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The MACARTI Study: Closing the Gaps in HIV Care among Youth in Atlanta, GA

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BACKGROUND

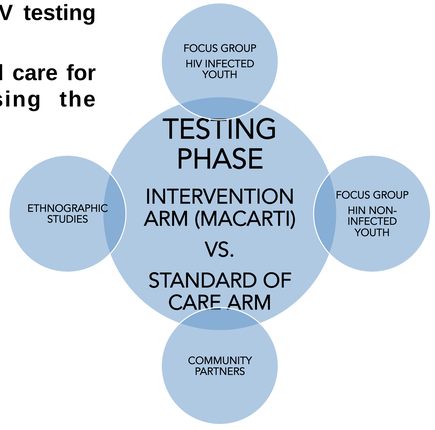
Background: To determine the effectiveness of the Metropolitan Atlanta Community Adolescent Rapid Testing Initiative (MACARTI) intervention relative to standard of care (SOC), in achieving early diagnosis, linkage and retention among HIV-infected youth ages 18-24 years.
Methods: MACARTI was a pilot single-center, prospective, non-randomized study that combined non-traditional venue HIV testing, motivational interviewing (MI) and case management. We collected demographic, clinical variables and calculated linkage and missed visit (MV) rates. We obtained SOC data from an adolescent HIV clinic. Longitudinal data were analyzed using inverse propensity-treatment weighted-adjusted linear mixed-effects regression; medians, interquartile ranges (IQR), means and 95% confidence intervals (CI) are provided.
Results: MACARTI screened 435 participants and identified 49 (11.3%) HIV infections. The SOC arm enrolled 49 new HIV-infected individuals. The 98 participants, (49 in each arm) were: 85% male; 91% Black; mean age=21 years (SD:1.8). Overall, 63% were linked within three months of diagnosis; linkage was higher for MACARTI compared with SOC (88% vs. 39%, p<0.001). Median linkage time for MACARTI participants compared to SOC was 0.46 (IQR:0.26-0.85) vs. 5.95 (IQR: 1.45-18.17) months (p<0.001). The MACARTI MV rate was lower than SOC [14.0 (CI:9.9-19.3) vs. 26.1 (CI:20.8-32.2) MVs per 100 visits scheduled, respectively]. In adjusted models, mean CD4^{+}T-cell counts increased and mean HIV-1 RNA levels decreased in both arms over 12 months; decrease in HIV-1 RNA was more pronounced in the MACARTI arm (p=0.019).
Conclusions: MACARTI successfully identified and linked HIV-infected youth in Atlanta. MACARTI may serve as an effective linkage and care model for clinics serving HIV-infected youth.

BACKGROUND- HIV EPIDEMIC IN GEORGIA

- **Georgia had the fifth highest rate of new HIV diagnosis in the US in 2015.**
- **Atlanta reported 69% of new diagnoses in Georgia.**
- **Youth between 13-24 have extremely low rates of testing, linkage to care and viral suppression when compared to other age groups.**
- **Atlanta youth are likely to be diagnosed at more advanced stages of the disease when compared to other age groups.**
- **Newer approaches are needed to improve HIV outcomes in Atlanta youth.**

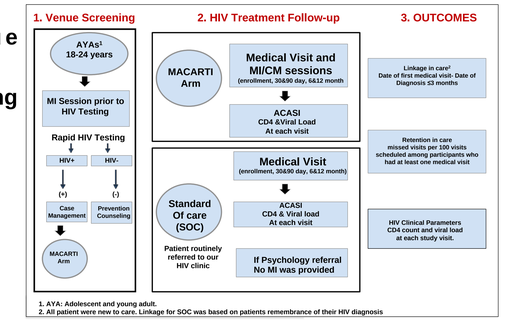
OBJECTIVES-METHODS

- **Increase opportunities for HIV testing and diagnosis for youth.**
- **Strengthen HIV treatment and care for those living with HIV using the MACARTI intervention.**



MACARTI INTERVENTION COMPONENTS-TESTING FLOW CHART

- **Non-Clinical Venue Testing**
- **Motivational interviewing (MI)**
- **Case Management (CM)**



RESULTS

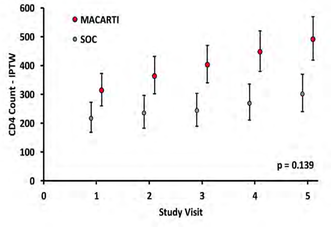
- **MACARTI arm screened 435 youth to identify 49 positives: Positivity rate 11.3%**

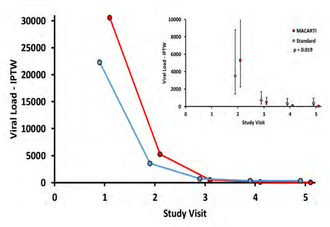
Baseline Characteristic, N (%)	Overall (N = 98)	Standard of Care (N = 49)	MACARTI (N = 49)	IPTW P-Value
Demographics				
Gender				
Male	83 (84.7%)	36 (73.5%)	47 (95.9%)	0.028
Race				
Black	89 (90.8%)	47 (95.9%)	42 (85.7%)	0.057
Age (yr), Mean ± SD	21.0 ± 1.8	20.8 ± 1.9	21.2 ± 1.8	0.818
Work Status				
Employed	38 (38.8%)	14 (28.6%)	24 (49%)	0.358
In School	21 (21.4%)	12 (24.5%)	9 (18.4%)	
Both	15 (15.3%)	6 (12.2%)	9 (18.4%)	
None	24 (24.5%)	17 (34.7%)	7 (14.3%)	
Education, N = 97				
High school or Less	60 (61.9%)	35 (72.9%)	25 (51%)	0.571
College or More	37 (38.1%)	13 (27.1%)	24 (49%)	
Ever Abused Alcohol – Yes	15 (15.3%)	3 (6.1%)	12 (24.5%)	0.211
Currently Using Drugs – Yes	22 (22.5%)	9 (18.4%)	13 (26.5%)	0.823
Any Physical Abuse	11 (11.2%)	5 (10.2%)	6 (12.2%)	0.607
Any Sexual Abuse	8 (8.2%)	4 (8.2%)	4 (8.2%)	0.915
Any Mental Abuse	10 (10.2%)	6 (12.2%)	4 (8.2%)	0.461
Sexual Orientation				
Straight	22 (22.5%)	19 (38.8%)	3 (6.1%)	0.008
Gay/Bisexual/Queer	76 (77.6%)	30 (61.2%)	46 (93.9%)	
Ever had STI[1] – Patient Report, N = 97	47 (48%)	28 (57.1%)	19 (38.8%)	0.633

Table 2. Baseline HIV Characteristics Stratified by Study Group

Characteristic, N (%)	Overall (N =98)	Standard of Care (N = 49)	MACARTI (N =49)	IPTW P-Value
AIDS defining conditions	34 (36.2%)	25 (51%)	9 (20%)	0.263
Other STIs at time of linkage	15 (20.8%)	7 (25.9%)	8 (17.8%)	0.960
CD4 Count, Median (IQR)	282 (127 – 428)	196.5 (61 – 377.5)	317 (218 – 512)	0.593
Viral Load, Median (IQR)	27,150 (4,650 – 132,720)	27,640 (4,940 – 163,770)	25,010 (4,640 – 94,220)	0.403

- **LINKAGE to Care:**
  - MACARTI vs. Standard of Care (SOC): 88% vs 39%, p<0.001
  - Median Linkage time: MACARTI vs SOC: 0.46 vs 5.95 months, p<0.001
- **Retention in Care:**
  - MACARTI vs SOC: 14 vs. 26.1 per 100 visit scheduled, p=0.001
  - 100 of visits attended: MACARTI vs SOC: 51% vs 31%, p=0.043
- **Clinical Parameters**
  - Mean CD4 Counts increased significantly within both arms
    - MACARTI vs SOC: 177 cells/mm^3 vs 84 cells/mm^3, p=0.139
  - Mean Viral Load (VL) levels decreased in both arms
    - MACARTI had a lower trend than SOC, p=0.019
    - The odds of having an undetectable VL at one year was higher in MACARTI vs. SOC (aOR=4.92, 95% CI: 2.03-11.97)





CONCLUSIONS

- **MACARTI was successful in :**
  - Identifying HIV-infected youth in the community
  - Linking identified positive youth within 3 months of diagnosis
  - Improving retention rates, CD4 counts and viral suppression among newly diagnosed youth

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