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The HIV epidemic in Botswana and gender inequalities: a way forward

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THE HIV EPIDEMIC IN BOTSWANA AND GENDER INEQUALITIES:
A WAY FORWARD

by

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THE HIV EPIDEMIC IN BOTSWANA AND GENDER INEQUALITIES:
A WAY FORWARD
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ABSTRACT

The Botswana HIV/AIDS epidemic started in the early 1990s, with the proportion of the overall population infected with HIV (prevalence) rapidly escalating to 28.2% by the year 2000. Today, HIV prevalence has decreased to 23%, yet Botswana has the third highest percentage of HIV infected population in the world. The HIV epidemic in Botswana is in need of attention, but prevalence alone does not represent the full picture. HIV incidence (the rate of new infections and a critical indicator of success of HIV prevention programs) peaked in Botswana around 1996 at 5.7% and has declined to about 2.72% today. Botswana’s two most effective programs in its response to the epidemic have been provision of universal HIV treatment and prevention of mother-to-child-transmission (PMTCT) programs, which have achieved over 95% coverage for all eligible patients. These two programs largely account for Botswana’s rapid decline in HIV prevalence and incidence rates. However, females have continually had higher rates of prevalence and incidence than males throughout the course of Botswana’s epidemic.

In order to continue these declining rates of infection, Botswana may consider redoubling its efforts around HIV prevention. Women and young adolescent girls have not been the main beneficiaries of prevention programs. Women are more susceptible to HIV infection biologically and more vulnerable to infection due to social determinants, most notably their lack of empowerment and control in sexual partnerships. The main
social drivers of the HIV epidemic in Botswana have been concurrent partnerships, sexual assault, cross-generational sex, and transactional sex. These drivers increase risk of HIV infection particularly for women.

Botswana has implemented promising national prevention programs focused on HIV counseling and testing, consistent condom use, decreased concurrent partnerships, and male circumcision. However, the Botswana legal system reinforces gender inequalities, further increasing women’s risk for HIV infection. In Botswana’s law, martial rape, domestic violence, and intimate partner violence are not criminalized. Further, sex with minors and sexual assault are not strictly enforced. Sex work is illegal and stigmatized, and thus sex workers are not receiving appropriate support in HIV prevention. This high-risk population accounts for only 1.65% of the general population but will account for 6.38% of new HIV infections.

The HIV treatment and PMTCT programs have decreased HIV incidence, but Botswana may consider increasing its behavioral prevention programs to regard gender norms and reforming legislation to protect women and young girls. This paper recommends behavioral prevention programs through increased youth education programs, women empowerment programs, access to sexual and reproductive health care, and male involvement in sexual and reproductive health. Further, it is recommended that policy makers focus on reforming civil legislation and bolstering enforcement of existing laws that protect women from violence. The key to successful scale-up of behavioral prevention in Botswana will be community-driven HIV initiatives and strong leadership from community leaders and members of parliament, including women.
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LIST OF ACRONYMS AND ABBREVIATIONS

AIDS ................................................. Acquired Immunodeficiency Syndrome
ANC .......................................................... Antenatal Clinic
ART .......................................................... Antiretroviral Therapy
ARV .......................................................... Antiretroviral
BAIS .......................................................... Botswana AIDS Impact Survey
CHS .......................................................... Casual Heterosexual Sex
FSW .......................................................... Female Sex Worker
GBV .......................................................... Gender Based Violence
HCT .......................................................... HIV Counseling and Testing
IPV .......................................................... Intimate Partner Violence
MC ........................................................... Male Circumcision
MCP .......................................................... Multiple Concurrent Partnerships
NACA .......................................................... National AIDS Coordinating Agency
NGO .......................................................... Non-governmental Organization
NSF .......................................................... National Strategic Framework
PLWHA ..................................................... People Living with HIV and AIDS
PMTCT ....................................................... Prevention of Mother-to-Child Transmission
PSI .......................................................... Population Services International
STD .......................................................... Sexually Transmitted Disease
SSA ................................................................. Sub-Saharan Africa
STI ................................................................. Sexually Transmitted Infection
UNAIDS ....................................................... The Joint United Nations Program on HIV and AIDS
VCT ............................................................... Voluntary Counseling and Testing
WHO ............................................................. World Health Organization
INTRODUCTION

In 1981, a new disease called the acquired immune deficiency syndrome (AIDS) was recognized among homosexual men in the United States. In 1983, the etiological agent human immunodeficiency virus (HIV) was identified.\(^1\) AIDS was becoming an epidemic recognized worldwide through the 1980s. However despite achieving epidemic status, there were still misconceptions about its causes and stigma towards those infected. Epidemiological data suggests that the spread of HIV started in Sub-Saharan Africa (SSA) in the late 1970s.\(^1\)

According to the latest Joint United Nations Program on HIV and AIDS (UNAIDS) Global Report, SSA has 71% of the global population living with HIV but only 12% of the world’s population.\(^2\) There are 25 million adults and children living with HIV in SSA of the 35.5 million total in the world.\(^2\) In SSA, HIV is a generalized epidemic transmitted primarily through heterosexual contact, thus those at risk are mostly young adults of working age. The effect of the AIDS epidemic has impacted not only the health sector but also the economic, agricultural, and human resource sectors, thus slowing down development as a whole.

The HIV prevalence rate is the proportion of the population living with HIV at a given time. Botswana has the third highest HIV prevalence in the world (23%), after Swaziland (26.5%) and Lesotho (23.1%).\(^3\) Botswana is an upper-middle income country in a developing region where the HIV epidemic has overwhelmed other economies in
SSA. Today, it funds about 80% of its HIV response, with the rest coming from foreign donors.⁴,⁵

Botswana reported its first AIDS case in 1985.⁶ Botswana is a sparsely populated country with only 2 million people, yet the epidemic has reached staggering proportions.⁷ Since the late 1980’s and early 1990’s, Botswana has faced an HIV/AIDS epidemic that was reported to be as high as 38% prevalence.⁸,⁹ A strong government response effectively reduced incidence (the rate of new infections) particularly through the early 2000’s, yet women continue to be infected at higher rates than men.

UNAIDS reported in 1988 that the number of women living with HIV/AIDS in SSA had officially exceeded that of men.¹⁰ Women are infected at higher rates of HIV than men due to biological and social determinants. In Botswana, HIV prevalence for women aged 15-49 years is 25.0% and for men aged 15-49 years, prevalence is 17.6%.⁷ For females aged 20-30 years, incidence is 6.14% and for males of the same age it is 2.01%.¹¹

This paper will investigate why prevalence is so high in Botswana. It will explain the government of Botswana’s response to the epidemic and the subsequent decline in HIV incidence. Next, it will explore Botswana’s HIV prevention programs. Then, it will focus on the vulnerability of women and adolescent girls to HIV to help illuminate the reasons why HIV continues to disproportionately impact females in Botswana. The paper will then discuss gender policy in Botswana’s legal system. Finally, prevention programs and legal reform options will be recommended to potentially decrease HIV incidence, particularly among young adolescent girls and women.
Human Immunodeficiency Virus

HIV is a virus that destroys the human immune system by fusing with T cells via CD4 receptors and ultimately kills the cells.\textsuperscript{12} Loss of CD4+ cells inhibits the body’s ability to fight infection and certain cancers. CD4+ count measures the strength of the immune system. The CD4+ count determines who is eligible for antiretroviral therapy (ART). A healthy adult will typically have a CD4+ count of >800/\textmu l and an adult sick with AIDS will typically have a CD4+ count of 200/\textmu l.\textsuperscript{13} There is no cure for HIV. Thus, a person on ART will be on treatment for his or her lifetime.

Unlike other viruses such as hepatitis, HIV cannot survive outside of body fluids. It is transmitted through blood, semen, vaginal fluid, pre-ejaculate, or breast milk. The most common ways HIV is transmitted are through anal or vaginal sex and sharing injection needles. It can also be passed from an HIV-infected woman to her child during pregnancy, childbirth, or through breastfeeding.\textsuperscript{14} Sexually, the virus cannot pass the mucus-covered surface that lines most of the entry points; it enters through small tears and lesions around the genitals or anus.\textsuperscript{14}

Viral load is the amount of virus in a person’s body fluids, and is dependent on the length of time the person has been infected with HIV.\textsuperscript{14} \textit{Acute infection} occurs within 2 to 4 weeks after infection. During \textit{acute infection}, the virus rapidly multiplies and then the immune system creates antibodies to attack the virus. The virus uses CD4+ cells to copy itself and destroys the cells in the process. During this time, the immune system is incapable of lowering the viral load. The infectivity of HIV is high during the acute phase because while the viral load is high, the individual may be asymptomatic.\textsuperscript{15}
Then, HIV viral load decreases during *clinical latency* or *asymptomatic HIV infection*.\(^\text{16}\) This occurs usually between six weeks and six months. HIV is still active but reproduces at low levels and hides in CD4+ cells. People on aggressive antiretroviral (ARV) medication regimens, known as antiretroviral therapy (ART), may live with clinical latency for several decades.\(^\text{15}\)

Without effective treatment with ARVs, viral load will increase while CD4+ cell count will decline, making the infected individual vulnerable to opportunistic infections. Individuals do not die of ‘AIDS’ per se, but rather of tuberculosis and other infections that cannot be fought effectively by the weakened immune system. With the global scale-up of ART, many individuals have lived for long periods of time with complete viral suppression, which also reduces the risk of HIV transmissions.\(^\text{16}\)

**Historical Background Of HIV In Botswana: Migration As An Early Driver**

The first case of HIV was discovered in 1985 in the mining town of Selebi-Phikwe.\(^\text{17}\) In contrast to most SSA countries, Botswana had several advantages at the start of the epidemic. It had decades of a stable parliamentary democracy, high economic growth, and an effective public health system, and nearly everyone speaks a single language: Setswana.\(^\text{18}\) Although Botswana was one of the world’s ten poorest nations when it won its independence from Britain in 1966, the discovery of large diamond reserves in the early 1970’s propelled Botswana to the status of an upper-middle income country.\(^\text{18,19}\)
A driver is a term used to describe underlying determinants of an epidemic. It can include structural or social factors such as poverty, gender inequality, and human rights abuses as well as individual behaviors or lifestyles that increase a person’s vulnerability to HIV. Botswana’s migratory population and the mining towns were central drivers to the early epidemic.

Migration had been normative in traditional Tswana life, the ethnic group that makes up 79% of Motswana and speaks Setswana. The Tswana are historically nomadic pastoralists who followed their cattle from place to place. British colonialism and industrializations shifted migratory patterns and caused separation of families. By 1903, patterns had changed, with men leaving Botswana for work in mines, railways, and other jobs in South Africa. After 1966, paved highways linked major cities in Botswana, and by 1980s, migration to South Africa was replaced with internal migration of Batswana men to mines in Orapa, Jwaneng, and Selebi-Phikwe and towns like Gaborone and Francistown. Such mining towns were centers of commercial sex work and of alcohol, which were also drivers of the early epidemic. Sex work is defined as the perpetual dependence on sex for money or other goods as an occupation. Commonly, men would leave to work in the mines, contract HIV from sex workers and then bring the virus back home to their wives across the country. Men also came from other African countries to work in the mines. Major trucking routes allowed for access between southern and Central Africa, which contributed to a market for sex workers.

As can be seen in Figure 1, HIV incidence is highest in the eastern regions of Botswana, which borders Zimbabwe to the north, Zambia to the east, and South Africa to
the south. It is possible that the HIV epidemics were established in these countries first before moving to Botswana with migrant workers. This suggests HIV risk spreads across national borders.\textsuperscript{24}

\textbf{Figure 1 Odds Ratio of HIV Risk by Districts}\textsuperscript{25} The map of Botswana shows the association between geographical location and the risk of HIV. Odds ratios were calculated from Botswana AIDS Impact Survey (BAIS) 2008 prevalence data. The red in the northeast indicate high risk (OR: 1.66) or 66\% increased risk. The green represents low risk reduced rate of 27\% (OR: 0.73). Figure taken from Kandala \textit{et al.}\textsuperscript{25}
Classification of HIV

According to the classification used by the World Health Organization (WHO) and UNAIDS, Botswana has a generalized epidemic which means that HIV is firmly established in the general population and the prevalence can sustain the epidemic independent of higher risk sub-populations, such as intravenous drug users, men who have sex with men, and sex workers.\textsuperscript{23} It is also considered a hyperendemic epidemic region, which describes areas where HIV prevalence exceeds 15% in the adult population.\textsuperscript{23}

“Low risk” heterosexual populations are categorized as married couples and those living together, relationships that are assumed to be monogamous. However, “low risk” will have contributed to 57\% of new infections, according to UNAIDS incidence modeling in the population of 769,966 adults aged 15-49 in a 12 month period from September 2010.\textsuperscript{23} Casual heterosexual sex (CHS) and partners of CHS will have contributed to 29\% of new infections and men who have sex with men and partners will have contributed to 6\% of new infections. Sex workers and clients will have contributed to 7\%. Lastly, a small proportion of new infections will have been from medical injections, blood transfusions, and injecting drug use.\textsuperscript{23,26}

HIV prevalence

Botswana reported a HIV prevalence of 38\% in the late 1980s and early 1990s, based on antenatal clinic (ANC) surveillance. Often this figure of pregnant women visiting antenatal clinics was misinterpreted to represent the general population. Early
global news headlines claimed that 40% or ‘nearly half’ of all Batswana are HIV positive. However, according to UNAIDS, HIV prevalence in the general population never exceeded 30%.

The most accurate estimates from the World Bank and UNAIDS report that HIV prevalence rapidly escalated from 4.3% among adults ages 15-49 in 1990 to 28.2% in 2001, and then dropped to 23.0% by 2012. Figure 2 shows HIV prevalence beginning to decline around 2001.

![Figure 2 Botswana Prevalence Rates 1990-2012](image)

**Figure 2 Botswana Prevalence Rates 1990-2012.** HIV prevalence in Batswana ages 15-49 years. Data from World Bank.

Media sensationalism and the methodology of estimating HIV prevalence may have caused the discrepancies in early reported numbers. Most of the HIV figures relied heavily on data collected at antenatal clinics beginning in 1992. Sentinel data from the antenatal clinics could be a good estimator of young adult prevalence. However, the denominator only includes women attending ANC, not the entire population ages 15-49.
Pregnant women have recently had sex and are automatically in the HIV exposure pool.\textsuperscript{29} Thus, prevalence was overestimated in the general population.

When prevalence data is disaggregated by age and sex, it is clear that females bear the brunt of the HIV epidemic. This heavy burden can also be seen in Figure 3.\textsuperscript{30} HIV prevalence among those 15-49 years is 19.2\% for females and 14.1\% for males.\textsuperscript{7} Generally, women are infected at a younger age than men. Young girls in particular have increased vulnerability to HIV infection compared to their male counterparts. Among women ages 15-24 years, HIV prevalence is 6.7\%, almost twice the prevalence of males of the same ages, 3.7\%.\textsuperscript{7} In every age group, female prevalence of HIV is higher than that of men. The greatest difference between male and female HIV prevalence is in the ages 20-25 years range.

In the 2004 Botswana AIDS Impact Survey (BAIS) IV, HIV prevalence was highest in the age group 25-39 years. In the latest 2013 BAIS IV, the highest HIV prevalence has since shifted to the age group 30-45 years\textsuperscript{23}. This is largely due to the fact that people live longer with ART. Deaths due to AIDS had caused life expectancy to drop from 65 years in 1990 to 35 years in 2005.\textsuperscript{7} Now, the roll out of HIV treatment has allowed life expectancy to rise to 53 years.\textsuperscript{7}
Figure 3 Age and Sex HIV Distribution 2012\textsuperscript{24} Females have higher prevalence of HIV than men in every age group. Widows and orphans were not controlled for. Figure taken from BAIS IV 2013 Preliminary Data\textsuperscript{24}
HIV Incidence

Incidence is an important indicator of HIV trends in a country and whether or not HIV prevention response is effective. In Botswana, incidence is measured by retesting HIV-1 positive specimens with Aware BED enzyme immunoassay (EIA) HIV-1 incidence test to detect recent HIV-1 seroconversion. The trends in incidence have declined, as can be seen Figure 4. Incidence has steadily been decreasing from 5.7% among individuals aged 15-49 years in 1996 to 2.72% incidence today. Furthermore, Figure 4 shows the delay between the peak in incidence and AIDS deaths.

Figure 4 Annual number of new adult HIV infections and AIDS deaths 1980–2007. Annual new adult infections peaked around 33,000 in 1995 and declined to about 20,000 in 2002 and is currently about 18,000 (12,000-26,000). Annual number of adult AIDS deaths rose steadily during 1980s and 1990s to peak at almost 16,000 in 2003. The ART program halted the rise in deaths due to AIDS. Without the ART program, AIDS deaths would have exceeded new infections and HIV prevalence would have decreased. Figure taken from Stover et al. 
There were high rates of new cases while the death rates were low in the early 1990s. Thus, prevalence continued to increase with new infections until deaths due to HIV/AIDS balanced out the new cases. Around 2004, the rate of death from HIV/AIDS dropped as treatment coverage was expanding.

**Persistent disproportionate burden on women**

While overall incidence and prevalence rates have declined, women in Botswana have not been the main beneficiaries of prevention programs. Incidence is higher for females than for males, especially in younger age ranges. This difference in incidence by sex and age is reflective of cross-generational partnerships. Incidence among females aged 31-49 years is 6.61% and incidence among males aged 31-49 years it is 5.73%. Figure 5 shows the trends in annual new infections in the adult population and demonstrates indicates that females are continually infected at higher rates than their male counterparts.
Figure 5. Trends in Annual Number of New Adult HIV Infections 1995 – 2015.\textsuperscript{23}

New infections in adults aged fifteen and above peaked in the mid 1990s at about 33,000 and declined to about 18,000 by 2007. Every year females have higher incidence than males and this trend is projected to continue. Figure taken from Modes of Transmission Study.\textsuperscript{23}

**Biological vulnerability of women**

Women have increased rates of HIV infection for biological reasons, as well as social reasons, which will be discussed later. During penile-vaginal intercourse, a woman is more susceptible to HIV infection than a man. A woman is 2-4 times more likely to contract HIV than a man.\textsuperscript{32} One reason is that the female genital tract is a larger exposed area, compared to the exposed surface area of a man. Further, semen has a higher viral load than vaginal fluids and stays longer in female genital tract after the act of sex. The delicate female genital tract can also tear more easily from abrasion and
friction, especially if there is lack of lubrication. During certain times of a woman’s
cycle, low levels of hormone estrogen may make the vaginal wall thinner and enable HIV
to be transmitted more easily.\textsuperscript{32}

Other factors may be that women have generally poorer health than men and more
likely to have other sexually transmitted infections (STIs). Especially troublesome are
ulcerative sexually transmitted diseases (STDs), such as gonorrhea, chlamydia and
trichomonias, which increase transmission of HIV. Early diagnosis and treatment of STIs
is easier for men, but for women, most STIs are asymptomatic.\textsuperscript{33,34} STI Prevention and
Management are a part of Botswana’s prevention policy; however, the benefits of HIV
prevention are more at the individual level than population level.\textsuperscript{23,35}
BOTSWANA’S RESPONSE TO THE HIV EPIDEMIC

Two major government programs can explain the trends in HIV prevalence and incidence: the ART and prevention of mother-to-child transmission (PMTCT) programs. Botswana was the first country in Africa to provide universal coverage of ART and PMTCT services. According to UNAIDS, universal coverage is defined as at least 80% coverage under WHO guidelines, and Botswana has achieved over 95% coverage for all eligible participants for both ART and PMTCT. The government has minimized the burden of out-of-pocket expenditures for HIV/AIDS services. Whereas most SSA countries have relied on external sources, Botswana primarily funded HIV prevention and treatment with public revenue, reallocating domestic finances to cover between 70-90% of the needs since 2009. In contrast, in 2010 in SSA, over 80% of funding for HIV/AIDS programs came from donor governments.

Anti-Retroviral Therapy

The high prevalence is reflective of Botswana’s successful ART program in keeping People Living with HIV and AIDS (PLWHA) alive. Botswana was the first country in SSA to offer routine testing, and it achieved universal access with more than 95% of eligible adults and children on treatment. In August 2000, the Gates Foundation, pharmaceutical companies Merck and Bristol-Myers Squibb, and the Harvard AIDS Initiative launched an ART program in collaboration with the Botswana government to make ART available to all PLWHA eligible for treatment (CD4<350 cells/mm³). In 2002, Botswana initiated a national HIV treatment program named MASA, the Setswana
word for “dawn”, with the goal of universal access to all eligible citizens. It soon became apparent that Botswana lacked the health care workers to implement the ART program and by 2005 it was losing 60% of newly trained health care workers annually to emigration. Thus, Botswana and its partners focused their efforts on building laboratories and clinics, training health-care workers, and recruiting doctors from abroad. Today, the free ART program has decreased the number of AIDS-related death by 76%.

**Treatment as Prevention and Resulting Decline in Incidence**

Early declines in new HIV infection may be attributed to the natural course of epidemic and a large increase in condom use between 1988 and 2000. However, since 2000, patterns of sexual behavior have been relatively stable, which has slowed down the decline of new HIV infections (Figure 6). The rapidly increased ART coverage is more likely the cause of decline in the incidence. Treatment has potential for prevention of HIV transmission by reducing the viral load. Since 2009, more than 90% of eligible people have been on treatment (Figure 6). According to incidence modeling by UNAIDS, data suggests that HIV incidence is 30%-50% lower than in the absence of universal access to treatment. A major limitation to HIV treatment as prevention is that more than 60% of people living with HIV are unaware of their status.
New infections have decreased from about 25,000 in 2000 to about 10,000 in 2010. Protective behaviors among adults have been fairly stable since 2000, for condom use at last sex and number of sexual partners in last year. During this same time period, Botswana rapidly increased ART coverage. More likely, universal treatment led to a decrease in in new infections. UNAIDS estimates that universal ART coverage lowered new infections by 30%-50% than in the absence of universal treatment. Figure taken from UNAIDS World AIDS Day Report 2011.
Prevention of Mother-to-Child Transmission

Without treatment, one in three women will pass HIV to her infant while the infant is in her womb, during childbirth, or through breast-feeding. Botswana’s PMTCT program was rolled out in 1999. Coverage was then rapidly expanded, and by 2007, 91% of HIV positive pregnant women were receiving ART and HIV-exposed infants were receiving prophylactic ARV medications.

Studies suggest the PMTCT program is also likely responsible for the decline in incidence. The annual number of new child infections peaked at just under 4,600 in 1999 and then declined as adult prevalence declined and as the PMTCT program expanded. By 2008, the PMTCT program had averted an estimated 10,000 child infections since its inception. Between 2009-2011, Botswana virtually eliminated mother-to-child transmission of HIV. In 2010, the percentage of babies born HIV positive from infected mothers was 3 percent, comparable to rates in the US and Western Europe. Today, over 95% of all women and HIV exposed infants are covered under PMTCT services. Botswana’s PMTCT treatment program has significantly prevented new infections among children and deaths among adults and children.

Prevention Strategies

Effective prevention strategies will be critical to Botswana decreasing the rate of new HIV cases. Existing prevention efforts have consisted mainly of biomedical individual level interventions. The majority of the budget has gone to treatment and impact mitigation. Now, the government of Botswana may consider addressing how
family, social, and structural factors also affect HIV vulnerability of women and young girls.

Although Botswana declared prevention as the focus of its response, funding for HIV prevention was 10% of total national funding for HIV in 2003; it then increased to 14% in 2004, but then decreased to 7% in 2008 (Table 1). According to UNAIDS, SSA countries need to spend at least 35% on prevention. Furthermore, 45% of the prevention budget is used toward biomedical interventions, leaving behavioral change programs and structural interventions underfunded (Table 2). Despite the fact that HIV prevention increased from 73 million pula (US $12.2m) in 2003 to 153.9 million pula (US$ 25.7m) in 2008, a 111% increase, spending on care and treatment was still six times higher than prevention in 2003 and eight times higher in 2008. Decreasing new HIV infections would decrease the number of PLWHIV on lifetime treatment and allow Botswana to invest more in behavioral prevention programs. The 2010 World Bank study projections stated that the cost of ART in Botswana would grow from USD 475 million to USD 1.6 billion by 2025. It is unsustainable for Botswana to continue providing lifetime treatment for all PLWHIV given the rate of new infections.
Table 1 Total Prevention of HIV Budget  

Out of the total HIV budget, Botswana only spent 7% of its HIV funding on prevention. Between 2003-2008, Botswana spent on average 10%. The UNAIDS recommends spending 35% on prevention for SSA countries. Data taken from *Modes of Transmission Study 2010*.

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Table 2 Distribution of Biomedical Prevention

Of the total amount spend on HIV Prevention in Botswana, 45% was spent on biomedical interventions in 2008. Most of the prevention strategies focus on PMTCT and HIV Counseling and Testing (HCT)/Voluntary Counseling and Testing (VCT). Data taken from *Modes of Transmission Study 2010*.

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<th>2006</th>
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<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMTCT</td>
<td>42%</td>
<td>31%</td>
<td>25%</td>
</tr>
<tr>
<td>HCT/VCT</td>
<td>27%</td>
<td>30%</td>
<td>12%</td>
</tr>
<tr>
<td>STI Treatment</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Circumcision</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Blood Safety</td>
<td>5%</td>
<td>8%</td>
<td>6%</td>
</tr>
<tr>
<td>Total Biomedical Interventions</td>
<td>74%</td>
<td>70%</td>
<td>45%</td>
</tr>
</tbody>
</table>
Knowledge and Behavior

In addition to sentinel surveys at antenatal clinics, WHO and the UNAIDS advocated for second generation surveys to address limitations of the sentinel data.\textsuperscript{46} Thus, since 2000, Botswana has been collecting behavior data. The latest BAIS reports encouraging patterns especially for condom use and testing (Table 3).\textsuperscript{24} One bias may be over-estimation due to self-reported data, however. Understanding behavior patterns and gaps in knowledge will allow better program design to decrease HIV risk in the general population.

As mentioned earlier, ‘low risk’ mutually monogamous sexual relationships will contribute to 56.4\% of new HIV while accounting for 59.3\% of general population.\textsuperscript{23} The key reason is discordance in which one partner is HIV infected and the other is not. At time of marriage, the discordant partner is more like to be a woman due to cross-generational relationships prior to marriage. A cross-generational relationship is defined as a partnership in which the age difference between partners is 10 or more years.\textsuperscript{47} In Cross-Generational Sex, the trend of young adolescent girls engaging in cross-generational relationships with older men will be discussed. During marriage, the man is more likely to be the discordant partner due to extra-marital sexual relationships.\textsuperscript{23} Most discordant married or cohabitating couples are not aware of their HIV status or partners’, thus, there is lack of motivation to use condoms consistently. They may go to voluntary counseling and testing (VCT) individually and not disclose their HIV status. Further, females may not disclose status for fear of domestic violence and marital disruption.\textsuperscript{48}
Table 3 Knowledge and Behavior Indicators in Botswana: Behavior data provides useful information about drivers of HIV epidemic and effectiveness of behavioral prevention programs. Knowledge of HIV transmission has been increasing among young people, yet still needs improvement. Nearly 50% of people ages 15-24 understand its transmission. Condom use and testing have increased significantly over the last decade. Data taken from Botswana AIDS Impact Surveys.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>BAIS 2001</th>
<th>BAIS 2004</th>
<th>BAIS 2008</th>
<th>BAIS 2013*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of 15-24 year olds who correctly identified ways of preventing sexual transmission of HIV and rejected misconceptions about HIV transmission or prevention</td>
<td>36.3</td>
<td>28.1</td>
<td>43</td>
<td>47.9</td>
</tr>
<tr>
<td>Percentage of 15-24 years olds reporting use of condoms every time they had sex with non-regular partners in last 12 months</td>
<td></td>
<td></td>
<td>78.4</td>
<td>99.5</td>
</tr>
<tr>
<td>Percentage of adults ages 15-49 who used condom at last sex with a casual partner within the last 12 months</td>
<td></td>
<td></td>
<td>6</td>
<td>99.5</td>
</tr>
<tr>
<td>Percentage of women and men aged 10-64 who ever received an HIV test</td>
<td>15.2</td>
<td>27.9</td>
<td>56.4</td>
<td>70.2</td>
</tr>
<tr>
<td>Percentage of women and men aged 15-49 who received an HIV test in the last 12 months and who know their results</td>
<td>9.4</td>
<td>18.3</td>
<td>41.2</td>
<td>97.1</td>
</tr>
</tbody>
</table>

* Preliminary result
CURRENT PREVENTION STRATEGIES

Botswana has noted in its National Strategic Framework (NSF) Mid-term Review that it needs to shift its strategy to prevention. Thus, in the NSF 2003-2009, the central pillar of the Prevention Plan is the “minimum package”.\textsuperscript{49,50} The minimum package is a set of services that should be provided nationwide through Ministries, districts, NGOs, and the Private Sector. The minimum package is defined by the three most common modes of HIV transmission: sexual, mother to child, and blood born. It is intended to ensure priority and scarce resources are allocated to interventions with greatest potential impact.\textsuperscript{51} The minimum package includes:

1. Prevention of Sexual Transmission
2. HIV Counseling and testing (HCT)
3. Preventing mother to child transmission of HIV (PMTCT)
4. Sexually transmitted infection (STI) management
5. Preventing Blood Borne Transmission

The Framework is intended as a call to action and practical guide for developing and implementing nationally oriented HIV/AIDS plans. The NSF brings together all stakeholders from every level and strengthens the coordination from sectors, ministries, and decentralized levels by ensuring consistency, minimizing duplication, and improving interaction between service delivery sites and the communities.\textsuperscript{49}

Scaling up is central to prevention programming. This next section of the paper will analyze the prevention programs and plans, HCT services, condom promotion and
distribution, focus on concurrent partnerships, and expansion of male circumcision services that lie at the core of an effective national HIV prevention approach.

**Testing**

In 2000, the government of Botswana and the U.S. Center for Disease Control (CDC), through the partnership called BOTUSA, started VCT centers to provide VCT for sexually active adults ages 18-49. In 2001, President Festus Mogae was one of the first head of states to publically test for virus, while many other African leaders were denying the gravity of the AIDS epidemic. In 2003, the Botswana government established a routine testing program, yet the VCT centers were criticized for being slow. In 2004, Botswana instituted a noncompulsory, “opt-out” HIV screening in prenatal and health clinics. In a 2006 study, participants believed testing would lead to decreased barriers to testing (89%), HIV-related stigma (60%), violence towards women (55%), and increased access to ART. At the same time 68% felt they could not refuse testing. Testing has been an important part of Botswana’s HIV prevention program, but policymakers might consider taking measures to ensure there is true informed consent.

Another concern is the Public Health Act that was passed in 2013, which allows medical practitioners to conduct HIV tests without patients knowledge and to disclose patient’s HIV status to sexual partners without their consent. This has concerns for women who may be blamed for bringing HIV into a relationship when seeking antenatal care. It may also dissuade women from seeking medical care and justify violence against women in relationships. Further the Law makes it compulsory to disclose HIV status to sexual partners. The Public Health Act may unequally affect women who experience a
higher prevalence of HIV than men. It increases discrimination and further limits the freedom of PLWHA.

**Condom Promotion and Distribution**

Correct use of condom at every sexual encounter significantly reduces risk of HIV transmission. Self-reported rates of condom use have increased considerably as seen in Table 3. However, there is little information available on consistent condom use from these behavioral surveys. In BAIS III, 55% of respondents used a condom the first time they had sex. For reported condom use in non-regular relationship by sex, males reported 45.8% and females 34.6%.

In 2004, Botswana launched a pilot program in eleven districts to install 1,600 condom dispensaries in health facilities and non-traditional outlets such as bars, shops, workplaces, and educational institutions. The social marketing campaign was lead by Population Services International (PSI), and the private sector also promoted condom use and sale. The 2007 mid-term review cited difficulties to the program such vandalism of condom dispensers, lack of community involvement in selecting sites of dispensers, and empty condom dispensers.

There are many other challenges to increasing condom use. For example, conservative and religious community members claim condoms promote “promiscuity”. Many people also perceive condoms to reduce sexual pleasure. Education programs are critical to increase ability to assess risk in sexual encounters and increase knowledge of efficacy of condoms in decreasing risk of HIV transmission.
The National Condom Strategy (2012-2016) outlines strategic priorities to roll-out effective community mobilization and increase demand for condoms.\textsuperscript{57} It is suggested that future condom campaigns also address gender norms. Young girls and women are repeatedly denied information about and access to condoms, in addition to lacking power to negotiating use of condoms.\textsuperscript{58}

Consistent condom use has yet to reach sufficiently high levels to produce measureable effects on incidence in the generalized epidemics of SSA.\textsuperscript{35} Condom campaigns have shown to be most effective in epidemics spread mainly through sex work, as in Thailand, and some high-risk groups such as MSM.\textsuperscript{35} In Botswana, these two groups lack prevention programs, as homosexuality and sex work are illegal.

**Concurrent Partnerships**

The national Multiple Concurrent Partnerships (MCP) campaign called “O icheke”, meaning “watch yourself,” was launched in March 2009.\textsuperscript{59} Concurrency refers to a situation in which two or more partnerships overlap in time, and it leads to increased rates of HIV transmission in a population, which will be explained later in *Concurrency*. In the MCP campaign, there are two priority target groups and a third key target group. The first priority group consists of young women aged 18-24 engaging in MCP, the second is men 25-34 years having affairs with non-primary partners, and the third is older men having sex with younger girls. The campaign mainly consists of generalized media and community mobilization activities, such as on-on-one sessions, group discussion, dramas, and community and church events.\textsuperscript{60}
By addressing the high rates of concurrency driving the HIV epidemic in Botswana, there is great potential to decrease rates of new infection. Evidence shows that decreasing MCP through behavior change has led to decreases in incidence rates in other SSA countries with high prevalence. In Uganda, after the “Zero Grazing” campaign in 1987, WHO surveys reported a >50% reduction in the number of people reporting multiple and casual partners in 1989 and 1994. In Kenya, evidence suggests partner reduction and fidelity were the behavior change responsible for decreased HIV. Other countries that saw decreases in HIV had similar behavior change such as Zimbabwe, Ethiopia, Côte d’Ivoire, and urban Malawi. Strong leadership and active community involvement are essential to seeing similar results in Botswana.

**Male Circumcision**

The Botswana Ministry of Health launched the Safe Male Circumcision (MC) Programme in 2009. Botswana’s goal is to increase MC from 20% to 80% among HIV negative males age 0-49 years. Studies show circumcisions prevent female-to-male transmission by a reduction in risk of more than half. The foreskin that covers an uncircumcised penis is rich in Langerhans’ cells which have CD4 and CCR5 receptors that can bind to the HIV virus causing infection. Also, circumcision toughens the tip of the penis (keratinized, stratified squamous epithelial cells) so lesions are less common. Studies in South Africa, Uganda, and Kenya show evidence that MC decreased HIV infection by 40-60%.
The MC program has potential to decrease transmission in Botswana where there are low levels of MC. The National AIDS Coordinating Agency (NACA) cites a mathematical model that predicts the potential public health impact of large-scale MC in a situation like Botswana’s where there is low MC and high HIV prevalence. For a program with up to 80% MC of HIV negative males over a 10 year period, prevalence could decrease from 30% to 10% and reduce prevalence among females from 40% to 20%.63 Thus, there potential to decrease new HIV cases among females through MC. There has been an overall increase from 11% MC in 2008 to 24.3% in 2013.24 While MC is a biomedical approach to prevention, like ART and PMTCT, there is strong evidence of potential efficacy.
LACK OF FOCUS ON WOMEN IN PREVENTION EFFORTS

Botswana reports having a multi-sectorial response to HIV, but its prevention programs have had less of an impact than the ART and PMTCT programs. A majority of the programming in Botswana has focused on biomedical risk factors. Its earliest prevention response was screening for blood transfusions in first short-term plan (STP 1987-1989). Behavioral risk factors are equally as important as biomedical, but progress in behavioral prevention lags. Thus, Botswana’s policymakers may consider addressing underlying cultural, social, and economic risk factors with a focus on gender.

The lack of social capital, income equality, and sexual justice has led to women having little power over their own bodies. The social acceptability of men having more than one sexual relationship, women’s inability to negotiate condom use, age and economically disparate relationships, gender violence, and sexual abuse all lead to higher HIV risk for women. When planning HIV prevention programs with a focus on gender, Botswana’s policymakers may consider that women and girls lack individual control in decision-making, and thus, identify the social determinants that limit their self-protection and increase their HIV risk. A balance between biomedical, behavioral, and structural prevention interventions is key to decreasing incidence of HIV.
THE HIGH VULNERABILITY OF WOMEN IN BOTSWANA

The main social drivers of HIV that unequally impact women are concurrency, sexual assault, cross-generational sex, transactional sex, and sex work. Understanding these risk factors will enable Botswana to target intervention programs to address drivers to decrease rate of new infections.

Concurrency

As mentioned previously, concurrency leads to increased rates of HIV infections in a population where HIV is mostly transmitted through sexual intercourse. Concurrent partnerships contrast to serial monogamy, which is more common in the West. In interlinked sexual networks, a single infected individual can introduce HIV to everyone. This occurs especially during the acute stage or the first three to four weeks of initial infection when the viral load and ‘infectivity’ are high. The infected individual with a high viral load may see all partners regularly and is likely to have sex with them after contracting HIV. As each new infection occurs, high viral loads increase the likelihood of others in the network becoming infected. Thus, HIV infections spread rapidly. In contrast, in serial monogamy, an individual may become HIV infected and stay with the partner who infected him or her. By the time the infected individual is with the next partner, the viral load will have lowered.

Multi-partnered sexual activity has been and continues to be a driver of HIV in Botswana. Concurrency coupled with lack of condom use affects women in particular who lack the power to protect themselves. Although both men and women may be
involved in multiple sexual relations, it is considered the women’s responsibility to ‘be
careful’. Further, it is socially acceptable for men to have multiple partners. Condom
use is associated with sexual promiscuity; thus, if anyone in a committed relationship
requests the use of a condom, infidelity is assumed. According to the 2008 BAIS III, 21%
of males reported having multiple partnerships in the past 12 months compared to 2.3%
of female. But in the same time period, HIV prevalence among persons reporting
multiple partnerships was 16% for males and 34% for females. It is difficult to measure
consistent condom use so the best estimates are whether a condom was used at the last
sexual encounter. The percentage of males ages 18-34 who used a condom at last sex
was 79.2% and 75.7% for females. Although self-reported rates of condom use are high,
studies suggest that condoms are used at the start of new partnerships. However, as the
partnership evolves condoms are used less frequently and not always correctly or
consistently.

Sexual Assault

Sexual assault can increase risk of HIV infection amongst women for several reasons. First, forced or unwanted sex increases the chances of inner tears that allow
transmission of the HIV virus. Second, intimate partner violence (IPV) decreases
women’s control over her sexual and reproductive health. IPV describes physical, sexual
or psychological harm by a current or former partner.
There is increasing evidence showing that sexual assault and violence against women are prevalent in Botswana, which increases a women’s vulnerability to HIV. Gender Based Violence (GBV) is harm directed against a person on the basis of gender; it reflects inequalities between men and women. GBV against women is usually perpetrated by a husband or male partner. GBV may perpetuate male power and control. The 2012 Botswana Gender-Based Violence Indicators Study revealed that 67% of women experienced some form of GBV in their lifetime and 44% of men admitted to perpetrating violence against women. Women who experience GBV are 50% more likely to be infected with HIV than women in non-violent relationships. Women who are forced to submit sexually to a partner who has multiple other partners or refuses to use a condom are at a greater risk for HIV infection. The AIDS/STD Unit of the Ministry of Health stated, “Sexual violence towards young women appears to be a major problem in Botswana- and makes a mockery of the idea of young women being able to insist on safer sexual practices”. Rape constituted over 70% of the reported GBV cases from 2003-2007. It is estimated that only one in nine women report rape to police and only one in seven women seek medical attention. In order to access post-exposure prophylaxis or emergency contraception, women must present a police report certifying rape. Not only are a majority of rape victims excluded from post-exposure prophylaxis, but married women are entirely excluded. Currently civil law does not recognize marital rape. Therefore, married women who are raped by HIV-positive husbands do not have access to these
medications. Further, a study found that 39% of men believe women do not have the right to refuse sex with their husbands or boyfriends.

Sexual coercion and rape are linked to alcohol use among both men and women. In a 2012 study in Botswana and Swaziland, the association between heavy drinking and rape was described by a crude odds ratio of 3.78 among men as perpetrators and 3.94 among women as victims of rape. From another study in 2011, fear of rape was also linked to alcohol consumption. One adolescent boy said in a focus group, “Those who live for pleasure [are vulnerable]; they get raped when they come from bars or nightclubs.” While some views such as this reflect the tendency to blame girls for their vulnerability, most narratives reflected a broad acknowledgment that girls have little or no control.

**Cross-Generational Sex**

One of the greatest risk factors for HIV amongst young adolescent girls is unprotected, concurrent partnership with older, sexually experienced men. The BAIS III estimated that 6.7% of females ages 15-19 years had sex with a partner 10 years or older within the last 12 months. Early sexual debut is also associated with risk of acquiring HIV infections. The 2006 sero-prevalence study of pregnant mothers reported that 55% of total population had initial sexual intercourse by 19 years and 8% had first sex by age 15. Adolescent girls are at higher risk of HIV infection than same age boys. As mentioned previously, among young girls ages 15-24 in Botswana, HIV prevalence is 6.7% while for young men it is 3.7%.  

First, there is a biological reason for vulnerability to HIV for young girls. Young
adolescent girls under the age of 18 may not have a fully developed cervix. In other words, there are thinner cells lining the cervix and HIV is more likely to penetrate.\textsuperscript{32}

Women under 24 may have immature genital tract that are more easily torn during sexual intercourse.\textsuperscript{32}

Then, there is a social reason for girls’ HIV vulnerability in cross-generational relationships. Adolescent girls may have higher rates of infection because of sexual encounters with older men who have longer sexual history and thus, a longer exposure to HIV.\textsuperscript{23,78} Further, the men may be engaged in multiple concurrent sexual partners. Young girls may also have less power to negotiate condom use in a relationship in which the man has greater social standing and financial power.\textsuperscript{80} Thus, low condom use is a major issue in cross-generational sex.

\textbf{Transactional Sex}

Younger girls may be interested in older men for various reasons such as their ability to offer status, gifts, grades, and financial support. This type of relationship describes transactional sex in which money or material goods are exchanged for sex.\textsuperscript{81} Transactional sex can take a range of forms from gifts as an expression of affection to survival sex in which women regularly exchange sex to have the daily needs of her family met. The context and motivation varies.

Previous research in SSA consistently shows that dependence on men for basic resources in exchange for sex leads to women having decreased power in negotiating sex and condom use.\textsuperscript{11,81,82} There is an inverse relationship, in which the greater the value of
the material or money exchanged, the lesser the likelihood of condom use. Adolescents are more likely to engage in risky sexual behavior if they come from poverty. Food insufficiency is associated with inconsistent condom use with non-primary partner, transactional sex, intergenerational sexual relationships, and lack of control in sexual relationships for women.

However, these dire economic conditions are reported less in middle-income Botswana than in low-income countries in SSA. Instead, girls report sex with older men in exchange for goods such as car, cash, cellphone, or clothes to pursue the enjoyment that goes along with adolescence or young adulthood. A girl may accept a phone from an older man who has money, and it is expected that she provides sex in return. The search for the modern adolescent social identity is a primary driver for transactional sex, and poverty is a secondary driver in unprotected transactional sex. Age and economic asymmetries in sexual relationships create power differentials, which give men the power to control conditions of sexual intercourse including condom use.

**Sex Workers**

Transactional sex is often differentiated from formal sex work, particularly in surveys, because women engaging in transactional sex do not view themselves as sex workers. Distinguishing transactional sex from sex work has important implications for intervention design and policy.

Sex work is illegal and stigmatized in Botswana. According to the HIV Needs Assessment of Female Sex Workers in Major Towns, Mining Towns, and Along Major Roads in Botswana, most female sex workers (FSW) cited failure of male partners to
provide for them and lack of female earning power as reasons for entering sex work.\textsuperscript{84}

Generally, sex work will start as survival sex and then, become a lifelong occupation. Most FSW wanted to leave sex work but are financially incapable. The BAIS III estimates that although FSW account for 1.65\% of the general population, but they will account for 6.38\% of new infections.\textsuperscript{23} FSW are in need of specific prevention programs and access to health services that consider their high-risk sexual encounters.

FSW may access free condoms, STI treatment, and VCT services at public health clinics, but they rarely reveal their occupational status due to criminalization of their work. Male informants stated that HIV campaigns "make a big mistake by targeting women only and not targeting men" and "there is demand and supply".\textsuperscript{85} The Government of Botswana has only recently started to spend funds on addressing FSW HIV risk in the 2008 BAIS III to assess condom use and sexual behavior among FSW.\textsuperscript{38,41} Further, there are no prevention programs targeting FSW.\textsuperscript{23} In 2013, only 34.8\% of commercial sex workers and their clients both correctly identified ways of preventing sexual transmission of HIV.\textsuperscript{24}

FSW have been targets of violence by clients and police, including sexual violence and beatings.\textsuperscript{86} Police are known to come and take money and condoms and coerce women into sex in exchange for ‘protection’ against enforcement.\textsuperscript{69} Migrant sex workers from Zimbabwe are even more vulnerable to attack and rape due to xenophobia.\textsuperscript{86} Both governmental and non-profit organizations may consider strengthening their response to address legal, social, and health care needs of FSW while taking into account geographical variation.
Economic and Social Burden of HIV/AIDS on Women

The burden of HIV has hampered income-generating activity, keeping some women and female-headed households in poverty. Women provide most of the care for those living with HIV and AIDS, including children orphaned by HIV. In a 2003 study, focus groups revealed that men had previously supported support families by sending money while migrating for work. One woman explained how the HIV epidemic changed this norm, saying,

“Today, things have changed and [women] have to look out for themselves, work to provide for all these children because the men who have left, they may have families [else-where] and maybe they just die.”

While provision of ART is mitigating some effects, HIV/AIDS is increasing the burden of childcare on women.

Traditionally, migration was a central part of the male identity and reproduction was key to female gender identity. However, women have steadily drifted away from their traditional roles of supporting patriarchal families to living more isolated lives in urban areas. According to the BAIS 2004, 8 out of 10 pregnant women in all age groups were single and unmarried. All in all, not only are women more vulnerable to HIV infection due to traditional gender roles, but they also experience the greater burden of the HIV epidemic as primary caregivers.
GENDER POLICY

There are several places in the Botswana legal system that reinforces gender inequalities that exacerbate the social risk of HIV for women. Botswana’s policymakers might consider making legislative reforms to support women and young adolescent girls in protecting themselves against determinants of HIV risks previously discussed.

Traditional-Customary Law

Botswana’s legal system consists of an indigenously-based customary legal system and the Constitution which was inherited from the former colonial state. Further, customary laws differ amongst tribes, and all laws remain unwritten. Nevertheless, customary laws still hold power in court. This is important to consider in terms of the HIV/AIDS burden on women because customary law can be contrary to women’s rights. This infringement can directly impact a women’s ability to look after her wellbeing and health. For example, customary law allows husbands to use corporal punishment to discipline their wives as minor children, which is a common practice in rural areas. At least 80% of cases are processed in 500 Customary Courts throughout the country. Customary courts are administered by individuals without legal training, thus more likely to reflect discriminatory perceptions. 89
Civil Law

On the other hand, the civil law has power to make national legal changes to protect young women. Several civil laws exist that are barriers to HIV prevention among women and girls.

First, marital rape is not recognized by the civil legal system in Botswana because it was deemed “incompatible” with the Penal Code. Further, although rape is under the Penal Code (Amendment) Act of 1998 Cap 08/01, many rape and sexual violence cases go unreported for reasons such as stigma. Sexual abuse of children below 16 years and defilement also come under the penal code (amendment) Act of 1998. It states any person who unlawfully and carnally knows person under age of 16 years shall be sentenced between 10 years and up to life of imprisonment and the sentence is higher if the perpetrator is HIV positive. However, this law excludes those who are 16 years and older. The Botswana Police Service criticize the Penal Code as far too broad and does not distinguish between acts of violence in domestic and non-domestic settings.

Second, domestic violence and IPV does not come under the punitive system. The Domestic Violence Act of 2008 was an important step in protecting women in domestic relationship and providing survivors with access to support, treatment, and care and HIV prevention services. However, this act lacks legal power; the act does not criminalize domestic violence and IPV is not recognized. Instead domestic violence is charged as assault. However, “The Gender Based Violence Indicators Study Botswana” reveals that violence against women is still high at 67% and only 1.2% of victims report the violence. There is a gap between the protections against gender-based violence in
legislation and what is carried out in practice. According to the Southern African Development Community (SADC) Protocol on Gender and Development, police officers have “negative attitudes” towards the person reporting and there are not enough female officers on staff to attend these calls.

Finally, the legal system prevents sex workers from protecting themselves against HIV infections. The Botswana government has reportedly written a recommendation entitled “Draft Strategies to Address Key Populations” to detain sex workers and deport “foreign sex workers” as an effort to manage HIV. The government references Section 179 of the penal code to punish “any indecent act”. In November 2013, the plan materialized when at least 30 women suspected of sex worker were arrested. The government of Botswana may consider creating a climate that encourages sex workers to carry condoms and access health services and that decreases fear.
RECOMMENDATIONS

Although Botswana’s prevention strategies have been largely biomedical, the ART and PMTCT programs have had huge impact on HIV incidence. Further, there is strong evidence supporting the effectiveness of such biomedical programs. However, in order to overcome the steady state of annual incidence and address vulnerability of women and young adolescent girls, the following recommendations are proposed.

First, as part of Botswana’s scaling up behavioral prevention program, policymakers may consider youth education programs to target misconceptions and denial about HIV transmission and condom effectiveness (Table 2). Further, it is recommended that education programs strive to increase women’s and young adolescent girls’ condom negotiation power. Women’s empowerment programs can be done at school and at health clinics, which would entail increasing access to health services for women. Currently, there are barriers to comprehensive sexual and reproductive health care and HIV prevention counseling for women. Sexual and reproductive health care is fragmented in Botswana and young people do not typically have access to such services due to maltreatment by health workers. Women may avoid openly seeking information on sexual and reproductive matters for fear of being stigmatized as “loose”. Thus, in addition to educational programs, it is recommended that HIV programs and reproductive services be integrated and more accessible to women. Currently, Botswana has achieved a health care system with 95% of the population living within a 8km of a primary health facility. Now that the physical proximity to health care facilities has been improved,
policymakers may consider working towards decreasing stigma and discrimination through increased accessibility of sexual health services for women.

Second, men can and should be encouraged to be involved in and sexual and reproductive health programs. Overly targeting women only is detrimental to both men and women’s HIV risk. Patriarchal power dynamics disempower females from negotiating safe sex. Men usually determine circumstances of sexual intercourse, when it occurs, the environment and whether contraceptives are used. Men educating men about the modes of transmission could be a start to behavior change. The Botswana Government has been attempting to get male partners more involved in PMTCT since 2004. Fear, stigma, and discrimination are barriers for women receiving PMTCT counseling, and sometimes men were not supportive of wives and partners joining PMTCT. Barriers to male involvement include clinics and hospitals that were not ‘male friendly’ and that care was only for women. The benefits of male involvement would be safer sex, family planning to avoid repeated pregnancies, assisting in feeding the infant, and decreasing discrimination and fear of violence at home. Male involvement has potential to influence sexual and reproductive health care, women’s care giving role, prevention of GBV, increased HCT, and decreased concurrency. Men might be held responsible without receiving blame in these programs, so that behavior change is in line with their cultural views of masculinity. Additionally, men might be encouraged to educate men about taking ownership of behavior around GBV, concurrency, and condoms and how it decreases HIV risk. Men can use their political, economic, and
socio-cultural power to change HIV risk for women. Further, it is recommended that this education start young as boys are forming their ideas of gender roles.

Third, despite important advances in civil legislation, customary laws continue to promote women’s subordination to men, and advances in domestic violence legislation are needed. Botswana’s policy makers may consider reforming civil law to protect women against HIV risk. For example, IPV and martial rape might be criminalized and sex workers may be offered services and health care to protect them instead of being arrested or deported. Further, it is recommended that there is greater enforcement of existing laws against sexual assault, violence, and sex with minors. Currently, domestic violence is greatly stigmatized, especially in rural areas where customary law takes precedent, thus domestic violence will go unreported. It is typical for lenient sentences and law enforcement officers making a joke out of domestic violence. The legal system may be strengthened to hold police accountable and implement appropriate disciplinary measure against police officers who misuse their position. Further, the Government of Botswana is recommended to publicize laws against violence to end discrimination and stigma and increased the reporting and enforcement of laws. Lastly, policymakers may consider reforming certain laws to protect women against HIV risk. It is recommended to revise the Public Health Act to repeal invasive provisions. While the law was intended to decrease new infections, it actually increases discrimination against PLWHIV and violates human rights. Doctors performing HIV tests without the knowledge or consent of patients violates the right to privacy stipulated in Botswana’s constitution. Further the Law makes it compulsory to disclose HIV status to sexual partners. Thus, the Public
Health Act may unequally affect women who experience a higher prevalence of HIV than men.

**Barriers**

There are barriers to implementing the aforementioned recommendations. First, increasing national behavioral prevention programs will be costly. Botswana was able to achieve universal ART and PMTCT due to its strong financial commitment. As an upper-middle income country, it receives less foreign aid than other developing SSA countries. Other sectors of the nation and health care are also in need of funding, and there will be definite strains on financial resources while increasing preventive services. Thus, the private sector and local communities will be essential partners. Community-driven HIV prevention initiatives can increase ownership and collective efficacy. It will also allow for appropriate mixed interventions for local drivers of the epidemic.

Second, it will undoubtedly be challenging to change cultural views around gender roles and sexuality, especially in rural areas where customary law holds precedence and reinforces gender inequality. Thus, it is recommended that community and religious leaders act as active leaders in women empowerment, addressing stigma around HIV, and education around modes of transmission. President Mogae’s candor in declaring the HIV epidemic a national emergency and getting testing for HIV were critical in the de-stigmatization of AIDS and mobilizing the HIV response. There have been positive changes due to national commitment around HIV, yet, there are challenges to overcome to see behavior change on a population level.
Third, cultural changes do not always keep up with legal reform. Thus, law enforcement will be critical to changing climate around sexual violence and assault. Further, it is difficult to say how supportive politicians will be of legal reform. The Botswana government has one of the lowest representations of women in the Southern African Development Community (SADC).\textsuperscript{99} Women only make up 5\% in cabinet and 12\% of parliament.\textsuperscript{100} In contrast, the SADC set 30\% as the target for women in office. However, there have been encouraging legal changes. For example, in 2012, Justice Key Dingake overruled the practice of assumed male inheritance in a landmark case.\textsuperscript{101} As civil law changes, hopefully, customary law will follow in promoting gender equality.
### RECOMMENDATIONS FOR ADVANCEMENT

<table>
<thead>
<tr>
<th>Behavioral Prevention Programs</th>
<th>Male Involvement</th>
<th>Reform in Civil Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth Education Programs</td>
<td>Men educating men about modes of transmission</td>
<td>Criminalize Intimate Partner Violence and Marital Rape</td>
</tr>
<tr>
<td>Increase condom negotiation power for women and young girls at schools and health clinics</td>
<td>Education about risk factors such as concurrency</td>
<td>Provide prevention programs and health care to sex workers instead of arresting and deporting</td>
</tr>
<tr>
<td>Increase accessibility to health services for women</td>
<td>Involvement in Sexual and Reproductive Health such as PMTCT and HCT</td>
<td>Have training for police in GBV cases and disciplinary measures for police who misuse their position</td>
</tr>
<tr>
<td></td>
<td>Gender Based Violence</td>
<td>Revise the Public Health Act</td>
</tr>
</tbody>
</table>

#### Key:
- Decentralization with community-driven HIV initiatives
- Strong leadership and precedent from community and religious leaders
- Leadership of women in parliament

#### Barrier:
- Financial Limitations to national behavioral prevention programs
- Difficulty changing cultural views around gender roles and sexuality
- Need support of politicians and cultural norms may not change with legal reform

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**Figure 7. Recommendations for Advancement** The main recommendations to decrease HIV incidence are 1) to increase behavioral prevention programs, 2) to increase male involvement 3) to reform civil legislation. Each recommendations has barriers to achievement, thus, keys to overcoming the barriers are made.
CONCLUSION

Botswana’s response to the HIV epidemic has led to declining rates of HIV incidence over the last two decades. The most effective aspects of Botswana’s response are provision of universal ART and PMTCT, yet HIV prevalence in Botswana is still high despite these efforts. Botswana has the third highest HIV prevalence in the world, and continued appropriate and effective interventions are needed to decrease the number of people impacted by HIV. Despite the successes of the national response, women and adolescent girls still bear a higher burden of HIV disease and are underserved. Botswana may consider increasing its behavioral prevention programs to promote a decline in incidence. New programs that address concurrency, sexual assault, and cross-generational sex might also be developed. Further, the legal system may be reformed to see better enforcement of sexual assault cases. Men can be encouraged to be involved in programs targeting at decreasing risk of HIV for women. Men often control the conditions of sex and whether a condom is used and thus may also be encouraged to be active participants in programs and sexual and reproductive health. Through continued commitment and prudent prevention strategies addressing risk of women and young girls, Botswana can reverse the trend of the current epidemic.
REFERENCES


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EDUCATION

Boston University School of Public Health Boston, MA
Masters of Public Health, concentration in International Health 2013-2014
GPA 3.73/4.00

Boston University Graduate Medical Sciences Boston, MA
Masters of Science in Medical Sciences 2012-2014
GPA 3.96/4.00

Boston College Chestnut Hill, MA
Bachelor of Science in Biochemistry Major, pre-med 2008-2012
Honors: Sr. Thea Bowman Scholar; Undergraduate Research Fellowship
GPA 3.5/4.0

RESEARCH & CLINICAL EXPERIENCE

Boston College Chestnut Hill, MA
Research Assistant, Gao Lab Summer 2009- Spring 2012

- Synthesized a series of de-novo peptide mutants and analyzed thermodynamic
  stability of series
- Performed Fmoc-protected solid-phase peptide synthesis, HPLC, size-
  exclusion chromatography, circular dichroism spectroscopy, mammalian
  tissue culturing and other experimental procedures
- Assisted in training of undergraduate student
- Co-authored journal articles for international publication

Brigham and Women’s Hospital Boston, MA
Medical Career Exploration Program Fall 2008- Summer 2012
Volunteered in rotation assignments in various departments (168 hrs) and rounded with a
physician Liaison, Outpatient Infusion Center (80 hrs) Fall 2011-Summer 2012

- Socialized with patients during infusion, escorted patients to and from units,
  transported specimens and delivered drugs from central pharmacy

Student Intern, Pain Management Center (36 hrs) Spring 2011
• Assisted patients in the waiting area, directed the flow of patients to next appointments, served as a liaison between patients and their waiting families

Volunteer, Patient Access and Central Transport (52 hrs) Summer 2009-Fall 2011
• Guided patients from the front desk and transported patients and delivered specimens

VOLUNTEER EXPERIENCE

Boston Health Care For The Homeless Program Boston, MA
Patient Activities Leader Summer 2013- Spring 2014
• Organize and lead activities and arts and crafts for homeless adults staying in medical respite facility
• Engage in comforting conversations with patients with sensitivity

AIDS Action Committee- Youth on Fire Cambridge, MA
Volunteer Summer 2013- Spring 2014
• Engage with homeless youth, ages 14-24, building supportive relationships and engaging in non-judgmental conversations concerning homelessness, sexual health, substance use, pregnancy, HIV/AIDS, and STDs
• Maintain order in the space, cook in kitchen, organize supplies, and distribute basic necessities to members

International Service Learning Dominican Republic, Haiti
Team Member Summer 2011
• Served in Haiti and the Dominican Republic assisting local doctors providing health care for underserved communities
• Arranged triage clinics: recorded patients’ medical histories and vital signs, provided feedback to and learned procedures from local volunteer physicians
• Shadowed doctors in Santo Domingo in the surgery, delivery and emergency rooms
• Engaged with children at an orphanage by teaching arts, crafts and dance

Community of Faith International Church Surabaya, Indonesia
Team Member Summer 2010
• Investigated how to better serve the poor in kam- pungs (neighborhoods) through immersing culturally and learning customs of local Madurese people
• Collaborated with Chinese translators to speak the official language of Indonesia with natives to develop an understanding and appreciation of the different populations on the island of Java

Mack Avenue Community Church Detroit, MI
Team Member  Spring 2010
- Partnered with a local church to build solidarity by serving the needs of a lower-income community through rebuilding homes and setting up corner stores to provide new clothing, toys and home goods

Antioch Community Church  Bangalore, India
Team Member  Summer 2009
- Volunteered at the Home of Hope, a home for the destitute, elderly, and terminally ill

ACTIVITIES

AMEN Projects (Artists Movement to Engage Nonviolence)  Summer 2012
Artist
- Produced large-scale paintings with group of international artists for rebuilding a church in Khartoum, Sudan, which was burnt down by religious fanatics April 21, 2012
- Worked with a multi-religious committee of artists and human rights activist advocating the awareness of religious tolerance as a consequence of burning houses of worship

Global Health Initiative, Pre-Med Society  Fall 2009- Spring 2012
Committee Head (2 years), Officer (1 year)
- Organized events with speakers from non-profit organizations such as Partners in Health, Boston Health Care for the Homeless Program, and Doctors without Borders to provide global information about medical needs around the world to the BC community

TEACHING
Boston University School of Medicine  Boston, MA
Tutor  Fall 2013
- Tutored graduate students in Biochemistry and Cell Biology

PUBLICATIONS