Kganya Motsha Adolescent Centre: a model for adolescent friendly HIV management and reproductive health for adolescents in Soweto, South Africa

Busisiwe Nkala*, Mamakiri Khunwane, Janan Dietrich, Kennedy Otwombe, Itumeleng Sekoane, Bulelwa Sonqishe and Glenda Gray

Perinatal HIV Research Unit, University of the Witwatersrand, Johannesburg, South Africa

(Received 2 June 2014; accepted 25 November 2014)

This paper reports on Kganya Motsha Adolescent Centre, an adolescent program specifically established to provide voluntary counseling and testing as well as management of HIV-positive young people in Soweto, South Africa. A retrospective cross-sectional analysis, using clinic records of young people accessing services from 2008 to 2012, was conducted. Of the 11,522 who tested, 7689 (67%) were females. The total number of HIV infections was 410, with an HIV prevalence of 3.6% (95% CI 3.2–3.9%). More females (332, 4% vs. 72, 2%; \( p < 0.0001 \)) were HIV-infected than males. Of those testing HIV positive, 109 (26.5%) had a median CD4 cell count of 491 (IQR 345–686) cells/mm\(^3\). Only 12/410 individuals (2.9%) were eligible for antiretroviral treatment and 10 (2.4%) of those successfully received treatment. The program observed that young people testing HIV positive would not return for follow up blood specimens or confirmatory results. Future programs should consider innovative ways of retaining adolescents in care to reduce potential HIV transmissions that could lead to deteriorating health.

Keywords: HIV; voluntary counseling and testing; health and reproductive services; adolescent; young people

Introduction

South Africa is severely affected by the HIV/AIDS pandemic, with approximately 6 million people living with HIV. Access to antiretroviral therapy (ART) in South Africa has significantly improved, with more than 2 million people receiving ART in 2012 which is approximately 80% of individuals in need of treatment (South African National AIDS Council, 2013). In South Africa, adolescent girls and young women are considered key population as they are considered most at risk for HIV. The HSRC national survey, 2012, showed that young people living with HIV between the ages of 15–24 years had the lowest proportion of access to ART (14.3%). In the general population aged 15–49 years, 28.9% of people living with HIV were accessing ART.

Voluntary counseling and testing (VCT) as an integral part of a comprehensive HIV prevention and management has proved effective in linking adults who are diagnosed with HIV to care, treatment, and support (Kranzer et al., 2010; Lawn et al., 2009). Several studies showed an increased accessibility of VCT among young people in South Africa (Francis, 2010; Jaspan, Li, Johnson, & Bekker, 2009; MacPhail, Pettifor, Moyo, & Rees, 2009; Mathews et al., 2009; Ramirez-Avila et al., 2012; Shisana et al., 2009). In 2010, the South African Government launched an HIV Testing Campaign mandated to test 15 million people and initiate at least 0.5 million newly infected individuals with HIV on ART by 2011 (South African National AIDS Council, 2013). Since the HIV counseling and testing campaign, the uptake of HIV testing in South Africa has increased significantly among adults and young people (Shisana et al., 2014; South African National AIDS Council, 2013; UNAIDS Programme Coordinating Board, 2013). The Human Science Research Council national survey of 2012 showed increased awareness of HIV status among the general population, indicating an estimated 44.8% in 2012, compared to 24.7% in 2005 and 12.9% in 2002 (Shisana et al., 2014). However, studies continue to show that more females than males get tested for HIV (Ramirez-Avila et al., 2012; Shisana et al., 2014; van Rooyen et al., 2013; Venkatesh et al., 2011; Young et al., 2010).

Barriers that young people are faced with in accessing public health services are well documented (Ashton, Dickson, & Pleaner, 2009; Lesedi & Hoque, 2011). Some of these barriers include lack of confidentiality and privacy, waiting in the queue for long and/or with an adult person from the same community (Ashton et al., 2009; Lesedi & Hoque, 2011; Love-life, 2010). Other studies show that adolescents tend to avoid health facilities due to unfriendly and judgmental attitude that they receive from health workers (Ashton et al., 2009; Lesedi & Hoque, 2011). Despite all the efforts to scale up VCT services, studies show that it remains a challenge to initiate patients on ART as soon as they

*Corresponding author. Email: nkalab@phru.co.za

© 2015 Taylor & Francis
are eligible for treatment due to loss to follow up, treatment refusal, or limited resources to treatment access (Katz et al., 2011; Kranzer et al., 2010; Lawn et al., 2009; Philbin et al., 2014; Tanner et al., 2014).

Establishing KMAC

In response to an increased need to improve sexual and reproductive health services for young people, Kganya Motsha Adolescent Centre (KMAC) was established in Soweto, South Africa. Kganya Motsha, which means “shine young one” in Sesotho, was a comprehensive HIV management adolescent center established by the Perinatal HIV Research unit. It was a stand-alone service mandated to increase access to HIV care and management for both in and out of school adolescents, aged 14–19 years, and living in and around Soweto. The aim was to provide HIV testing, identify adolescents who required access to HIV care and treatment and provide HIV management services.

This paper aims to describe the proportions of HIV testing and prevalence of HIV among young people accessing KMAC from 2008 to 2012. It also seeks to describe the cascade of care among adolescents testing HIV positive in KMAC, in Soweto, South Africa.

Methods

This was a retrospective cross-sectional analysis, using clinic records of young people who accessed KMAC from 2008 to 2012. UNAIDS defines adolescents as persons between 10 and 19 years old and youth to include those persons between 15 and 24 years old. Young people are defined as persons between 10 and 24 years old (UNAIDS Programme Coordinating Board, 2013). For the purpose of this paper, the UNAIDS definitions of young people will be used to refer to the age groups ≤15 years and 16–24 years. The analysis also included data from age groups ≥25 years; the oldest person in this age group was 34 years old. KMAC was developed specifically for adolescents 14–19 years; the center was later extended to accommodate young adults. This was after identifying from self-reports during HIV pre-counseling that female adolescents who attended the center were likely engaging in sexual activities with older males.

KMAC records were reviewed to determine the proportion testing for HIV, prevalence of HIV by gender and proportion of those who had their CD4 counts done following positive HIV test. Prior to HIV testing, HIV counselors obtained consent from the KMAC clients. This was program data therefore ethics approval was not necessary.

Statistical analysis

The prevalence of HIV among participants who attended KMAC was determined using frequencies and associated percentages. The comparison of HIV status by gender was done using the chi-square test of proportions. Data were further subdivided into age groups ≤15 years, 16–24 years, and ≥25 years and by the years 2010, 2011, and 2012 and similarly compared by gender. The cascade of events was presented using a graphical chart showing the number testing HIV positive, those with CD4 counts and those who were either referred or initiated treatment. All the analyses were two-sided and performed at a 5% level of significance. All the statistical analyses were performed in SAS Enterprise Guide Version 5.1.

Results

A total of 11,522 young people (14–24 years) and young adults (25+ years) were tested for HIV at KMAC. Figure 1 displays the cascade of events from HIV diagnoses down to HIV management of individuals who tested HIV positive. Of the 11,522 young males and females who tested for HIV, 410 (3.6%) tested HIV positive; of those testing HIV positive, 109/410 (27%) young people had their CD4 cell count measured, ranging from 5 to 983 cells/mm³ with a median CD4 cell count of 494 cells/mm³. Only 12/410 (11%) had a CD4 count ≤200 cells/mm³, rendering them eligible for antiretroviral treatment according to the South African Antiretroviral Treatment Guidelines (2010). Of the 12 eligible for treatment, 10 successfully received treatment with one being referred for further management for tuberculosis. About 25% (n = 41) of these young people testing for HIV at KMAC between 2008 and 2010 did not return for their CD4 count results.

Table 1 presents the trend of HIV testing between 2008 and 2012 by gender. Higher numbers of females, 7689 (67%), tested than males, 3833 (33%). Data disaggregated by age and gender were only available between 2010 and 2012. Between 2010 and 2012, 7885 young people tested for HIV at KMAC, 5231 (66%)
were females and 2654 were males (34%). The proportion of males and females testing for HIV was higher in the age group \( \geq 25 \) years (70%), followed by those in the age group 16–25 years old (22%). HIV testing was lowest among adolescents \( \leq 15 \) years (8%).

More females than males tested HIV positive in the age groups \( \geq 25 \) years (139 vs. 15; \( p < 0.0001 \)) and 16–24 years (113 vs. 55; \( p = 0.0001 \)). There were no significant differences in the number of males and females testing HIV positive, from the years 2010 to 2012. For females, the proportion of HIV infections was higher among 16–24 year olds followed by females \( \geq 25 \) years and was low for adolescent females \( \leq 15 \) years (Table 1). For males, the proportion of HIV infections was high in the age group 16–24 years and was lower for both \( \geq 25 \) and \( \leq 15 \) years (Table 1). The proportion of females testing HIV positive compared to males by year was significantly high, 2008 (\( p = 0.0371 \)), 2009 (\( p < 0.0001 \)), 2010 (\( p = 0.0006 \)), 2011 (\( p = 0.0287 \)), and 2012 (\( p = 0.0103 \); Table 2).

Table 1. HIV status by gender.

<table>
<thead>
<tr>
<th>HIV status</th>
<th>Total</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>( P ) values</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV +ve</td>
<td>410</td>
<td>78 (2)</td>
<td>332 (4)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>HIV −ve</td>
<td>11,112</td>
<td>3755 (98)</td>
<td>7357 (96)</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>11,522</td>
<td>3833</td>
<td>7689</td>
<td>–</td>
</tr>
</tbody>
</table>

**HIV status by age groups (2010–2012)**

<table>
<thead>
<tr>
<th>Age group</th>
<th>HIV +ve</th>
<th>HIV −ve</th>
<th>( P ) values</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \leq 15 ) years</td>
<td>9 (1)</td>
<td>661 (99)</td>
<td>0.3548</td>
</tr>
<tr>
<td>Sub-total</td>
<td>670</td>
<td>248</td>
<td>422</td>
</tr>
<tr>
<td>16–24 years</td>
<td>168 (10)</td>
<td>1582 (90)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Sub-total</td>
<td>1750</td>
<td>829</td>
<td>921</td>
</tr>
<tr>
<td>( \geq 25 ) years</td>
<td>154 (3)</td>
<td>5311 (97)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Sub-total</td>
<td>5465</td>
<td>1577</td>
<td>3888</td>
</tr>
<tr>
<td>Total</td>
<td>7885</td>
<td>2654</td>
<td>5231</td>
</tr>
</tbody>
</table>

Note: HIV status data split by age group is not available for 2008–2009.

The inclusion of data from the age group \( \geq 25 \) years has shown a slightly higher infection rate for females when compared to males over the same age group than that of the younger age groups. The female infection rate for the age group \( \geq 25 \) years was about four times that of males in the same age group. However, the highest infection rate was still within the ages of 16–24 years.

**Discussion**

This paper reports findings from a specialized adolescent VCT and HIV management program in Soweto, South Africa. Our findings show that a quarter of those who tested positive could not be retained in care and a lower HIV prevalence in young people attending KMAC compared to previously reported research findings in South Africa (Kharsany et al., 2012; Kranzer et al., 2010; Ramirez-Avila et al., 2012). The observation made by other studies was also noticed at KMAC, young people who tested positive for HIV during the outreach testing did not come back for CD4 testing thus deprived opportunity to be admitted to care.

These findings provide an important contribution to the treatment cascade for young people in an HIV-endemic setting. There were a large number of people testing positive that could not be initiated into care. This signifies the importance of enhancing the comprehensive care program within VCT sites for young people. The challenges of linking young people diagnosed with HIV to care have previously been identified in South Africa (Ingle et al., 2010; Kranzer, Govindasamy, Ford, Johnston, & Lawn, 2012; Kranzer et al., 2010; Losina et al., 2010). Results from Philbin et al. (2014) have highlighted some structural barriers to linking patients to ART care. Barriers included public transportation, patient’s readiness to receive treatment, and lack of youth friendly clinic environment and personnel. Unfriendly clinic environment and personnel was also identified as a barrier in other studies (Jani et al., 2011; Patten et al., 2013). However, this may not have been the case at KMAC as the center was developed specific for adolescents and the staff trained appropriately to work with adolescents. Katz et al. (2011) reported that most

Table 2. The annual aggregate by gender of young people testing HIV +ve, 2008–2012.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (%)</th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>( P ) values</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>14/1311 (1.1)</td>
<td>1/436 (0.2)</td>
<td>13/875 (1.5)</td>
<td>0.0371</td>
</tr>
<tr>
<td>2009</td>
<td>64/2324 (2.8)</td>
<td>5/732 (0.7)</td>
<td>59/1592 (3.7)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>2010</td>
<td>57/2701 (2.1)</td>
<td>8/960 (0.8)</td>
<td>49/1741 (2.8)</td>
<td>0.0006</td>
</tr>
<tr>
<td>2011</td>
<td>135/2240 (6.0)</td>
<td>32/722 (4.4)</td>
<td>103/1518 (6.8)</td>
<td>0.0287</td>
</tr>
<tr>
<td>2012</td>
<td>139/2944 (4.7)</td>
<td>32/972 (3.3)</td>
<td>107/1972 (5.4)</td>
<td>0.0103</td>
</tr>
<tr>
<td>Total</td>
<td>409/11,520 (3.6)</td>
<td>78/3822 (2.0)</td>
<td>331/7698 (4.3)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
patients refusing ART cited “feeling healthy” as the main reason. Other studies conducted in the general population observed that common reasons for nonretention in care include referrals to other clinics, stigma, denial, and a lack of financial resources, particularly to cover transport costs (Losina et al., 2010; Philbin et al., 2014; Tanner et al., 2014). Reasons for loss to follow up and barriers to patient initiation to ART experienced at KMAC are unknown as the program did not provide a platform to interview clients.

KMAC intended to identify HIV-infected individuals and link those eligible to care and treatment in line with the country’s HIV management guidelines. It was not always possible to conduct tests to assess CD4 count and eligibility for treatment when the young people were in the company of peers or VCT was conducted as an outreach activity. The program made similar observations as other studies that young people testing HIV positive failed to return for CD4 count draws or receive confirmatory results. This was also observed in other studies in South Africa (Kranzer et al., 2012; Losina et al., 2010). It may be that they are unaware of the implications of their decision that could lead to deteriorating health, making them viremic hence increasing HIV transmission rates. The HIV progression needs to be highlighted during pre-HIV test counseling but most importantly confirmatory sample should be drawn simultaneously with the HIV test sample.

KMAC was relatively successful in increasing VCT coverage among young people in Soweto; however, it was not successful in linking them to ART and retaining them into care. The South African national clinical and HIV management guidelines recommend that individuals not yet eligible for ART be transferred to a center to receive counseling and clinical assessments every 6 months (National Department of Health, 2010). These guidelines pose a challenge in linking and maintaining individuals newly diagnosed with HIV into care until they are eligible for ART. Several studies have highlighted the problem of loss to care during the pre-ART phase (Ingle et al., 2010; Katz et al., 2011; Kranzer et al., 2010, 2012; Losina et al., 2010; Patten et al., 2013).

The lower prevalence of HIV testing among young people accessing KMAC can be attributed to the fact that young people who view themselves as being at risk may have self-selected themselves out of the testing or that the messages of prevention are reaching them. Our findings show a relatively higher uptake of HIV testing and HIV prevalence among females than males. This concurs with other research findings across South Africa and across sub-Saharan Africa have identified similar trends in HIV testing among men and women, where more women than men continue to test for HIV (Ramirez-Avila et al., 2012; Shisana et al., 2014; Staveteig, Wang, Head, Bradley, & Nybro, 2013). Men are less likely than women to receive VCT at clinic-based venues or standard VCT centers (van Rooyen et al., 2013; Young et al., 2010). Several community-based VCT interventions proved that community-based VCT approach may be effective in reaching previously unreachable men (van Rooyen et al., 2013; Young et al., 2010). Similarly, KMAC in Soweto seemed effective in reaching more young men to test for HIV through community outreach.

These data reflect that there is still a great need to scale-up HIV testing services to reach young men in South Africa. There is a need to make HIV-testing centers more attractive to young men. KMAC was set up taking into consideration barriers such as lack of confidentiality and privacy, waiting in the queue for long, and/or with an adult person from the same community which have been previously documented as factors that prevent young people from accessing public health services (Ashton et al., 2009; Dickson, Ashton, & Smith, 2007; Lesedi & Hoque, 2011). This enabled young people to access the center for VCT but was not able to retain them into care.

Challenges and lessons learned

Setting up and running a program such as KMAC was not without challenges including human resources, government support, and management of young HIV-positive people. KMAC was successful in reaching out to adolescent and young females for HIV services onsite. Once the outreach programs were initiated around Soweto and at schools, young males started to have interest to receive HIV services from KMAC. While outreach was effective in increasing the rate of HIV testing in young people and adolescents at KMAC, it had its limitations in that the environment was not conducive to provide CD4 counts and thorough HIV counseling and education.

KMAC was established to provide HIV testing, identify adolescents who required access to HIV care and treatment, and provide HIV management services. The program relied on USAID funding, and from late 2010, KMAC was no longer able to provide HIV management and care for young people testing HIV
positive due to limited funding. There is a need for local HIV prevention and management interventions to source local funding for sustainability.

Young people testing HIV positive were referred to local clinics or hospitals. Although KMAC had established strong networks with the government hospitals and local clinics in Soweto, referring adolescents and young people remained a challenge. Point of care CD4 count may reduce loss between testing and reaching the point of care. Strategies as outlined by Tanner et al. (2014) need to be systematically evaluated and be implemented where they show positive impact outside of the trial parameters.

Reaching HIV-positive adolescents but failing to retain them in care defeated the objective of the KMAC program. There is a need to develop proper linkage plans that will ensure adequate follow up to successfully link HIV-positive young people into care.

Limitations
The KMAC client records analyzed was not captured for research purposes and therefore our data analysis was limited to descriptive and aggregated data by age and gender. Findings on HIV testing and prevalence are not representative of the Soweto population. The program did not have a concrete tracking system for participants and relied on the adolescents to provide contact information which may have been unreliable. Due to the nature of the data collected, there was no opportunity to explore with the adolescents and young people accessing KMAC about some of the barriers to linking and successfully retaining adolescents and young people into care. More research is warranted on programmatic complexities in adolescent linkage to HIV care and treatment.

Implications
This study shows the importance of testing and providing CD4 counts immediately and of introducing innovative ways of retaining young people in care necessary for the success of YFHS. Future retention care programs should incorporate education on HIV transmission mechanisms for the understanding of the participants.

Conclusions
Future programs should consider innovative ways of retaining HIV-positive adolescents in care with the aim of reducing HIV transmissions to others. It may be necessary to structure programs such that individuals have their confirmatory test done on the same day as rapid tests and results provided immediately.

Disclosure statement
No potential conflict of interest was reported by the authors.

Funding
KMAC program was funded by US Agency for International Development (USAID) and the South African AIDS Vaccine Initiative of the South African Medical Research Council. Mamaki received support from the Canada-Africa Prevention Trials Network. Janan Dietrich was supported by SAAVI.

References


