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Amy Rock Wohl^a, Wendy H. Garland^a, Juhua Wu^b, Chi-Wai Au^b, Angela Boger^b, Rhodri Dierst-Davies^a, Judy Carter^b, Felix Carpio^c & Wilbert Jordan^d

^a Los Angeles County Department of Public Health, HIV Epidemiology Program, Los Angeles, CA, USA

^b Los Angeles County Department of Public Health, Office of AIDS Programs and Policy, Los Angeles, CA, USA

^c AltaMed Health Services Corporation, Daniel V. Lara Clinic, Los Angeles, CA, USA

^d Los Angeles County MLK-MACC, OASIS Clinic, Los Angeles, CA, USA

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A youth-focused case management intervention to engage and retain young gay men of color in HIV care

Amy Rock Wohl^{a*}, Wendy H. Garland^a, Juhua Wu^b, Chi-Wai Au^b, Angela Boger^b, Rhodri Dierst-Davies^a, Judy Carter^b, Felix Carpio^c and Wilbert Jordan^d

^aLos Angeles County Department of Public Health, HIV Epidemiology Program, Los Angeles, CA, USA; ^bLos Angeles County Department of Public Health, Office of AIDS Programs and Policy, Los Angeles, CA, USA; ^cAltaMed Health Services Corporation, Daniel V. Lara Clinic, Los Angeles, CA, USA; ^dLos Angeles County MLK-MACC, OASIS Clinic, Los Angeles, CA, USA

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HIV-positive Latino and African-American young men who have sex with men (YMSM) have low rates of engagement and retention in HIV care. An evaluation of a youth-focused case management intervention (YCM) designed to improve retention in HIV care is presented. HIV-positive Latino and African-American YMSM, ages 18–24, who were newly diagnosed with HIV or in intermittent HIV care, were enrolled into a psychosocial case management intervention administered by Bachelor-level peer case managers at two HIV clinics in Los Angeles County, California. Participants met weekly with a case manager for the first two months and monthly for the next 22 months. Retention in HIV primary care at three and six months of follow-up was evaluated as were factors associated with retention in care. From April 2006 to April 2009, 61 HIV-positive participants were enrolled into the intervention (54% African-American, 46% Latino; mean age 21 years). At the time of enrollment into the intervention, 78% of the YMSM had a critical or immediate need for stable housing, nutrition support, substance abuse treatment, or mental health services. Among intervention participants ($n = 61$), 90% were retained in primary HIV care at three months and 70% at six months. Among those who had previously been in intermittent care ($n = 33$), the proportion attending all HIV primary care visits in the previous six months increased from 7% to 73% following participation in the intervention ($p < 0.0001$). Retention in HIV care at six months was associated with increased number of intervention visits ($p = 0.05$), more hours in the intervention ($p = 0.02$), and prescription of HAART. These data highlight the critical needs of HIV-positive African-American and Latino YMSM and demonstrate that a clinic-based YCM can be effective in stabilizing hard-to-reach clients and retaining them in consistent HIV care.

Keywords: adolescents; MSM; HIV/AIDS; Latinos; African-Americans; interventions

Introduction

National HIV and AIDS rates are elevated for African-American and Latino youth which is consistent with 2008 behavioral surveillance data in Los Angeles County in which HIV prevalence rates were 17% for African-American and 13% for Latino 18–24-year-old young men who have sex with men (YMSM) (Bingham & Sey, 2009; Centers for Disease Control and Prevention [CDC], 2008). Youth are also known to test late for HIV, delay seeking care for an HIV infection following a positive HIV test, are at high risk for dropping out of HIV care and have poor adherence to antiretroviral treatment regimens (Centers for Disease Control and Prevention [CDC], 2005; Johnson, Sorvillo et al., 2003; Rao, Kekwaletswe, Hosek, Martinez, & Rodriguez, 2007; Rudy, Murphy, Harris, Muenz, & Ellen, for the Adolescent Trials Network for HIV/AIDS Interventions, 2009; Valleroy et al., 2000). In addition, among a national sample of

HIV-positive 15–22-year-old YMSM, only 15% were receiving HIV medical care and 8% were on antiretroviral medications (Valleroy et al., 2000).

Given the difficulties faced by HIV-positive youth, targeted interventions are needed to help YMSM access and attend regularly scheduled primary HIV care appointments. The successful management of HIV disease requires frequent lifelong appointments with an HIV primary care provider and uninterrupted medication use, requirements that impose substantial lifestyle changes for all HIV-positive persons (Department of Health and Human Services [DHHS], 2008). Given the many competing challenges that HIV-positive minority YMSM face in their daily lives including cultural and community stigma toward their sexual orientation and HIV status, sexual identity issues, substance abuse, mental illness, and basic subsistence concerns regarding employment, education, transportation, and housing,

*Corresponding author. Email: awohl@ph.lacounty.gov

it is not surprising that additional support is needed to help them manage their HIV infection (Eastwood & Birnbaum, 2007; Mustankski, Garafalo, Herrick, & Donenberg, 2007; Rao et al., 2007; Swendeman, Rotheram-Borus, Comulada, Weiss, & Ramos, 2006; Valleroy et al., 2000).

Several interventions have helped at-risk youth access and remain in general medical care and several models of integrated medical care for HIV-positive youth have been developed (Harris et al., 2003; Huba & Melchior, 1998; Johnson, Sorvillo et al., 2003; Schneir, Kipke, Melchior, & Huba, 1998; Woods et al., 1998). There are few quantitative evaluations of interventions, however, that target HIV-positive Latino and African-American YMSM with the goal of improving engagement and retention in HIV care. One intervention that included primarily HIV-negative at-risk youth (98%) used a combination of outreach, mental health and case management services and reported that retention in care was correlated with more outreach and case management contacts (Harris et al., 2003). Another case management program found that addressing barriers related to concrete needs helped improve retention in HIV care for a mostly female and young African-American sample (Johnson, Botwinick et al., 2003).

In 2004, the Health Resource and Services Administration (HRSA) HIV/AIDS Bureau, Special Projects of National Significance (SPNS) program funded eight demonstration sites to identify, implement, and evaluate new models to provide outreach and interventions for HIV-positive Latino and African-American YMSM (Magnus et al., 2010). As one of the demonstration sites, the Los Angeles County Department of Public Health developed and evaluated a clinic-based, youth-focused case management intervention (YCM) to engage and retain Latino and African-American YMSM in HIV primary care services.

Methods

Participants were recruited from April 2006 through April 2009 from HIV testing sites, sexually transmitted disease clinics, support groups, community colleges, clubs/bars, and two predominantly African-American or Latino public HIV clinics in Los Angeles County. Eligibility criteria included ages 13 to 23, confirmed HIV-positive status, African-American or Latino race/ethnicity, and biologically male. In addition, eligible participants had to be new to HIV care or in intermittent care with less than two HIV primary care visits in the previous six months.

YCM combined psychosocial case management, treatment education/adherence support and HIV risk reduction counseling to provide a client-centered intervention through which care was coordinated (Garland, Wohl, Boger, Carter, & Wu, 2006). The clinic-based intervention was administered by two para-professional, Bachelor-level case managers who were trained and supervised by a licensed clinical social worker to deliver the intervention in a non-judgmental and culturally appropriate manner. The participants met weekly with a case manager for the first two months and monthly for the next 22 months.

At the first meeting, the case managers conducted a comprehensive assessment to evaluate the participant's medical, physical, psychosocial, environmental, and financial needs. Using the stages of change model, the case manager evaluated whether participants were in one of the following stages with respect to initiation and utilization of HIV care: pre-contemplation, contemplation, preparation, action, or maintenance (Coury-Doniger, Levenkron, McGrath, Knox, & Urban, 2000; Elder, Ayala, & Harris, 1999). The case manager and the participant developed an individualized treatment plan to address identified barriers to engagement and retention in HIV care corresponding to their stage of change. To reduce barriers to care, necessary referrals for services were identified. Participants were provided \$25 quarterly for their participation in the evaluation totaling \$200 for the 24-month intervention.

Participants were administered a standardized baseline survey at enrollment by the case managers to assess demographic and psychosocial characteristics, sexual risk behaviors, substance use, depression, and HIV testing and care history (Magnus et al., 2010; Radloff 1977). Data on prescribed antiretroviral therapy regimens, CD4 counts, and attendance to HIV care appointments were abstracted from medical records.

The primary study outcome was the proportion of YMSM retained in HIV care at six months. For the purposes of analysis, retention in care was defined as attending two or more HIV care appointments in the past six months which was based on the DHHS treatment guideline recommendation during the study period of at least one HIV medical care visit every three–four months (DHHS, 2008). Odds ratios (ORs), 95% confidence intervals (CI) and *t*-tests were calculated to compare demographic and behavioral characteristics for Latino vs. African-American YMSM. Data on attendance and time in the intervention, referrals provided and referrals completed were compared using a binomial test of proportions. Referral data were used to construct a dichotomous composite variable to indicate whether a client had a

critical and immediate need for housing, nutrition, substance abuse treatment, and/or mental health services, characteristics identified in other studies of HIV-positive youth (Eastwood & Birnbaum, 2007; Johnson, Botwinick et al., 2003).

Data on mean number of HIV care visits, missed visits, percent of scheduled visits attended, and retention in care were compared at three and six months for all 61 patients. The same measures were compared at baseline and six months for the 33 patients who had been in intermittent care prior to enrollment in the intervention. These comparisons were conducted using paired *t*-tests and McNemar's test for paired data. Finally, logistic regression modeling was conducted to identify factors associated with retention in HIV care at six months and the unadjusted ORs and 95% CIs are presented. All statistical analyses were performed with SAS version 9.1 (SAS 2007). The study was approved by the institutional review boards at all of the participating organizations and all clients provided written informed consent in English or Spanish.

Results

The majority of the 61 participants were enrolled via referral from friends who were in the intervention (28%); 26% were enrolled through clinic in-reach by the case manager to re-engage patients who had been lost to care at the clinics; 18% were enrolled by clinic providers and staff; 16% were enrolled by referral from local HIV testing programs; 5% through out-reach activities, and 7% from other programs.

As shown in Table 1, 54% of the participants were African-American, 46% were Latino, and the mean age at enrollment was 21. Participants identified themselves as male (91%), transgender (3%), female (3%), or other/refused to identify (3%). Sixty-one percent identified as homosexual, 21% as bisexual, and 11% as heterosexual.

Almost half (43%) of the participants reported that they were still in school and more than three quarters (84%) reported that they had completed at least high school. Compared to Latinos, African-Americans were significantly more likely to have completed at least high school (OR = 3.5, 95% CI = 1.03, 11.8). Overall, 42% were currently employed, with no statistical differences between African-Americans and Latinos. Most participants reported living with their family (57%) or friends (29%) and African-Americans were significantly more likely to report living with friends compared to Latinos (OR = 6.4, 95% CI = 1.6–25.4).

Based on the CES-D screening tool administered at time of enrollment, 66% of participants had depressive symptoms, with CES-D scores of 16 or more. In addition, African-Americans were three times more likely to have depressive symptoms at time of enrollment compared to Latinos (OR = 3.5, 95% CI = 1.01, 12.4).

Among African-Americans, 52% reported lifetime drug use and 54% of Latinos reported any lifetime drug use. Although not shown in Table 1, 46% of the overall sample reported lifetime marijuana use, 13% stimulant use, 8% inhalant use, and 23% other drugs.

As shown in Table 2, one (2%) participant exited the study early and seven (11%) were lost to follow-up. The participant who left the study early changed his primary HIV care to another location; the seven participants who were lost to follow-up were also lost to care at the clinic and included five who moved out of the area, one in jail and one whose whereabouts was unknown.

Participants attended an average of 5.1 scheduled YCM appointments, had on average 1.1 drop-in visits, 0.9 telephone contacts, and 2.3 missed YCM appointments. Overall, participants attended 61% of scheduled YCM appointments. Participants received a mean of 7.3 hours of the intervention with Latino YMSM receiving statistically more hours of the intervention compared to African-Americans ($p = 0.001$). The average YCM appointment lasted 67 minutes and the length of the appointment was significantly longer for Latinos compared to African-Americans ($p = 0.0003$).

There were 238 total referrals provided in the first six months of the intervention. The majority of referrals were for housing (29%), mental health services (13%), risk reduction education (11%), and transportation assistance (8%). By the end of six months, 163 of the 238 (68%) referrals were completed. Of these, 78% of the housing, 65% of the mental health, 77% of risk reduction education, and 68% of transportation referrals were completed.

African-Americans were more likely to receive referrals for housing ($p < 0.0001$) and transportation ($p < 0.0001$) compared to Latinos, and Latinos were more likely than African-Americans to receive referrals for risk reduction services ($p = 0.007$), support groups ($p = 0.03$), and substance abuse services ($p = 0.03$).

At time of enrollment into the intervention, 86% of the African-Americans and 71% of the Latinos had a critical need for housing, nutrition, substance abuse treatment, or mental health services.

From months 1–3, participants attended an average of 2.2 HIV primary care appointments,

Table 1. Demographic characteristics of HIV-positive 18–24-year-old men who have sex with men who participated in a youth-focused case management intervention ($N = 61$).

	African- Americans ($N = 33$) N (%)	Latinos ($N = 28$) N (%)	Total ($N = 61$) N (%)	OR (95% CI)	
Sexual orientation					
Homosexual/gay	20 (61)	17 (61)	37 (61)	Referent	
Heterosexual	1 (3)	6 (21)	7 (11)	0.2 (0.02–1.5)	
Bisexual	10 (30)	3 (11)	13 (21)	2.5 (0.7–9.2)	
Other/refused	2 (6)	2 (7)	4 (7)	1.0 (0.1–7.7)	
Gender identity					
Male	29 (88)	26 (93)	55 (91)	Referent	
Female	2 (6)	0 (0)	2 (3)	–	
Transgender	1 (3)	1 (4)	2 (3)	1.0 (0.6–16.2)	
Other/refused	1 (3)	1 (4)	2 (3)	1.0 (0.1–16.2)	
Education ^a					
Less than high school	5 (16)	11 (39)	16 (27)	Referent	
High school or more	27 (84)*	17 (61)*	44 (84)*	3.5 (1.03–11.8)*	
Currently in school ^b					
No	17 (55)	16 (59)	33 (57)	Referent	
Yes	14 (45)	11 (41)	25 (43)	1.2 (0.4–3.4)	
Currently employed ^c					
No	20 (67)	13 (48)	33 (58)	Referent	
Yes	10 (33)	14 (52)	24 (42)	0.4 (0.2–1.4)	
Housing status ^d					
Family	17 (53)	15 (63)	32 (57)	Referent	
Friends	13 (41)**	3 (12)**	17 (29)**	6.4 (1.6–25.4)**	
On own	2 (6)	5 (21)	7 (12)	0.5 (0.1–3.1)	
Homeless/shelter	0 (0)	1 (4)	1 (2)	–	
Depression – CES-D ^e					
No	6 (22)	10 (50)	16 (34)	Referent	
Yes	21 (78)***	10 (50)***	31 (66)***	3.5 (1.01–12.4)***	
History of drug use ^f					
No	16 (48)	13 (46)	29 (48)	Referent	
Yes	17 (52)	15 (54)	32 (52)	0.9 (0.3–2.5)	
Mode of HIV exposure					
MSM	32 (100)	22 (78)	55 (90)	Referent	
MSM-IDU/IDU	0 (0)	1 (4)	1 (2)	–	
Heterosexual	0 (0)	3 (11)	3 (5)	–	
Other/NIR	0 (0)	2 (7)	2 (3)	–	
HIV care history					
Previously in care	21 (64)	13 (46)	34 (56)	Referent	
New to care	12 (36)	15 (54)	27 (44)	2.0 (0.7–5.6)	
Disclosed HIV status to friends ^g					
No	7 (23)	10 (36)	17 (29)	Referent	
Yes	24 (77)	18 (64)	42 (71)	1.9 (0.6–5.9)	
Disclosed HIV status to family ^h					
No	14 (44)	15 (54)	29 (48)	Referent	
Yes	18 (56)	13 (46)	31 (52)	1.5 (0.5–4.1)	
Disclosed HIV status to no one ⁱ					
No	25 (81)	20 (71)	45 (76)	Referent	
Yes	6 (19)	8 (29)	14 (24)	0.6 (0.2–2.0)	
	Mean (SD)	Mean (SD)	Mean (SD)	t -Test	p
Mean age (SD)	21 (1.4)	22 (1.7)	21 (1.6)	–1.67	0.10
Mean age at first sexual intercourse (SD) ^j	14.2 (2.5)	14.2 (2.6)	14.3 (2.5)	0.05	0.96
Mean number of partners in past 3 months (SD) ^k	2 (2.2)	2 (2.2)	2 (3.1)	–0.3	0.76

Table 1 (Continued)

	Mean (SD)	Mean (SD)	Mean (SD)	<i>t</i> -Test	<i>p</i>
Average months between HIV diagnosis and intervention enrollment (SD) ¹	11.6 (19.5)	20.0 (29.9)	15.3 (24.7)	-1.16	0.23
Mean CD4 cell count at enrollment (cells/mm ³) ^d	381 (180)	419 (213)	397 (194)	-0.7	0.43

^aData missing on one participant; ^bData missing on three participants; ^cData missing on four participants; ^dData missing on five participants; ^eData missing on 14 participants; ^fIncludes marijuana, methamphetamine, amyl nitrate, and other drugs; ^gData missing on two participants; ^hData missing on one participant; ⁱData missing on two participants; ^jData missing on nine participants; ^kData missing on six participants; and ^lData missing on nine participants. **p*-value = 0.04; ***p*-value = 0.009; ****p*-value = 0.046
Note: OR, odds ratio; CI, confidence interval; MSM, men who have sex with men; IDU, injection drug use; NIR, no identified risk; IQR, interquartile range.

attended 76% of scheduled HIV care appointments, and 90% were retained in care (Table 3). During months four through six, participants attended an average of 1.7 HIV care appointments, attended 51% of scheduled appointments, and 70% were retained in care. There were statistically significant decreases in all of the HIV care measurements between three and six months.

Among the 33 participants who had been in intermittent care, the average number of HIV care visits increased from 0.2 to 5.5 between baseline and six months ($p < 0.0001$) (Table 4). In addition, the percentage of scheduled HIV care visits attended increased from 7% to 73% between baseline and six months ($p < 0.0001$) and 82% of those who had been in intermittent care were retained in consistent primary HIV care at six months.

The main factors associated with retention in HIV care at six months was prescription of HAART, increased number of intervention appointments and more hours in the intervention (Table 5). A significant dose-response trend was observed between retention in HIV care and increasing number of hours in the intervention ($p = 0.02$) and increasing number of intervention appointments ($p = 0.05$).

Discussion

This is one of the first studies to evaluate the impact of a youth-focused clinic-based intervention on retention in HIV care for HIV-positive Latino and African-American YMSM. Not only was the intervention effective in engaging YMSM in consistent HIV care, but two of the main factors associated with retention in HIV care at six months were related to the quantity or dose of the intervention received. These data suggest that a time-intensive intervention delivered by a non-judgmental and culturally competent peer is very effective in engaging at-risk Latino and African-American YMSM in consistent HIV care, particularly during the early months of HIV

care. Our findings are consistent with a study of primarily HIV-negative at-risk youth that found that more case management contact was associated with improved retention in care (Harris et al., 2003).

The finding that YMSM who were prescribed HAART were more likely to be retained in care is a new finding as there are few similar interventions that have been evaluated with respect to retention in care. Given that the intervention was associated with retention in care, intervention participants were also probably more likely to be prescribed HAART by a physician. Several studies have noted the difficulties and challenges that youth face with adherence to HAART, and it is likely that the skills needed for YMSM to adhere to HAART are the same as those needed to adhere to HIV care (Rao et al., 2007; Rudy et al., 2009). It is notable that the percentage of intervention participants on HAART (69%) was considerably greater than that reported among a national sample of HIV-positive YMSM (8%) (Valleroy et al., 2000).

A large proportion of the YMSM were in a state of crisis at time of entry into the intervention, underscoring the strong need for youth-focused interventions to help address barriers to engagement and retention in HIV care. The severe subsistence and psychosocial needs of the study group are consistent with data from other studies of HIV-positive YMSM in which a critical need for housing, substance abuse, and mental health treatment were identified (Eastwood & Birnbaum, 2007; Johnson, Botwinick et al., 2003; Mustanski et al., 2007; Valleroy et al., 2000). Housing referrals were most common for the YMSM which is consistent with other research in adolescent and general HIV patient populations that has shown that housing challenges are an obstacle to retention in consistent HIV care and that housing assistance can result in improved medical outcomes (Aidala, Lee, Abramson, Messeri, & Siegler, 2007; Eastwood & Birnbaum, 2007).

Table 2. Participation and referrals for 18–24-year-old HIV-positive Latino and African-American MSM who participated in a youth-focused case management intervention (YCM).

	African-Americans <i>n</i> = 33	Latinos <i>n</i> = 28	Total <i>n</i> = 61	<i>p</i> -Value ^a
Six month study status, <i>n</i> (%)				
Completed	28 (85)	25 (89)	53 (87)	0.52
Exited study	1 (3)	0 (0)	1 (2)	0.32
Lost to follow-up	4 (12)	3 (11)	7 (11)	0.72
Six month YCM attendance (mean)	<i>n</i> = 33	<i>n</i> = 28	<i>n</i> = 61	<i>p</i> -Value ^b
Scheduled appointments attended	4.0	5.8	5.1	0.15
Drop-in visits	1.7	0.4	1.1	0.02
Telephone contacts	0.2	1.5	0.9	0.01
Missed appointments	1.2	3.5	2.3	0.003
Percent of scheduled appointments attended	60%	63%	61%	0.77
Total hours of YCM received (mean)	5.1	9.7	7.3	0.001
Average duration of YCM appointment (mean minutes)	52	84	67	0.0003
Total referrals provided, <i>n</i> (%)	<i>N</i> = 73	<i>N</i> = 165	<i>N</i> = 238	<i>p</i> -Value ^b
Mental health services	6 (8)	26 (16)	32 (13)	0.12
Substance abuse services	0 (0)	10 (6)	10 (4)	0.03
Nutrition/food counselling	3 (4)	13 (8)	16 (7)	0.28
Housing	40 (55)	29 (18)	69 (29)	<0.0001
Transportation	14 (20)	5 (3)	19 (8)	<0.0001
Family/child related issues	0 (0)	2 (1)	2 (<1)	0.34
Financial/benefits	3 (4)	5 (3)	8 (3)	0.67
Employment assistance	0 (0)	5 (3)	5 (2)	0.13
Legal issues	0 (0)	5 (3)	5 (2)	0.13
Risk reduction education	2 (3)	24 (15)	26 (11)	0.007
Treatment advocate/pharmacy	2 (3)	12 (7)	14 (6)	0.17
Support groups	0 (1)	10 (6)	10 (4)	0.03
Dental services	1 (1)	2 (1)	3 (1)	0.92
General education	0 (0)	1 (<1)	1 (<1)	0.50
Other HIV care services	0 (0)	3 (2)	3 (1)	0.25
Other needs	2 (3)	14 (8)	16 (7)	0.23
Referrals completed at 6 months, <i>n</i> (%)	55 (75)	108 (65)	163 (68)	0.13
Critical need for housing, nutrition, substance abuse and/or mental health services at time of enrollment, <i>n</i> (%)	30 (86)	24 (71)	54 (78)	0.13
Prescribed HAART during intervention, <i>n</i> (%)	25 (76)	17 (61)	42 (69)	0.21

^aProportions compared using a binomial test of proportions.

^bMeans compared using a *t*-tests.

Other research has described the impact that an HIV diagnosis can have on the mental health of gay youth and given all of the psychosocial challenges related to sexual identity, stigma and alienation by friends and family, and the general vulnerabilities attached to YMSM, it is not surprising that the high rates of depression were observed (Donenberg & Pao, 2005). The high prevalence of depression in the African-Americans in the study group is consistent with other research and underscores the critical need for mental health interventions for YMSM of color (Flicker et al., 2005; Johnson,

Botwinick et al., 2003; Lam, Naar-King, & Wright, 2007).

The prevalence of any lifetime drug use among this group of YMSM was high (52%), but consistent with the prevalence of lifetime substance use reported in an adolescent HIV clinic population in Los Angeles (44%) (Schneir et al., 1998). The proportion of YMSM in the current study reporting marijuana and methamphetamine use is also consistent with individual drug use reported for HIV-positive YMSM in California, however it was lower than lifetime drug use reported from the eight sites participating in this

Table 3. Retention in HIV care at 3 and 6 months among HIV-positive 18–24-year-old MSM in a youth-focused case management intervention ($n = 61$).

	3 months	6 months	<i>p</i> -Value
Mean number of HIV care visits in the past 3 months	2.2	1.7	0.04 ^a
Mean missed HIV care visits in past 3 months	0.6	1.0	0.06 ^a
Percent of scheduled HIV care visits attended in the past 3 months	76%	51%	<0.0001 ^b
Percent retained in HIV care in past 3 months	90%	70%	0.0005 ^b

^a*p*-Value for paired *t*-test; ^b*p*-Value for McNemar’s test for paired data.

SPNS initiative (Magnus et al., 2010; Ruiz, Facer, & Sun, 1998). Although substance use was common among this study group of YMSM, drug use was not associated with retention in primary HIV care once a client was enrolled in the intervention.

The intervention was designed to include weekly visits for the first two months followed by monthly visits for the subsequent four months for a total of 12 case management visits. The average number of visits was seven, however, suggesting that weekly visits are not feasible for YMSM and that monthly visits are more realistic for this population, given that many of the YMSM were employed or in school. However, the HIV care measures were statistically worse at six months compared to three months, suggesting that the intervention was most effective when the contact with the case manager was most intense during the early months of the intervention, lending support for weekly visits up to at least six months. To facilitate YCM attendance, the case managers had to be flexible with intervention appointment times and the clinics became flexible with HIV care visit appointments as the YMSM would often miss scheduled appointments and show up when no appointment had been scheduled. Flexible scheduling has been reported as a strategy to help YMSM keep their appointments to clinical care and case

management (Johnson, Botwinick et al., 2003; Magnus et al., 2010). These data suggest that clinic scheduling flexibility will improve clinical care attendance and health outcomes.

In addition to having flexible appointment times, the case managers had multiple strategies for staying in contact with their clients. They conducted a large part of their communication with the YMSM using cell phones and text messaging which was the most effective communication strategy. While these methods of communication were not specifically evaluated in this study, they have been found to be effective in improving clinic attendance among general clinic populations (Chen, Fang, Chen, & Dai, 2008; Leong et al., 2006; O’Brien & Lazebnik, 1998). The \$25 incentive was also helpful in motivating clients to come to the appointments and incentives have been demonstrated to improve retention in a variety of health care interventions (Giuffrida & Torgerson, 1997).

The limitations to this study include the relatively small sample of YMSM which prevented the calculation of adjusted OR estimates. Identification of HIV-positive Latino and African-American YMSM both locally and nationally for this SPNS initiative was extremely challenging, even when using multiple outreach strategies. Second, the YMSM in this study

Table 4. Retention in HIV care at 6 months among 18–24-year-old HIV-positive MSM in a youth-focused case management intervention who had been in intermittent care ($n = 33$).

	Baseline ($n = 33$)	6 months ($n = 33$)	<i>p</i> -Value ^a
Mean attended HIV care visits in past 6 months	0.2	5.5	<0.0001
Mean missed HIV care visits in past 6 months	0.4	2.0	0.0001
Percent of scheduled HIV care visits attended in past 6 months	7%	73%	<0.0001
Percent retained in HIV care at 6 months	0%	82%	–

^a*p*-Value from results of paired *t*-test.

Table 5. Odds ratios and 95% confidence intervals for factors associated with retention in HIV care^a at 6 months among YMSM ($n=61$) in a youth-focused case management (YCM) intervention in Los Angeles County, 2006–2009.

Characteristic	Unadjusted OR (95% CI)
Race/ethnicity	
African-American	0.8 (0.2–2.9)
Latino	Referent
Age	
18–20 years	2.4 (0.5–12.4)
21–24 years	Referent
Education	
More than high school	1.0 (0.2–4.5)
Less than high school	Referent
Currently in school	
Yes	1.1 (0.3–4.7)
No	Referent
Currently employed	
Yes	1.1 (0.3–4.5)
No	Referent
Housing status	
Live on own/with friends	0.8 (0.2–3.1)
Live with family	Referent
Depression	
Moderate or severe	0.2 (0.03–2.0)
None	Referent
History of drug use	
Yes	0.7 (0.2–2.6)
No	Referent
CD4 cell count	
< 200 cells/mm ³	0.7 (0.1–7.0)
≥ 200 cells/mm ³	Referent
Critical need at baseline^b	
Yes	2.0 (0.5–7.8)
No	Referent
Prescribed HAART	
Yes	11.7 (2.7–51.4)*
No	Referent
New to HIV care	
Yes	1.1 (0.3–4.1)
No	Referent
Number of YCM appointments^c	
9 or more visits	10.5 (1.1–96.6)**
5–8 visits	2.8 (0.7–11.5)
0–4 visits	Referent
Number of YCM hours^d	
10 or more hours	6.6 (1.1–38.7)***
5–9 hours	6.0 (1.3–28.3)
1–4 hours	Referent

^aRetention in care was defined as two or more HIV primary care visits in the previous 6 months.

^bCritical need at baseline was defined as immediate need for housing, nutrition, substance abuse, or mental health treatment.

^cThe chi-square test for trend = 6.01, p -Value = 0.05.

^dThe chi-square test for trend = 7.83, p -Value = 0.02.

* p -value = 0.0003; ** p -value = 0.038; *** p -value = 0.036.

were recruited using a convenience sampling approach and the findings may not be representative of all HIV-positive African-American and Latino YMSM. In addition, while there was no control group for comparison, participants served as their own controls when the analyses of outcomes pre and post intervention were conducted. Finally, the sustainability of the intervention beyond the 6 months of follow-up is important but has not been evaluated to date.

Given the growing number of HIV-positive YMSM and the challenges that they face in testing early for HIV and accessing and staying in consistent care, innovative, culturally appropriate care retention interventions are necessary. The data presented here demonstrate that it is possible to create an effective, clinic-based intervention to address the barriers that YMSM encounter in engaging in consistent HIV care.

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