

Working Group

# Briefing Paper

## Combination Prevention

Prevention Working Group

UK Consortium on AIDS and International Development

**UK**

Consortium on AIDS and International Development

### **The Prevention Working Group**

The Prevention Working Group was established in December 2007 as a working group of the UK Consortium on AIDS and International Development. Members as of March 2010: British Red Cross, CAFOD, Care International UK, Christian Aid, Interact Worldwide, International AIDS Vaccine Initiative, International HIV/AIDS Alliance, International Partnership for Microbicides, IPPF, Oxfam GB, Restless Development, RESULTS UK, UNICEF UK, VSO, Womankind Worldwide, World Vision.

### **The UK Consortium on AIDS and International Development**

The UK Consortium on AIDS and International Development is a group of UK based organisations which work together to develop effective approaches to the HIV epidemic in developing countries. It enables each agency to bring its own experience to be shared and used to help all the members improve their responses to the epidemic through: information exchange – networking – advocacy – and campaigning.

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# Combination Prevention

**In 2010 the Global HIV Prevention Working Group issued a “report card” which provided a comprehensive assessment of the world’s progress on HIV prevention. Their findings were dismaying: prevention efforts remain inadequate; new infections are outpacing the scale up of treatment; spending, political leadership and service delivery is inadequate; populations most at risk are being neglected and; limited information means that interventions are poorly directed and evaluated.<sup>i</sup>**

The latest figures from UNAIDS provide a mixed picture of our efforts to prevent HIV. Whilst HIV incidence fell by more than 25% between 2001 and 2009 in 33 countries; several regions and countries do not fit the overall trend. On the positive side, condom availability, and knowledge of HIV transmission have increased and the level of mother to child transmission have all decreased. However, our prevention efforts and spending are not adequately targeted to the patterns of HIV transmission seen in different contexts.<sup>ii</sup>

HIV infection is preventable yet too few people have access to a package of commodities and interventions that support them in preventing HIV transmission and that are appropriate for their specific needs and context. Only about a third of those who require anti-retroviral treatment are receiving it. Without a significantly scaled up approach to HIV prevention we will face considerable difficulty in ensuring that people living with HIV have access to the services, support and medication that they need.<sup>iii</sup>

If all existing HIV prevention and treatment strategies were to be scaled-up to the maximum level feasible, we may be able to

cut the number of new adult HIV infections in half by the year 2031. Even then, more than a million people will still be newly infected each year. New prevention tools could dramatically reduce this. According to some projections, adding microbicides and pre-exposure prophylaxis to the fully scaled-up implementation of available HIV prevention options could cut HIV infection rates in half. A broadly effective vaccine could eventually end the epidemic.

The purpose of this paper is to outline an approach to HIV prevention which is endorsed by the Prevention Working Group of the UK Consortium on AIDS and International Development. There is no single solution when it comes to HIV prevention. A package of prevention interventions – combination prevention – tailored to local epidemiology is the only effective way of tackling the spread of the epidemic.

## **What is combination prevention?**

*“Combination prevention, an emerging approach that emphasizes the need to employ multiple, context-specific biomedical, behavioural and structural interventions simultaneously, rather than relying solely on any single intervention.”*

- Eric Mykhalovskiy, Glen Brown and Rodney Kort

Combination prevention is a package of **biomedical, behavioural and structural** interventions to prevent the transmission and acquisition of HIV. The mix of prevention approaches employed in combination prevention interventions are based on a thorough understanding of particular settings because of the complex and inter-related causal determinants of the epidemic

in different places.<sup>iv</sup> This is sometimes described as ‘knowing your epidemic’; understanding in which populations new infections are occurring. In concentrated epidemics approaches need to be tailored to key populations such as sex workers, men who have sex with men, people who inject drugs and their sexual partners.<sup>v</sup>

In generalised epidemics the aim should be to prompt behaviour changes throughout the population whilst ensuring that key populations are also catered for. In some countries the distinction between concentrated and generalised epidemics is less clear cut – such as in the Caribbean, Central and West Africa, and the Pacific – these will require more analysis in order to uncover epidemic dynamics.<sup>vi</sup>

One of the distinctive characteristics of combination prevention is that it is not focussed on individual behaviours and single interventions. Understanding the structural determinants of epidemics - the causal pathways between structural factors and risk and vulnerability - means that context analysis is important. As a result combination prevention tends to link prevention and politics and works to change harmful norms and policy and legislative environments which hamper an effective response.<sup>vii</sup> It is based on the principle that HIV prevention should reflect the needs of the population and empower those who are most vulnerable. The involvement of affected communities in programme design, implementation, activism and advocacy is a vital element of this work.

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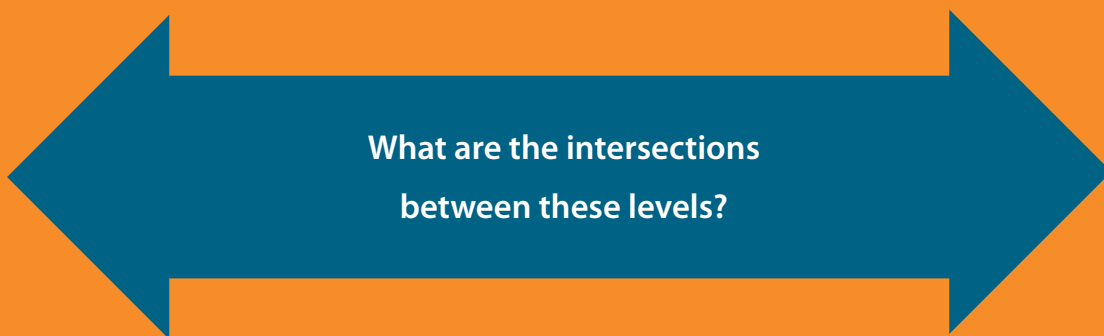
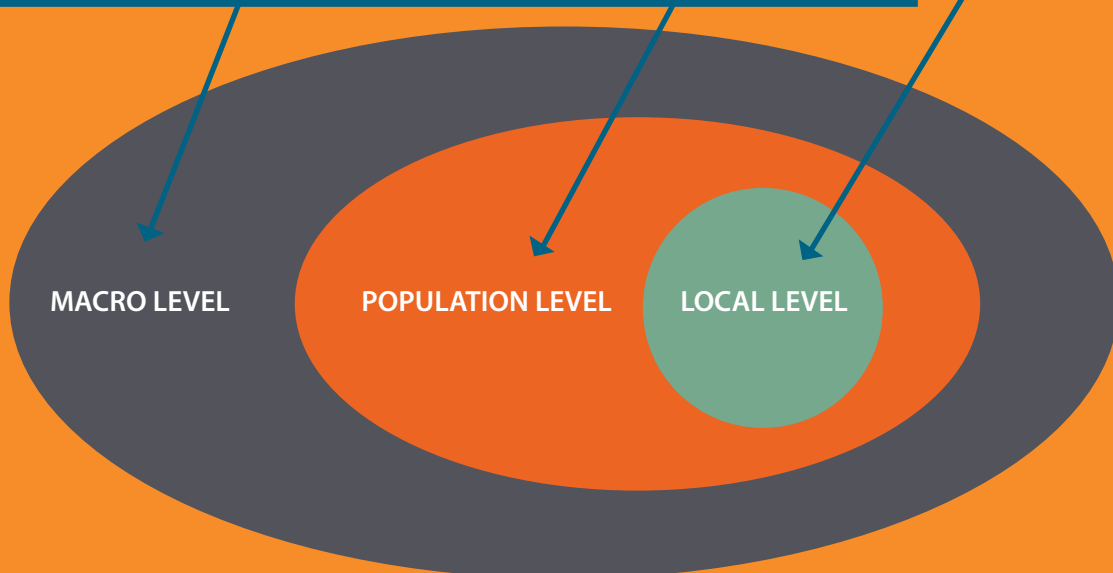
Eric Mykhalovskiy, Glen Brown and Rodney Kort

## Know your epidemic

What is the HIV prevalence? What individual behaviours and community norms increase risk and vulnerability? How do individuals analyse and respond to potential risks? Are human rights norms being upheld?

Are existing interventions tailored to the most vulnerable populations? What about resource allocations?

Does the technological, political, legal, cultural, demographic, and economic situation minimise HIV vulnerability for those at risk? What needs to change to create an enabling environment?



## Biomedical, behavioural and structural interventions

- Biomedical interventions are related to a particular tool, commodity or mechanism of HIV prevention.
- Behavioural interventions relate to approaches which alter individual conduct in order to lower the risk of exposure to HIV.
- Structural interventions act on social, economic, political, environmental, social, cultural, organisational, community, legal, or policy factors.<sup>viii</sup>

The relationship between structural factors and vulnerability (the societal context that affects an individual's ability to control health outcomes) are not always straight forward. In sub-Saharan Africa some of the richest countries, for example South Africa, have the highest HIV prevalence. This suggests that the link between poverty and HIV are more complicated than they at first appear. It has been proposed that income inequality – rather than absolute poverty rates – may be the reason.<sup>ix</sup> The effect of structural factors can change over time. For example, education used to be linked with higher rates of HIV, yet now it is considered to be a protective factor.

There are some structural factors that have been proven to hinder HIV prevention efforts. Policies and programmes which demand sexual abstinence from young people and deny them the right to information, commodities and education which would allow them to protect their health have been shown to be damaging in many contexts. Interventions which curtail sex workers' ability to organise in support of their rights and the decriminalisation of the sex industry; that punish or deny same sex desire; which make people who use drugs the enemy in the 'war on drugs'

and deny them access to comprehensive harm reduction programmes and which discriminate against people living with HIV and fuel stigma against them are incompatible with a human rights based approach which takes into account the evidence base in this area.

Recent developments in Uganda, as well as in many other African countries, have demonstrated how structural factors such as traditional attitudes towards gender, sexual identity, discrimination and criminalisation, can be significant barriers to ensuring HIV prevention efforts are effective and reach key-affected populations. In Uganda homosexuality is criminalised and an Anti-Homosexuality Bill proposing the death penalty for repeat 'offenders' was recently considered in Parliament with considerable support from political and religious leaders, only being removed temporarily from the agenda at the last minute following international pressure. Stigmatisation and discrimination of this kind, made more virulent by validation from political and religious establishments, serves only to drive vulnerable populations underground and make it virtually impossible for them to access the information, services and tools that are needed to prevent the spread of HIV.

The diagram below provides examples of the different biomedical, behavioural and structural interventions that have been employed in combination prevention. The mixture of interventions employed in practice should be linked to local epidemiology and target both levels of infectiousness and susceptibility to infection. Tackling the socio-economic and cultural elements of vulnerability requires cross-governmental action and the involvement of communities. As a result combination prevention interventions are reliant on a multi-sectoral response which goes beyond the health sector.<sup>x</sup> For example, Ministries of Justice play a key role in law reform and

## BIOMEDICAL

Male and female condoms

Sexual and reproductive health services

Male circumcision

Antiretrovirals - including, to reduce mother-to-child-transmission, treatment as prevention and as Pre- and Post- exposure Prophylaxis

Voluntary counselling and HIV testing

Testing and treatment of sexually transmitted infections

Sterile needle and syringe provision

Opioid substitution therapy

Screening of blood and tissue supplies

Universal precautions in clinical practice

## BEHAVIOURAL

Community organisations providing peer support, advocacy and service delivery

Support for behaviours that reduce the risk of transmission such as condom promotion and safer injecting practices

Counselling and various forms of psycho-social support

Sex education, information provision and risk reduction skills training

Safe infant feeding schemes

Programmes to reduce stigma and discrimination

Cash transfer programmes

## STRUCTURAL

Interventions which address the causes of vulnerability such as gender inequality (including transgendered people), economic inequality, and lack of social capital

Law reform to decriminalise sex work, homosexuality, drug use and the provision and use of harm reduction services

Law reform to protect inheritance rights of women and children

The creation of regulatory environments that support occupational health in relation to commercial sex and harm reduction for people who use drugs

Interventions to reduce and protect from police harassment and violence

Laws and policies to combat sexual coercion and abuse

Laws and policies to protect the rights of people living with HIV

Leadership campaigns

policing practices, Ministries of Education need to be involved in the provision of accurate sex education and Ministries of Finance are key to ensuring that the response is adequately funded.

evidence of how we should scale up these programmes in practice.<sup>xi</sup> However emerging learning is being documented by non-governmental and research organisations providing guidance on promising approaches.

There is evidence to show that integrating different aspects of biomedical, behavioural and structural interventions are important. But traditional health research, which employs methods like randomised control trials, is not always an effective way of assessing combination prevention because combination prevention is a synergistic and multi-faceted approach which works on multiple levels. As a result there is little

Given the sub-optimal investment in the response to HIV globally it is important that HIV interventions are based on what works and what is needed and that they are delivered at a scale which makes a difference. The table below outlines a number of HIV prevention approaches which have been shown to work in different epidemic scenarios.

| Epidemic scenario    | Biomedical   | Behavioural   | Structural   |
|----------------------|--|---|--|
| <b>Low level</b>     | <ul style="list-style-type: none"> <li>&gt; Strengthening PMTCT services</li> <li>&gt; Screening of blood and tissue supplies</li> </ul> | <ul style="list-style-type: none"> <li>&gt; Comprehensive sexuality education part of school curriculum</li> <li>&gt; Promoting livelihood alternatives to transactional sex</li> </ul> | <ul style="list-style-type: none"> <li>&gt; Training police to reduce harassment of key populations</li> <li>&gt; Training service provided to work effectively with key populations</li> </ul>  |
| <b>Concentrated</b>  | <ul style="list-style-type: none"> <li>&gt; Voluntary counselling and testing with referral to services</li> </ul>                       | <ul style="list-style-type: none"> <li>&gt; Programmes to reduce stigma and discrimination</li> </ul>   | <ul style="list-style-type: none"> <li>&gt; Training and supporting leaders to support and speak for prevention, including related human rights issues</li> </ul>  |
| <b>Generalised</b>   | <ul style="list-style-type: none"> <li>&gt; Male and Female Condoms</li> <li>&gt; Counselling and testing</li> </ul>                     | <ul style="list-style-type: none"> <li>&gt; Sex education</li> <li>&gt; Counselling and psycho-social support</li> </ul>  | <ul style="list-style-type: none"> <li>&gt; Training health care employees on HIV issues including gender and human rights</li> </ul>  |
| <b>Hyper-endemic</b> | <ul style="list-style-type: none"> <li>&gt; Paediatric prevention and treatment</li> </ul>   | <ul style="list-style-type: none"> <li>&gt; Behavioural studies to map and define sexual networks, communication networks and opportunities to promote social change</li> </ul>         | <ul style="list-style-type: none"> <li>&gt; Well-informed, active and visible participation of national and community leaders</li> <li>&gt; Building public awareness and demand for changes in legislation that hinders prevention</li> </ul> |



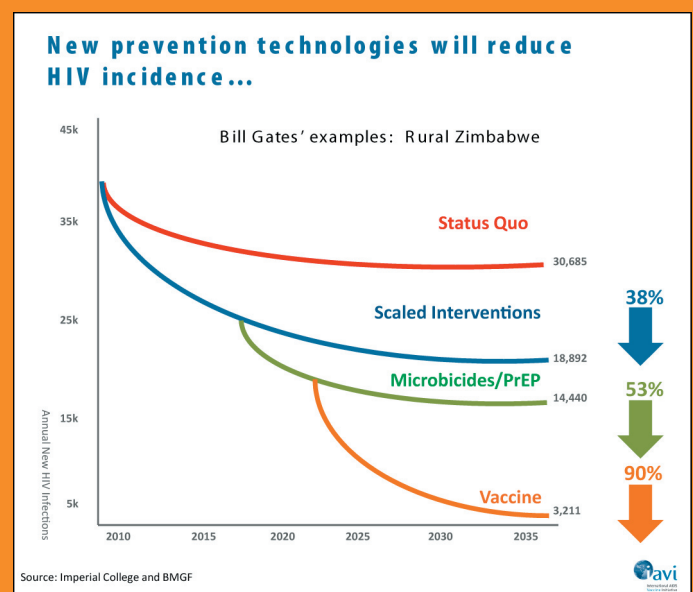
## Case studies

The Sonagachi Project, based in Calcutta, India, has been associated with lower HIV rates among sex workers as compared to other urban centres in India. The programme defined HIV as an occupational health problem and included multifaceted, multilevel interventions addressing community (having a high-status advocate; addressing environmental barriers and resources), group (changing social relationships), and individual factors (improving skills and competencies related to HIV prevention and treatment). It supported community advocacy on sexually transmitted infection (STI) services, condom promotion, outreach and improvements in the quality of services at clinics as demanded by sex workers. The Sonagachi Project's core concepts and strategies evolved as community needs were expressed and defined.<sup>xii</sup>

The **International HIV/AIDS Alliance in Ukraine** runs a combination HIV prevention programme which is tailored to the changing needs of people who inject drugs, sex workers, men who have sex with men and prisoners. It uses data from national surveillance and its own research to decide on the mix of interventions that are most appropriate. Peer support, provided on a one-to-one basis or through group sessions, occurs at drop-in centres that cater to the needs and preferences of each of the different groups. Outreach workers and mobile clinics also provide behaviour change messages and essential services. They implement biomedical prevention activities to respond directly to injecting drug use, the main cause of HIV transmission in Ukraine. Through its local implementing partners, the Alliance-Ukraine provides buprenorphine and methadone, medications for the treatment of heroin dependence, and sterile needles and syringes.

The Alliance-Ukraine partners also provide condoms and a variety of HIV prevention and care services, including counselling and testing, sexually transmitted infection (STI) diagnosis and treatment, and psychosocial support. In terms of structural interventions they conduct advocacy at national level and work with law enforcement and state service providers to raise awareness of HIV prevention and substitution therapy and by pushing for decriminalization of minor drug offenses.<sup>xiii</sup>

**The Bill and Melinda Gates Foundation and Imperial College London** conducted a study in rural Zimbabwe, a country with a generalised HIV epidemic and with an estimated 700,000 new infections projected to occur between 2010 and 2030. The study showed that immediate scale up of existing prevention methods, including male circumcision and ARV treatment, could reduce new infections by 38% by 2031 but that this would not be sufficient to end the global pandemic on its own. The addition of new prevention technologies such as PrEP and microbicides from 2015 onwards could further reduce new infections by 53%. The eventual addition of an AIDS vaccine from 2020, in combination with other strategies, could reduce even further the number of new infections by 90%, signalling the end of the pandemic.<sup>xiv</sup>



**The Cameroon National Association for Family Welfare (CAMNAFAW)** has been providing sexual and reproductive health services, including HIV and AIDS services, for the lesbian, gay, bisexual and transgender (LGBT) community in a country where homosexuality is forbidden by the constitution and punishable by law. In recent years, stigma and discrimination towards the LGBT community has been fuelled by homophobic reporting in the local media which denounces homosexuality, resulting in the persecution of many homosexuals. To overcome this stigma and discrimination and to reduce the vulnerability faced by the community, CAMNAFAW initiated the 'Meeting SRH Diversity Needs' (MESDINE) project to provide stigma-free services to the LGBT community. Given the environment it was necessary to build trust and provide safe spaces where LGBT people could receive non-judgemental counselling, support and sexual health information. Staff received training to understand the needs and rights of the LGBT community and provide stigma-free services. CAMNAFAW is one of the few voices in Cameroon championing the rights of sexual minorities to live free from bigotry and injustice. They have produced a film showcasing the project supporting sexual minorities using the Sexual rights: an IPPF Declaration as a framework.

## Antiretroviral (ARV) treatment

Supporting the health of people living with HIV, protecting their rights and enabling them to prevent the transmission of the virus are key to tackling the epidemic. Prevention interventions have traditionally focussed on HIV negative people who are at risk of infection.<sup>xv</sup> As a result they have overlooked people living with HIV and sero-discordant couples.<sup>xvi</sup>

The provision of antiretroviral drugs has been proven to reduce the transmission

of HIV from mother to child. Emerging evidence from research with couples where one partner is HIV positive and the other is not suggest that HIV treatment of the infected partner may reduce the risk of HIV transmission to the non-infected partner. For example, a study from 7 African countries found that treatment of the infected partner reduced the risk of HIV transmission to the uninfected partner by 92%.<sup>xvii</sup> This is because high viral load is associated with increased infectiousness and ARV treatment can reduce viral load significantly when drugs are taken as directed.

As a result of this evidence and of mathematical modelling of the preventative effects of treatment roll out there have been calls for an approach called 'test and treat.'<sup>xviii</sup> This is comprised of universal, annual, voluntary HIV testing and the immediate treatment of anyone who is found to be positive. This would bring with it a whole new set of challenges – not least ensuring that testing is truly voluntary. As this modelling it is based on assumptions about high adherence to treatment, large scale access to the ARV medication that is most appropriate, and accurate and widespread viral load testing, this approach should be viewed as something to explore in conjunction with other forms of HIV prevention rather than as a sole solution to preventing HIV transmission.<sup>xix</sup>

A study by the HIV Prevention Trials Network in the United States demonstrated that early provision of ART dramatically reduces HIV transmission from an infected person to their uninfected spouse or partner. HIV-positive patients were split into two groups, one receiving immediate ARV treatment and the other only receiving the treatment when their white blood cell count fell. In the first group, there was only one transmission to a partner, relative to the second group, where there were 27.

## Vaccines, microbicides and pre-exposure prophylaxis

New prevention technologies including AIDS vaccines, microbicides and pre-exposure prophylaxis (PrEP) are not yet available but a raft of recent trial results has produced a new wave of optimism. It is important that combination prevention programmes consider the development and deployment of new prevention technologies. This could include structural interventions which create a supportive environment for the science and research that underpins this work. Prevention programmes are well placed to assist researchers and policy makers in understanding how the potential

introduction of new prevention tools may affect existing prevention interventions. Given that it is unlikely that any new prevention technology will be 100% effective, programmes and communities will need to consider how best to communicate this and to address the potential for people to stop using more effective HIV methods such as condoms.<sup>xx</sup> Mechanisms like Community Advisory Boards, which link representatives of affected communities with scientists, are already being used in trial sites. However affected populations may need additional resources and support to understand and engage with clinical trials to ensure that ethical and human rights norms are upheld.

Results from an AIDS vaccine trial known as **RV144** involving more than 16,000 participants from Thailand showed that a prime-boost regimen of two genetically engineered vaccine candidates demonstrated marginal but statistically significant protection against acquisition of HIV. This is a landmark scientific discovery on the road to a truly preventive AIDS vaccine and provides the first proof of concept that an AIDS vaccine can prevent HIV infection in humans. Other on-going and planned trials aim to learn and build upon this success.

The **iPrEx** Phase III clinical pre-exposure prophylaxis (PrEP) trial found that daily dosing with a combination of two antiretroviral medications reduced the risk of HIV acquisition in men who have sex with men who are at high risk of HIV infection. Truvada (a combination of tenofovir and emtricitabine) proved safe and partially effective in preventing HIV infection in trial participants. There were 44% fewer HIV infections in the group of trial participants who received Truvada than in the group who received placebo tablets. However, the **FEM-PrEP** trial in South Africa, Kenya and Tanzania found that Truvada did not show protection for women. Among all trial participants the approximate annual rate of new HIV infections was 5% per year. These were equally distributed between the Truvada and placebo groups.

A clinical trial in South Africa – **CAPRISA 004** - has provided the first evidence that a vaginal microbicide, based on an antiretroviral drug, can provide women with protection from HIV infection. In the trial a microbicide gel containing the antiretroviral drug Tenofovir as its active ingredient proved safe and 39% effective in preventing HIV infection in sexually active, adult women who used it both before and after sexual intercourse.

A new strategy that delivers the vaccine to cells via a cytomegalovirus vector and stimulates the production of effector memory T-cells has proven to be effective in controlling infection in rhesus macaques, recent trials in Oregon have shown. The next step is to test the vaccine candidate in human clinical trials, but the results shows promise, demonstrating that it may be possible to eradicate the HIV virus by stimulating a strong immune response.

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