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Title: Characteristics Associated with Retention among African American and Latino Adolescent HIV-Positive Men: Results from the Outreach, Care, and Prevention to Engage HIV Seropositive Young MSM of Color Special Project of National Significance Initiative

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Abstract.

Background. Surveillance points to an urgent public health need for HIV prevention, access, and retention among young African American and Latino men who have sex with men (YMSM). The purpose of this multisite study was to evaluate the association between organizational- and individual-level characteristics and retention in HIV care among HIV+ YMSM of color.

Methods Data were collected quarterly via face-to-face interviews and chart abstraction, between June 2006 and September 2008. Participants were ages 16 to 24 years, enrolled at one of 8 participating youth-specific demonstration sites, and engaged or re-engaged in HIV-care within the last 30 days. Generalized estimating equations (GEE) were used to examine factors associated with missing research and care visits. Stata v.9.0se (College Station, TX) was used for analysis.

Results. Of 224 participants, the majority was African-American (72.7%), 19 to 22 years old (66.5%), had graduated high school or equivalent (71.8%), identified as gay or homosexual (80.8%), and disclosed having had sex with a man prior to HIV-diagnosis (98.2%). Over the first 2 ¼ years of the study, only 11.4% of visits were missed without explanation or patient contact. Characteristics associated with retention included being <21 years old, a history of depression, receipt of program services, and feeling respected at clinic; those associated with poorer retention included having a CD4 count <200 at baseline and being Latino.

Conclusions. SPNS programs were able to achieve a high level of retention over time and individual- and program-characteristics were associated with retention. Latino YMSM, those not receiving services, and those not perceiving respect at the clinic were at increased risk of falling out of care. Retention is essential to providing HIV+ adolescents with treatment, including reducing antiretroviral resistance development. Innovative programs that address the needs of the YMSM of color population may result in improved retention.

Characteristics Associated with Retention among African American and Latino Adolescent HIV-Positive Men: Results from the Outreach, Care, and Prevention to Engage HIV Seropositive Young MSM of Color Special Project of National Significance Initiative

Ms: QAIB2287

Please accept our sincerest thanks for your comments and review of this manuscript. Below please find a detailed response to each of the critiques; they have improved the paper enormously and we are grateful. In light of the request to tighten the manuscript, we have truncated some of the narrative, but if more detail is desired, we are happy to replace it in another version. Many thanks again for your review. M Magnus et al

Reviewer's Comment	Correction/Addressing of Issue
I would like to see a specific reference to the importance of care retention, and mention of the increased risk for medication resistance when care is interrupted, and therefore increased opportunities for transmission of mutated virus in communities already disadvantaged. I think stating this up front does a better job of setting the stage for why we should care so much about retention, particularly for people of color.	Thank you for this excellent comment; this concept and specific references have been introduced in the introduction.
Also, what do they mean by "feel respected"? By whom? How was the question asked? Any ideas on how to change "my" clinic to ensure that my patients feel respected?	Thank you for this very helpful comment. We have added citations on some research that has been done to indicate the importance of cultural competence for Latino participants, and emphasized this in the discussion.
The abstract is a little bit sloppy, with no close parentheses, extra words, run-on and poorly written sentences, etc.	Thank you for helping us improve this paper; we have tightened up the abstract and edited for clarity.
What is the "n=536" supposed to represent? I am assuming patient visits, but I shouldn't have to assume.	That is correct, but we have removed it as it was, indeed, confusing in the abstract.
It is very interesting that history of depression is a facilitator to retention, as the literature would certainly suggest that it would be a barrier. Still don't get the "ever feeling depressed" association with being LESS likely to miss a visit, unless it somehow is tied to service	We also found this interesting and have expanded our analysis and discussion of this question. Each of these programs does detailed intake evaluations of participations, thus identifying youth at risk for depression initially, and providing enhanced and specialized services. This has been expanded upon. Thank you for your interest and pointing out the importance of this point.

Reviewer's Comment	Correction/Addressing of Issue
delivery. Please expand on your discussion of our finding related to history of depression. Also, please address the history of depression finding in your discussion, as well. This is kind of surprising, and deserves further intelligent speculation.	
I think the "respect" finding is also very interesting and clinically relevant, as it is a factor that is certainly something that clinics could somewhat easily change and potentially improve retention. It perhaps deserves an additional sentence in the conclusions, as it would be helpful to know what factors contributed to the sense of respect.	We enhanced our analysis of this question, to look at correlates of the perception of respect at the clinic. Please see narrative for more information. This important concept was also, based on this suggestion, and expanded in the discussion. It is linked, we feel, to program delivery and service receipt. The unique program services are now discussed in greater detail.
Similarly, which services received were predictive of retention.	In addition to the characteristics outlined in Table 3, we looked at specific services that comprised the "any services" in detail. Actual service encounters were extremely homogenous, with over 80% case management and social work. Given this, looking at the dichotomized variable (any vs. none) services for the models was most appropriate, leaving the detailed univariate information in Table 3 to describe the program service delivery in detail.
End of first paragraphs, forgot "that" Page 5, middle paragraph, middle sentence, take out the first "who" Same paragraph, shouldn't it be development stageS, plural? In your inclusion criteria, please use commas and semicolons correctly, which will make it much clearer.	Thank you. We hope to now have done a better editing job we hope on this version and appreciate your pointing these out; they have improved the paper greatly.
What does "out of care" mean? Certainly with these patients they frequently go AWOL, and come back, only to do it again months later. Please define this term. And what does "newly reengaged in care" mean. One visit? Two? The description of your outcome in the methods is very confusing.	This has been clarified in the methods. Thank you for focusing our attention on this part of the narrative, so that it could be written more clearly.

Reviewer's Comment	**Correction/Addressing of Issue**
Where was the actual recruitment from? There were 189 youth in care at baseline, so presumably this was a clinic-based sample, with the other 35 referred from elsewhere?	All participants had to be engaged or re-engaged in care (after a lapse of more than 6 months) within 30 days of the first interview. These 189 youth *completed* their first HIV-care visit between the time they engaged in care and the interview. Most of the participants were referred from the outreach portion of the SPNS projects—not from clinics. Only 14.8% tested positive at the SPNS program sites, with the rest referred from community based-clinics. A requirement of the study is that participants be newly engaged or re-engaged in care (<30 days) so this concept is reflected in this; the paragraph has been clarified so that this makes more sense.
Does the "out of school" group also include those who finished school? That term ("out of school") implies that they dropped out of school, but this is not possible if 43% have post high school education and 67% are "out of school".	These have been clarified; thank you.
I don't think that anybody reports "ever being depression". PLease fix that typo.	
Was "emotional" and "physical" abuse defined? Can you put that definition into the text? It is just such striking finding (certainly not novel, but one that everyone even remotely involved with this population should be aware of) that it should be highlighted and clearly defined.	This has been added in detail (wording of question) in Table 1.
Text on results for table 3: Please make this a bit more clear, eg, "significant increases from response to the question XXX WERE the following: transportation, etc." The way it is worded, the text does not tell you that the following increases were significant.	This has been reworded.
Last sentence of first paragraph. Run-on sentence - please fix the punctuation.	This has been reworded.
The food, incentive, gift care finding is interesting. Is there any way, with your data set, to look at this association in the setting of degree of need?	However, based on this suggestion, we looked at several variables, insurance, work, school to see if they were associated with receipt of these tangible items. This is now included in the analysis. Thank you for the suggestion.

Reviewer’s Comment	Correction/Addressing of Issue
Conclusions "as well AS increase secondary..." Please add missing word.	This has been corrected; thank you.
Overall this section could be more thoughtful, as it doesn't add much, and it should. (Disucssion section.)	Thank you; we have tried to improve it based on these very helpful comments.
TABLES: typo top of page 23 on condom use variable	Thank you; this has been corrected.
First, there is extremely minimal attempt to describe the SPNS initiatives. Obviously they are very different, but a bit meatier description of some common elements and novel approaches/aspects would be helpful.	This is a great point. We have added a Table 1 that now details the interventions used.
A primary reason somebody might want to read this paper is to determine how better to retain these youth in their own clinics. This paper doesn't help much with that, but I think it could. Your big findings are that receipt of services and feeling respected are the only positive predictors that are actually something that can be changed at one's own clinic, yet there is minimal discussed of either. What services? As a provider who wants to improve retention, which services should I ensure I add to my clinic? Only 11.4% of visits missed with this population is really pretty astounding. As a reader, please have this paper help me improve my own such numbers!	This has been expanded to reflect this good point. We have added analysis to characterize the people who feel respected and predictors of feeling respected, as well as tie back in discussion to make clearer what might be done—and back into the citations requested above. We have also tried to expand on what these SPNS projects did so that they might be able to be generalized to other programs in the future.

Characteristics Associated with Retention among African American and Latino Adolescent HIV-Positive Men:

Results from the Outreach, Care, and Prevention to Engage HIV Seropositive Young MSM of Color Special Project of National Significance Initiative

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Abstract.

Background. Surveillance points to an urgent public health need for HIV prevention, access, and retention among young African American and Latino men who have sex with men (YMSM). The purpose of this multisite study was to evaluate the association between organizational- and individual-level characteristics and retention in HIV care among HIV+ YMSM of color.

Methods Data were collected quarterly via face-to-face interviews and chart abstraction, between June 2006 and September 2008. Participants were ages 16 to 24 years, enrolled at one of 8 participating youth-specific demonstration sites, and engaged or re-engaged in HIV-care within the last 30 days. Generalized estimating equations (GEE) were used to examine factors associated with missing research and care visits. Stata v.9.0se (College Station, TX) was used for analysis.

Results. Of 224 participants, the majority was African-American (72.7%), 19 to 22 years old (66.5%), had graduated high school or equivalent (71.8%), identified as gay or homosexual (80.8%), and disclosed having had sex with a man prior to HIV-diagnosis (98.2%). Over the first 2 ¼ years of the study, only 11.4% of visits were missed without explanation or patient contact. Characteristics associated with retention included being <21 years old, a history of depression, receipt of program services, and feeling respected at clinic; those associated with poorer retention included having a CD4 count <200 at baseline and being Latino.

Conclusions. SPNS programs were able to achieve a high level of retention over time and individual- and program-characteristics were associated with retention. Latino YMSM, those not receiving services, and those not perceiving respect at the clinic were at increased risk of falling out of care. Retention is essential to providing HIV+ adolescents with treatment, including reducing antiretroviral resistance development. Innovative programs that address the needs of the YMSM of color population may result in improved retention.

Background.

Surveillance data point to an increasing public health need for HIV prevention, access, and retention in care among young men of color who have sex with men (YMSM). Among adolescents diagnosed with HIV/AIDS through 2006 in the US, 64% were attributed to MSM behavior with an increased proportion among adolescents[1, 2]. Between 2001 and 2006, MSM ages 13 to 24 had the greatest proportional increase in cases; of those adolescents, black YMSM experienced a 93% increase in HIV/AIDS[1, 2]. YMSM of color have also shown an increased risk of unrecognized HIV infection[3-5]. For example, the Young Men's Survey (YMS) found a substantial proportion of black MSM participants were unaware of their HIV-status[6].

Adolescence presents unique challenges to linkage and retention in HIV care for YMSM of color. The added facets of sexual orientation and gender identity development, homophobia, racism, poverty, stigmatization, and developmental proclivity towards risk taking, results in frequent marginalization of minority MSM, which can create barriers to care[3, 5-21]. HIV facilities may not be culturally or age appropriate, have specialty staff, accommodate bilingual needs for Latino youth, or other characteristics sufficient to address the adolescent's unique and constantly changing needs. [3, 5-21]. Youth have been found to be less likely to return for HIV test results, reducing opportunity for harm reduction or access to care; African American MSM and MSM with other high risk behaviors are often the least likely to return and the most likely to be unaware of their HIV-positive status.[3, 5-21]

More information is needed about YMSM of color in order to create innovative, effective prevention and care services. Such models are critical for non-white YMSM not already receiving HIV-prevention or treatment services. HIV-positive youth are more likely to “fall through the cracks”[10] and have been described as a “special type of hidden population”[7] requiring unique case findings strategies, with distinctive program characteristics that engage and retain youth[7]. These novel strategies may include case management and care programs that actively engage adolescents and young adults in youth-friendly environments while recognizing their needs through the stages of develoment.[7, 10, 14, 15] Specialized services may also be better able to provide the support youth need to remain on antiretroviral treatment. Given that the risk of viral resistance is increased in the face of poor adherence to treatment, the need for such services becomes more pronounced among subpopulations of youth at risk.

In order to expand on findings of an earlier multisite study on adolscents,[7] the Health Resources Services Administration (HRSA) HIV/AIDS Bureau (HAB) funded eight demonstration sites and one evaluation center in 2003 for a five-year Special Projects of National Significance (SPNS). The objective of the initiative was to identify innovative strategies for outreach, linkage, entry, and retention in care for HIV-positive YMSM of color, primarily those out of care or not accessing prevention or treatment services or other research. The purpose of this study was to examine characteristics of participants and associations between program delivery and retention in care.

Methods.

Participants were enrolled at one of eight SPNS-funded demonstration sites (Bronx, NY; Chapel Hill, NC; Chicago, IL; Detroit, MI; Houston, TX; Los Angeles, CA; Oakland, CA; and Rochester, NY), each with its own outreach, linkage, and retention strategy. Interventions at the sites varied based on local standards as well as the selected program under evaluation. The projects are described in Table 1. Two involved intensive case management provided to YMSM; one used motivational interviewing to increase HIV testing and return for results; two developed youth-centered support environments with groups and educational offerings; two used youth organizer/enhanced organizational outreach approach; and one a was a statewide YMSM outreach initiative. All sites were required to enhance linkages with primary care providers with experience in HIV+ youth, and most collaborated closely with them on a regular basis. One consistent characteristic was that all of the programs were specific to the YMSM of color population. In addition, each had at least one newly developed adolescent feature, such as adolescent medicine specialists, youth environment, support groups, peer outreach/navigation, waiting room redesign, outreach/care linkages, and/or social marketing.

One evaluation and support center was funded to assist local evaluations and conduct a multisite evaluation. In order to be eligible for the prospective multi-site study from which these data were drawn, participants had to be: a) male (biologically-born male or female-born individuals who self-identify as male); b) HIV+; c) diagnosed HIV+ within the past 30 days, or re-engaged in care in the past 30 days after being out of care for at least 6 months; d) a male who has sex with males or has intent/wish to have sex with males; e) self-identified as non-white, f) between 13 and 24 years at the time of the first interview; and g) able to provide written informed consent. Eligible participants were administered a standardized face-to-face interview by local study staff at baseline and every three months thereafter. Data collected between June 2006 and September 2008 were analyzed. The questionnaire was adapted from standardized tools, including the Young Men's Survey, the Youth Risk Behavior Survey, National HIV Behavioral Surveillance tools, the HIV Cost and Service Utilization Study (HCSUS), previous SPNS instruments, and Adolescent Trials Network (ATN) questions. Clinical data were abstracted by local staff. De-identified data were entered into a secure web-based data portal by study staff and analyzed by evaluation center faculty. All participants provided written informed consent to participate in the study. All instruments and protocols were approved by HRSA/HAB/SPNS, local IRBs, and the George Washington University IRB.

Uni- and bivariate analyses were used to describe participants and potential confounders. Multivariable methods were used to describe characteristics associated with being unable to reach the participants at any quarterly visit. This outcome was chosen to assess program ability to prevent falling out of the system for any three month period. If the participant had contact with any part of the program—medical, program, or other ancillary care, even if not the research visit—he was not considered to have missed the visit. Medical or otherwise explained absences were not counted as negative outcomes. Generalized estimating equations (GEE) were used to assess associations between independent variables and missing the visit. GEE allows analysis of associations between the predictors under study (individual- and program-level characteristics) and low retention in the study and clinic, after adjusting for confounders and the effect of time; it also allows reduction in variance attributable to the intraperson correlation between the multiple visit time-points[22-24]. An exchangeable correlation structure and robust estimators of variance were used; parameter estimates were exponentiated to provide odds ratios (OR) and confidence intervals (CI). Exact time was used in the model as the time variable. Multivariable models were developed by conducting a bivariate screening procedure; variables that were moderately associated ($p<0.25$) with the outcome were eligible for inclusion in the model. A backward stepwise procedure was then used, with significant ($p<0.05$) variables as well as known confounders and predictors of interest left in the model. Potential confounders were re-entered into the model and the model was checked for alteration (>5%) in the coefficients, in order to ensure that residual confounding was not missed. All two-way interactions were assessed for significance. Stata Software, Version 9.0SE (Stata Corporation, College Station, Texas) was used for analysis.

Results.

Baseline characteristics of study participants are described in Tables 2 and 3. Of the 224 clients enrolled in the study, the majority was African-American (72.7%), 19 to 22 years of age (66.5%), self-identified as gay or homosexual (80.8%), and had high-school equivalency or beyond (71.8%) at the time of the baseline interview. Almost all disclosed having had sex with a man prior to HIV diagnosis (98.2%) and most (92.2%) were comfortable with their sexual orientation. The majority (94.2%) identified as male, with the remainder a combination of female, transgender, transsexual, “realness” (a participant defined term often part of the house/ball culture), butch or femme queen, or cross-dresser.

Before being referred into the SPNS projects, nearly a quarter (24.8%) of participants first tested HIV+ at a clinic or doctor's office and 60.3% at other healthcare facilities. At baseline, 12.2% had an absolute CD4<200 and 35.8% had an HIV viral load > 100,000 copies/mL. Nearly a quarter (24.9%) had received routine health care in the last three months, while 18.3% had been seen in an emergency room in the last 3 months and 10.7% had been hospitalized. By protocol, the baseline interview took place within 30 days of being engaged or re-engaged in care; most participants (84.4%) were able to complete their first HIV care visit by the time the baseline interview took place. The mean time to enter care was 1.37 months following first HIV+ result (sd 2.51, median 0.46 months), with the range 0.03 to 17.89 months. A fifth (19.6%) of participants was re-engaged in care after an absence of more than 6 months.

As shown in Table 2, drug and alcohol use were common, with 72.3% of participants ever having used marijuana and 66.1% ever having used other drugs (e.g., heroin, cocaine, painkillers, hallucinogens); 58.7% drank alcohol at least one day out of the last 14, including 57.2% of participants under 21 years of age. Nearly half (47.4%) cited problems associated with drug or alcohol use in the last 3 months. Condom use at last sex varied based on type of sex, but the majority (77.7%) reported condom use at last anal sex. Condom use varied based on behavior, with a low of 32.3% at last receptive oral sex to a high of 79.2% for insertive anal sex. Participants reported having experienced a substantial variety of negative situations. These included running out of money for basic needs in the last three months (86.2%), witnessing ambient violence (77.5%), seeing someone attacked with (33.2%) or killed with a gun (13.2%), and fear of violence (19.9%). Participants also had lifetime histories frequently including violence due to their race (19.0%) or sexuality (54.4%), and reported high rates of ever being depressed (36.1%), attempting suicide (14.0%), and experiencing emotional or physical abuse (70.9%). On the Center for Epidemiologic Studies-Depression (CES-D) index, 50.2% scored above the cut point demonstrating depressive symptomatology ($\geq$ 16).

The programs maintained high levels of participation: only 11.5% of all quarterly follow up visits were missed for unknown reasons, suggesting an 88.9% retention rate. This missed visit rate included all visits in which both the study and clinic visits were missed, and the participant could not be contacted for up to 6 weeks following the scheduled visit. There were no significant differences in retention between demonstration sites. As shown in Table 4, the aggregate level of participants responding to the question "… Did any of these things help you keep your HIV-related medical care appointments in the last 3 months?" increased significantly in the following: transportation increased to 53.3% at follow-up vs. 43.3% at baseline; appointment reminders 77.3% vs. 62.0%; concrete items at visit (e.g., food, incentive, phone card) 27.5% vs. 10.2%; flexible scheduling 72.7% vs. 58.3%; other services (e.g., support group, case management) 40.7% vs. 27.3%; and feeling respected by the provider 66.7% vs. 55.1%.

There were significant differences between groups perceiving respect at the clinic, with African-American youth more likely than others to feel respected (OR 1.73, 95% CI 1.10-2.75, $p<0.02$), as were those with parental insurance (OR 1.68, 95% CI 1.04-2.72, $p<0.04$) and those in school (OR 1.66, 95% CI 1.09-2.53, $p<0.02$). Latino youth were significantly less likely to feel respected at the clinic (OR 0.63, 95% CI 0.40-0.98, $p<0.04$). Similarly, there were significant differences between groups receiving program services: those in school (OR 3.54, 95% CI 1.50-8.30, $p<0.05$) and work (OR 16.23, 95% CI 6.41-41.05, $p<0.001$) were more likely to receive services, and those experience depressive symptoms at baseline were less likely to receive program services (OR 0.40, 95% CI 0.18-0.89, $p<0.03$). Those with viral loads at baseline >10,000 vs. ≤ 10,000 were more likely to receive concrete items (OR 1.79, 95% CI 1.08-3.00, $p<0.03$), though there were no other significant differences seen between those receiving and not receiving services or concrete items.

As shown in Table 4, after adjustment for baseline age and CD4 count, receipt of any program service (OR 0.16, 95% CI 0.03-0.92) and feeling respected at the clinic (OR 0.06, 95% CI 0.006-0.58) were associated with being less likely to miss a visit, while having other additional concrete item (e.g., food, phone card) at the clinic was associated with being more likely to miss a visit (OR 10.36, 95% CI 1.23-87.36). As shown in Table 5, after adjustment, younger age (<21) (OR 0.09, 95% CI 0.01-0.74) and ever feeling depressed (OR 0.15, 95% CI 0.03-0.74) were associated with being less likely to miss a visit. Having a lower CD4 count (<200) (OR 4.46, 95% CI 1.05-18.90) and being Latino (OR 3.85, 95% CI 1.15-12.88) were associated with being more likely to miss a visit.

Discussion.

This study of newly engaged in care HIV-positive YMSM of color reveals that despite the challenges that this population experiences on a day-to-day basis, YMSM of color may successfully be retained in care and in research. Latino youth may need further specialized ancillary care: even within youth focused programs such as these, they were more likely to encounter barriers to staying in care, and were less likely to perceive positive elements of the clinic environment, such as feeling respected. As has been seen by other authors[6-14, 19, 21, 25], HIV+ YMSM of color often face multi-faceted profound challenges. These include parental abuse, substance abuse, depression, violence, stigmatization, poor access to medical care, and evolving gender identity and sexual orientation issues, all against the backdrop of adolescent developmental changes. However, even the YMSM in this study considered difficult to reach with active retention procedures, only 11.4% of visits were completely missed over the study period to date—an acceptable attrition rate.

This study found that there were several program-level factors associated with retention, including, perhaps most importantly, feeling respected at the clinic and receiving program services. Feeling respected may have emerged as a result of the wide variety of youth-focused services including flexible scheduling, having accompaniment to clinic, transportation, appointment reminders, liking the providers, and having co-located services. Uptake of all of these services increased over time, and service receipt was associated with increased retention.

Concrete item receipt was associated with reduced retention, though this may be an artifact of the association found between provision of these and high viral loads and current enrollment in school (which is associated with being younger age). YMSM in both of those categories may have presented increased challenges for retention, and thus precipitated provision of the concrete items. The concrete items were distinct from receipt of program receipt, which was associated with increased retention though it is not possible to separate the availability of services at the site with the program itself. While younger participants and those with increased depressive symptomatology were actually more likely to be retained, participants with lower CD4 counts at baseline and Latino YMSM were less likely to be. It may be that sicker participants who access care later need additional or differentiated support from those identified earlier in the disease process. In addition, the SPNS project did not have Latino-specific approaches. Latino youth often experience very different family and social contexts, which may necessitate additional approaches, even within programs providing minority YMSM care. For example, Latino ethnicity has been associated with late HIV testing; our finding that Latino YMSM were at increased risk of falling out of care may emphasize the need for specific cultural approaches for Latino YMSM. The finding that depression was linked to increased retention suggests that youth-specific services can actively engage depressed youth and devote special case management to those in need. This approach of identifying depressed youth and treating them may result in increased retention of those most at-risk youth.

Limitations.

There are several limitations to this study. SPNS initiatives examine innovative approaches to retention and care for HIV+ youth; as a result, each of the eight participating sites had a unique program, rendering it difficult to compare interventions despite common evaluation methodology. As with all questionnaires, information bias presents a particular concern, subject to interviewer, recall, social desirability, and other biases. Computer techniques have been shown to effectively reduce such biases among some populations, but among adolescents there have been mixed findings [26-34]. Due to resource constraints, a computer assisted self-interview approach was not feasible. The high rates of depression, suicidality, and substance abuse reported suggests that participants were candid with interviewers. While training and data collection quality checks were centralized, supervision and quality assurance was provided and overseen locally, which may have introduced increased variability in data quality, though this was not observed statistically. Finally, this was a convenience sample, thus these findings may not be generalizable.

This study has several strengths. Unlike other studies of adolescents, this study focused on enrolling individuals not already in HIV-care who had multiple barriers to access, including being young, HIV+, belonging to a minority group, and MSM; all were newly engaged or re-engaged in care. Thus this cohort represents harder to reach adolescents and sought to identify what were effective means of keeping them in the program. Another strength was the diversity in site locations throughout the country with different program approaches. As a longitudinal design, with GEE, this study allowed examination of changes over time related to baseline as well as time-varying covariates, including service delivery.

Conclusions.

As HIV/AIDS continues to affect African American and Latino YMSM populations, it is becoming increasingly important to develop, implement, and evaluate innovative approaches to linking and retaining them in care. Adolescents effectively engaged in care are more likely to adopt harm reduction behaviors and to reduce their own risks—not only for HIV-related illness but also for concomitant conditions such as mental illness, substance abuse, and socio-environmental challenges—as well as increase secondary prevention behaviors. YMSM of color are at particular risk of threats to mental health and substance abuse, and unique approaches to addressing their needs are required. This initiative suggests that YMSM of color can be treated neither like children nor like adults: unique age- and developmental-specific interventions must be created for them. These, in turn, need to be customized for the needs of young MSM of color and also be culturally appropriate for the population being served. Innovative approaches may need to provide for the cultural context of Latino youth individually, as well as those youth more progressed in their HIV-disease. Without careful attention paid to the needs of the population, ensuring retention of those in care will not happen. Future study is needed to improve program offerings—as well as to develop additional innovative approaches to supporting HIV+ YMSM of color.

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Table

Table 1. Characteristics of Demonstration Sites (N=8).

Organization	Description
AIDS Project East Bay	New and adapted programs, within an existing network of programs, comprise a youth-directed, community-based outreach system and referral network. Direct linkage into care in an adolescent HIV specialty clinic. Psychosocial retention activities.
Bronx AIDS Services, Inc	Use of trained peers to conduct outreach and work as Community Ethnographic Organizers (CEOs), characterizing YMSM community and referring youth into HIV testing and care. Enhanced collaboration with Adolescent AIDS Program of the Children's Hospital at Montefiore Medical Center.
Harris County Public Health and Environmental Services, with involvement of City of Houston Health and Human Services, Thomas Street Health Center, and Baylor College of Medicine	Weekly surveillance reports from the City of Houston were utilized to identify newly diagnosed HIV+ youth. A standardized linkage to care procedure involving a direct handoff of newly diagnosed HIV+ youth between outreach workers and Thomas Street Health Center case managers was implemented. Intensive case management with motivational interviewing was offered to all HIV+ youth.
Los Angeles County Department of Public Health, Los Angeles	Expanded, active, community-based outreach to HIV counseling and testing, followed by referral and linkage into a youth-focused case management intervention at two community-based clinics.
The MOCHA Center, Inc.	A collaborative between the MOCHA Center, Inc and the University of Rochester – School of Nursing that focused on modification and adaptation of comprehensive, theory based, and culturally appropriate prevention intervention programs for use with HIV-infected YMSM of color and those at high risk. Established a drop-in center and outreach program (including the internet) to identify infected youth as well a local care collaborative to link them into HIV care services.
University of North Carolina, Chapel Hill	A collaborative between UNC and community-based prevention and case management agencies. This project will conduct and evaluate a social marketing campaign, promote access to HIV treatment and care among newly diagnosed YMSM of color, and focus on colleges on campus.
Working for Togetherness, Inc.	Conduct outreach and in-reach strategies to deliver HIV prevention messages and increase early detection and treatment of HIV-positive youth; create and operate a Youth Empowerment Center to increase youth self-efficacy to enter and remain in culturally- and

	developmentally-appropriate HIV primary care.
Wayne State University, Horizons Project	Field- and Internet-based outreach to encourage African American YMSM to know their HIV status and enroll and remain in medical care. Motivational interviewing (MI) is provided in addition to field outreach to encourage HIV counseling and testing and returning for test results.

Table 2. Baseline characteristics of participants (N=224).

	n(%)
Site:	
Chapel Hill, NC	52 (23.2)
Bronx, NY	46 (20.5)
Los Angeles County, CA	44 (19.6)
Harris County, TX	28 (12.5)
Detroit, MI	28 (12.5)
Oakland, CA	15 (6.7)
Chicago, IL	8 (3.6)
Rochester, NY	3 (1.3)
Age:	
Less than 19	42 (19.0)
19-22	147 (66.5)
Older than 22	32 (14.5)
Race/ethnicity:	
African-American	162 (72.7)
Other	61 (27.4)
Latino/Hispanic	63 (28.3)
Highest level of education:	
Less than high school	63 (28.3)
Completed high school or equivalent	64 (28.7)
Beyond high school equivalent	96 (43.1)
Currently not in school	143 (64.7)
Currently unemployed	106 (48.4)
Sexual identity*	
Homosexual	57 (25.7)
Gay	134 (60.4)
Bisexual	47 (21.2)
Queer or two spirited	8 (3.6)
Heterosexual	7 (3.2)
Other	18 (8.1)
Comfort with Sexual Orientation:	
Very comfortable or comfortable	193 (92.2)
Uncomfortable or very uncomfortable	12 (6.9)
Drug use (ever):	
Marijuana**	138 (72.3)
Other drugs***	148 (66.1)
Drank alcohol at least one day in last 14 days	118 (58.7)
Mean (sd) days drank alcohol in last 14 days	2.3 (3.23), range 0-14
Condom use:	
Last insertive oral sex	41 (32.8)
Last receptive oral sex	40 (32.3)
Last insertive anal sex	76 (79.2)
Last receptive anal sex	84 (68.9)

If had anal sex, used condom at last anal sex, past 3 months	115 (77.7)
Run out of money for basic needs, last 3 mo	
Many times	71 (33.8)
A few times	45 (21.4)
Once or twice	44 (21.0)
Never	50 (23.8)
Made fun of because of sexuality, ever	
Many or a few times	112 (54.4)
Made fun of because of race/ethnicity	
Many or a few times	42 (19.0)
Sexuality hurt/embarrassed family, ever	
Many or a few times	39 (39.5)
Afraid of violence in neighborhood	42 (19.9)
Have ever seen someone shoved, kicked, or punched	162 (77.5)
Have ever seen someone attacked with a knife	74 (35.8)
Have ever seen someone attacked with a gun	69 (33.2)
Have ever seen someone killed with a gun	27 (13.2)
Hit or tried to hit with object	73 (32.7)
Any emotional abuse┼	82 (36.8)
Any physical abuse┼┼	127 (57.0)
Any abuse	158 (70.9)
Any exchange of sex	29 (13.0)
Depressive symptomatology (CES-D score at baseline)	
≥ 16	104 (50.2)
< 16	103 (49.8)
Ever depressed	79 (36.1)
Ever attempted suicide	29 (14.0)

┼ "When your parent or primary caretaker has disagreements with you, do they ever: Hurt your feelings/emotionally abuse you?" ┼┼"When your parent or primary caretaker has disagreements with you, do they ever: [respondent could select all that apply from list that included kick, bite, hit with fist, with object, beat you up, burn or scald you, threaten you with knife or gun, threaten your life in some other way, touch you in a way that makes you uncomfortable.]"

*Could check more than one.

**n=191

***Heroin, cocaine, painkillers, hallucinogens

Table 3. Baseline clinical characteristics (N=224).

	n(%)
On any ARV (including prescription written that day)	34 (20.7)
Absolute CD4 count*:	
>200	144 (87.8)
<200	20 (12.2)
HIV viral load (HIV RNA copies/mL)*:	
<10,000	31 (25.2)
10,000-100,000	48 (39.0)
>100,000	44 (35.8)
Any emergency room visit, 3 m	39 (18.3)
Any routine, preventive, or adolescent care, 3 m	53 (24.9)
Client hospitalized, 3 m	17 (10.7)

*At baseline or at first occurrence.

Table 4. Organizational and service characteristics associated with missing a visit (N=224).

	Baseline visits n=224 %	**Follow-visits n=396┼ %**	**Unadjusted OR**	**95% CI**	**Adjusted OR┼┼**	**95% CI**
Receipt of any program service┼┼┼	54.9	51.7	0.07**	0.01-0.45	0.16*	0.03-0.92
Perception that the following helped keep visits:						
Transportation	43.3*	53.3	0.67	0.29-1.53	2.79	0.34-22.75
Appoint reminder	62.0***	77.3	0.85	0.30-2.36	2.94	0.38-22.72
Someone came with me to my appointment	35.3*	23.5	0.44	0.18-1.08	--	--
Some additional value (e.g., food, incentive, phone card)	10.2***	27.5	0.91	0.38-2.15	10.36*	1.23-87.36
Flexible scheduling	58.3**	72.7	0.29**	0.13-0.64	--	--
Other services available there	27.3**	40.7	0.50	0.21-1.12	--	--
I like the provider**	55.1**	66.7	0.43*	0.19-0.95	0.14	0.01-1.96
Felt respected	54.6	62.4	0.40*	0.18-0.89	0.06*	0.006-0.58

*$p<0.05$ **$p<0.01$ ***$p<0.001$

--Not included in the model.

┼Only visits with data available from participant visit displayed; N=536 total forms completed for follow-up visits.

┼┼Adjusted for age and baseline CD4 count

┼┼┼Ever use of services was used instead of a time-dependent covariate in adjusted model, due to limited degrees of freedom.

Table 5. Individual characteristics associated with missing a visit (N=224).

	Unadjusted OR	95% CI	Adjusted OR┼	95% CI
Age				
<21 vs. ≥ 21	0.11*	0.02-0.75	0.09*	0.01-0.74
CD4 count				
<200 vs. ≥ 200	2.11	0.52-8.54	4.46*	1.05-18.90
Told Mom or Dad				
Yes vs. no	0.49	0.21-1.14	2.63	0.60-11.41
African-American				
Yes vs. no	0.66	0.28-1.55	--	--
Latino				
Yes vs. no	1.61	0.68-3.80	3.85*	1.15-12.88
Used parents' insurance				
Yes vs. no	0.10*	0.01-0.62	--	--
Ever felt depressed				
Yes vs. no	0.40*	0.16-0.97*	0.15*	0.03-0.74
Any schooling				
Yes vs. no	0.56	0.24-1.32	--	--
CES-D score at baseline				
<16 vs. ≥ 16	0.38	0.14-1.02	--	--
Currently working				
Yes	0.97	0.36-2.63	--	--

*$p<0.05$ **$p<0.01$ ***$p<0.001$

┼Adjusted for all other variables listed in the column, and time.

--Not included in the model.

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(the "Work")

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MANDATORY AUTHORSHIP CHECKLIST

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- *b*) Drafting the paper or revising it critically for important intellectual content; ***and***
- *c*) Final approval of the version to be published.

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