

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



Heise, L; McGrory, Elizabeth (2016) Greentree II: Violence against Women and Girls, and HIV. Project Report. STRIVE.

Downloaded from: <http://researchonline.lshtm.ac.uk/2837797/>

DOI: [10.17037/PUBS.02837797](https://doi.org/10.17037/PUBS.02837797)

Usage Guidelines

Please refer to usage guidelines at <http://researchonline.lshtm.ac.uk/policies.html> or alternatively contact researchonline@lshtm.ac.uk.

Available under license: Copyright the author(s)

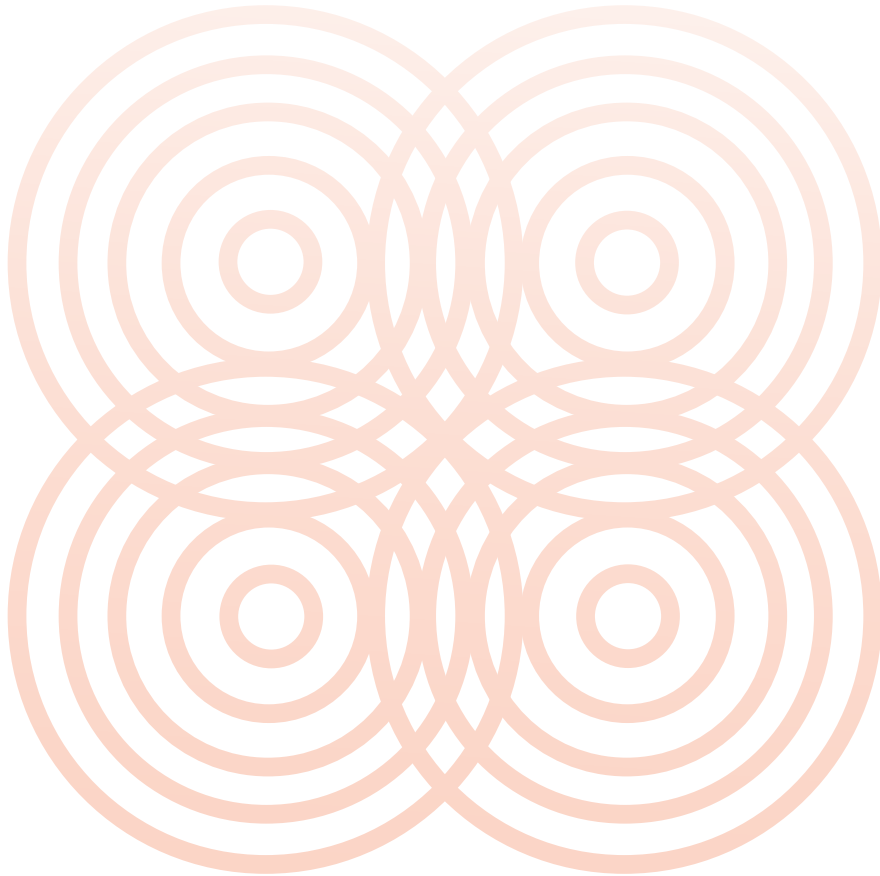


STRIVE
Tackling the structural drivers of HIV

GREENTREE II

Violence against Women and Girls, and HIV
Report on a high-level consultation on the
evidence and implications

12–14 MAY 2015, GREENTREE ESTATE, NEW YORK



© STRIVE August 2016

Prepared by Lori Heise and Elizabeth McGrory

Dr Lori Heise

Research Director | STRIVE Research Consortium “Tackling the structural drivers of HIV”
Director | Centre For Gender Violence And Health | London School of Hygiene & Tropical Medicine (LSHTM)
Author contact information: lori.heise@lshtm.ac.uk

The Greentree II consultation and this report were supported by the STRIVE research programme consortium funded by UKaid from the Department for International Development. However, the views expressed do not necessarily reflect the department’s official policies.

WHO, UNICEF, UNAIDS and the Greentree Foundation supported the Greentree II consultation.

CONTENTS

1. Overview	3
Process	3
Conclusions	4
<i>Evidence</i>	4
<i>What do HIV planners and donors need to know?</i>	5
<i>Priorities for action</i>	6
2. The evidence on VAWG and HIV	7
Global prevalence of HIV	7
Global prevalence of violence against women and girls	7
<i>VAWG in conflict and humanitarian settings</i>	9
The VAWG–HIV Link	9
<i>Longitudinal cohort studies</i>	10
<i>Systematic reviews and cross-sectional studies</i>	10
3. Hypothesised pathways of influence	13
Direct pathways between IPV and HIV	14
<i>Normal variations in women’s biological risk of HIV over the lifespan</i>	14
<i>The role of genital injury in HIV acquisition</i>	15
<i>The role of immune activation more generally</i>	16
Indirect pathways between IPV and HIV	17
<i>Childhood trauma</i>	17
<i>Clustering of risk factors among violent men</i>	18
<i>Decreased use of and adherence to services and biomedical HIV prevention options</i>	20
<i>Alcohol as an example of a shared risk factor for HIV and VAWG</i>	21
Key evidence	23
<i>Moving beyond generalisations</i>	24
4. Towards an effective response	25
Community mobilisation to address violence and HIV risk	25
<i>Case 1: SASA!</i>	25
<i>Case 2: SHARE</i>	26
<i>Case 3: GREAT</i>	26
Integrating violence prevention interventions in HIV prevention and treatment services	27

IPV and HIV in specific populations: Sex workers and adolescents	28
<i>Reducing HIV and violence vulnerability among sex workers</i>	28
Addressing the rights and vulnerabilities of adolescents	29
<i>Finding and reaching the girls left behind: Asset building for girls and young women</i>	30
Potential synergies with other structural programming	31
<i>Economic interventions to prevent intimate partner violence and HIV risk</i>	31
<i>Working with boys and men for gender justice</i>	32
<i>Financing gender transformative interventions</i>	33
5. Priorities for research and action	34
Related to evidence generation	34
Related to programming	35
References	36
Annexes	41
Annex 1: Programme	41
Annex 2: Participants	44

ABBREVIATIONS

ART	anti-retroviral therapy
CRSV	conflict related sexual violence
DHS	Demographic Health Survey
DRC	Democratic Republic of Congo
DREAMS	Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women
FSWs	female sex workers
GEMS	Gender Equity Movement in Schools
IPV	intimate partner violence
LMICs	low- and middle-income countries
MCH	maternal and child health
PEP	post-exposure prophylaxis
PEPFAR	(US) President's Emergency Plan for AIDS Relief
PMTCT	prevention of mother-to-child transmission
PrEP	pre-exposure prophylaxis
REAL Fathers Initiative	Responsible, Engaged and Loving
SHARE	Safe Homes and Respect for Everyone programme
SRH	sexual and reproductive health
STD	sexually transmitted disease
STIs	sexually transmitted infections
VAWG	violence against women and girls
VAW	violence against women
VSLA	village savings and loans associations

1. OVERVIEW

With increased interest in addressing violence against women and girls in the context of the HIV response, the STRIVE research consortium convened a high-level meeting to review evidence at the intersection of these two critical global issues. Held from 12 to 14 May 2015, the meeting was designed to advance understanding of the links between HIV and violence against women and girls (VAWG), and to identify strategies to address this nexus. The consultation brought together experts from both fields to clarify what is known about the epidemiological pathways linking violence and HIV, to identify shared risk factors and to outline opportunities to act on synergies through common programming.

Organised by STRIVE, with support from WHO, UNICEF, UNAIDS and the Greentree Foundation, the consultation built on a prior meeting (Greentree I, March 2012) that explored the physiology of sexual violence and its role in HIV transmission and acquisition. The report from that meeting (Klot 2012) outlined a broad agenda for clarifying the role that genital trauma and forced sex play in facilitating HIV acquisition, especially among young women. Greentree II was convened to examine the broader structural and social factors that affect the association between HIV and VAWG.

Greentree II took place against a backdrop of heightened concern about risk of infection among young women, especially in sub-Saharan Africa. Key players within the global HIV arena, such as the Global Fund and UNAIDS, have made the needs of girls and young women more visible in their policies, while PEPFAR's DREAMS initiative (Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women) invests significant sums to tackle young women's risks, including addressing VAWG. With this context in mind, Greentree II convened a diverse set of policy makers, clinical, epidemiological and social science experts and programme implementers to:

- examine the existing evidence base on the links between VAWG and HIV and identify critical knowledge gaps;
- develop a conceptual model that captures the potential pathways through which violence influences HIV-related outcomes;
- propose a research agenda to resolve outstanding questions; and
- suggest priority actions for policy, programmes and research.

PROCESS

The meeting began with a series of presentations from global experts on the prevalence of both VAWG and HIV, especially in low- and middle-income countries (LMICs). A second panel of experts reviewed existing data on the nature and strength of the association between intimate partner violence (IPV) and HIV acquisition. The meeting focused on partner violence as a case study because more data are presently available for this type of gender-based violence.

Having established that there is indeed a statistical relationship between violence against women and HIV acquisition, the meeting turned its attention to considering

the various mechanisms and pathways that could account for the observed violence/HIV association. Figure 1 provided the conceptual framework for the next set of panels. Collectively, the goal of these sessions was to examine the degree to which the existing evidence supported each hypothesised pathway as having a significant role in mediating the relationship between IPV and HIV.

Colleagues who participated in the original Greentree I consultation, which focused primarily on the potential for sexual violence to increase HIV risk via genital injury (Klot et al 2012), provided background on the normal physiologic and life-cycle processes that affect HIV transmission risk more generally among women and girls (such as age, puberty, pregnancy and menopause); reviewed the findings from Greentree 1 about the potential impact of sexual violence on HIV risk via various biological factors; and shared emerging data about the potential role of trauma more generally on HIV risk through its impact on both genital and systemic immunity.

On Day 2 of the meeting, participants reviewed and reflected on the findings presented on Day 1 and their implications for moving the field forward in terms of research and intervention. The “take home points” above were agreed collectively.

Recognising the need to move beyond generalisations to understand HIV–VAWG associations in particular sub-populations by age and context, smaller groups discussed the particular pathways and mechanisms that affect:

- unmarried adolescents;
- sex workers;
- links between childhood maltreatment and later risk-taking behaviour;
- upstream risk factors shared between IPV and HIV; and
- the impact of violence on uptake and adherence to biomedical prevention and HIV care.

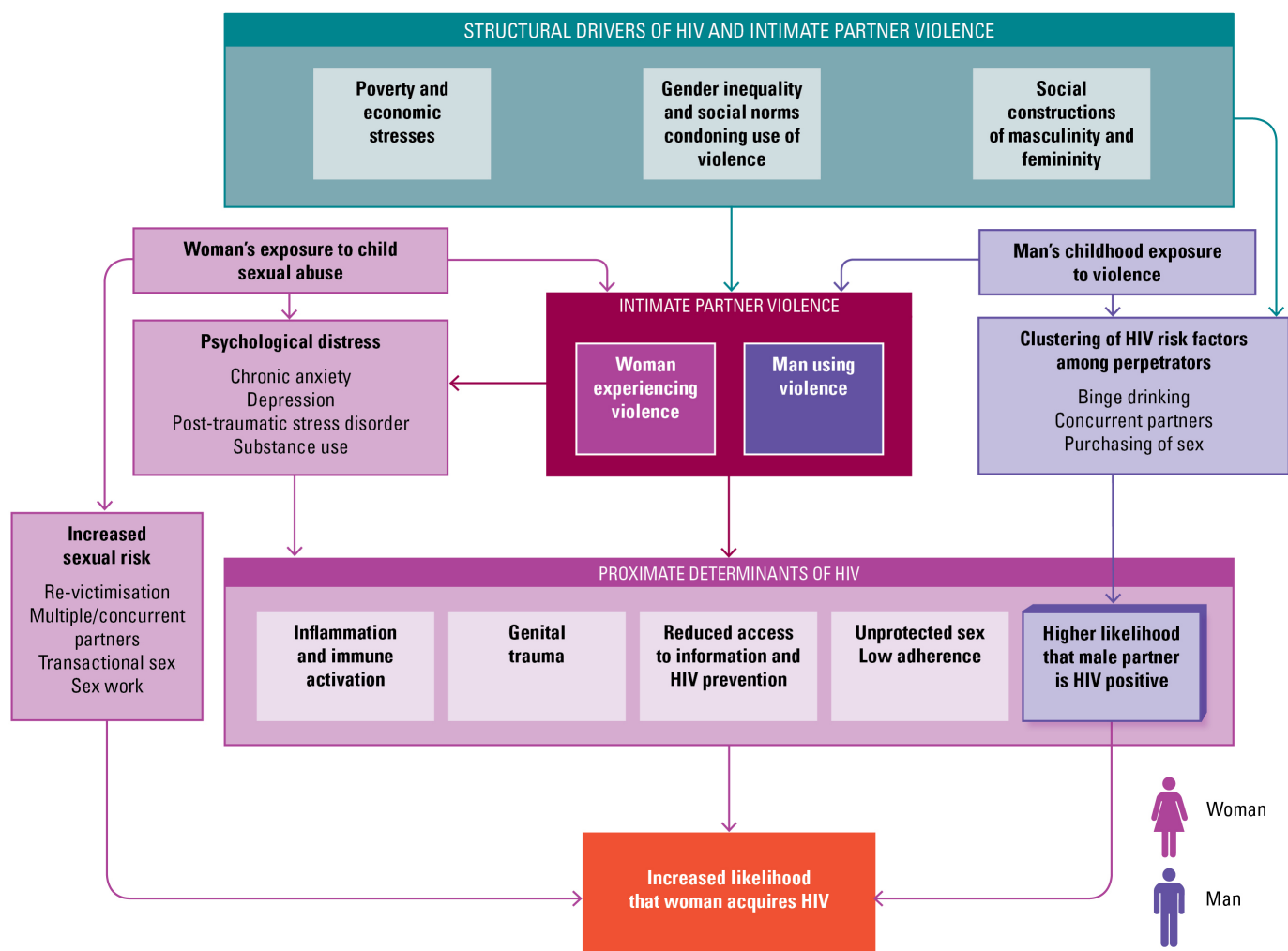
On Day 3, participants reviewed opportunities for effective intervention, in light of the evidence presented, as well as carefully selected cases of programmes that re proving effective in reducing both IPV and HIV.

CONCLUSIONS

Evidence

- There is growing evidence that violence in all of its forms – physical, sexual and verbal – potentiates susceptibility to HIV and disease progression among women and girls. Violence and trauma can lead to lower CD4 counts, higher viral loads and lower adherence to prevention and treatment. Addressing violence against women and girls, especially by intimate partners, is essential to achieving the UNAIDS 90-90-90 treatment targets by 2020 and to ending the HIV epidemic by 2030.
- Violence is a manifestation of the structural social and economic inequalities between men and women, at the same time as it further exacerbates these inequalities.
- The health and social effects of violence against women and girls are cumulative and long-term. Adolescents and young women are especially at risk, due to a combination of enhanced biological susceptibility to HIV acquisition and developmental vulnerabilities.
- The HIV epidemic in sub-Saharan Africa cannot be brought under control without reducing HIV acquisition among adolescent girls and young women, the most rapidly expanding demographic group on the continent. Given the association between violence and HIV acquisition in young women, addressing violence against women and girls is critical to curbing the HIV epidemic overall.

Figure 1: Potential pathways between intimate partner violence and women’s risk of HIV acquisition



Source: Lori Heise/STRIVE, Greentree II, 2015

What do HIV planners and donors need to know?

- The background rates of violence in the lives of women and girls in many HIV hotspots are extremely high. For example, in many countries in Africa, more than one-third of women have been beaten by a partner in the past 12 months. Women also experience high rates of verbal and psychological violence.
- Women living with HIV also experience heightened levels of violence, including a high rate of violence associated with a woman disclosing her HIV status to her partner. Violence poses a substantial barrier to the effectiveness of existing HIV strategies, undermining the uptake and adherence to proven biomedical prevention and treatment options.
- Three well designed longitudinal studies from Africa, together with supporting evidence from numerous cross-sectional surveys, confirm that women’s experience of intimate partner violence is associated with a 50% increase in the risk of HIV acquisition.
- Contrary to popular belief, sexual violence appears NOT to be the main factor explaining the association between violence and HIV at a population level. Although individual women can become infected with HIV through rape or forced sex, a number of indirect pathways appear to be far more significant.

- One pathway is sexual abuse in childhood, which sets up a cascade of developmental and psychological consequences that can lead to a range of risk behaviours – such as earlier sexual debut, more sexual partners and substance use – that increase a woman’s risk of both acquiring HIV and of being re-victimised by violence in adulthood.
- A second important factor is the HIV status of a woman’s sexual partners. It is now clear that men and boys who abuse women and girls are themselves more likely to be HIV positive, which in turn increases risk of HIV acquisition among their partners. Men who are violent are also more likely to engage in a range of risk behaviours, including having outside sexual partners, abusing alcohol and other substances, engaging in anal sex and visiting sex workers.
- Finally, emerging evidence suggests that violence and trauma have a biological effect on immune and hormonal functions believed to be important in potentiating HIV acquisition and disease progression. Thus, women living in abusive relationships or violent settings may be biologically more at risk of acquiring HIV, and possibly of HIV progressing more rapidly.
- In conflict settings, sexual violence perpetrated by combatants may not be the main risk of violence or of any concomitant HIV transmission. Prevalence of household and intimate partner violence is often high in conflict, disaster and humanitarian contexts.
- Programmes and interventions have been shown to be effective in reducing violence, improving HIV outcomes and benefiting other areas of women’s health and social well being such as education, poverty and mental health. Some also have the potential to be cost saving. Several proven programme models, including community-based programmes implemented in Rwanda and Uganda, have been evaluated with rigorous cluster randomised trials.

Priorities for action

- Ensure that HIV programme activities and services do not inadvertently reinforce rigid gender roles and unequal power relations, stigmatise or re-victimise women or put women and girls at increased risk of violence. HIV services should also mitigate the consequences of violence by providing women and girls who have experienced violence with health and psychological support and referral to other needed services.
- Adapt and implement programmes proven to reduce violence, improve HIV outcomes and benefit women in other ways on a larger scale in a wider range of settings. Invest in demonstration projects and implementation research so that these efforts are assessed and can inform future programming.
- Continue and intensify efforts to ensure that preventing and addressing violence – physical, emotional and verbal – informs and infuses research, programming and services related to HIV, especially for young women. Critical in the near term are growing efforts to deliver oral pre-exposure prophylaxis through demonstration projects and eventual roll out, as well as the DREAMS Initiative and Country Operational Plans for the Global Fund to Fight AIDS, Tuberculosis and Malaria.
- Determine and address the ways that violence influences women’s interactions with HIV prevention and care along the full continuum of care: testing, linkage to care, retention in and adherence to treatment and outcomes related to disease progression.
- Support additional research to address key knowledge gaps, including continued efforts to delineate the different indirect pathways through which violence influences HIV acquisition.
- Support targeted analysis of key data sets, such as the DHS, which can provide additional insights and priorities for action with relatively modest investment. Disaggregating existing and anticipated analyses by age is a priority.

2. THE EVIDENCE ON VAWG AND HIV

What do we know about these overlapping epidemics and how they intersect in different populations at risk?

GLOBAL PREVALENCE OF HIV

Research continues to underscore the scope and variability of the HIV epidemic among women: globally, women constitute half of all people living with HIV, with considerable variation across regions. In the eastern and southern Africa, the most affected region, women account for 59% of all adults aged 15 years and older living with HIV; the rate of new HIV infections remained disproportionately high among adolescents and young women aged 15–24 years (UNAIDS 2016). There were approximately 4,500 new HIV infections weekly among young women in the region, which is double the number seen in young men (UNAIDS 2016).

HIV prevalence among key populations is equally sobering: globally, an estimated 19% of transgender women are living with HIV (Baral et al 2013); prevalence among sex workers is some 12 times that of women in the general population (Baral et al 2012); and, while infection levels vary greatly by setting, an estimated 13% of all people who inject drugs are living with HIV (Larney 2015). A UNAIDS report indicated that violence is one of the top four reasons that these groups are differentially vulnerable to HIV (UNAIDS 2014).

GLOBAL PREVALENCE OF VIOLENCE AGAINST WOMEN AND GIRLS

Violence against women and girls (VAWG) takes many forms and affects women and girls at every stage of their lives. Globally, intimate partner violence (IPV) is by far the most common type of abuse with 30% of women experiencing physical and/or sexual violence by an intimate partner within their lifetime (WHO 2013). This global average, however, obscures large variations in the prevalence of past year IPV among settings, both within and between countries. Even within a city or between villages, the 12-month prevalence of IPV can vary dramatically.

Both girls and boys experience physical violence and emotional abuse or neglect from people who are entrusted with their care, with nearly 25% of adults reporting physical abuse as children with a similar proportion reporting emotional abuse (Stoltenborgh 2011, 2014). While levels of physical and emotional violence in childhood do not differ significantly between women and men, the lifetime prevalence of sexual abuse in childhood is 19% for women and 7% for men (Stoltenborgh 2011). Women living with HIV also report violence following disclosure of their HIV status (UNAIDS 2014) as well as institutional violence such as forced sterilisation or abortion, and denial of voluntary sterilisation or safe abortion services (UNAIDS 2014; WHO 2013).

Women from key populations are doubly at risk, due to the stigma and discrimination that accompanies sex work, intravenous (IV) drug use and gender non-conformity in many settings. In addition to partner violence, sex workers face violence by

police, clients and managers – a reality exacerbated in situations where selling sex is criminalised (Global Commission on HIV and the Law 2012). While estimates vary, data suggest that some 32 to 55% of sex workers experience work-related physical and/or sexual violence in a given year (Deering et al 2014). Transgender women are also at extremely high risk of violence: a recent meta-analysis of data on transgender women and men suggests that 44% have experienced some form of violent victimisation in their lifetime (Reisner et al 2016).

Violence against women has multiple health, social and economic consequences for women, families and societies. For example, women exposed to intimate partner violence are on average twice as likely to experience depression, 16% more likely to have a low birth weight baby and roughly 1.5 times more likely to acquire HIV, syphilis, chlamydia or gonorrhoea (WHO 2013). And violence against women can be fatal. According to a recent systematic review, some 38% of women murdered globally are killed by a current or former intimate partner (Stoekl 2015).

DEFINITIONS

Violence against women

Any public or private act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivations of liberty with the family or general community.

Gender-based violence

Violence that establishes, maintains or attempts to reassert

unequal power relations between women and men. This term was first defined to describe the gendered nature of men's violence against women and is often used interchangeably with "violence against women".

Intimate partner violence

One or more acts of physical and/or sexual violence and/or emotional/psychological abuse by a current or former partner.

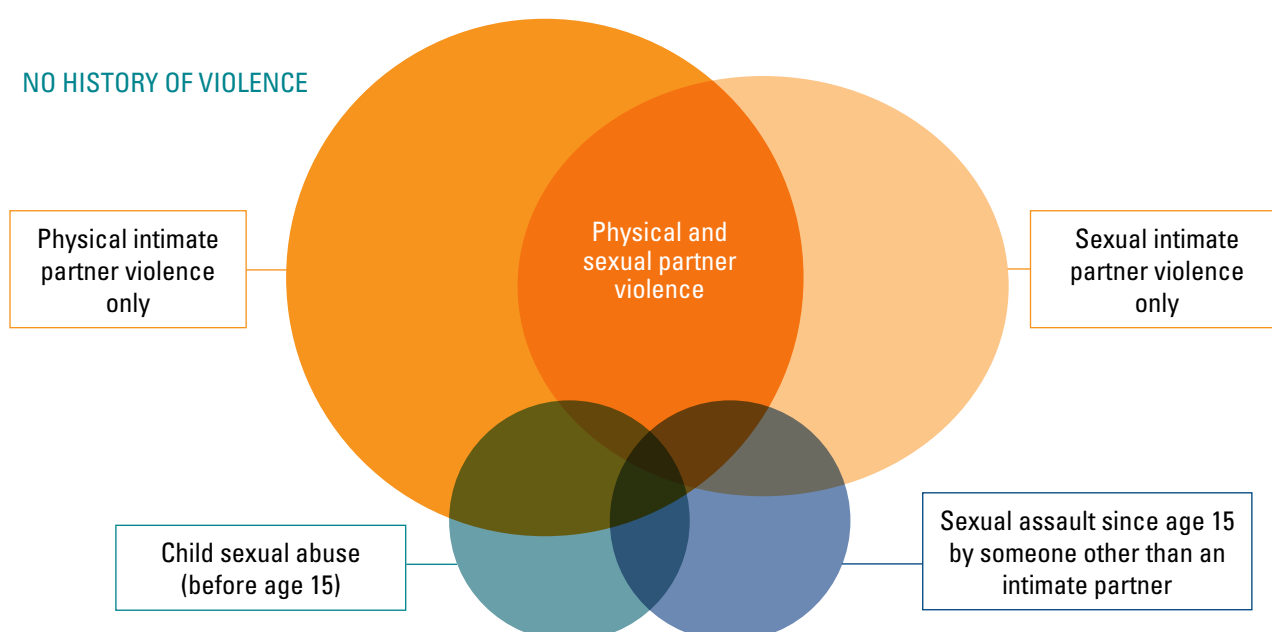
Physical violence

Can manifest in multiple ways: being slapped, pushed, shoved, kicked, beaten up, dragged, choked, burned, hit with a fist or something else, having something thrown at you and/or being threatened with or having a gun, knife or other weapon used on one.

Sexual violence

Being forced or coerced to have sexual intercourse or engage in other sexual acts with a partner or someone else.

Figure 2: Proportional Venn diagram depicting overlap of types of violence among 24,000 women interviewed as part of WHO multi-country study on domestic violence and women's health



Source: Lori Heise, WHO multi-country study on women's health and domestic violence against women, 2005

VAWG in conflict and humanitarian settings

The risk of violence is often heightened in complex emergencies such as natural disasters or periods of conflict, or during the large-scale movement of refugees or displaced persons. Uncertainty and stress can exacerbate existing VAWG and crises can create new avenues of risk: sexual exploitation in exchange for food, money or safe passage, and forced sex by combatants.

The prevalence and patterns of conflict related sexual violence (CRSV) vary widely in differing humanitarian crises and sometimes target specific groups of women and girls. A meta-analysis of 19 studies found that on average 21.4% of women displaced by complex humanitarian crises reported some form of sexual violence or exploitation, although this figure is likely to underestimate the true scope of the problem, given the difficulties of disclosing violence in such contexts. (Vu et al 2014). Underreporting of VAWG is likely to be exacerbated by a host of circumstances common in emergency and conflict settings: lack of services, fear of reprisal, stigma and heightened safety and security challenges. Many of the risk factors for VAWG can be observed – often in heightened form – in conflict settings: poverty, economic stress and insecurity; social and institutional breakdown; changes in social dynamics; increased vulnerability, dependency and lack of access to and control over resources to meet basic needs; lack of security and breakdown of the rule of law; and the collapse of moral and social norms.

It is frequently assumed that rape by combatants is the dominant form of violence that women and girls face in conflict and complex emergencies. However, research consistently shows that violence by partners and other civilians is actually more common. For instance, among the 33% of women who reported experiencing sexual violence in 12 conflict-affected rural districts of Côte d'Ivoire, 29% reported their husband or intimate partner as the perpetrator and only 0.3% identified an armed combatant. Importantly, 50% of women reported physical or sexual violence from an intimate partner before, during and after the conflict (Hossain et al 2014). Population-level data from the Democratic Republic of Congo (DRC) indicates a similar trend: 35% of women reported sexual violence from their intimate partner, 16% reported an experience of non-partner sexual violence, and those women living in areas of active conflict reported higher levels of sexual violence, both within and outside their families (Ministère du Plan and Macro International 2008, Peterman et al 2011). Young women may be vulnerable to being married early, as families seek to find sources of protection or security for their daughters. These patterns of violence against women and girls underscore the need for initiatives to respond explicitly to the full range of violence that women and girls experience in conflict and post-conflict settings.

THE VAWG–HIV LINK

VAWG is widely assumed to be causally related to HIV acquisition, while HIV-positive status is thought to provoke violence in some contexts. But what do the data say? How strong is the evidence that violence is consistently associated with various HIV-related outcomes, much less that this association is causal?

More data are available globally on IPV and HIV compared to other types of violence. In addition, all three types of abuse – physical, sexual and emotional violence – frequently co-occur in violent relationships. Thus, the data allow one to explore the hypothesised link between IPV (rather than other types of violence) and HIV acquisition, and to assess the nature and strength of the association.

Longitudinal cohort studies

The strongest evidence that VAWG increases incident HIV comes from cohort studies that track women over time. These studies are more persuasive than cross-sectional surveys because they allow researchers to establish whether violence precedes HIV acquisition – a critical element toward establishing potential causality. At least four high-quality prospective cohort studies demonstrate that there *is indeed* an association between experiencing IPV and acquiring HIV, at least among women in sub-Saharan Africa (see Table 1).

For example, in Rakai, Uganda, women who had ever experienced physical, sexual or verbal violence had a 55% higher likelihood of becoming HIV-positive than similarly positioned women who had not experienced violence (adjusted IRR 1.55). This translates into an adjusted population attributable risk of 22.2%, meaning that on average, 1 in 5 new HIV cases could be avoided in this setting if partner violence were eliminated (Kouyoumdjian et al 2013). A prospective study of women in Cape Town, South Africa, found remarkably similar results, with both IPV and unequal power between partners predicting incident HIV in adjusted analysis. The adjusted IRR was 1.65 for IPV and 1.51 for unequal power, with corresponding population attributable fractions of 11.9% and 13.9% respectively (Jewkes et al 2010).

In 2014, Li and colleagues systematically collected all available evidence on IPV and HIV globally and conducted tests for association on the pooled datasets. When they examined the cohort studies that passed tests for quality and heterogeneity, they found strong evidence of an association between incident HIV and both physical IPV and “any type” IPV (physical, sexual and/or psychological violence). The resulting pooled odds ratios were 1.22 (1.02, 1.46) and 1.28 (1.00, 1.64), respectively. The findings on sexual violence and IPV exhibited too much heterogeneity to allow data pooling.

Systematic reviews and cross-sectional studies

In contrast with longitudinal studies, various cross-sectional studies of IPV and HIV have offered conflicting conclusions regarding the potential association between IPV and HIV, with some suggesting that there is an association and others concluding there is not. (Jewkes et al 2010; Harling et al 2010; Pettifor et al 2004; Silverman et al 2007; Mattson et al 2009; Ngwaru 2010; Dude 2011; Kayibanda et al 2012; Shi et al 2013; Onsomu et al 2015; Durevall and Lindskog 2015). Perhaps most confusing have been the conflicting findings from two reviews of overlapping sets of DHS data, both taken from large-scale demographic and health surveys routinely undertaken in low income countries.

In 2010, Harling and colleagues reviewed the association between laboratory assessed HIV status and self-report data on IPV in 10 national DHS samples of ever married and/or cohabiting women and found “no robust or consistent association between reported physical and sexual IPV and HIV infection.” In this study, investigators examined pooled and country-specific data adjusted for woman’s age, marital status, education, occupation, religion, lifetime number of sexual partners, household wealth and urban/rural status, but did not apply the DHS sampling weights for either HIV or IPV.

Harling and colleagues note that their analysis has certain limitations, most notably it cannot be generalized to settings that witness high rates of HIV transmission among young women who are yet unmarried or living with someone, as is the case in many Southern African countries. Likewise, several of the surveys had very low numbers of women testing HIV-positive (e.g. fewer than 100 cases in the Dominican Republic, Haiti, Liberia, Mali and Rwanda), which may have limited their power to detect an association had one existed. Nonetheless, in these five countries no adjusted effect size was greater than 1.14 and the pooled analysis across countries also failed to demonstrate an effect.

Table 1: Longitudinal cohort studies

STUDY	SAMPLE	INTIMATE PARTNER VIOLENCE MEASURE	HIV/STI MEASURE	KEY OUTCOMES	ADJUSTED FOR	COMMENT
Jewkes R et al (2010)	1,099 women aged 15–26 in rural Eastern Cape, South Africa, 2002	More than one act of physical and/or sexual violence, WHO	Incident HIV, biologically confirmed	aIRR=1.51 (1.04-2.21) Population attributable fractions 11.9% and 13.9% respectively	Age, treatment stratum and person years of exposure, HSV2 infection at baseline	Paper reports controlling for woman’s sexual behaviour variables; none confounded
Weiss HA et al (2008)	1,991 non-pregnant women aged 18–45, population registers of primary care centre, Goa India 2001–2003	Physical violence not further defined; sexual violence, “the husband or partner forcing sex against women’s wishes”	Incident CT/GC/TV, biologically confirmed	aOR=1.40 (0.70-3.00) aOR=3.00 (1.2-7.50)	Ethnicity, toilet in home, tap water in home, difficulty managing financially and household size	Reference group could be exposed to violence
Were (2011)	3,408 HIV discordant couples (2299 F HIV-neg) enrolled in HIV prevention trial from 7 countries in East and Southern Africa	Counselor inquired about physical and/ or verbal IPV in the previous 3 months at quarterly visits	Incident HIV, biologically confirmed	AOR 1.62, p=0.348 Few reports of IPV among seroconverters (6.0% of 146 women) may explain why association was not statistically significant.	Did not adjust for alcohol use; other factors not specified	Non-standard question about IPV; 47% of incidents among women were verbal abuse only; on-going couples counselling may have reduced IPV risk
Kouyoumdiji FG et al (2013)	Women 15–49 in Rakai Uganda, 2000–2009	Physical, sexual or verbal IPV; Modified CTS2 scale	Incident HIV, biologically confirmed	aIRR=1.55 (1.25-1.94, p=0.000) Population attributable risk 22.2%	Age, marital status, education, religion, occupation, partner’s occupation, age difference between partners, type and length of relationship	No evidence that either condom use or number of sexual partners in last year mediated association
Van der Straten et al (1998)	921 women 18–35 in steady partnerships Kigali, Rwanda	Does your partner ever insist that you have sexual relations when you don’t want to? Does your partner ever beat you?	Incident HIV, biologically confirmed	Sexual IPV was significantly and prospectively associated with HIV aIRR=1.89 (1.2, 2.96)	Extensive list including partner drinks alcohol	
Zablotska et al (2009)	3,422 women aged 15–24, population-based Rakai Uganda, 2001–2003	Sexual violence, “sexual partner physically forced you to have sex when you did not want to”	Incident HIV, biologically confirmed	1.6/100 py Alcohol: 2.2/100 py in Alcohol+ 2.3/100py in IPSV+	Stratified by alcohol use	Very small numbers, no statistically significant difference

By contrast, a later systematic review that examined 12 DHS surveys from 10 countries in sub-Saharan Africa did find consistent and strong associations between HIV infection in women and physical violence, emotional violence and male controlling behaviour (adjusted odds ratios ranged from 1.2 to 1.7; p values ranged from <0.0001 to 0.0058). The evidence for an association between sexual violence and HIV was weaker and only significant in the sample with women in their first union who reported no outside partners (Durevall and Lindskog 2015). Importantly, the association was consistently present only in settings where the background prevalence of HIV was high (>5%) and when controlling behaviour was present either alone or in combination with physical or emotional violence.

The Durevall and Lindskog review differs from that of Harling and colleagues in a number of significant ways. First, it examined different forms of IPV both alone and in combination with controlling behaviours – an addition that appears to drive the association, possibly as a marker of severity. Second, Durevall and Lindskog used “clean” reference groups when examining potential associations between types of IPV and HIV – in other words they compared the HIV status of women who experienced one type of IPV (say sexual violence by a partner) to women who have never experienced any type of IPV (by removing women who have experienced physical or emotional violence from the reference group). Because different types of violence are highly correlated, women who have experienced other types of IPV would be mixed into the reference group unless explicitly removed. This could obscure associations that may be present because you would be comparing HIV status among women who had experienced one type of IPV with women who have experienced other types – rather than no violence at all.

Also of note is that Durevall and Lindskog examined associations between IPV and HIV at a sub-national level, allowing them to explore the potential impact of IPV in high versus low HIV prevalence settings. The background level of HIV appears important because many of the associations they document in multivariate analysis are sustained only in settings where >5% of adults are infected. This suggests that national level data may mute or mask the factors associated with HIV infection in specific settings with higher HIV prevalence.

Given the consistent findings from longitudinal studies and the supportive data from cross-sectional surveys, it is safe to conclude that **there is indeed** an association between exposure to physical violence by an intimate partner and risk of future acquisition of HIV. At the same time, there are still many gaps in evidence from different populations, risk groups and settings. Questions remain about how different patterns of exposure to violence may contribute to vulnerability and risk, and the implications of existing and emerging evidence for interventions.

3. HYPOTHESISED PATHWAYS OF INFLUENCE

It is often assumed that the primary mechanism through which violence increases HIV risk is forced sex and the resulting genital trauma. Genital trauma is hypothesised to enhance HIV transmission by facilitating viral entry and by recruiting more T cells (the targets of HIV) to the genital tract. While this inflammatory response is clearly one way that violence could affect HIV transmission, it is by no means the only or even most important mechanism. Indeed, the possible pathways of influence between violence and HIV are manifold and exceedingly complex.

Figure 1: Potential pathways between intimate partner violence and women’s risk of HIV acquisition

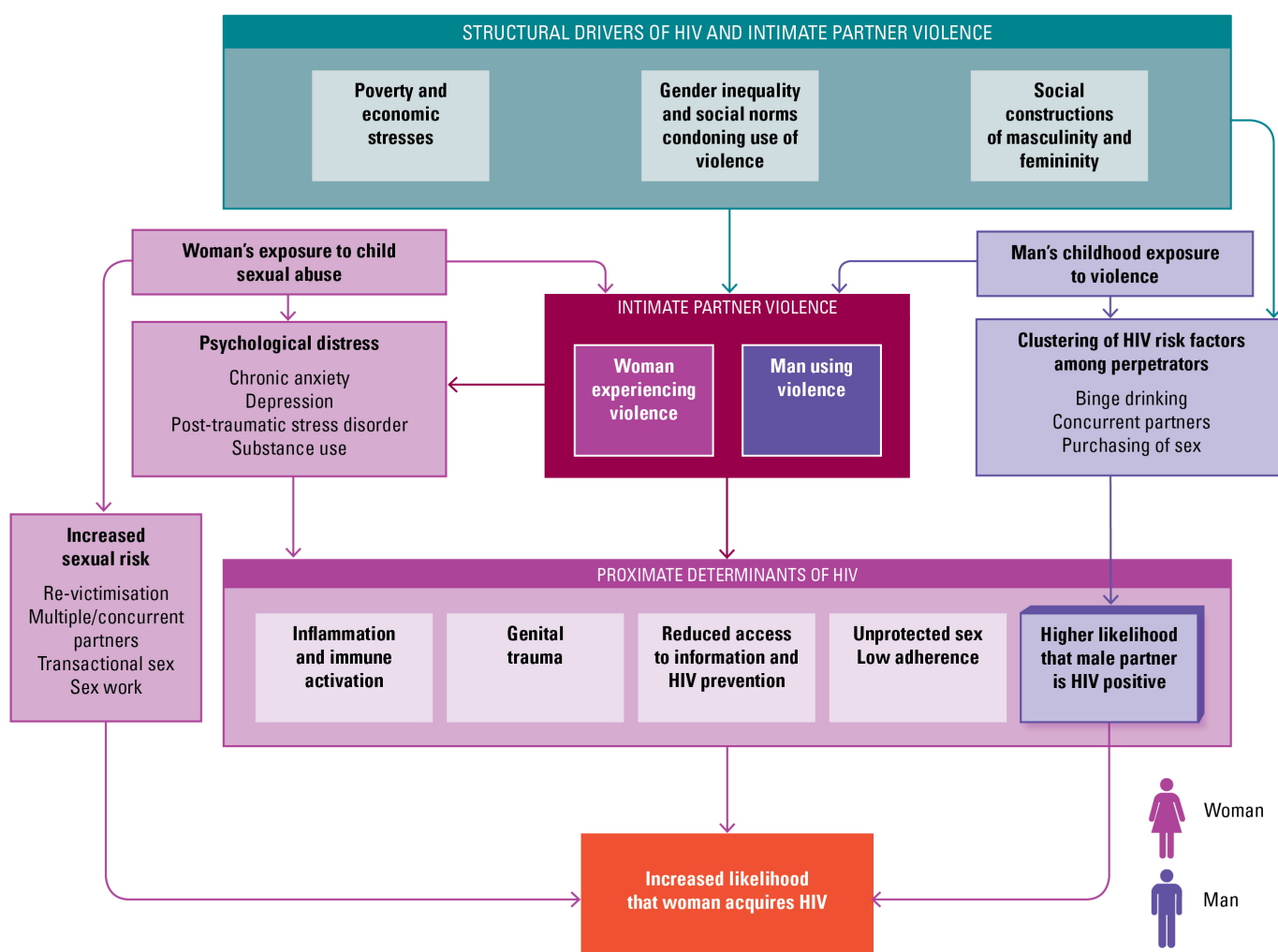


Figure 1 (above) captures current thinking about the various pathways that potentially link violence against women with increased risk of HIV transmission, both at an individual and a population level. Significantly this diagram includes factors operating at multiple levels, beginning with the most distal structural factors such as poverty and economic stress, and gender inequality and social norms condoning violence. These factors represent shared drivers of both HIV and IPV.

Partner violence itself can theoretically increase HIV via a number of discrete or intersecting mechanisms including through the biological pathways mentioned earlier; by isolating women from vital HIV information and prevention services; and by making it more difficult for women to use HIV prevention strategies, such as condoms or pre-exposure prophylaxis (PrEP).

The diagram also includes two sets of indirect pathways, one outlined in pink and one outlined in purple. The left hand pink pathway depicts the impact of violence in childhood, especially sexual abuse, on later risk of experiencing violence by an intimate partner. It also captures a range of behavioural and psychological responses that place individuals at higher risk of HIV acquisition. As described further below, the psychological distress caused by early abuse can translate into sexual risk-taking behaviours including trading sex for money or drugs, rapid partner change and early sexual debut.

Similarly, men's exposure to violence in childhood increases the likelihood that they will perpetrate violence against women later in life. As highlighted in light purple, men who use violence in their relationships also appear to share a number of other behaviours, including binge drinking, having more outside partners, patronising sex workers and engaging in unprotected anal sex. This clustering of behaviours translates into a higher risk of contracting STIs and/or HIV, a reality that in turn increases women's exposure to HIV when partnering with such men.

DIRECT PATHWAYS BETWEEN IPV AND HIV

Biological factors play a role in the association between IPV and HIV, as discussed at the original Greentree I consultation, which focused primarily on the potential for sexual violence to increase HIV risk via genital injury (Klot et al 2012), and according to emerging data and analysis.

Normal variations in women's biological risk of HIV over the lifespan

Women and girls face different biological risks of acquiring HIV during different stages of their lives, from adolescence through adulthood and menopause. The vaginal environment's normal protections can be compromised by infection, micro-abrasions, effects of semen and possibly other immune parameters.

Age is one of the most important factors mediating risk. Young adolescent women, for example, are known to be biologically at higher risk of acquiring HIV than adult women. Adolescent girls typically have low oestrogen levels, thin vaginal walls and immature cervixes (a condition known as cervical ectopy¹), which together make them physiologically more vulnerable to HIV acquisition than adult women.

Oestrogen contributes to maintaining a thick, pliable vaginal mucosa and to the effectiveness of several of the body's natural defences, including the synthesis of endogenous anti-microbial agents and the maintenance of lactobacillus – a type of “good bacteria” key to maintaining a healthy vaginal environment. It can also suppress key signalling proteins in the body's inflammatory response

1. Cervical ectopy is a condition in which the layer of delicate cells that line the cervical canal or uterus extend on to the outer surface of the cervix, which is usually covered with stronger tissue.

(pro-inflammatory chemokines and selected cytokines) that facilitate HIV transmission². In menopause, oestrogen declines substantially and the vagina becomes less supple, compromising these protective effects. Hormone-influenced immune factors also change with the menstrual cycle and during pregnancy; the role of exogenous hormones used for contraception is the subject of urgent study and debate in the global health arena.

Factors that affect the vaginal environment – such as hormones, infection, injury and innate immune function – can have either a protective or a facilitating effect with respect to HIV acquisition. Some factors can be protective by directly inhibiting HIV infection, maintaining the epithelial barrier and promoting healthy vaginal flora and the body's innate immune responses. Others may facilitate HIV acquisition through recruiting and activating immune target cells, activating pathways to promote HIV replication, disrupting the epithelial barrier or interfering with innate responses. Recent research also suggests that sex and semen may play a role in facilitating HIV acquisition through increasing inflammatory cytokines and immune targets, and possibly disrupting the epithelial barrier, thereby enhancing transport of viral particles to the submucosa. Semen also alters the vaginal microbiota, interfering with the vaginal environment's innate defences (Sharkey 2012, Herold 2011).

The role of genital injury in HIV acquisition

A common assumption is that the most important type of violence that affects HIV is sexual and that the most significant pathway through which it affects HIV risk is via genital injury and the resulting immune response. This analysis may over-emphasise the role of sexual violence and injury in the association between gender-based violence and HIV (as discussed below) but there is no doubt that in some instances forced sex does play a role in enhancing HIV risk (Adams et al 2001; McLean et al 2011).

The Greentree 1 meeting brought together a multidisciplinary group of basic and social scientists, clinicians, epidemiologists and policy makers to consider evidence across a range of fields to generate new insights about physiology of sexual violence and its role in HIV transmission, with a focus on women and girls. At the end of that meeting they set out a consensus agenda for research, policy and practice. They recommended more research in several key areas related to HIV transmission:

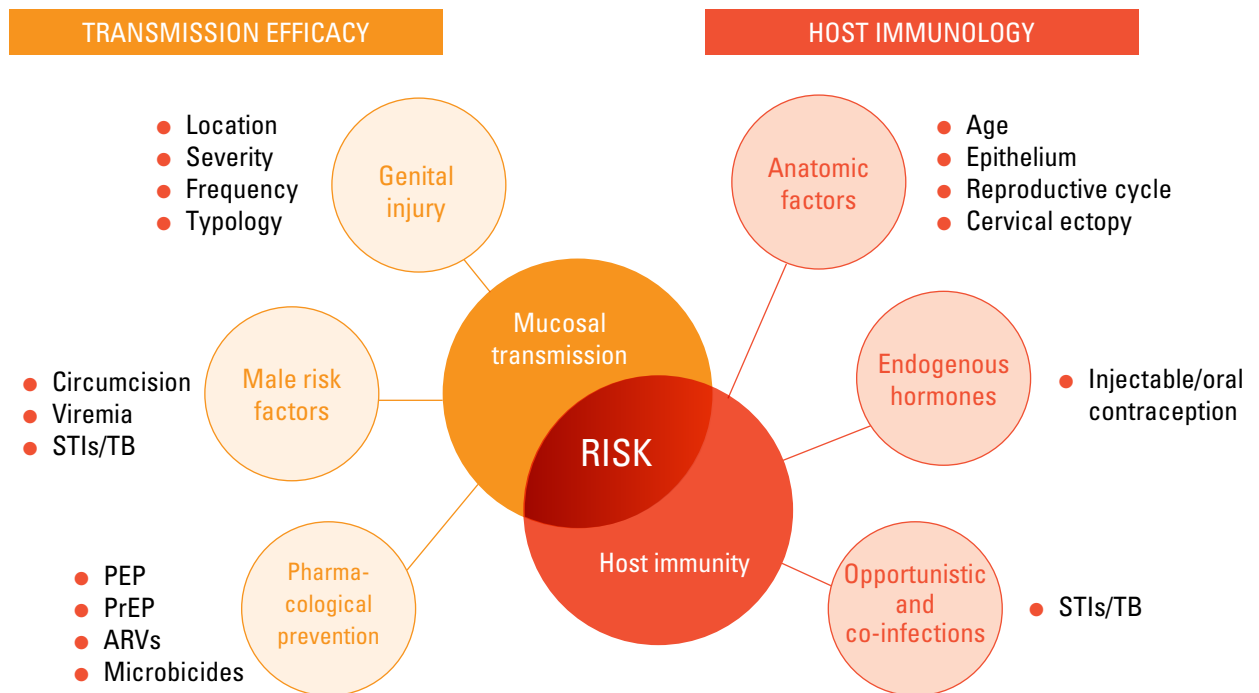
- The influence of sex and age related anatomic characteristics on HIV transmission, acquisition and pathogenesis
- The role of heterosexual anal intercourse on HIV transmission
- The role of genitoanal injury in HIV transmission, acquisition and pathogenesis

Research in these areas is hampered by data collection and measurement challenges, and the group identified several opportunities to address them: improving age-disaggregated data collection and methodologies, especially among adolescents and young adults; developing a common system for classifying, detecting and reporting the patterns severity and frequency of genitoanal injuries; strengthening clinical and research capacity, especially in low-resource settings; and increasing collaboration across basic, clinical, epidemiological, behavioural and social science research on sexual violence and HIV transmission, acquisition and pathogenesis. Greentree I recommended (Klot 2012):

- more attention to understanding the physiological and social factors that place young women at disproportionate risk of HIV and the strategies needed to address this risk;

2. Cytokines are a large group of proteins, peptides or glycoproteins that are secreted by specific cells of the immune system. They aid communication between cells in immune responses and stimulate cells to move toward sites of inflammation, infection and trauma. Cytokines bind to specific receptors on target cells.

Figure 3: The physiology of sexual violence and HIV transmission risk



Adapted from: Klot J, Auerbach J et al (2012) Greentree White Paper: Sexual Violence, Genitoanal Injury, and HIV: Priorities for Research, Policy, and Practice. *AIDS Research and Human Retroviruses*. November 2012

- a more nuanced understanding of the circumstances in conflict settings that contribute to sexual violence, including who is most at risk and why, as well as the characteristics of perpetrators;
- epidemic modelling to help connect emerging questions surrounding biomedical research with evidence from social sciences around sexual violence and HIV; and
- targeted modelling to help define more precisely priority questions for all fields to pursue further.

The role of immune activation more generally

Given the roles that immune activation and inflammation appear to play in HIV susceptibility more generally, the US National Institutes of Health have begun to sponsor research into whether types of abuse other than sexual violence may play a part in enhancing HIV risk via biological pathways. Existing research is suggestive: women who experience chronic abuse have higher rates of depression and lower T cell function. Post-traumatic stress disorder has also been associated with lower cortisol pathways that can influence the immune response (Delaney 2013). A new study is examining whether sexual trauma alters the systemic and vaginal environment that may predispose women to an increased risk of HIV infection following HIV exposure, using vaginal samples from women who experienced recent sexual assault. A related study will examine existing plasma and cervico-vaginal lavage samples to study the effects of chronic violence and depression relevant to HIV acquisition. Together, these studies should increase understanding of the vaginal immune response, and systemic correlates, to violence and the implications for HIV risk.

In short, accumulating evidence underscores that inflammation is very important to HIV susceptibility. HIV infects the white blood cells, which are the body's natural defences against infection. Therefore any process that recruits these cells – including inflammation – may increase susceptibility to HIV. Genital injury is important to

HIV risk beyond the prospect of creating physical breaches. However, it is critical to consider all the complex biological factors that condition this risk, not only vaginal injury. Finally, cumulative trauma – such as IPV, or child abuse – can lead to a profound alteration of the immune system that can make individuals more susceptible to HIV.

INDIRECT PATHWAYS BETWEEN IPV AND HIV

Violence in childhood, especially sexual abuse, has been shown to have an impact on later risk of experiencing violence by an intimate partner (see Figure 1 above). In addition, childhood trauma may increase an individual's risk of HIV acquisition as behavioural and psychological responses translate into sexual risk-taking behaviours including trading sex for money or drugs, rapid partner change and early sexual debut.

A man's exposure to violence in childhood increases the likelihood that he will perpetrate violence against women later in life. A clustering of behaviours – violence in relationships, binge drinking, having more outside partners, patronising sex workers and engaging in unprotected anal sex – seem to be significant in raising a man's risk of contracting STIs and/or HIV, and thus increasing women's exposure to HIV when partnering with such men.

Childhood trauma

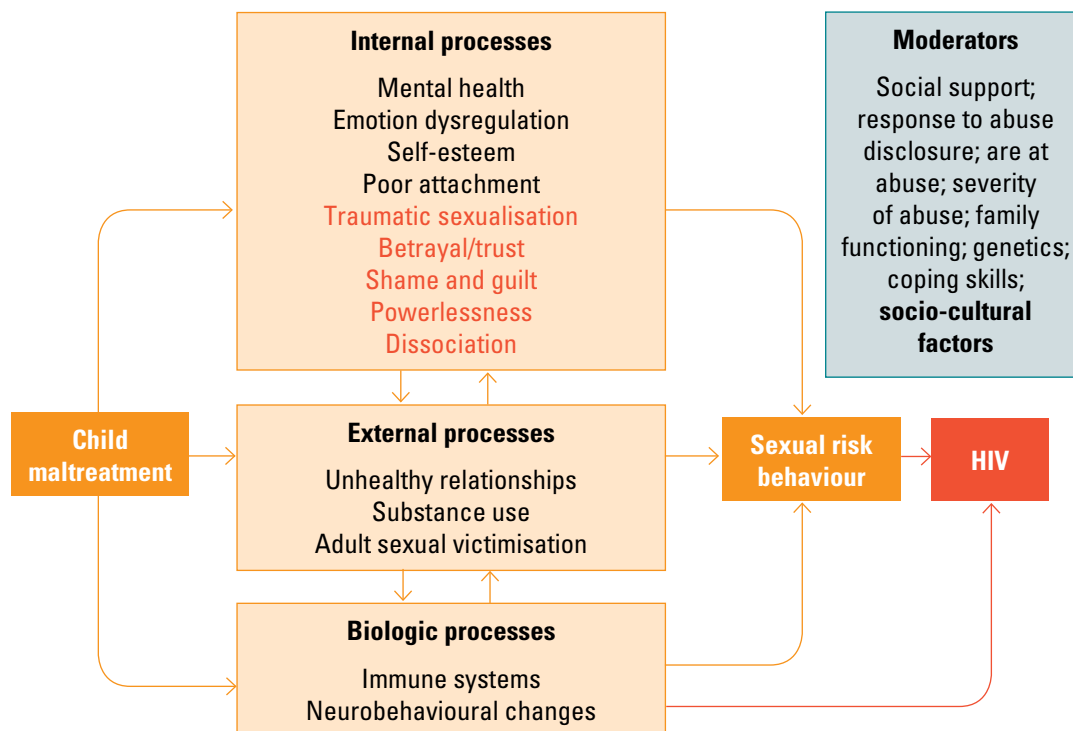
Violence in childhood is known to create a cascade of physical, psychological and behavioural sequelae that can place individuals at increased risk of sexually transmitted infections (STIs) including HIV. Studies in both high and low income countries, for example, have linked sexual abuse in childhood to mental health and substance use problems and enhanced sexual risk-taking in adolescence and adulthood including early voluntary sexual debut, trading sex for money or drugs and having multiple, concurrent sexual partners (Jones et al 2010, Senn et al 2008, Jones et al 2013, Richter et al 2013).

Child physical abuse, psychological abuse and neglect, however, have been less frequently studied in terms of their association with HIV risk. Various forms of maltreatment are highly correlated and most studies use sexual behaviour as an outcome, rather than HIV explicitly, thus it has been difficult to disentangle the effects of a particular type of maltreatment on HIV. Nonetheless, a recent meta analysis concluded that there is evidence that physical and psychological abuse and neglect are associated with risky sex and STIs (Norman et al 2012). Although there are certainly a number of studies that have found such an association, the research establishing a link between these other types of maltreatment and HIV risk is not as consistent as that between sexual abuse and HIV acquisition.

Pathways from child maltreatment could derive from external or internal mediators. Much more work has focused on external mediators that may place women at risk of HIV: sexual abuse in childhood leads to early sexual debut, unhealthy or abusive relationships, substance use and adult sexual assault. One theory suggests that child maltreatment is associated with dysregulation of the stress response, which makes it difficult to respond appropriately to a threat of violence faced later in life.

Internal processes have been much less well studied, and most of this research has focused on depression and PTSD – with mixed findings. Emotional dysregulation is associated with many mental health disorders, and an emerging body of research suggests that it is also associated with sexual risk behaviour. Though conceptually consistent with sexual risk taking, little is known about the effects of other internal mediators associated with child maltreatment: self esteem, poor attachment, traumatic sexualisation, betrayal and trust issues, shame and guilt, powerlessness and dissociation.

Figure 4: Pathways from child maltreatment to HIV



Source: Theresa E. Senn, presentation to Greentree II, 2015

Child maltreatment also has biologic consequences that may affect HIV risk. Severe stress is known to effect immune function; coupled with sexual risk taking this impaired immunity may create conditions especially conducive to HIV acquisition. It is also associated with structural and functional changes to the brain, which may inhibit control and reward responsiveness, contributing to risk taking.

The complex and multifaceted dynamics surrounding child maltreatment, biological and behavioural risk and HIV make it difficult to tease out specific pathways and opportunities for intervention. This is made even more complex by the sparse availability of data and uncertainty about whether and to what extent the knowledge we do have applies in diverse cultural and epidemiological settings. The field will continue to grapple with balancing the need for defining and implementing effective interventions and additional research to understand where best to intervene.

Clustering of risk factors among violent men

Another potential pathway through which violence in childhood can affect women's risk of HIV is through its impact on the sexual risk behaviour of her intimate male partner (the purple pathway in Figure 1). A growing body of literature suggests that men who abuse their wives share a clustering of other behaviours that make it more likely that they become HIV-positive than other men. This includes having outside sexual partners, seeking sex with sex workers, engaging in high-risk sexual behaviour such as unprotected anal sex, and binge drinking (Durevall and Lindskog 2015; Dunkle et al 2006; Gass et al 2011; Gibbs ND). Not surprisingly, these men are also more likely to report symptoms of STIs (Martin 1999; Silverman 2007) and be diagnosed with STIs (Decker et al STI 2009), including HIV (Jewkes et al 2011; Decker et al JAIDS 2009).

This clustering of high-risk behaviours is likely a function of more distal shared drivers, such as exposure to violence in childhood and/or norms around particular notions of masculinity. Some norms of masculinity, for example, could encourage both men's

sexual risk taking and their perceived right to control female behaviour (Harrison et al 2006; Jewkes 2010; Silverman et al 2007). Alternatively, low attachment and high aggression could encourage both high-risk sex and violence, either through a genetic predisposition toward risk taking and aggression among some men, as argued by some evolutionary psychologists (Paulhus and Williams 2002), or as a function of early childhood trauma, as claimed by some development psychologists (Ehrensaft et al 2003). Regardless of its source, the fact that violent men are also more likely to acquire HIV means that their female partners are at heightened exposure to HIV as well (Durevall and Lindskog 2015).

Indeed, recent evidence suggests that heightened exposure to HIV via the risk profile of their male partner may be a key pathway that mediates the association between IPV and HIV acquisition among women. This is in contrast to the more commonly considered direct effects of violence such as genital injury or reduced ability to negotiate condom use.

One line of evidence in support of this theory is a study by Durevall and Lindskog (2015) which explores the associations between IPV and HIV among married/cohabitating couples in 12 DHS studies that collected biological data on women and men's HIV status in 10 countries. This analysis found that physical and emotional violence by a male partner increased the probability that a woman would be HIV-positive by between 15 and 20% respectively; this is very close to the 14% estimated by Jewkes and colleagues in their prospective study of the excess HIV risk experienced by female victims of IPV in the Eastern Cape province of South Africa. Sexual violence alone, however, did not elevate risk among currently married women – an observation that argues against the dominance of the sexual violence/genital trauma pathway.

The team used a very clever analysis to explore the relative contribution of direct versus indirect pathways between IPV and HIV. They analysed the impact of IPV on HIV among three subsets of couples: those where the man was already HIV-positive, those where the man was HIV-negative and a combined sample. As the authors observe:

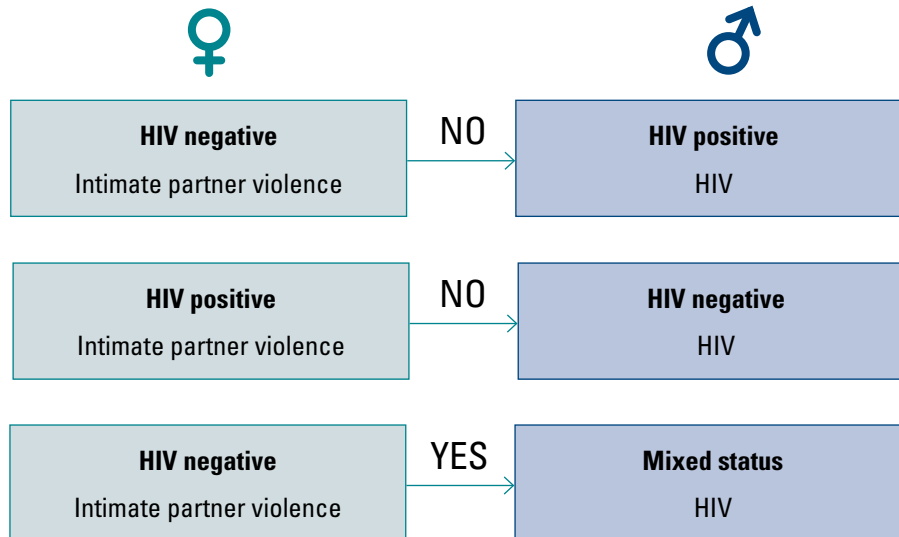
When women subject to IPV are unable to protect themselves from unwanted sex within the marriage (the direct causal link), we would expect IPV to be positively associated with HIV among women whose husbands are HIV-positive, since a violent HIV-infected husband is more likely to transmit the virus to his wife.

On the other hand, when IPV increases women's sexual risk-taking outside of marriage (the indirect causal link), or when HIV or risky behaviour triggers violence (reverse causality), we would expect IPV to be associated with HIV among women whose husbands are HIV-negative.

When violent men also tend to take sexual risks outside of marriage (selection), we would expect IPV to be associated with an increased risk of having a HIV-positive husband. Therefore, IPV would be associated with HIV in samples that include both women whose husbands are HIV-positive and women whose husbands are HIV-negative. But we would not expect IPV to be associated with HIV in samples of women that are conditional on the HIV status of the husband (p. 31).

Their analysis found that IPV did not increase risk among women whose husbands were HIV-positive, so HIV does not seem to be transmitted more often to the wife in couples where women experience IPV. This argues against the notion that IPV works directly through forced sex or by reducing abused women's ability to use condoms. Similarly, IPV was not associated with higher HIV rates among women with HIV-negative husbands, which suggests that neither the women's sexual behaviour outside marriage nor her HIV-positive status accounts for the central link between IPV and

Figure 5: Is intimate partner violence associated with HIV?



Source: Durevall and Lindskog, Intimate partner violence and HIV in ten sub-Saharan African countries: what do the Demographic and Health Surveys tell us? *Lancet Global Health* 2015

higher HIV risk. Rather, it appears that the indirect pathway through a clustering of risk behaviours among men seems to be the main reason behind the association between IPV and HIV infection. In other words, men who are violent are also more likely to engage in behaviours that place them at risk for HIV and more likely to be HIV-positive. This conclusion is supported by the observation that female victims of violence are at increased risk of HIV only when the sample of women whose husbands are known to be HIV-positive is combined with husbands known to be HIV-negative. It is also supported by the fact that IPV perpetrators report more risky sex and are more likely to be HIV-positive than non-violent men (Dunkle and Decker 2013).

Decreased use of and adherence to services and biomedical HIV prevention options

A final pathway through which IPV can affect women’s acquisition of HIV is through its impact on the uptake and use of available prevention and treatment options. Violence and the threat of violence can impede women’s access to information and undermine their ability to initiate and use important prevention and care-related services, including HIV testing, the uptake and use of condoms and PrEP and adherence to anti-retroviral therapy (ART) for either treatment or prevention.

Studies have, for example, linked IPV or fear of violence to women’s reluctance or inability to negotiate condoms (Kacane et al 2013) or to use contraceptives (Maxwell et al 2015). Women in prevention trials testing candidate microbicides have also reported violent reactions by partners related to product use as well as high levels of “everyday violence”, un-related to their trial participation *per se* (Stadler et al 2014).

While six trials have demonstrated efficacy of oral PrEP, three trials among women have failed to show effectiveness, and fear of violence is one of the factors that influenced women’s adherence to product use and their decision whether or not to disclose their trial participation to their partners (Succop et al 2014; Mngadi et al 2014). Female sex workers likewise report very high levels of violence and cite the experience or fear of violence both as a motivator to use oral PrEP (Eakle et al 2015) and as a barrier to its use for fear that the police or their clients may find out. Collectively, these

studies underscore that violence, and the climate of fear it engenders, can interfere with the uptake and successful use of HIV prevention strategies.

A history of sexual or physical IPV can also lead to poorer uptake of ART treatment, while current IPV is linked to poor ART adherence (Hatcher et al 2015). Indeed a recent meta-analysis showed IPV to be significantly associated with lower ART use across five studies (OR 0.79, 95% CI 0.64–0.97), poorer self-reported ART adherence across seven studies (OR 0.48, 95% CI 0.30–0.75) and lower odds of viral load suppression in seven studies (OR 0.64, 95% CI 0.46–0.90) (Hatcher et al 2015). Thus violence can be a barrier to access to care, which has implications for the health of women, their families and forward transmission of the virus to their sexual partners.

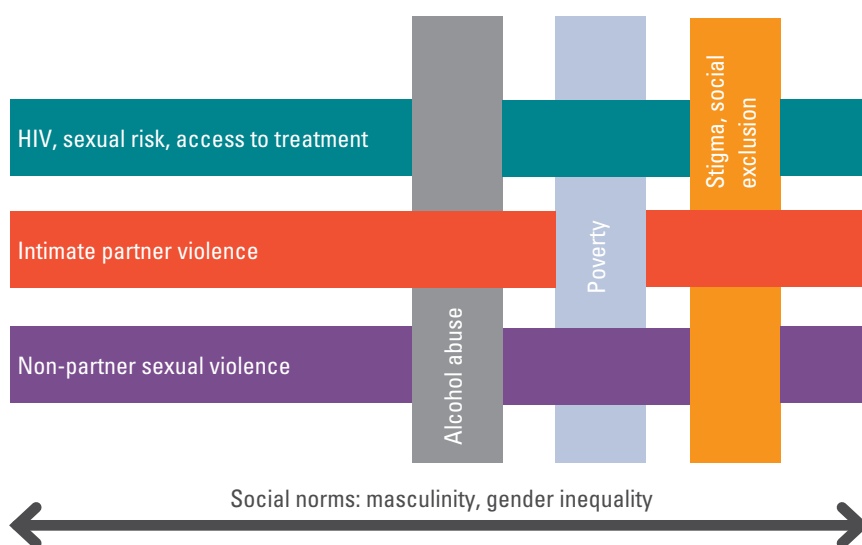
Alcohol as an example of a shared risk factor for HIV and VAWG

The issue of alcohol illustrates how both HIV and violence against women can derive from shared risk factors, such as problematic alcohol use, insecure livelihoods and stigma and social exclusion. Figure 6 presents Dr Katherine Fritz’s compelling metaphor of multiple vulnerabilities form the weft to the warp of violence and HIV in women’s lives.

Insecurity around food, livelihood and housing, for example, can contribute to early sexual debut or marriage for girls. Sex as a means to security through transactional sex, sexual exploitation and survival sex can be associated with both violence and HIV risk. In many communities, alcohol is readily available and inexpensive, contributing to alcohol abuse and dependency, which can lead to exaggerated masculine bravado and controlling behaviour. Social exclusion and marginalisation of key populations manifest in legal discrimination, stigma and inadequate health services. Marginalisation is associated with childhood experiences of trauma and violence, including sexual and physical violence and emotional abuse. All of these factors can both lead to and exacerbate abuse of alcohol and other substances.

Inexpensive alcohol runs along the ‘fault lines’ of many of these vulnerabilities – poverty, urbanisation, food insecurity – and thus can illustrate the complex pathways between shared risk factors for HIV and VAWG. Alcohol consumption is consistently associated with unprotected sex, multiple partners, coercive sex and transactional sex, all known risk factors for HIV as shown in a systematic review of 86 studies in sub-

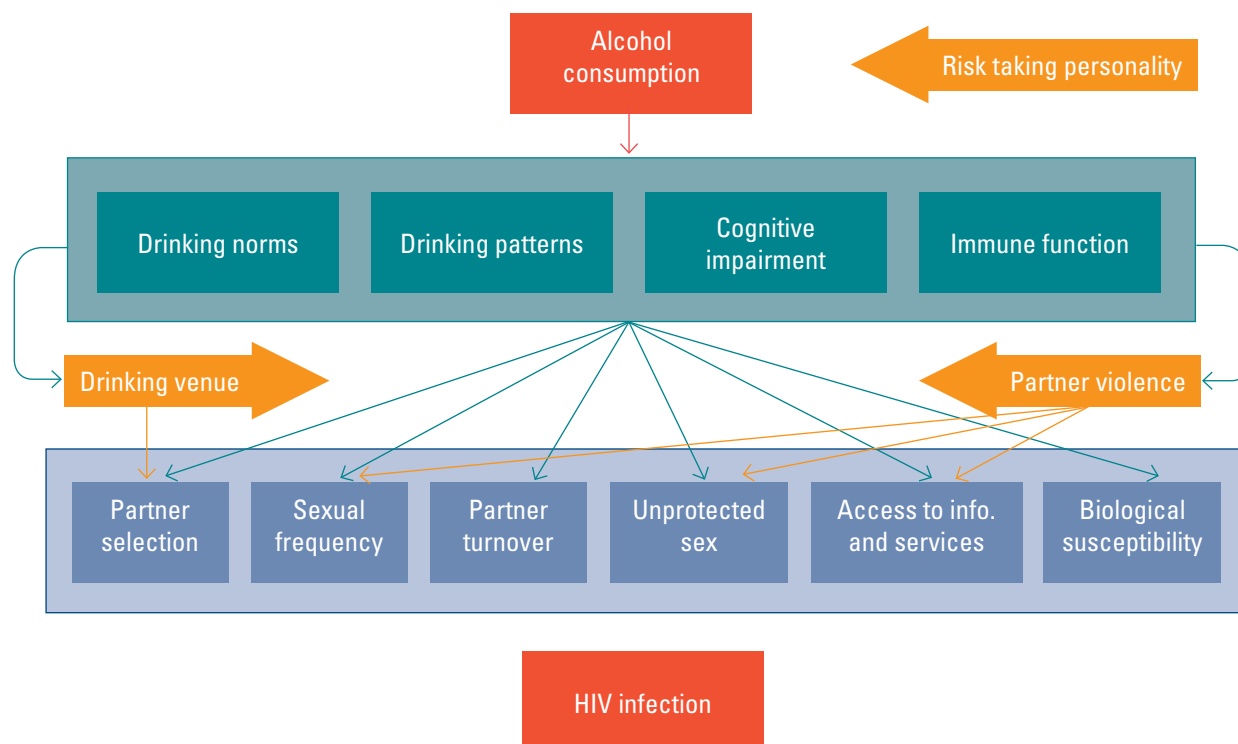
Figure 6: Multiple vulnerabilities: the weft and warp of women’s lives



Credit: Katherine Fritz, presentation to Greentree II, 2015

Saharan Africa. Further evidence underscores this association: a meta-analysis showed that drinkers have 1.57 times the risk of contracting HIV compared to abstainers (Fisher et al 2007), while two further studies in sub-Saharan Africa found a significant association between alcohol consumption before sex and unprotected sex (Kiene et al 2008; Kerridge et al 2014). Alcohol consumption can increase risk of HIV through complex and multifaceted pathways (see Figure 7).

Figure 7: Pathways from alcohol to HIV



Source: STRIVE Working Group on Alcohol and HIV, Greentree II, 2015

Alcohol, especially binge drinking, also increases the severity and frequency of violence and abuse, meeting all the criteria for a “contributing cause” of IPV (Heise 2011). Unfettered alcohol use also lubricates sexual encounters and heightens the risk of forced sex. The IMAGES study, for example, gathered data from more than 7,500 men and women in Chile, Croatia, India, Mexico and Rwanda on the prevalence and predictors of sexual violence, including partner and non-partner rape, marital rape and gang rape. In all settings binge drinkers were more likely to have perpetrated sexual assault than men who did not binge drink, and among men in Chile and India any alcohol use was associated with perpetration of rape (Barker et al 2011).

Alcohol use and abuse are often cited by communities as a key priority, and a number of approaches have proven effective in reducing alcohol consumption and alcohol related harms (Heise 2011). A WHO programme aimed at early identification of problem drinking and brief counselling by a health professional has been shown to significantly reduce men’s drinking (Kaneer et al 2007). Reducing alcohol availability through curtailing the number of outlets or increasing price has been effective in decreasing harmful drinking (Anderson et al 2009). Several recent studies from the US and Australia have found a clear link between density of alcohol outlets and domestic violence, even after controlling for various other individual, couple and community-level factors (Livingston 2010; Cunradi et al 2011; McKinney et al 2009). Modifying the environments surrounding drinking has also been proposed, including enforcing rules on licensing and serving, and improving lighting, video surveillance and

transportation. Addressing alcohol abuse has the potential to address both HIV risk and IPV, and as such could form a key component of these prevention efforts.

KEY EVIDENCE

- Existing evidence from cohort studies is sufficient to confirm that there is an association between experiencing partner violence and enhanced risk of acquiring HIV – at least for some individuals in some settings.
- While the degree of increased risk is modest, IPV can nonetheless have a substantial impact on population levels of HIV because the practice is highly prevalent in many settings. Existing studies estimate the attributable fraction of HIV due to IPV is between 12% and 22%.
- The violent behaviour of men is likely to enhance HIV risk through both direct and indirect pathways and through “upstream” risk factors shared by both IPV and HIV, such as insecure livelihoods, problematic alcohol use and dominant constructions of masculinity.
- Many forms of violence are highly correlated, both within relationships and across a woman’s lifespan. This makes it difficult to tease out the individual contribution of physical versus sexual versus psychological abuse.
- Women who experience violence in childhood, especially sexual violence, are more vulnerable to IPV and forced sex by others in adolescence and adulthood. The impact of violence over the life course is cumulative.
- Likewise, men who witness or are subject to violence in childhood are more likely to perpetrate violence later in later life.
- Contrary to popular belief, forced sex and genital trauma are likely not to be the dominant pathway linking IPV and HIV among women in long-term partnerships. Given that most forced sex takes place within on-going relationships, sexual violence is likely not to be the most important driver of the violence/HIV relationship.
- Nonetheless, sexual violence and exploitation by acquaintances, strangers, individuals in authority and combatants can be a source of enhanced HIV risk for some women.
- Emerging evidence suggests that an important pathway from IPV to HIV among women is via the risk-taking behaviour of violent men. Men who are violent also exhibit a clustering of other behaviours that increase the likelihood that they will contract HIV and other STIs; this in turn, enhances the exposure of their sexual partners.
- Recent research into the biology of HIV transmission suggests that violence and trauma may biologically enhance HIV acquisition via means other than (or in addition to) genital injury, including by affecting the mucosal and systemic immune response. If living in an environment of fear and stress is what is important, we must look beyond measuring specific violent events. This is an area of active research deserving more support.

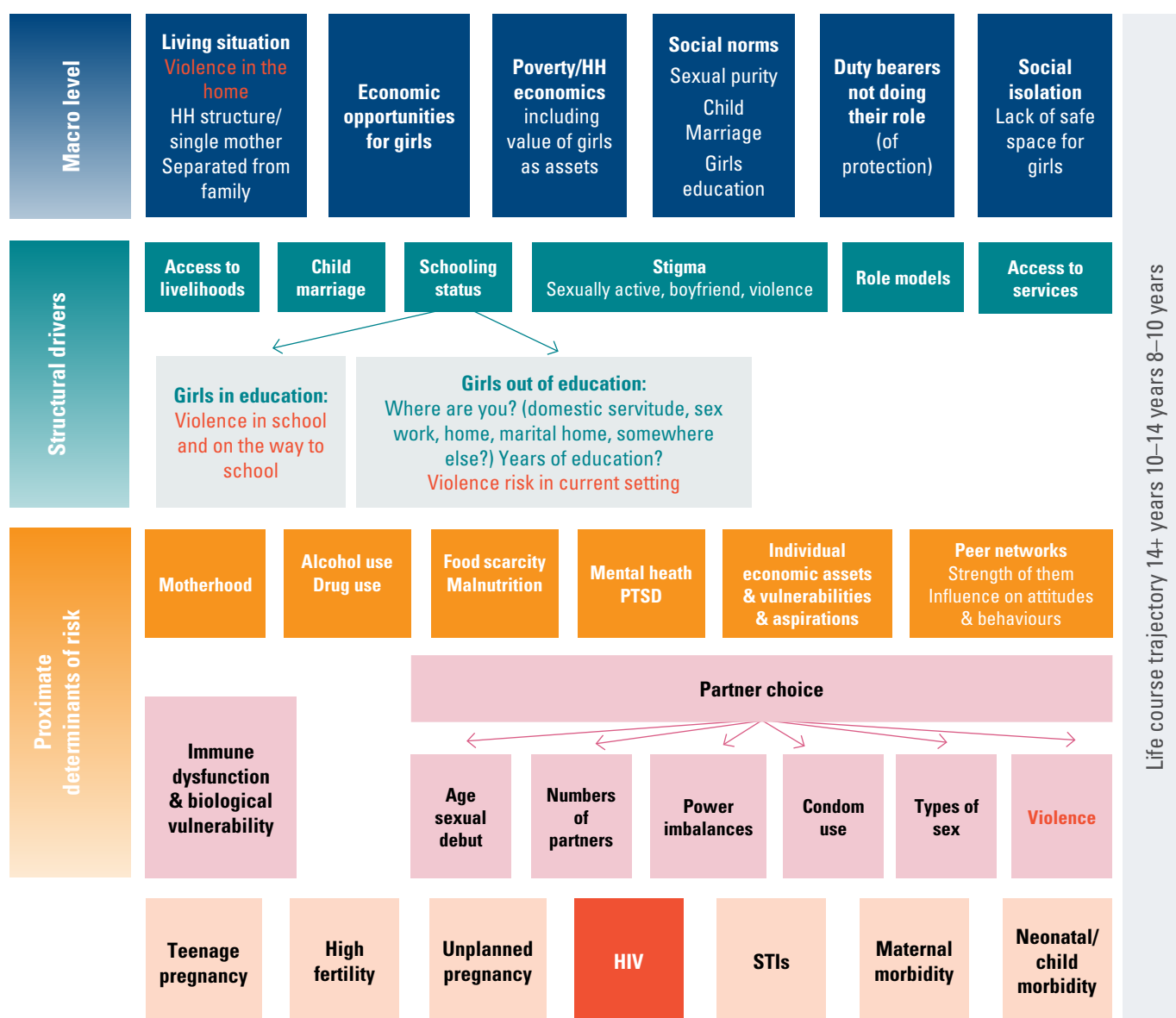
Moving beyond generalisations

It is important to move beyond simple generalisations to examine the specific pathways linking violence and HIV in different settings and among different populations.

Age is an important variable and analysis must break down populations into meaningful segments, for example girls who are 10–14 years old; 15–19 years old; married and unmarried; in school and out of school; and so forth.

Particular dynamics may affect different groups of women: women who sell sex; transgender women; women living in conflict zones; women who use IV drugs; homeless women and refugee and displaced women. These women are likely to have sources of violence in their lives in addition to the threat of relationship violence – for example from clients, soldiers and other men in authority. The pathways through which this violence affects their HIV risk may also vary. Therefore, it is important to separate out the large-scale drivers of the link between violence and HIV at a population level from those individual-level indignities and rights violations that may result in a particular woman becoming HIV-positive in a particular context and moment in time.

Figure 8: Pathways of vulnerability to violence exposure and HIV for pre-pubescent and adolescent girls in low and middle income countries



Source: STRIVE, Greentree II

4. TOWARDS AN EFFECTIVE RESPONSE

While questions remain regarding the exact pathways through which violence and HIV are related, there is nonetheless sufficient information to take action. Programming must move forward as research continues to refine our understanding of pathways and mechanisms of influence. The multiple and devastating health and social effects of violence and HIV require action even in the face of some uncertainty. And several rigorous studies have provided evidence that programmatic interventions can reduce violence and HIV-related risk behaviours.

COMMUNITY MOBILISATION TO ADDRESS VIOLENCE AND HIV RISK

Case 1: SASA!

SASA! (Start, Awareness, Support, Action) is a community mobilisation programme that aims to change the social norms that perpetuate violence against women and HIV. Community members, leaders and institutions work together to build a critical mass of change. The extensive programme in Kampala involved 400 activists leading over 11,000 activities reaching 260,000 community members in 6 parishes.

The SASA! study assessed the community-level impact of the programme to prevent violence and reduce HIV risk behaviours through a cluster randomised trial. Data were collected in 2008 and 2012 in 8 communities in Kampala to compare outcomes in 4 interventions and 4 control communities over 2.8 years of programming. The study combined several research methods for a comprehensive assessment: qualitative, quantitative, operations research and economic evaluation. Though the small number of clusters limited its statistical power, the study nonetheless showed significant improvement in several primary outcomes:

- Attitudes toward the acceptability of violence and women being able to refuse sex
- Past year occurrence of physical violence among those with a history of violence
- Levels of sexual concurrency reported by men
- Women's reported ability to refuse sex

Promising impacts were also seen on community responses to women experiencing violence, and new occurrence of violence in relationships.

Overall, women in intervention communities were 52% less likely to report past-year experience of physical intimate partner violence (IPV), compared with women in control communities (adjusted risk ratio (aRR) 0.48, 95% CI 0.16 to 1.39), and also somewhat less likely to report past year experience of sexual IPV (aRR 0.76, 0.33 to 1.72) (Abramsky et al 2014). Though this result did not attain statistical significance due to high inter-cluster variation in the prevalence of IPV, the large effect size and fact that all related outcomes moved in the hypothesised direction suggest strongly that the intervention had a true effect on IPV. Importantly, effects were seen at the community level, not just among women reporting direct exposure to intervention activities.

A companion analysis assessed the community-level impact of SASA! on reported HIV-risk behaviours and relationship dynamics. SASA! had a positive impact on these behaviours and dynamics at the community level, especially among men. Men in the intervention communities were significantly more likely to report a number of HIV-protective behaviours, including condom use, HIV testing and fewer concurrent partners. They were also more likely to report increases in joint decision-making, participation in household tasks and communication. For women, the outcomes were in the hypothesised direction though generally with smaller effect sizes, only some of which achieved statistical significance. (Kyegombe et al 2014).

This was the first trial in sub-Saharan Africa to assess the impact of an intimate partner violence prevention intervention at the community level. The results indicate that such programmes can have an impact, and also provide important insights to inform future programmes.

Case 2: SHARE

The Safe Homes and Respect for Everyone programme (SHARE) also involved community-based mobilisation, based on the SASA! approach, to change attitudes and social norms that contribute to IPV and HIV risk. Community work was supplemented with screening for IPV and a brief intervention offered as part of HIV testing and counselling, with ART counsellors being trained to screen for and handle IPV cases. Additional targeted community work involved youth peer groups, a programme for men and boys, and community counselling aides who were trained to offer basic psychosocial support and make referrals.

Exposure to SHARE was associated with significant reductions in past year IPV, physical IPV and forced sex as reported by women; a decline in HIV incidence (which was more pronounced in men); and increased disclosure of HIV results. It was not associated with reductions in men's reported perpetration of IPV or changes in reported alcohol use at sex, number of sex partners or condom use (Wagman 2014).

SHARE is the first study of behavioural interventions to show significant decreases in both IPV and HIV incidence. Its model could inform other efforts to address IPV and HIV and could, at least in part, be adopted as standard of care for other HIV programmes in sub-Saharan Africa. HIV counselling and testing provides a clear opportunity to screen for and address IPV. If trained, counsellors could mitigate some of the important risk factors for HIV transmission that are associated with violence, thus addressing the two epidemics at the same time.

Case 3: GREAT

The Gender Roles, Equality and Transformation project (GREAT) aimed to improve gender equality and reproductive health outcomes in Northern Uganda through working with boys and girls aged 10–19 to help them form equitable gender norms and adopt attitudes and behaviours which positively influence health outcomes and reduce gender-based violence. The programme took a life-course approach, exploring sexual and reproductive health, gender equitable norms and attitudes and gender-based violence with young people at four key stages: very young adolescents, older adolescents, newly married and new parents.

The programme was evaluated through a stratified two-stage cluster sample of schools and households, and interviews were conducted with a total of 2,448 young people. Effects were measured across key categories based on three levels of exposure to GREAT and improvements were seen in all categories. All cohorts showed improvements in attitudes toward gender equality along with significant changes in behaviour such as improved communication, boys helping sisters with chores, men

participating in childcare and so forth. Effects related to sexual and reproductive health were also seen, in terms of attitudes toward adolescent contraceptive use, self efficacy to use family planning among newly married and new parents, actual use of family planning and intention to use family planning among older adolescents (Institute for Reproductive Health 2016). Study participants also reported decreased acceptance of gender-based violence, improvement in non-violent responses during couple conflicts, and decrease in inappropriate touching. Intervention effects were somewhat more marked among men and newly married people and transforming gender norms seems to be key for all outcomes. Overall the study underscored the interrelatedness of the three issues, and that negotiating change in these domains is complex and requires multiple enabling factors.

THE GREAT INTERVENTION PACKAGE INCLUDED FOUR KEY COMPONENTS

1. Community mobilisation to explore gender equality, adolescent sexual and reproductive health and gender-based violence, and to plan, act and evaluate the programme together
2. A serial drama involving families in a fictional village to generate interest and promote dialogue
3. Links to existing village health teams
4. Adolescents' groups as a platform for using the toolkit

INTEGRATING VIOLENCE PREVENTION INTERVENTIONS IN HIV PREVENTION AND TREATMENT SERVICES

HIV prevention and treatment settings offer opportunities to incorporate violence prevention and intervention services for women, with potentially positive effects on HIV treatment and prevention, and on women's lives more broadly. HIV testing centres can provide counselling for women and couples and facilitate partner disclosure and skills-building in communication and conflict resolution. Health care workers could be trained to screen and counsel for IPV, to refer women to specialised services where they exist and possibly to address broader mental health needs precipitated by IPV and HIV. Support for women who experience IPV, including facilitated disclosure to partners and, when appropriate, promoting men's positive involvement, may encourage women to initiate ART. Finally, on-going adherence support programmes could serve as platforms to discuss and address gender norms, relationships and violence. A recent publication by the WHO lists no less than 16 promising interventions for addressing VAW in the context of HIV programming (WHO/UNAIDS 2013). In addition to structural interventions, the publication highlights the potential to:

- address violence in HIV risk-reduction counselling;
- address violence in HIV testing and counselling, prevention of mother-to-child transmission (PMTCT), treatment and care services;
- provide comprehensive post-rape care including HIV post-exposure prophylaxis (PEP); and
- address HIV in services for survivors of violence.

Women and health care workers can face a dilemma: wanting women's partners involved in testing, treatment or research, but struggling with how best to approach this when disclosure may lead to violence. Recognising the importance of IPV to effective HIV treatment and prevention programmes for women, a number of operations research efforts are assessing models for how best to meet women's needs by incorporating IPV support and prevention into HIV services.

IPV AND HIV IN SPECIFIC POPULATIONS: SEX WORKERS AND ADOLESCENTS

Efforts to reach sex workers and adolescents are especially strategic given that both groups are at exceptionally high risk of HIV themselves, as well as serving as bridges to other populations.

Reducing HIV and violence vulnerability among sex workers

Female sex workers (FSWs) have a high HIV burden, approximately 11 times higher than women in the general population (Baral et al 2012). Globally, researchers estimate that 15% (range 11.5–18.6%) of HIV infections in women in 2011 were attributable to sexual transmission in sex work, with the highest proportions in sub-Saharan Africa (17.8%, 13.6–22.1%) (Prüss-Ustün et al 2013). The proportion of new HIV infections within the past year that were due to sexual transmission in sex work is estimated to include nearly a third of new infections in Ghana, 14% in Kenya and 10% in Uganda (Gelmon et al 2009; Wabwire-Mangen 2009). Addressing the needs of sex workers is thus both a human rights imperative and a strategic intervention for bringing the wider HIV epidemic under control.

Compelling evidence documents how human rights abuses against sex workers contribute to and exacerbate their risk of acquiring and transmitting the HIV virus. Sex workers are frequently exposed to harsh working conditions accompanied by stigma, discrimination and violence from a range of perpetrators including clients, pimps, intimate partners and the police (Kerrigan et al 2015). They are routinely denied health care and have difficulty accessing the social entitlements that are due to them (Decker et al 2015). Studies confirm that harassment and violence against sex workers are heightened in situations where buying and selling sex is illegal (Shannon et al 2015). Indeed, mathematical models suggest that decriminalising sex work could avert 33–46% of new HIV infections in sex workers and clients over a decade, through its combined effect on violence, policing, safer work environment and HIV transmission (Shannon et al 2015).

Given the documented links between sexual coercion and abuse and HIV risk, reducing violence against sex workers could potentially have an impact on the HIV epidemic. One epidemiological model in Ukraine and Kenya suggests that reducing violence against FSWs could lead to a 25% reduction in new infections among FSWs in those countries (Decker et al 2013). A second modelling study similarly suggests that eliminating sexual violence by clients, the police, and strangers could avert 17% of future HIV infections among FSWs and their clients in Kenya and 20% in Canada over the next decade (Shannon et al 2015). While such mathematical models are highly speculative, they emphasise the potential impact that addressing violence could have on HIV acquisition and transmission in the context of sex work.

Community-empowerment programmes such as Sonagachi have demonstrated that sex worker-led, rights-based programmes for HIV prevention can reduce HIV and serve as essential platforms for the adaptation and uptake of the next generation of prevention approaches (Wirtz et al 2014). A recent meta-analysis of such studies demonstrated that existing programmes have led to a reduction in HIV and STIs, as well as increased condom use, although the evaluation designs of these studies was generally weak (Kerrigan et al. 2015).

One such programme, implemented in Karnataka, India, also addressed structural elements that fuel or fail to address violence against sex workers. Violence emerged as a central concern of FSWs in the course of implementing a broader structural intervention, with FSWs reporting violence from police as their biggest concern. They were generally less willing to talk about intimate partner violence (IPV). The

programme developed a multi-layered intervention that involved policy makers, police, lawyers and media, in addition to the FSWs themselves. The programme was delivered at scale to more than 60,000 sex workers. It trained police and judges, and provided accessible services for sex workers to identify and report violence, including clear instructions on how to file a report, and tools such as pictograms to enable illiterate sex workers to clearly document violence. Services were set up for post-violence care and support, including the moral support prioritised by the FSWs (Guarnani et al 2011). At baseline, 11–26.4% of FSWs reported being beaten or raped in the past year. These FSWs were significantly less likely to report condom use with clients, to have accessed the HIV programme or to have visited the sexual health clinic, and they were more likely to have gonorrhoea. An evaluation of this programme demonstrated a significant reduction in the proportion of FSWs reporting violence compared with baseline. It provides important evidence that such a structural approach to violence can be delivered at scale and may have important implications for reducing HIV risk as well as improving the overall lives of sex workers (Beattie et al 2010; 2015).

ADDRESSING THE RIGHTS AND VULNERABILITIES OF ADOLESCENTS

In some settings, HIV incidence rates in young women are among the highest in the world. Young women in some communities in South Africa face extraordinary risk of HIV. Young women's higher biological risk of HIV (as described above) is exacerbated by the sometimes skewed concepts of risk and reward that characterise adolescence: a time of physical, neurocognitive and emotional change. Approaches to working with young people must recognise the importance of their aspirations and their desire for material goods, love and pleasure. This demographic group is growing, and so substantial additional investments will be needed simply to maintain the current levels of HIV among young women. The population bulge among young people means that, even if the rate of new infections is reduced, the absolute numbers of new infections could increase. The HIV epidemic cannot be turned around without smarter investments in programmes for young people; such programmes should be a priority in key countries in sub-Saharan Africa.

Current HIV interventions – behavioural, biomedical and structural – have all had limitations for young people. Behavioural interventions are aimed at individuals and based on models of knowledge leading to behaviour change that largely ignore most adolescents' concept of risk and reward, as well as the broader environment that so strongly influences their actions. Despite decades of work, there is little evidence on how best to deliver proven biomedical HIV prevention interventions to young people (Mavedzenge et al 2014). To date, all biomedical prevention approaches have had serious limitations for young women. Oral PrEP may offer a more feasible approach for young women, but they must be prioritised as a risk group and service delivery geared toward their needs and preferences.

Effectively reaching young people will mean ensuring an enabling environment for delivering combination prevention that recognises the realities of their sometimes fluid lives. Such programmes will need to ensure that adolescents have access to services at school or at health centres that treat them with respect and meet their needs. ART-based prevention can be a cornerstone of prevention for young people. However, engaging and retaining them in care will require expanding testing, ensuring linkage to care to reduce infectiousness and developing strategies to deliver PrEP to young women while learning more about what works to support adherence. Structural interventions that, for example, help girls stay in school, are also being assessed to determine their impact on reducing the risk of HIV in young women. Given the complexity of reaching young people with approaches that work for them,

more attention should be focused on determining how best to combine interventions and deliver them at scale.

Finding and reaching the girls left behind: Asset building for girls and young women

The Population Council has developed an approach to identify the most “off track” girls in a given community and to design programmes that are accessible to these girls and relevant to their lives. This approach can also be used or adapted to help identify girls who are at risk of HIV and IPV and build programmes to support them. The most off-track girls – those who are out of school, living without parents, married early or young mothers – are often invisible in their communities. Reaching them requires focused effort in order to identify all girls in a community and to understand the specific circumstances and needs of different segments of girls. The Girl Roster Toolkit, developed by the Population Council, is an easy-to-use tool that can identify and segment girls and young women in a community using either a mobile phone app or paper and pencil. A complementary mapping process identifies community resources that could be made accessible to girls.

Girls’ protective assets can be built through mobilising these community resources into programmes targeted at specific segments of girls. Such programmes can start with simple, discreet ideas, eventually building platforms or safe spaces for delivering multiple interventions for girls: health, education, economic opportunities, violence prevention and others. Information keyed to girls’ real lives can be a critical cognitive asset and can take many forms: defining safe and unsafe work, where to go in case of an emergency, how to be a good friend and what behaviours are legal and illegal. Locally recruited female mentors – often young women just few years older than the girls – increase the sustainability and effectiveness of these programmes while fostering leadership in the mentors.

While specific programme elements are adapted to different settings and girl segments, the protective-assets model involves several key elements. A girl should have at least five friends who are her ‘team’ as well as a girl-only place or platform in the community to meet. Girls should also have a non-family, slightly older mentor and some form of personal documentation to help them access citizenship rights, health care and other community services. Programmes should provide girls with age- and segment-specific life skills such as health information and financial literacy, and a context-specific personal safety plan – someone and somewhere to turn to if she feels unsafe. They should be provided with useful and actionable information on specific patterns and instances in their communities that may increase risk, such as festivals, alcohol consumption, transportation hubs or other settings. Successful programmes built on these concepts have reduced violence and/or HIV risk behaviours have been developed in diverse settings, including Tesfa and Meseret Hiwott, both in Ethiopia, and Siyakha Nentsha in South Africa (Erulkar 2014; Erulkar et al 2013; Hallman 2011). This approach is now being adapted and used in the DREAMS programme.

POTENTIAL SYNERGIES WITH OTHER STRUCTURAL PROGRAMMING

Implementation and outcomes of structural interventions can occur in complex and often interrelated ways across sectors. Synergies in programming are possible when economic interventions and working with men and boys for gender justice prove effective in reducing IPV and HIV.

DREAMS: IMPLEMENTING HEALTH AND STRUCTURAL APPROACHES IN TANDEM

A \$210 million partnership spearheaded by the US Presidents Emergency Plan for AIDS Relief (PEPFAR), DREAMS aims to reduce new HIV infections in adolescent girls and young women in up to ten countries in sub-Saharan Africa. Its ambitious targets call for decreasing the incidence of new HIV infections by 25% in the first year and by 40% in the second year. In taking a comprehensive approach to meeting the needs of girls and young women, DREAMS is a notable experiment in implementing health and structural approaches in tandem, rapidly and on a large scale.

DREAMS is focused on finding the most vulnerable girls in the areas with the highest burden of HIV and developing a comprehensive approach to address their needs. Violence prevention

and response are an important part of the DREAMS core package. The DREAMS approach aims to balance a comprehensive package with adaptation and innovation, and to draw on existing and emerging evidence on structural and social interventions. In this model, social protection interventions and post-violence care can be integrated into HIV prevention, care and treatment. For example, post-rape care includes clinical services, counselling and referral for non-clinical services where appropriate. Other approaches include screening for IPV and active case management, along with community-based programmes such as SASA! that aim to shift community norms. The DREAMS programme's commitment to this comprehensive approach reflects the strong and growing evidence base for violence prevention and response, and emphasises evaluation to generate more insights on what is most effective in different settings.

Economic interventions to prevent intimate partner violence and HIV risk

Poverty and gender inequality share common risk factors for IPV and HIV; interventions to address poverty, and gender inequality based on poverty, may therefore have potential for preventing IPV and HIV. Economic interventions can be operationalised through a variety of different approaches including stipends, vouchers and lotteries. Social protection strategies are generally implemented at a larger scale, while cash transfers are based on incentives and behaviours at the individual level. Two broad concepts underlie the mechanisms through which economic transfers may reduce HIV risk:

- Poverty alleviation to reduce structural vulnerabilities – especially women's economic dependence on men – that lead to transactional sex and other risky behaviours
- Behavioural economics using cash as an incentive to discourage risky sex or increase adherence, thereby making the benefits of self-protection more immediate and more concrete

An overall review of economic approaches for a forthcoming article reviewed 87 studies, placing them into four main categories:

1. Cash transfers for social protection or to reward or discourage behaviours
2. Building economic assets through microfinance or village savings and loans associations (VSLA)
3. Building economic assets and gender transformation through microfinance, VSLA or vocational training plus gender transformation programmes
4. Keeping girls in school through conditional or unconditional cash transfers

These studies are characterised by a wide variety of interventions, study designs and outcome measures (Gibbs et al, in preparation).

In summary, the evidence for different types of economic approaches on HIV and VAWG shows that:

- Cash transfers aimed at HIV-related outcomes for children or adolescents all show positive changes for those targeted, while those targeting women show mixed results on IPV outcomes. Programmes to reward behaviours encourage HIV testing, but have mixed impacts on other behaviours.
- Building economic assets through microfinance has mixed impacts: some show an increase in IPV, some show a decrease in IPV, some show no impact and some show that the impact depends on a wide variety of other factors. Only one study measured HIV-related outcomes and found no effect.
- Economic assets and gender transformation programmes were found to work variously as women-focused, work with couples, embedded in sex-worker engagement and mobilisation and focused on young women and men. The 15 studies showed a wide range of outcomes, finding that overall such approaches work better for older women. Vocational training was combined with gender transformation in a variety of approaches and focused more on young people, with mixed results.
- Keeping girls in school with conditional cash transfers or unconditional cash transfers has been tried in a number of settings, and 35 studies showed that overall it is successful at keeping girls in school. However, it can be difficult to show longer-term impacts on HIV incidence or other outcomes.

Overall, the evidence around economic interventions to prevent IPV and HIV risk are mixed. Economic-only interventions yield mixed results, with studies showing results that are flat, HIV-negative or positive. Adding gender transformative components to economic interventions generally shifts these outcomes in a more positive direction to either flat or positive. Outcome measures are not standardised, with most of the studies measuring either IPV- or HIV-related outcomes, but missing the opportunity to measure both IPV and HIV outcomes. Finally, questions remain about how best to ensure that interventions are appropriate for diverse populations, especially for young people where IPV is a concern; whether and how to include men in combined interventions; and how to deliver even successful programmes at scale.

Working with boys and men for gender justice

Interventions with boys and men have expanded dramatically in the last 20 years, using a wide range of approaches and definitions. Not all programmes are concerned with gender justice, and some projects even reinforce notions of male privilege and dominance. Programmes approach men and masculinities from different perspectives and can focus on individuals, on families or communities or on broader social norms. These programmes work across different age ranges, roles and settings; in schools, sports programmes, community groups, religious institutions or workplaces; looking at men's roles in parenting, fatherhood or as partners; and with individuals, couples or groups (Jewkes et al 2014).

For example, the REAL Fathers Initiative (Responsible, Engaged and Loving) works with young fathers in Uganda to support them to strengthen their bonds with their children, maintain a supportive relationship with their wives and be respected in their community. Mentors are trained in and use a structured protocol that works through home visits, group meetings and community celebrations to catalyse and facilitate reflection on gender norms, parenting and IPV. An evaluation of the intensity of exposure compared with controls showed that effects increased with intensity

of exposure. REAL had significant effects in a number of areas related to parenting attitudes and behaviour and partner relationships, including decreased physical and verbal IPV. It had no effect on other areas including emotional violence and gender-equitable or non-traditional attitudes toward parenting roles (Institute for Reproductive Health 2013).

Another programme, the Gender Equity Movement in Schools (GEMS), works in India, with the assumption that violence starts at an early age and is often reinforced in school. The programme works with parents, authorities and children through group activities and a week-long school-based campaign designed in consultation with students that involves games, competitions, debates and short plays. This work at multiple levels has brought about a shift in reported behaviour, with participants in the group education activities and the school based campaign showing more sustained attitude change across the course of two years. A cohort from 2009 is being followed to determine whether the programme has on-going effects over time (Achyut et al 2011).

Financing gender transformative interventions

Financing for the HIV sector overall is evolving, with shifts in development aid towards lower income countries and domestic financing, while HIV is seen as less exceptional within development and even within the health sector. This has resulted in flat lining for much external HIV funding at the same time that the sector faces growing entitlements for ART, with huge commitments and ambitious programmes needed to achieve the 90-90-90 targets by 2020.

Intervening 'upstream' through gender transformative interventions is important for many health and development sectors, but not a priority for any one specific sector. For example, efforts aimed at addressing early sexual debut, partner violence and lack of secondary education could have substantial impacts on indicators for HIV, sexual and reproductive health (SRH) and maternal and child health (MCH). By neglecting to add interventions to address gender and violence onto existing HIV and development programmes, programmers miss important opportunities for stronger synergies between HIV and broader development goals (Remme et al 2014). Potential inefficiencies that result from silo budgeting are exhibited in a conditional cash transfer trial among school girls in Zomba, Malawi, in which the cost per HIV infection averted was between \$5,000 and \$12,500 (Baird et al 2012; Remme et al 2014). Co-financing across sectors could prevent the undervaluation of gender transformative interventions that can lead to a wide range of positive outcomes for HIV, education, SRH and mental health by sharing the intervention costs among the many sectors where benefits are seen (Remme et al 2014).

Practical mechanisms are needed to overcome the institutional barriers to co-financing in donor and government agencies such as different funding cycles and political drivers. This will require agencies that state their clear commitment to, for example, improving the lives of girls and young women, to find common ground procedures in order to exploit the efficiencies and synergies that such programmes represent. The narrow lens for assessing costs and benefits must be reconfigured so that benefits accrue across sectors and a greater number of outcomes. Indeed gender transformative programmes can contribute to positive outcomes across numerous Sustainable Development Goals and as such are good value for money.

5. PRIORITIES FOR RESEARCH AND ACTION

Reflecting on the implications of existing evidence, the expert group gathered at Greentree II identified a number of priority actions for moving the field forward.

RELATED TO EVIDENCE GENERATION

- **Support research to address key knowledge gaps**, including continued efforts to delineate the different indirect pathways through which violence influences HIV acquisition.
- **Invest in targeted analysis of key data sets** such as the DHS, which can provide additional insights and priorities for action with relatively modest investment. Disaggregate existing and anticipated analyses by age as a priority. Determine the extent to which ‘hotspots’ for violence and HIV overlap, using DHS data on HIV and urbanisation as a starting point.
- **Utilise new data sets, for example on violence against children, to explore critical questions** including the experience and data on younger, unpartnered women. This perspective is especially important because sexual debut is much lower among young women who have experienced childhood trauma and maltreatment, including violence.
- **Investigate more fully the implications for HIV transmission of violence against women and girls** in conflict and disaster settings – where IPV and trafficking may increase – and ensure that this evidence drives an integrated and full response in programming in conflict, disaster and humanitarian responses.
- **Intensify on-going research efforts to identify more specifically the basic biological processes related to HIV susceptibility** in the female genital tract by age, and how violence may potentiate HIV acquisition. Monitor this work so that relevant findings inform research and programmatic responses.

RELATED TO PROGRAMMING

- **Adapt and scale up programmes** such as SASA! and SHARE that are proven to reduce violence, improve HIV outcomes and benefit women in other ways on a larger scale in a wider range of settings. Invest in demonstration projects and implementation research so that these efforts are assessed and can inform future programming.
- **Determine and address the ways that violence influences women's interactions with HIV prevention and care** along the full continuum of care: testing, linkage to care, retention in and adherence to treatment and outcomes related to disease progression.
- **Intensify efforts to ensure that preventing and addressing violence – physical, sexual and emotional – informs and infuses research, programming and services** related to HIV, especially for young women.
- **Ensure that all programmes in humanitarian and conflict affected countries are aware of the range of forms of violence** that women and girls may be vulnerable to, and that they take actions to reduce their vulnerability and provide support and address to women and girls who have experienced violence.
- **Exploit opportunities for learning emerging from the DREAMS Initiative** and the new emphasis at the Global Fund to Fight AIDS, Tuberculosis and Malaria on addressing the HIV vulnerability of adolescent girls in Africa.
- **Explore the potential for using existing HIV platforms (especially PrEP, elimination of maternal to child transmission and key populations) to deliver violence prevention and support.** The roll out of PrEP may provide an especially useful opportunity for identifying ways to integrate violence prevention and care into HIV services.
- **Ensure that HIV programme activities and services do not inadvertently reinforce rigid gender roles** and unequal power relations, stigmatise or re-victimise women or put women and girls at increased risk of violence.
- **Advocate for greater investment in structural interventions** that can have far-reaching positive effects across a range of sectors – economic, social, education, health – and ensure that their benefits are evaluated along broader parameters than just HIV.

REFERENCES

- Abramsky T et al (2014) Findings from the SASA! Study: a cluster randomized controlled trial to assess the impact of a community mobilisation intervention to prevent violence against women and reduce HIV risk in Kampala, Uganda. *BMC Medicine* 2014; 12:122. doi: 10.1186/s12916-014-0122-5
- Achyut P, Bhatla N, Khandekar S, Maitra S and Verma RK (2011) Building Support for Gender Equality among Young Adolescents in School: Findings from Mumbai, India. ICRW, New Delhi. International Center for Research on Women (ICRW) www.icrw.org/publications/building-support-gender-equality-among-young-adolescents-school
- Adams JA, Girardin B, Faugno D (2001) Adolescent sexual assault: documentation of acute injuries using photo-colposcopy. *Journal of Pediatric Adolescent Gynecology* 2001;14:175–180
- Anderson, P, Chisholm D and Fuhr D (2009) Effectiveness and cost effectiveness of policies and programmes to reduce the harm caused by alcohol. *The Lancet* 2009. 373: pp 2234–2246
- Baird SJ, Garfein RS, McIntosh CT, Ozler B (2012) Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: a cluster randomised trial. *The Lancet* 2012 Apr 7;379(9823):1320-9. doi: 10.1016/S0140-6736(11)61709-1. Epub 2012 Feb 15
- Baral S, et al. Burden of HIV among female sex workers in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Infect Diseases*. 2012;12(7):538–549. doi:10.1016/S1473-3099(12)70066-X
- Baral SD, Poteat T, Strömdahl S, Wirtz AL, Guadamuz TE, Beyrer C (2013) Worldwide burden of HIV in transgender women: A systematic review and meta-analysis. *The Lancet Infectious Diseases* 2013,13(3):214–22
- Barker G, Contreras M, Heilman B, Singh A, Verma R, Nascimento M (2011) Evolving Men: Initial Results from the International Men and Gender Equality Survey (IMAGES) International Center for Research on Women (ICRW) www.icrw.org/publications/evolving-men
- Beattie TS, Bhattacharjee P, Ramesh BM, Gurnani V, Anthony J, Isac S, Mohan HL, Ramakrishnan A, Wheeler T, Bradley J, Blanchard JF, Moses S (2010) Violence against female sex workers in Karnataka state, south India: impact on health, and reductions in violence following an intervention program. *BMC Public Health*. 2010; 10:476. doi: 10.1186/1471-2458-10-476
- Beattie TS, Bhattacharjee P, Isac S, Mohan HL, Simic-Lawson M, Ramesh BM, Blanchard JF, Moses S, Watts CH, Heise L (2015) Declines in violence and police arrest among female sex workers in Karnataka state, south India, following a comprehensive HIV prevention programme. *Journal of the International AIDS Society*, 2015; 18(1):20079
- Cunradi CB et al (2011) Alcohol outlets, neighborhood characteristics and Intimate partner violence: Ecological analysis of a California city. *Journal of Urban Health*, April 2011, Volume 88, Issue 2, pp 191–200
- Decker MR, Seage GR IIIrd, Hemenway D, Raj A, Saggurti N, Balaiah D, Silverman J (2009) Intimate partner violence functions as both a risk marker and risk factor for women's HIV infection: findings from Indian husband-wife dyads. *Journal of Acquired Immune Deficiency Syndromes* 2009;51:593–600
- Decker MR, Seage GR IIIrd, Hemenway D, Gupta J, Raj A, Silverman JG (2009) Intimate partner violence perpetration, standard and gendered STI/HIV risk behaviour, and STI/HIV diagnosis among a clinic-based sample of men. *Sexually Transmitted Infections* 2009;85:555–560
- Decker MR et al (2013) Estimating the Impact of Reducing Violence Against Female Sex Workers on HIV Epidemics in Kenya and Ukraine: A Policy Modeling Exercise. *American Journal of Reproductive Immunology* Volume 69, Issue Supplement s1, pp 122–132, February 2013
- Decker MR et al (2015) Human rights violations against sex workers: burden and effect on HIV. *The Lancet*, Volume 385, Issue 9963, 186–199
- Delaney E (2013) The Relationship between Traumatic Stress, PTSD and Cortisol. San Diego: US Naval Center for Combat and Operational Stress Control, 2013
- Deering KN, Amin A, Shoveller J, Nesbitt A, Garcia-Moreno C, Duff P, Argento E, Shannon K (2014) A Systematic Review of the Correlates of Violence Against Sex Workers. *American Journal of Public Health* 2014; 104:e42–e54
- Devries K et al. (2013) The global prevalence of intimate partner violence. *Science* 28 Jun 2013: Vol. 340, Issue 6140, pp 1527–1528 DOI: 10.1126/science.1240937
- Dude AM (2011) Spousal intimate partner violence is associated with HIV and Other STIs among married Rwandan women. *AIDS and Behavior* 2011;15:142
- Dunkle KL, Jewkes RK, Nduna M, Levin J, Jama N, Khuzwayo N, Koss MP, Duvvury N (2006) Perpetration of Partner Violence and HIV Risk Behaviour among Young Men in the Rural Eastern Cape, South Africa. *AIDS* 20(16): 2107–2114

- Dunkle KL, Decker MR (2013) Gender-based violence and HIV: reviewing the evidence for links and causal pathways in the general population and high-risk groups. *American Journal of Reproductive Immunology* 2013; 69 (Suppl. 1): 20–26 doi:10.1111/aji.12039
- Durevall D, Lindskog A. (2015) Intimate partner violence and HIV in ten sub-Saharan African countries: what do the Demographic and Health Surveys tell us? *Lancet Global Health* 2015 Jan;3(1):e34-43. doi: 10.1016/S2214-109X(14)70343-2. Epub 2014 Nov 21 and in *World Development*. 2015(72): 27-42
- Eakle R et al (2015) Protocol for a systematic review: Understanding the motivations and barriers to uptake and use of female-initiated, primary biomedical HIV prevention technologies in sub-Saharan Africa. *Systematic Reviews* 4(1):111. November 2015 DOI: 10.1186/s13643-015-0096-1
- Ehrensaft MK, Cohen P, Brown J, Smailes E, Chen H, Johnson JG (2003) Intergenerational transmission of partner violence: a 20-year prospective study. *Journal of Consulting and Clinical Psychology* 2003 Aug;71(4):741-53
- Erulkar A (2014) Building the assets to thrive: Addressing the HIV-related vulnerabilities of adolescent girls in Ethiopia. New York: Population Council. www.popcouncil.org/research/building-the-assets-to-thrive-addressing-the-hiv-related-vulnerabilities-of/full
- Erulkar A, Ferede A, Girma W, Ambelu W (2013) Evaluation of “Biruh Tesfa” (Bright Future) programme for vulnerable girls in Ethiopia, *Vulnerable Children and Youth Studies. An International Interdisciplinary Journal for Research, Policy and Care* 8(2): 182-192. DOI: 10.1080/17450128.2012.736645
- Fisher JC, Bang H, Kapiga SH (2007) The association between HIV infection and alcohol use: a systematic review and meta-analysis of African studies. *Sexually Transmitted Diseases* 2007 Nov;34(11):856-63
- Gass JD, Stein DJ, Williams DR, Seedat S (2011) Gender Differences in Risk for Intimate Partner Violence among South African Adults. *Journal of Interpersonal Violence* 26 (14): 2764–2789
- Gelmon L (2009) Kenya HIV Prevention Response and Modes of Transmission Analysis. Kenya: National AIDS Control Council; 2009. <http://siteresources.worldbank.org/INTHIVAIDS/Resources/375798-1103037153392/KenyaMOT22March09Final.pdf>
- Gibbs A, Sikweyiya Y, Jewkes R (2014) ‘Men value their dignity’: securing respect and identity construction in urban informal settlements in South Africa. *Global Health Action* [S.I.], v. 7, apr. 2014. ISSN 1654-9880
- Gibbs et al (in preparation) A Global Comprehensive Review of Economic Interventions to Prevent Intimate Partner Violence and HIV
- Global Commission on HIV and the Law (2012) Risks, Rights and Health, New York: UNDP. <http://www.hivlawcommission.org/resources/report/FinalReport-Risks,Rights&Health-EN.pdf>
- Gurnani et al (2011) An integrated structural intervention to reduce vulnerability to HIV and sexually transmitted infections among female sex workers in Karnataka state, south India. *BMC Public Health* 2011, 11:755
- Hallman K, Roca E (2011) Siyakha Nentsha: Building economic, health and social capabilities among highly vulnerable adolescents in KwaZulu-Natal, South Africa, Promoting Healthy, Safe, and Productive Transitions to Adulthood Brief no. 4, New York: Population Council
- Harling G, Msisha W, Subramanian SV (2010) No association between HIV and intimate partner violence among women in 10 developing countries. *PLoS One* 2010;5:e14257
- Harrison A, O’Sullivan LF, Hoffman S, Dolezal C, Morrell R (2006) Gender role and relationship norms among young adults in South Africa: measuring the context of masculinity and HIV risk. *Journal of Urban Health* 2006 Jul;83(4):709-22
- Hatcher AM, Smout EM, Turan JM, Christofides N, Stöckl H (2015) Intimate partner violence and engagement in HIV care and treatment among women: a systematic review and meta-analysis. *AIDS* 2015 Oct 23;29(16):2183-94. doi: 10.1097/QAD.0000000000000842
- Heise L (2011) What works to prevent partner violence? An evidence overview. London: STRIVE, London School of Hygiene and Tropical Medicine. <http://strive.lshtm.ac.uk/resources/what-works-prevent-partner-violence-evidence-overview>
- Herold BC, Mesquita PM, Madan RP, Keller MJ (2011) Female Genital Tract Secretions and Semen Impact the Development of Microbicides for the Prevention of HIV and other Sexually Transmitted Infections. *American Journal of Reproductive Immunology*. 2011 March ; 65(3): 325–333. doi:10.1111/j.1600-0897.2010.00932.x
- Hossain M, Zimmerman C, Kiss L et al (2014) Men’s and women’s experiences of violence and traumatic events in rural Côte d’Ivoire before, during and after a period of armed conflict. *BMJ Open* 2014;4: e003644. doi:10.1136/bmjopen-2013-003644
- Institute for Reproductive Health, Georgetown University (2016) GREAT Project Endline Report. Washington, D.C: January 2016

- Institute for Reproductive Health and Save the Children (2013) Using mentors to increase positive fatherhood practices and non-violent couples communication with newly married young men. Washington DC: Real Father's Initiative. http://irh.org/wpcontent/uploads/2015/12/REAL_Fathers_Mentor_Curriculum_FINAL.pdf
- Jewkes, RK, Dunkle, K, Nduna, M, Shai, N (2010) Intimate partner violence, relationship power inequity, and incidence of HIV infection in young women in South Africa: a cohort study. *The Lancet* 2010; 376 (9734): 41– 48. DOI: [http://dx.doi.org/10.1016/S0140-6736\(10\)60548-X](http://dx.doi.org/10.1016/S0140-6736(10)60548-X)
- Jewkes R, Sikweyiya Y, Morrell R, Dunkle K (2011) The relationship between intimate partner violence, rape and HIV amongst South African men: a cross-sectional study. *PLoS ONE* 2011; 6:e24256
- Jewkes, R et al (2014) From work with men and boys to changes of social norms and reduction of inequities in gender relations: a conceptual shift in prevention of violence against women and girls. *The Lancet*, Volume 385, Issue 9977, 1580– 1589
- Jones, DJ et al (2013) Linking Childhood Sexual Abuse and Early Adolescent Risk Behaviour: The Intervening Role of Internalizing and Externalizing Problems. *Journal of Abnormal Child Psychology* 41.1 (2013): 139–150
- Jones, DJ (2010) Trajectories of Childhood sexual abuse and early adolescent HIV/AIDS risk behaviours: the role of other maltreatment, witnessed violence, and child gender. *Journal of Clinical Child and Adolescent Psychology* 2010; 39(5):667–80
- Kacaneke D, Bostrom A, Montgomery ET, Ramjee G, de Bruyn G, Blanchard K, Rock A, Mtetwa S, van der Straten A and MIRA Team (2013) Intimate Partner Violence and Condom and Diaphragm Non-Adherence among Women in an HIV Prevention Trial in Southern Africa. *Journal of Acquired Immune Deficiency Syndromes* 64 (4): 400–408
- Kaneer EF et al (2007) Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database of Systematic Reviews* 2007 Apr 18;(2):CD004148
- Kayibanda JF, Bitera R, Alary M. Violence toward women, men's sexual risk factors, and violence toward women, men's sexual risk factors, and HIV infection among women: findings from a national household survey in Rwanda. *J Acquir Immune Defic Syndr*. 2012;59:300–07
- Kerridge BT, Castor D, Tran P, Barnhart M, Pickering R (2014) Association between Intoxication at Last Sexual Intercourse and Unprotected Sex among Men and Women in Uganda: An Event-Level Analysis. *Journal of Infection in Developing Countries*. 2014;8(11):1461–1469
- Kerrigan D, Kennedy CE, Morgan-Thomas R, Reza-Paul S, Mwangi P, Kay Thi Win, McFall A, Fonner VA, Butler J (2015) A community empowerment approach to the HIV response among sex workers: effectiveness, challenges, and considerations for implementation and scale up. *The Lancet* 2015; 385:172-85
- Kiene SM, Subramanian SV Event-level association between alcohol use and unprotected sex during last sex: evidence from population-based surveys in sub-Saharan Africa. *BMC Public Health* 2013;13:583
- Klot J, Auerbach J, Veronese F, Brown G, Pei A, Wira C, Hope T, M'boup S, on behalf of the participants in the Greentree Meeting on Sexual Violence and HIV (2012) Greentree White Paper: Sexual Violence, Genitoanal Injury, and HIV: Priorities for Research, Policy, and Practice. *AIDS Research and Human Retroviruses* November 2012, 28(11): 1379-1388. doi:10.1089/aid.2012.0273
- Kouyoumdjian FG, Calzavara LM, Bondy SJ, O'Campo P, Serwadda D, Nalugoda F, Kagaayi J, Kigozi G, Wawer M, Gray R. Intimate partner violence is associated with incident HIV infection in women in Uganda. *AIDS* 2013 May 15;27(8):1331-8. doi: 10.1097/QAD.0b013e32835fd851
- Kyegombe N et al (2014) The impact of SASA!, a community mobilisation intervention, on reported HIV-related risk behaviours and relationship dynamics in Kampala, Uganda. *Journal of the International AIDS Society* 2014, 17:19232
- Larney S et al (2015) Global epidemiology of HIV among women and girls who use or inject drugs: Current knowledge and limitations of existing data. *Journal of Acquired Immune Deficiency Syndromes* 2015;69:S100–S109
- Li Y, Marshall C, Rees H, Nunez A, Ezeanolue E, Ehiri J (2014) Intimate partner violence and HIV infection among women: a systematic review and meta-analysis. *Journal of the International AIDS Society* 2014; 17(1): 18845. Published online 2014 Feb 13
- Livingston, M (2010) The ecology of domestic violence – the role of alcohol outlet density. *Geospatial Health* 2010. 5: p 139–49
- Martin SL, Kilgallen B, Tsui AO, Maitra K, Singh KK, Kupper LL (1999) Sexual behaviours and reproductive health outcomes: associations with wife abuse in India. *Journal of the American Medical Association* 1999;282:1967–1972
- Mattson CL, Settergren S, Sabatier J (2009) Spousal sexual violence, HIV, and sexually transmitted infections: an evaluation of Demographic and Health Survey data—Zimbabwe (2005–2006), Malawi (2004), and Kenya (2003). *American Journal of Epidemiology* 2009; 169: S1–137

- Maxwell L, Devries K, Zionts D, Alhusen JL, Campbell J (2015) Estimating the Effect of Intimate Partner Violence on Women's Use of Contraception: A Systematic Review and Meta-Analysis. *PLoS ONE* 10(2): e0118234. doi: 10.1371/journal.pone.0118234
- McKinney C et al (2009) Alcohol availability and intimate partner violence among US couples. *Alcoholism: Clinical and Experimental Research* 2009. 33: p. 1–8
- McLean I, Roberts SA, White C, Paul S (2011) Female genital injuries resulting from consensual and non-consensual vaginal intercourse. *Forensic Science International* 2011; 204:27–33.
- Ministère du Plan and Macro International Inc (2008) Enquête Démographique et de Santé, République Démocratique du Congo 2007. Ministère du Plan, Macro International, Calverton, MD
- Mngadi KT, Maarschalk S, Grobler AC et al (2014) Disclosure of Microbicide Gel Use to Sexual Partners: Influence on Adherence in the CAPRISA 004 Trial. *AIDS and Behavior* 2014;18(5):849-854. doi:10.1007/s10461-014-0696-0
- Mavedzenge SN, Luecke E, Ross DA (2014) Effective approaches for programming to reduce adolescent vulnerability to HIV infection, HIV risk, and HIV-related morbidity and mortality: a systematic review of systematic reviews. *Journal of Acquired Immune Deficiency Syndromes* 2014 Jul 1;66 Suppl 2:S154-69. doi: 10.1097/QAI.0000000000000178
- Ngwaru, T (2010) Is intimate partner violence associated with HIV among women in Zimbabwe? University of Cape Town Working Papers: Centre for Social Science Research, AIDS and Society Research Unit. CSSR Working Paper No. 274
- Norman RE et al (2012) The Long-Term Health Consequences of Child Physical Abuse, Emotional Abuse, and Neglect: A Systematic Review and Meta-Analysis. Ed. Mark Tomlinson. *PLoS Medicine* 9.11 (2012): e1001349. PMC. Web. 22 June 2016
- Onsomu EO et al (2015) Association between domestic violence and HIV serostatus among married and formerly married women in Kenya. In book: Women's Health in Africa: Issues, Challenges and Opportunities, Chapter: Part I - 8: HIV Conflict, Publisher: Routledge, Editors: Izugbara, Covan, Fugate-Whitlock
- Paulhus DL, Williams KM (2002). The Dark Triad of personality: Narcissism, and psychopathy. *Journal of Research in Personality* 36(6), 556–563
- Peterman A, Palermo T, Bredenkamp, C (2011) Estimates and determinants of sexual violence against women in the Democratic Republic of Congo. *American Journal of Public Health* 2011; 101: 1060–1067
- Pettifor AE, Measham D, Rees HV, Padian NS (2004) Sexual power and HIV risk, South Africa. *Emerging Infectious Diseases* 2004;10:1996-2004
- Prüss-Ustün A, Wolf J, Driscoll T, Degenhardt L, Neira M, Calleja JM (2013) HIV due to female sex work: regional and global estimates. *PLoS One* 2013; 8: e63476
- Reisner S et al (2016) 2016 Global health burden and needs of transgender populations: A review. *The Lancet* June 17, 2016 [http://dx.doi.org/10.1016/S0140-6736\(16\)00684-X](http://dx.doi.org/10.1016/S0140-6736(16)00684-X)
- Remme M et al (2014) The cost and cost-effectiveness of gender-responsive interventions for HIV: a systematic review. *Journal of the International AIDS Society* 2014, 17:19228
- Richter L, Komarek A, Desmond C et al (2013) Reported physical and sexual abuse in childhood and adult HIV risk behaviour in three African countries: findings from project accept (HPTN-043). *AIDS and Behavior* 2013;doi: 10.1007/s10461-013-0439-7
- Senn TE, Carey MP, Venable PA (2008) Childhood and adolescent sexual abuse and subsequent sexual risk behaviour: Evidence from controlled studies, methodological critique, and suggestions for research. *Clinical Psychology Review* 2008;28:711–735
- Sharkey DJ, Macpherson AM, Tremellen KP, Mottershead DG, Gilchrist RB, Robertson SA (2012a) TGF- mediates pro inflammatory seminal fluid signaling in human cervical epithelial cells. *Journal of Immunology* 2012 Jul 15;189(2):1024-35. doi: 10.4049/jimmunol.1200005. Epub 2012 Jun 15
- Sharkey DJ, Tremellen KP, Jasper MJ, Gemzell-Danielsson K, Robertson SA (2012b) Seminal fluid induces leukocyte recruitment and cytokine and chemokine mRNA expression in the human cervix after coitus. *Journal of Immunology* 2012 Mar 1;188(5):2445-54. doi: 10.4049/jimmunol.1102736. Epub 2012 Jan 23
- Shannon, K et al (2015) Global epidemiology of HIV among female sex workers: influence of structural determinants. *The Lancet* 2015; 385:55-71
- Shi C-F, Kouyoumdjian F, Dushoff J (2013) Intimate partner violence is associated with HIV infection in women in Kenya: a cross-sectional analysis. *BMC Public Health* 2013; 13: 1–7
- Silverman J, Decker MR, Kapur NA, Gupta J, Raj A (2007) Violence against Wives, Sexual Risk and Sexually-Transmitted Infection among Bangladeshi Men. *Sexually Transmitted Infections* 2007;83:211–215

- Stadler J, Delany-Moretlwe S, Palanee T, Rees H (2014) Hidden harms: women's narratives of intimate partner violence in a microbicide trial, South Africa. *Social Science & Medicine* 2014 Jun;110:49-55. doi: 10.1016/j.socscimed.2014.03.021. Epub 2014 Mar 22
- Stöckl H et al (2013) The global prevalence of intimate partner homicide: a systematic review. *The Lancet*, Volume 382, Issue 9895, 859–865
- Stoltenborgh M, van Ijzendoorn MH, Euser EM et al (2011) A global perspective on child sexual abuse: meta-analysis of prevalence around the world. *Child Maltreatment* 2011;16:79–101
- Stoltenborgh M et al (2015) The Prevalence of Child Maltreatment across the Globe: Review of a Series of Meta-Analyses. *Child Abuse Review* Vol. 24:37–50 (2015)2014
- Succop SM, MacQueen KM, van Loggerenberg F, Majola N, Karim QA, Karim SS (2014) Trial participation disclosure and gel use behaviour in the CAPRISA 004 tenofovir gel trial. *AIDS Care* 2014;26(12):1521-5. doi: 10.1080/09540121.2014.938014
- UNAIDS (2016) Prevention Gap Report. Geneva. Available at: www.unaids.org/sites/default/files/media_asset/2016-prevention-gap-report_en.pdf
- UNAIDS (2014). Unite with women: Unite against HIV. Geneva: UNAIDS. Available at: www.unaids.org/en/resources/documents/2014/20140312_JC2602_UniteWithWomen
- Van de Straten A et al (1998) Sexual coercion, physical violence and HIV among women in steady partnerships in Kigali Rwanda. *Aids and Behavior* 1998; 1(2):61-73
- Vu A et al (2014) The Prevalence of Sexual Violence among Female Refugees in Complex Humanitarian Emergencies: a Systematic Review and Meta-analysis. *PLoS Currents* doi:10.1371/currents.dis.835f10778fd80ae031aac12d3b533ca7
- Wabwire-Mangen F, Uganda AIDS Commission, Joint United Nations Programme on HIV/AIDS (2009) Uganda HIV modes of transmission and prevention response analysis: final report. Uganda National AIDS Commission, March 2009
- Wagman, JA, et al (2015) Effectiveness of an integrated intimate partner violence and HIV prevention intervention in Rakai, Uganda: analysis of an intervention in an existing cluster randomised cohort. *The Lancet Global Health*, Volume 3, Issue 1, January 2015, pp e23–e33
- Watts CH, Foss AM, Hossain M, Zimmerman C, von Simson R, Klot J (2010) Sexual violence and conflict in Africa: prevalence and potential impact on HIV incidence. *Sexually Transmitted Infections* 86 Suppl 3, iii93–i99. doi:10.1136/sti.2010.044610
- Weiss HA, Patel V, West B, Peeling RW, Kirkwood BR, Mabey D (2008) Spousal sexual violence and poverty are risk factors for sexually transmitted infections in women: a longitudinal study of women in Goa, India. *Sexually transmitted infections*, 84 (2). pp 133–139. ISSN 1368-4973 DOI: 10.1136/sti.2007.026039
- Were E, Curran K, Delany-Moretlwe S, Nakku-Joloba E, Mugo NR, Kiarie J, et al (2011) A prospective study of frequency and correlates of intimate partner violence among African heterosexual HIV serodiscordant couples. *AIDS*. 2011; 25:2009
- WHO, Department of Reproductive Health and Research, London School of Hygiene and Tropical Medicine, South African Medical Research Council (2013) Global and Regional Estimates of Violence against Women: Prevalence and Health Effects of Intimate Partner Violence and Non-partner Sexual Violence. Geneva, Switzerland: WHO. www.who.int/reproductivehealth/publications/violence/9789241564625/en
- WHO/UNAIDS. 16 ideas for addressing violence against women in the context of the HIV epidemic: A programming guide (2013) Geneva: WHO. ISBN 978 92 4 150653 3
- Wirtz A L et al (2014) Epidemic impacts of a community empowerment intervention for HIV prevention among female sex workers in generalized and concentrated epidemics. *PLoS One* 9(2):e8804
- Zablotska IB, Gray RH, Koenig MA, Serwadda D, Nalugoda F, Kigozi G et al (2009) Alcohol use, intimate partner violence, sexual coercion and HIV among women aged 15–24 in Rakai, Uganda. *AIDS and Behavior* 2009;13:225–33.

ANNEXES

ANNEX 1: PROGRAMME

DAY ONE: TUESDAY 12 MAY 2015	
08:30–09:30	Welcome, introductions and meeting overview Lori Heise, STRIVE, LSHTM
SESSION 1 GLOBAL PREVALENCE OF HIV AND VAW/G	
09:30–10:30	Epidemiology of VAW/G and HIV Moderator: Jennifer Klot, Growth Philanthropy Exchange
Overview of global epidemiology of IPV, non-partner sexual assault and HIV Avni Amin, World Health Organization (20 minutes) Global prevalence of IPV, non-partner sexual assault and HIV; similarities and differences between different epidemics; shared vulnerabilities across settings	
Sexual violence in childhood and adolescence Susan Bissell, Child Protection, UNICEF (20 minutes) Presented by Lori Heise, LSHTM Global patterns of prevalence and longer term impacts of sexual abuse, exploitation, early and forced sexual debut and/or marriage, transactional sex among young people	
Violence against women and children in humanitarian emergencies (conflict and disaster settings) Mendy Marsh, UNICEF (20 minutes) Types and context of abuse in humanitarian and conflict settings, cumulative burden of trauma on survivors, men and boys as victims, evidence on the degree to which conflict increases risk of VAW/G	
10:30–10:50	Break
10:50–11:35	Is VAW/G associated with HIV: What does the evidence say?
What can we learn from existing longitudinal studies? Charlotte Watts, LSHTM (10 minutes)	
Making sense of past systematic reviews and the cross-sectional data Dick Durevall, Gothenburg University (20 minutes)	
SESSION 2 HYPOTHESISED PATHWAYS OF INFLUENCE	
Moderator: Jacquelyn Campbell, Johns Hopkins School of Nursing	
11:35–11:50	Ecological model and draft pathway map Lori Heise, LSHTM (10 minutes)
11:50–13:15	The potential role of biological factors and genital trauma in HIV acquisition Moderator: Fulvia Veronese, NIH Panel: Gina Brown, NIH Office of AIDS Research; Charles Wira, Dartmouth University School of Medicine; Mimi Ghosh, George Washington University School of Public Health (20 minutes each) Overview of the healthy genital track and mechanisms of HIV infection; role of immunity, hormones and genital injury in HIV acquisition; upcoming NIH meeting, 16–17 September 2015, <i>Risk of young age and injury in HIV susceptibility</i>
13:15–14:15	Lunch

14:15–15:00	<p>The special case of adolescents, especially adolescent girls Sinead Delaney Moretlwe, Wits RHI (25 minutes) Challenges of protecting adolescent girls in hyper-endemic areas of Africa; sociological, developmental and structural sources of enhanced risk among young people and children</p>
15:00–15:45	<p>Childhood trauma and its indirect effect on HIV via mental health and high-risk behaviours Theresa Senn, University of Rochester (25 minutes) Translation of early trauma into higher risk of HIV and other negative reproductive health outcomes; mediation by depression, multiple sexual partners, engaging in sex work and/or transactional sex; strength of the evidence</p>
15:45–16:10	Break
16:10–16:30	<p>The role of elevated exposure to HIV through men’s and women’s sexual behaviour Annika Lindskog, University of Gothenburg (20 minutes) Clustering of risk factors among men and resultant risk of HIV to women partners; role of outside partners in increasing the risk to partnered women</p>
16:30–17:00	<p>Impact of violence on women’s and girls’ access, use and adherence to services and biomedical prevention options Deborah Baron, Wits RHI (20 minutes) Gender roles and violence or fear of violence as barriers or motivators</p>
17:00–17:45	<p>The role of shared risk factors in driving both HIV and IPV Katherine Fritz, International Center for Research on Women (20 minutes) Alcohol, gender, age, norms, insecure livelihoods as drivers of both epidemics: HIV and violence</p>
DAY TWO: WEDNESDAY 13 MAY 2015	
09:00–09:45	<p>Recap of Day 1: What did we learn? Elizabeth McGrory, meeting rapporteur</p>
09:45–10:15	<p>Refining and establishing points of agreement and disagreement on what current data suggests about pathways Moderator: Katherine Fritz, ICRW-DC Small group discussions kicked off by a three-person panel: Saidi Kapiga, Mwanza Clinical Trials Unit/LSHTM Sunita Kishor, ICF International Judy Auerbach, University of California, San Francisco</p>
10:15–11:15	<p>Small groups develop a list in response to the following questions: What can we say with relative confidence at the moment about the link between VAW/G and HIV? Are we aware of any additional evidence that is relevant to the questions at hand? What do we need more information about?</p>
11:15–11:30	Break
11:30–12:30	Report back from groups and open discussion
12:30–13:30	Lunch
SESSION 3 BUILDING ON EXISTING TOOLS AND EXPERIENCE	
13:30–15:30	<p>Existing intervention models that address the intersections of HIV and VAW/G Discussant: Ravi Verma, International Center for Research on Women–Asia Talk 1: Overview of programmes being funded through USG/PEPFAR Janet Saul, Office of the Global AIDS Coordinator (OGAC), US government (25 minutes) Talk 2: Building resilience among adolescent girls Judith Bruce, Population Council (20 minutes) Talk 3: Reducing violence among sex workers: Reflections from India and Kenya Parinita Bhattacharjee, Karnataka Health Promotion Trust (20 minutes)</p>
15:30–15:45	Break

15:45–17:45

Community mobilisation approaches to address violence and HIV risk

Moderator: Sunita Kishor, ICF International

Case Study 1: SASA programme in Southern Uganda

Lori Michau, Raising Voices, and Charlotte Watts, LSHTM (30 minutes)

Case Study 2: GREAT and Real Initiatives in Northern Uganda (20 minutes)

Rebecka Lundgren, Institute for Reproductive Health, Georgetown University

Case Study 3: Impact evaluation of the Share Trial (15 minutes)

Jennifer Wagman, University of California, San Diego

DAY THREE: THURSDAY 14 MAY 2015

SESSION 3 BUILDING ON EXISTING TOOLS AND EXPERIENCE (CONT)

09:00–10:00

Potential synergies with other structural programming

Talk 1: The potential role of economic interventions

Andrew Gibbs, Evidence of Impact for Health and HIV, University of KwaZulu-Natal (20 minutes)

Talk 2: Working with boys and men for gender justice

James Lang, UNDP (20 minutes)

SESSION 4 IMPLICATIONS FOR RESEARCH, POLICY AND PROGRAMMES

10:00–11:00

Envisioning a shared agenda: What does the evidence suggest?

Potential prevention against the dual risks of HIV and VAW/G: agendas for different populations

1: Reducing HIV and violence vulnerability among sex workers/adolescents exploited in prostitution

Michelle Decker, Johns Hopkins School of Public Health (12 minutes)

2. Addressing the rights and vulnerabilities of adolescents

Malayah Harper, UNAIDS (12 minutes)

3. A dual prevention agenda from the perspective of those living with HIV

Dorothy Onyango, Women Fighting against AIDS in Kenya, WOFAK (12 minutes)

11:00–11:15

Break

11:15–12:45

Identifying knowledge gaps, research priorities and actions

Roaming group work, recorded by rapporteurs:

1. What are our gaps in knowledge that must be fulfilled to better understand and address violence in the context of HIV
2. Develop a list of priority research topics or projects (including intervention research) that should be pursued in light of information shared over the last 2 days
3. Develop a list of actions that can be taken now, in light of current evidence, to share current knowledge, enlist more funding, or shift programme emphasis

12:45–13:45

Lunch

13:45–15:15

Report back and group discussion

PowerPoint group outputs, ranking of recommendations

15:15–15:30

Break

15:30–16:30

Reflections of donors and policy makers (7 minutes each)

Janet Saul, OGAC

Pumulo Mundale, Ministry of Gender, Zambia

Heather Doyle, Global Fund for HIV, Tuberculosis and Malaria

16:30–17:00

Wrap up and next steps

17:00

Adjourn

ANNEX 2: PARTICIPANTS

Avni Amin

Technical Officer, Violence Against Women, Department of Reproductive Health and Research, World Health Organization, Geneva

Judith D. Auerbach

Independent Consultant and Professor of Medicine, School of Medicine, University of California, San Francisco

Deborah Baron

Programme Manager, Clinical Research Consortium WITS Reproductive Health and HIV Institute, University of the Witwatersrand, Johannesburg

Tara Beattie

Lecturer in Social Epidemiology, Department of Global Health and Development, London School of Hygiene & Tropical Medicine

Parinita Bhattacharjee

Senior Technical Advisor HIV Prevention, Karnataka Health Promotion Trust and Centre for Global Public Health, Department of Community Health Sciences, University of Manitoba, Kenya

Gina Brown

Health Scientist Administrator, Microbicides and Women/Girls HIV Research, Office of AIDS Research, National Institutes of Health

Judith Bruce

Senior Associate and Policy Analyst, Population Council, New York

Jacqueline C. Campbell

Anna D. Wolf Chair and Professor Johns Hopkins School of Nursing, Baltimore

Helen Cornman

Deputy Director/AIDSFree, John Snow Inc.

Sinead Delany-Moretlwe

Director Research and Associate Professor, WITS Reproductive Health and HIV Institute, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg

Michele R. Decker

Associate Professor, Dep. of Population, Family & Reproductive Health; Director, Women's Health & Rights Program, Centre for Public Health & Human Rights, Johns Hopkins Bloomberg School of Public Health, Baltimore

Heather Doyle

Senior Technical Advisor, Gender Strategy, Investment & Impact Division (SIID), Community, Rights and Gender Team, The Global Fund for AIDS, Tuberculosis & Malaria, Geneva

Dick Durevall

Professor Development Economics, School of Business, Economics and Law University of Gothenburg

Katherine Fritz

Director, Global Health and Development, International Center for Research on Women, Washington, DC

Mimi Ghosh

Assistant Professor, Department of Epidemiology and Biostatistics Milken Institute, School of Public Health George Washington University

Andrew Gibbs

Researcher, Health Economics and HIV/AIDS Research Division (HEARD), University of KwaZulu-Natal, Durban

Malayah Harper

Chief, Gender Equality and Diversity Division, UNAIDS, Geneva

Annie Holmes

Director of Research Uptake, STRIVE Research Consortium, London School of Hygiene & Tropical Medicine

Lori Heise

Director of Gender Violence and Health Centre; Co-Research Director, STRIVE Research Consortium, London School of Hygiene & Tropical Medicine

Saidi Kapiga

Reader in Epidemiology and International Health, London School of Hygiene & Tropical Medicine; Scientific Director, Mwanza Interventions Trial Unit; Co-Research Director, STRIVE Research Consortium

Sunita Kishor

Director, The Demographic and Health Surveys (DHS) Program ICF International, Maryland

Jennifer Klot

Vice President, Health Growth Philanthropy Network, New York

James L. Lang

Regional Advisor Gender Violence and Rights, Asia-Pacific Regional Centre UNDP, Bangkok

Annika Lindskog

Assistant Professor, Department of Economics, School of Business, Economics and Law, University of Gothenburg

Rebecka Lundgren

Deputy Director, Director of Research, Institute for Reproductive Health, Georgetown University, Washington, DC

Mendy Marsh

Specialist, Gender-based Violence in Emergencies Programme Division, Child Protection in Emergencies, UNICEF, New York

Christine McLanachan

Chief Executive Officer, STRIVE Research Consortium, London School of Hygiene & Tropical Medicine

Elizabeth McGrory

Independent consultant

Lori Michau

Co-Director, Raising Voices
Kampala

Pumulo Mundale

Director, Gender Rights Protection,
Ministry of Gender and Child
Development, Lusaka, Zambia

Susan Newcomer

Health Science Administrator,
Population Dynamics Branch,
NIH-National Institute for Child Health
& Human Development, Maryland

Dorothy Onyango

Executive Director,
Women against AIDS in Kenya (WOFAK)
Nairobi

Janet Saul

Acting Sr. Gender Advisor,
Office of the U.S. Global AIDS,
Coordinator and Health Diplomacy

Theresa E. Senn

Clinical Associate Professor,
School of Nursing, University of
Rochester, New York

Martha Tholanah

Acting Executive Director, CEDAS Trust;
ICW-Zimbabwe Coordinator;
Board Chair, Gays and Lesbians of
Zimbabwe; Chair, ICW Southern Africa
and Global, Harare

Ravi Verma

Regional Director, Asia
International Center for Research on
Women, New Delhi

Fulvia Veronese

Assistant Director for Translational
Research, Prevention Science Program,
National Institute of Allergy and
Infectious Diseases, Division of AIDS,
Maryland

Jennifer A. Wagman

Postdoctoral Fellow, Division of Global
Public Health and Centre on Gender
Equity and Health, University of California
San Diego School of Medicine

Charlotte Watts

Professor in Social & Mathematical
Epidemiology; Co-Research Director,
STRIVE, London School of Hygiene &
Tropical Medicine

Charles R. Wira

Professor of Physiology and
Neurobiology, Geisel School of Medicine
at Dartmouth,
New Hampshire

ABOUT GREENTREE II

The STRIVE Consortium convened a high level meeting to review evidence on the links between two critical global issues: HIV and violence against women and girls (VAWG) and to identify strategies to address this nexus. The consultation brought together experts from both fields to clarify what is known about the epidemiological pathways linking violence and HIV, and to identify shared risk factors and ways to act on synergies and opportunities for common programming.

Organized by STRIVE, with support from WHO, UNICEF, UNAIDS and the Greentree Foundation, the consultation built on a prior meeting held at the Greentree Foundation in March 2012. Greentree I had explored the physiology of sexual violence and its role in HIV transmission and acquisition; Greentree II integrated those factors within an examination of the broader structural and social factors that affect the association between HIV and VAWG.

Greentree II took place in May 2015 amid heightened concern about risk of infection among young women, particularly in sub-Saharan Africa, and convened a diverse set of policymakers, clinical, epidemiological and social science experts and programme implementers in order to:

- examine the existing evidence base on the links between VAWG and HIV and identify critical knowledge gaps
- develop a conceptual model that captures the potential pathways through which violence influences HIV-related outcomes
- propose a research agenda to resolve outstanding questions
- suggest priority actions for policy, programmes and research

ABOUT STRIVE

A multi-year research consortium, STRIVE is led from the London School of Hygiene & Tropical Medicine with partners in India, South Africa, Tanzania, Uganda and the United States. Leading researchers in many disciplines – from biomedical trials to social science, epidemiology to anthropology, mathematical modelling to economics – head cross-partner working groups on crucial structural drivers of HIV risk:



Broadly, STRIVE:

- assesses how structural factors including stigma and violence impact on the treatment and prevention cascades
- designs, pilots, evaluates and analyses “upstream” structural interventions that yield multiple development benefits
- refines a new co-financing model and works with UNDP and African governments to test this approach in practice
- studies structural factors affecting young people’s HIV vulnerability, including alcohol, and tests combination interventions for adolescent girls in India, South Africa and Tanzania