 (49.3%) 164 (60.3%)	 0.0065	 113 (33.3%) 152 (55.9%)	 <0.0001
Baseline CD4 count <350 cells/mL ≥350 cells/mL	 231 346	 131 (56.7%) 174 (50.3%)	 0.13	 120 (52.0%) 130 (37.6%)	 0.0006

* Unadjusted results

Other demographic, behavioral, and unmet need/barrier to care correlates

❑ **The following variables were not associated with 2+ missed visits or 4-month visit constancy:**

- Patient type (new vs. established patients)
- HIV risk factor
- Any drug use, past 3 months
- Binge drinking, past 3 months
- Incarceration, past 6 months
- Any unmet needs, past 6 months
- Barriers to care (transportation, payment for HIV medical care)

Multivariate Results:* 2 or more missed visits

	Prevalence Ratio (95% CI)	p-value
Gender: Females vs. Males	**1.01 (0.85, 1.20)**	0.90
Race: Black vs. White	**1.22 (0.94, 1.59)**	0.14
Race: Hispanic vs. White	**1.06 (0.76, 1.48)**	0.74
Age: 18-29 vs. 50+	**1.35 (1.05, 1.75)**	**0.02**
Age: 30-39 vs. 50+	**1.26 (1.01, 1.58)**	**0.04**
Age: 40-49 vs. 50+	**1.06 (0.87, 1.29)**	0.60
Insurance: Medicare vs. Private	**1.42 (1.07, 1.90)**	**0.01**
Insurance: Medicaid vs. Private	**1.36 (1.04, 1.77)**	**0.02**
Insurance: None/Uninsured vs. Private	**1.26 (0.94, 1.69)**	0.13
Baseline VL: ≥200 vs. <200 copies/mL	**1.43 (1.18, 1.73)**	**0.0002**
Baseline CD4 cell count: <350 vs. ≥350	**1.08 (0.91, 1.27)**	0.40
Baseline ART: yes vs. no	**1.04 (0.85, 1.28)**	0.70

* Also adjusted for study site

Multivariate Results:* failed 4-mo visit constancy

	Prevalence Ratio (95% CI)	p-value
Gender: Males vs. Females	**1.08 (0.96, 1.21)**	0.20
Race: Black vs. White	**1.05 (0.90, 1.23)**	0.56
Race: Hispanic vs. White	**0.93 (0.76, 1.13)**	0.47
Age: 18-29 vs. 50+	**1.03 (0.86, 1.22)**	0.76
Age: 30-39 vs. 50+	**1.07 (0.93, 1.24)**	0.36
Age: 40-49 vs. 50+	**1.00 (0.88, 1.13)**	0.97
Insurance: Medicare vs. Private	**1.13 (0.94, 1.35)**	0.19
Insurance: Medicaid vs. Private	**1.09 (0.92, 1.29)**	0.31
Insurance: None/Uninsured vs. Private	**1.11 (0.94, 1.32)**	0.22
Housing: other's home vs. own home	**1.00 (0.89, 1.12)**	0.95
Transitional housing vs. own home	**0.82 (0.62, 1.07)**	0.14
Baseline VL: ≥200 vs. <200 copies/mL	**1.05 (0.95, 1.17)**	0.34
Baseline CD4 cell count: <350 vs. ≥350	**1.02 (0.92, 1.14)**	0.71

* Also adjusted for study site

Conclusions

❑ **Visit constancy (regularity of care) and missed visits (appointment keeping) capture two important yet conceptually different measures of retention in care.**

❑ **We found consistent patterns of association (e.g., age, insurance, baseline viral load) and inconsistent patterns of association (e.g., gender, race) across these two retention outcome measures.**

❑ **Younger age (18-29, 30-39), non-private insurance (Medicare, Medicaid), and having a detectable baseline viral load were associated with having 2+ missed visits in multivariate model.**

❑ **We were unable to confirm correlates reported previously in the retention literature (e.g., recent drug/alcohol use, unmet needs, barriers to care) in the control arm of our study.**

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Additional Presentations: Retention in Care Study

❑ **"Measuring Retention in HIV Care: The Elusive Gold Standard" (Dr. Mugavero) today at 4:00p in Ocean Tower 2 Ballroom.**

❑ **"CDC/HRSA Multisite Retention in Care Study: Preliminary Results" (Dr. Gardner, Dr. Marks) Tuesday at 2:15p in Ocean Tower 1C.**

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