

# BEHAVIOR CHANGE AND HIV PREVENTION: (Re)Considerations for the 21st Century

## EXECUTIVE SUMMARY

Recent results from clinical trials of potential new HIV prevention interventions underscore what we have known for decades: Wider delivery of effective behavior change strategies is central to reversing the global HIV epidemic. The availability of new biomedical HIV prevention modalities, such as vaccines and microbicides, is still many years away. Even when these tools finally emerge, human behavior will remain critical, as new prevention strategies are unlikely to be 100 percent effective in preventing transmission. With 2.5 million new HIV infections in 2007, there is an obvious and urgent need to pursue the effective strategies we have to promote safer behaviors.

Human behavior is complex; widespread behavior changes are challenging to achieve; and there are important gaps in our knowledge about the effectiveness of HIV prevention. Yet the research to date clearly documents the impact of numerous behavioral interventions in reducing HIV infection. We also know that in all cases in which national HIV epidemics have reversed, broad-based behavior changes were central to success.

To be more effective in the 21st century, the HIV prevention effort must confront several challenges of perception: misplaced pessimism about the effectiveness of behavioral HIV prevention strategies; unfortunate confusion between the difficulty in changing human behavior and the inability to do so; and misperception that because it is inherently difficult to measure prevention success—a “nonevent”—prevention efforts have no impact.

This report from the Global HIV Prevention Working Group (PWG) focuses specifically on behavioral HIV prevention. The report surveys what we know about the effectiveness of behavior change strategies, what we still need to learn, and what we need to do to advance such efforts in coming years. Based on a comprehensive review of hundreds of studies of behavior change for HIV prevention, we find that the evidence base for behavioral HIV prevention is robust, with multiple studies documenting the effectiveness of interventions in numerous settings, among diverse populations, and throughout the course of the epidemic. Our review also indicates that the evidence base is not yet complete, and that important gaps and limitations remain in our knowledge about what works. Maximizing the effectiveness of prevention efforts requires that these limitations be acknowledged and addressed.

## WHAT WE KNOW

A comprehensive review of the evidence documents both the efficacy (the impact seen in a clinical trial setting) and the effectiveness (the impact seen in real-world settings) of behavioral HIV prevention efforts. Encompassing both randomized controlled trials and observational analyses, our review identified common elements of success:

- **RANDOMIZED CONTROLLED TRIALS:** Hundreds of randomized controlled trials<sup>1</sup> have demonstrated that individual, small group, and community-level interventions can generate safer behaviors. For example, a recent review of 18 meta-analyses of sexual risk reduction interventions found significant increases in condom use and reductions in unprotected sex (Noar 2008). On the basis of peer-reviewed publications through 2004, the U.S. Centers for Disease Control identified 42 prevention interventions that were demonstrated by well-designed studies to be efficacious (Lyles 2007; CDC 2001). Studies in low- and middle-income countries among young people (WHO 2006), sex workers (Foss 2007), and other populations have demonstrated that prevention programs have the ability to change sexual and drug-use behaviors in resource-limited settings to prevent HIV transmission.
- **OBSERVATIONAL RESEARCH:** Successes have been well-studied and documented through observational research in Uganda, Thailand, Australia, Brazil, and numerous other places. The early achievements of Uganda and Thailand in implementing effective prevention programs have been well-documented (UNAIDS 2001), as has Australia's striking success in sharply lowering HIV incidence as a result of significant behavior changes among men who have sex with men (National Centre in HIV Epidemiology and Clinical Research 2007; Bowtell 2005). As a result of strong national support for multiple complementary HIV prevention strategies, Brazil's epidemic in the early part of this decade was half the size of projections based on infection trends in the late 1980s and early 1990s (Ministry of Health 2003). Analysis across multiple studies indicates that national implementation of evidence-based combination HIV prevention efforts in the 1990s was associated with a 50 to 90 percent decline in HIV incidence and prevalence in key populations (Auerbach 2006).
- **COMMON ELEMENTS OF SUCCESS:** According to the available evidence from these and other studies, effective strategies pursue a combination of behavior change approaches that are delivered with sufficient coverage, intensity, and duration, and that are tailored to address the main drivers of HIV transmission in national epidemics. Effective HIV prevention addresses the specific needs and circumstances of the target population and aims to affect multiple determinants of human behavior, including individual knowledge and motivations, interpersonal relationships, and societal norms. Community engagement and strong political support have been key ingredients of successful national efforts to change behavior to prevent HIV infection.

## WHAT WE NEED TO LEARN

Although much evidence exists to demonstrate that it is possible to change human behavior to reduce the risk of HIV transmission, there are important gaps and limitations in what is known. There is also an inherent challenge in measuring the impact of any health effort that includes HIV prevention: measuring and determining causality for an event that did not occur (for example, an HIV infection averted) is intrinsically more complicated than evaluating an event or phenomenon that did happen. Some of the key limitations in what we know and areas in need of additional research follow:

- **MOVING FROM EFFICACY TO EFFECTIVENESS:** For both biomedical and behavioral interventions, it is often difficult to translate the impact seen in clinical trials (efficacy) into comparable results in the real world (effectiveness). Most clinical trials of behavioral HIV prevention programs have occurred in high-income countries, using intensive, professional program models that may not apply in more resource-limited settings or in different cultures. Few trials of behavior interventions have used such biological end points as incidence of HIV or sexually transmitted infections (STI), which potentially reduces confidence that behavior changes documented in clinical trials will have a public health impact in the real world.
- **GENERALIZABILITY:** Even where there is evidence of effectiveness in real-world settings, key questions remain about the transferability of these successes to other communities, subgroups, and types of epidemics (for example, high-prevalence, concentrated, etc.).
- **SUSTAINING BEHAVIOR CHANGE OVER THE LONG TERM:** Few clinical trials for behavior interventions have followed participants for more than 12 months. Yet emerging evidence suggests that favorable behavior changes seen in individuals during the first year following exposure to a prevention intervention can fade over time (Coates, in press). At the population level, positive behavior changes often fail to endure because these changes require a level of diligence—for example, consistent condom use—that is often difficult to maintain over the course of people's everyday lives and within their social contexts. In Uganda, Thailand, and many high-income countries, early prevention successes have been followed years later by marked increases in risk behavior, which underscores the difficulty of sustaining prevention gains. It can be particularly difficult to preserve prevention achievements in the face of changes in the underlying social or physical environment that make HIV seem less threatening.
- **ASSUMPTIONS ABOUT INDIVIDUAL AGENCY:** Existing models of behavior interventions are often based on various cognitive behavioral theories that assume that individuals will take steps to avoid risks if they are fully informed and sufficiently motivated—that is, that they can exercise personal “agency” in the context of HIV-associated risk. Yet individual behavior is often

heavily influenced by broader socioeconomic, cultural, and environmental factors. More validated program models are needed that affect social norms and institutions, although to date social and ethnographic research studies have not been sufficiently used to inform behavioral interventions.

- **ONE-DIMENSIONAL EVALUATIONS:** Few prevention trials have studied combinations of interventions, opting instead to evaluate the behavioral and epidemiological impact of discrete components of comprehensive HIV prevention strategies (for example, individual behavioral interventions, voluntary HIV testing and counseling, or condom promotion). This approach runs counter to actual prevention practice and the way people live their lives and make decisions, rendering it difficult to gauge the likelihood of success in the field when these individual approaches are combined with other prevention components. Often, national programs and donor initiatives have opted to support certain elements of a comprehensive prevention strategy while ignoring others, diminishing their impact on behaviors and HIV incidence (see Fiellin 2007; Corno and de Walque 2007).

## WHAT WE NEED TO DO— RECOMMENDATIONS

Significantly increasing the long-term effectiveness of HIV behavior change will require countries, donors, researchers, civil society, and other stakeholders to work together to expand the evidence base for HIV prevention—to address the limitations and gaps that still exist, while also putting available evidence to use in the most strategic manner possible. On the basis of the best available evidence, the PWG recommends the following:

- **FOR NATIONAL AUTHORITIES AND GOVERNMENTS:** National political and public health leaders should develop and implement national AIDS strategies and operational plans that are tailored to the particular dynamics of national epidemics, integrate prevention and treatment services, and bring prevention interventions to a scale sufficient to have measurable impact. Countries scaling up medical male circumcision—and other new interventions that prove effective—should combine these efforts with complementary behavior interventions to avoid the increases in risk behavior that can occur when new strategies or tools are introduced.
- **FOR INTERNATIONAL DONORS:** Donors should commit to rapidly fund national HIV prevention programs that are tailored to national epidemics. Additionally, they should make available by 2010 at least U.S. \$11.9 billion annually to support scale-up of evidence-based HIV prevention programs as part of a comprehensive response to HIV. Donors should ensure robust financing for community-driven responses that build local civil-society capacity and leadership (UNAIDS 2007).

- **FOR TECHNICAL AGENCIES:** Multilateral and other technical agencies should develop a mechanism to assess the soundness of national HIV prevention strategies, identifying instances where national plans conflict with available evidence about the dynamics of HIV incidence, or where selected prevention strategies are not based on evidence of what is effective with particular populations. Technical agencies should increase their assistance to countries in integrating social-research findings into national strategic planning. Improving national HIV-information systems and their use in national planning should remain a priority for technical support.
- **FOR HIV SERVICE PROVIDERS:** Sponsors of HIV prevention programs should forge strong working partnerships with affected communities to ensure that programs are optimally tailored to local circumstances and needs and are ethically conducted. Providers of HIV prevention services should integrate their efforts with other service systems, such as those for tuberculosis and sexual and reproductive health. Drug treatment programs should be adequately resourced to provide for the routine provision of HIV prevention services to their clients.
- **FOR CIVIL SOCIETY:** AIDS activists and other civil-society groups should strongly advocate for the simultaneous scaling up of HIV prevention and treatment. Civil-society groups should participate in the development of national HIV prevention targets, monitor national progress toward their achievement, and push for strategies that deliver evidence-based interventions to those populations most at risk of HIV infection.
- **FOR HIV PREVENTION RESEARCHERS:** Greater priority should be placed on social research to inform the design and delivery of prevention interventions, the adaptation of model programs to particular populations or settings, and the targeting and delivery of prevention services. Researchers and their funding agencies should increase their focus on basic research about the social drivers of HIV transmission, and the development and evaluation of community-level interventions, structural interventions, and prevention approaches for populations most at risk of HIV exposure. Additional research is required to assess the effectiveness of HIV prevention programs in the field and to develop and evaluate prevention models that prevent risk compensation in response to treatment or the introduction and uptake of new prevention technologies. Prevention trials should increase their use of biological endpoints, where possible and appropriate, and the length of time over which study participants are followed.

<sup>1</sup> The National Institutes of Health defines a randomized controlled trial as “a prospective experiment in which investigators randomly assign an eligible sample of patients to one or more treatment groups and a control group and follow patients’ outcomes (National Library of Medicine 2007).”

## CONCLUSION

Although much work remains to expand the evidence base for HIV prevention, this PWG review argues for the urgency of scaling up programs to change behavior to prevent HIV infection. The evidence on behavior change HIV prevention cannot be overstated, but it also must not be overlooked. The central problem in HIV prevention is not lack of evidence but failure to bring to scale programming that addresses the major drivers of HIV infection in specific national settings. In the 21st century, pessimism about the real challenges ahead, or concern that we do not yet have all the answers, should not stop us from preventing the next HIV infection.

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