

Technical Meeting on Young Women in HIV Hyper-endemic Countries of Southern Africa

Essential interventions for reducing biomedical vulnerability of women to HIV infection in southern Africa

Policy and Programme Action Brief

A disproportionate number of women in southern Africa are infected with HIV, with levels of infection far exceeding that of men in the region and several orders of magnitude higher than that of women in other settings. A systematic analysis of the precise short- and long-range mechanisms that determine this vulnerability would assist in defining a coordinated HIV prevention response, with improved prevention programming and results.

A comprehensive response to these factors, where the health sector delivers an essential package of integrated HIV prevention interventions, is critical for reducing new infections, and the consequent HIV-related morbidity and mortality. This requires a wide range of activities within communities and health facilities providing: interventions aimed at changing individual-level behaviour, and community- and policy-level interventions which alter more distal determinants of vulnerability to HIV.

Prevention approaches have thus far largely ignored social contexts, presuming a degree of individual control in decision making that is dissonant with the reality of circumstances for girls and women in southern Africa. There are critical characteristics of the risk environment which condition and constrain the behavioural 'choices' available to vulnerable girls and women in this setting. In essence, the biomedical vulnerability which most interventions seek to target, is an outward manifestation of an underlying gendered social and economic vulnerability, which takes expression in behavioural risks.

This policy brief provides an overview of the biomedical factors underlying women's vulnerability to HIV infection and interventions essential for reducing this vulnerability.

Summary of key biomedical factors underlying women's vulnerability

Key biological factors concern the efficiency of transmission during a specific sexual encounter and the number of exposures, if any. Different routes of HIV transmission also have varying efficiency. Importantly, the odds of HIV transmission during receptive anal intercourse are about 10 times that with vaginal sex.

Stage of HIV infection is a critical predictor of infectivity. High viral load in all fluids, including semen make the acute stage of HIV infection a critical period of infectivity. People with acute HIV infection thus make a marked contribution to HIV spread. Concurrent partnerships create a most conducive environment for HIV transmission during acute infection. When one person in a network of concurrent partners acquires HIV, others in the network are at considerable risk.

Evidence indicates that **younger women** are more biologically susceptible to HIV infection. Delaying sexual debut and avoiding exposure to HIV at this especially biologically and socially

vulnerable period is a key HIV prevention strategy. Cervical ectopy, more common in young women has also been associated with increased susceptibility to HIV infection.

Some studies show risk for HIV acquisition is higher for **pregnant women** than lactating or other women. This appears more likely due to physiological changes during gestation than to social and behavioural changes during pregnancy. An important implication of this is that measures to reduce unintended pregnancies could potentially lower risk for HIV infection in women, in addition to other inherent benefits. Increased risk for HIV acquisition among women using hormonal contraception has also been noted in some, but not all studies.

Vaginal practices are used by large numbers of women in southern Africa to tighten, dry, warm or clean their vagina. These practices and associated products could potentially undermine each component of innate biological defences against pathogens. Evidence whether intravaginal cleansing or insertion of substances increases risk for HIV acquisition is conflicting. In addition to potential biological mechanisms, perceptions of desired vaginal states and vaginal practices themselves can undermine condom use.

Rapidly accruing evidence indicates that **alcohol independently affects sexual-decision making**, and condom negotiating skills and their correct use. Patterns of drinking, in particular the intermittent episodes of intoxication in southern Africa, are a powerful mediator for acute problems such as interpersonal violence and high-risk sexual behaviour.

The causal pathway between acute intoxication, unsafe sex and HIV is increasingly being delineated. Women with heavy episodic drinking patterns (defined as more than five drinks on one occasion) are more likely to use condoms inconsistently and incorrectly; to experience sexual violence; and to acquire a STI, including HIV. Moreover, a biological explanation exists for the relationship. Alcohol reduces anxiety about the consequences of one's actions with consequent reduction in cognitive restraint. It also causes disinhibition, decreasing awareness of social norms of acceptable behaviour. Causality is also supported by results of event-level condom use (reduction of condom use coinciding with heavy-drinking events).

Research is needed about whether changes in alcohol use among women reduce unprotected sex, incidence of sexual violence and HIV. Specifically, it is possible that women who are assisted to adopt safer patterns of alcohol use will have concomitant safer sexual behaviours and reduced STI burden. For communities and individuals, interventions are needed to shift the way alcohol is consumed by men and women. In particular, brief interventions for alcohol, should be more systematically incorporated within STI services, antenatal care and other primary health settings as well as outreach services.

Aberrant immune activation, especially following infections with helminths, tuberculosis and malaria, may raise susceptibility to HIV infection. Strengthened health services, with improved control of such infections could also have important benefits for HIV prevention, aside from inherent gains from reducing the burden of these major pathogens.

Health services role in reducing women's vulnerability

Key health sector interventions for preventing sexual transmission of HIV include: condom programming, the prevention and control of STIs, outreach to most vulnerable populations, male circumcision and the integration of HIV prevention within sexual and reproductive health services. Prevention interventions must be configured to promote gender equality, itself likely to reduce HIV transmission.

Box 1: Priority biomedical interventions for reducing vulnerability of women to HIV acquisition in southern Africa

Promotion of male and female condoms for reducing HIV transmission and avoiding pregnancy
Promotion of male and female condoms for HIV-negative pregnant women
Promotion of abstinence and fidelity, reducing multiple concurrent partners

Delaying age at first sex
Health promotion programmes and counselling for modifying behaviour and risk perceptions
HIV testing and counselling, focused on HIV-negative women
Couple counselling and HIV testing
Treatment of sexually-transmitted and other reproductive-tract infections, especially viral STI
Treatment and prevention of harmful patterns of alcohol use
Promotion of contraception and reduction in unintended pregnancies, to diminish risk for heterosexual transmission of HIV
Reduction in barriers to accessing HIV prevention services, including addressing health worker's stigmatising attitudes
Male circumcision ¹

¹Evidence is not available about effects of this intervention on risk for HIV among women

Sexual counselling and condom promotion

Safe sex, the practices which limit contact between bodily fluids of sexual partners, remains a cornerstone of HIV prevention. Large gaps, however, occur in consistent condom use with long-term partners and to a lesser extent with casual partners. Programming for male and female condoms is an integral and essential part of comprehensive prevention and care. Prevention programmes need to ensure that high-quality condoms are accessible to those who need them, when they need them, and that people have the knowledge and skills to use them correctly. Condoms must be readily available universally, either free or at low cost, and promoted in ways that help overcome social and personal obstacles to their use. The female condom remains an under-exploited prevention option, especially the newer FC2 condom.

Each clinical encounter serves as an opportunity for providing information and counselling. For pregnant women who test negative, particular efforts are needed to provide tailored counselling and to promote male and female condoms at this time. Women living within southern Africa require contextualised counselling, which encompasses:

- Frank discussion of the dangers of having more than one long-term sexual partner at a time;
- Talking through locally-appropriate strategies that women can use to avoid transactional sex since in this cultural milieu receipt of gifts often signals sexual acquiescence, mostly without a condom;
- Female and male condom promotion, advice about their correct use and the dual benefits condoms offer for women who do not wish to become pregnant;
- Informing women, including those who are married, that they should consider themselves at risk of contracting HIV; and
- Counselling women during pregnancy and lactation about potential increased risk for HIV at this time and that the need for safe sex is important, especially as condom use may diminish during pregnancy and postpartum.

Increasing knowledge of HIV serostatus

HIV testing is a key intervention for confronting the HIV epidemic and a prerequisite for provision of serostatus-specific prevention. Once diagnosed with HIV, the majority of men adopt safer behaviours, reducing risk for their uninfected partners. A diversified approach can increase knowledge of serostatus, drawing on a range of testing and counselling models including client- and provider-initiated testing, occurring either within health facilities or community-based settings. Universal access to provider-initiated testing and counselling (PITC) is required in all SRH services and interface between patients and providers in southern Africa. More intensive client-centered counselling modalities for changing sexual behaviour in those who test negative can alter sexual behaviour and reduce incidence of STI.

Detection and treatment of sexually-transmitted infections

Prompt and appropriate treatment of STI reduces an individual's risk for HIV acquisition. Further, treatment of STI in people with HIV may help prevent HIV transmission to sexual partners. STI services thus are critical for controlling the HIV epidemic, especially among populations at higher risk for exposure to HIV. Though STI treatment in low-level or concentrated HIV epidemics has a larger impact on HIV transmission at a population level, in hyper endemic settings the population impact of STI treatment is nevertheless important. With improved knowledge and support, increasing numbers of women and men who suspect an STI would promptly seek and access STI care, reducing their individual risk for HIV infection.

Priorities must be set to target those pathogens that contribute most to expansion of the HIV epidemic in specific settings. There has been an absolute increase in the incidence of herpes simplex virus type 2 (HSV-2) which has become the predominant cause of genital ulcer disease. Of all genital ulcer diseases, HSV-2 interacts most strongly with HIV. Bacterial vaginosis and *Trichomonas vaginalis* have also been more recently associated with HIV transmission. As these conditions are common, even a small increase in risk at an individual level may have a marked impact on overall HIV levels in the population.

Male circumcision

Male circumcision is an additional important health sector intervention to reduce the risk of heterosexually acquired HIV infection in men. This intervention should be scaled up as part of comprehensive HIV prevention, informed by social and cultural contexts. Broad community engagement is required to introduce male circumcision services, also for communicating accurate information about the intervention, to both men and women. Messaging here is critical, notably that male circumcision provides only partial protection. Also vital is the message that men who resume sexual activity before wound healing may be at higher risk of HIV infection, or if HIV-positive, at higher risk of infecting their sexual partners. PITC is recommended as part of the standard of care for men seeking circumcision as an HIV prevention intervention. Also, careful monitoring is needed of male circumcision service delivery for possible untoward effects such as increases in unsafe sex.

With male circumcision programmes, over time women would gain protection from HIV as male prevalence decreases (via 'herd immunity'). More information is, however, needed about the effect of male circumcision on male-to-female transmission, especially as limited data suggests risk for male-to-female transmission may increase when circumcision occurs in HIV-infected men. Circumcision has a long and complex traditional and cultural history in the region. With adequate leadership, cultures are amenable to change; however, the efforts required for bringing about such change remain largely unexplored.

Conclusion

Understanding principles of HIV infectivity and factors which modify vulnerability provides an opportunity to identify local strategies to reduce transmission. Far-reaching measures, like control of alcohol use, create conditions necessary for achieving sustained prevention results. These efforts will also have marked health and wellbeing benefits beyond a reduction in HIV.

More distal factors such as economic vulnerability, societal norms, and gender-based inequality and violence are inseparable from women's sexual behaviour and, at least in part, determine women's sexuality and wellbeing. For example, fidelity is undermined by occupational policies, like those of mining companies which involve single-sex hostels, or subsidised alcohol supplies. Moreover, there are underutilised opportunities for addressing biological determinants of HIV infection during interface between health workers and patients. Making better use of encounters with women bringing their children for immunization is one such example.

Thus far, the vigorous cultural and political leadership that would be required to alter gender norms or to implement programmes like male circumcision has been absent in southern Africa. It thus remains that the vulnerability of women due to biomedical factors is inseparable from a deep-rooted lack of social capital, income equality, and social and gender justice, in themselves highly important predictors of HIV. With adequate political and cultural leadership, fundamental society-wide changes in sexual and gender norms have taken place in parts of Africa and other areas affected by HIV. With strong, bold and informed leadership such changes could occur in southern Africa.