

# PROVEN HIV PREVENTION STRATEGIES

FACT SHEET  
THE GLOBAL  
HIV PREVENTION  
WORKING GROUP

Over the past two decades, scientific research has identified a range of effective strategies for preventing all routes of HIV transmission—sexual, blood borne, and mother-to-child.

However, fewer than one in five people at high risk for HIV currently have access to effective prevention.<sup>1</sup> According to an analysis by UNAIDS and the World Health Organization, expanded access to proven prevention strategies could avert half of the 62 million new HIV infections projected to occur between 2005 and 2015.<sup>2</sup> Another analysis found that in sub-Saharan Africa alone, expanded prevention could avert 55% of the 53 million new infections projected to occur in the region between 2003 and 2020.<sup>3</sup>

There is no single solution—no “magic bullet”—to prevent HIV. The most effective prevention programs are those that use a combination of strategies to achieve maximum impact.<sup>4</sup> Following are descriptions of the major strategies that, when used in combination, are effective for preventing sexual, blood borne, and mother-to-child HIV transmission.

## PREVENTING SEXUAL TRANSMISSION— WHAT WORKS

Globally, sexual transmission is responsible for the majority of new HIV infections.

### Behavior Change Programs

Behavior change programs seek to encourage people to adopt safer sexual behaviors that can reduce the risk of acquiring and transmitting HIV. They include:

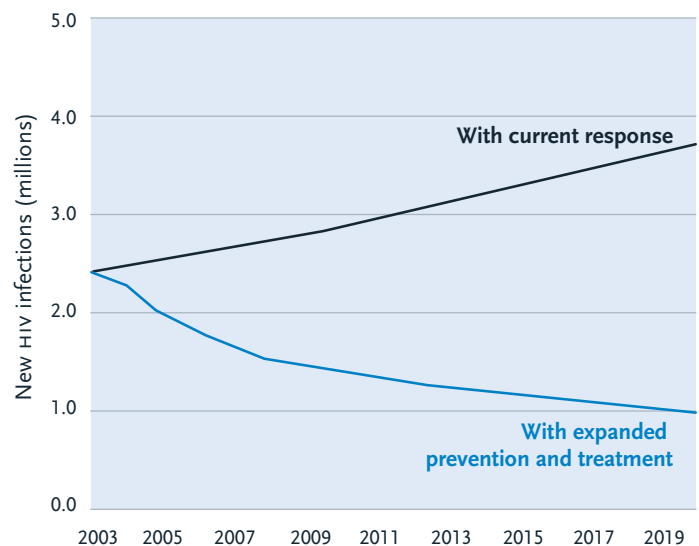
- ▶ Remaining sexually abstinent or delaying initiation of sexual activity
- ▶ Decreasing the number of sexual partners
- ▶ Using condoms consistently and correctly if sexually active

A number of studies have documented the effectiveness of behavior change programs among a broad range of populations at risk of HIV infection, including:

- ▶ Commercial sex workers<sup>5</sup>
- ▶ Men who have sex with men<sup>6</sup>
- ▶ School-age youth<sup>7</sup>

Research indicates that the most effective behavior change programs are tailored to the needs and values of the groups they are designed to reach. For example, Thailand was able to reduce new HIV infections from 143,000 in 1991 to 19,000 in 2003 through behavior change programs targeted to high-risk groups, including widespread condom distribution to commercial sex workers and their clients at the country's brothels.<sup>8</sup>

Impact of Expanded Prevention and Treatment on New HIV Infections in Africa



Source: J. Salomon et al., 2005

Encouraging abstinence has an important place in HIV prevention, especially among young people. Research indicates that providing people with comprehensive information on reducing HIV risk—including abstinence, partner reduction, and correct condom use—is most effective at preventing new infections.<sup>9</sup>

## Condoms

Condoms are highly effective at preventing sexual transmission of HIV. A 2001 report by the U.S. National Institutes of Health analyzed several studies on condom effectiveness, and concluded that consistent use of condoms can reduce an individual's risk of HIV transmission by 85%.<sup>10</sup> Condoms are also effective at preventing other sexually transmitted diseases, such as gonorrhea.

## HIV Testing

Encouraging testing for HIV is critical for prevention, yet fewer than 1% of adults in developing countries had access to HIV testing in 2005.<sup>11</sup> Studies have shown that people who know their HIV status are more likely to protect themselves and others from infection. For example, a study in Kenya,

Tanzania, and Trinidad found that when men and women learned whether they or a partner was HIV-infected, they were significantly more likely to practice safer sex.<sup>12</sup>

## Prompt Diagnosis and Treatment of Other STDs

Infection with other sexually transmitted diseases (STDs) such as gonorrhea increases the risk of HIV acquisition and transmission by at least two to five times,<sup>13</sup> and studies have found that promptly detecting and treating STDs can help reduce HIV risk. For example, a study in Tanzania found that treating STDs reduced the rate of new HIV infections by 38%.<sup>14</sup> Other studies have suggested that STD control efforts are most effective at preventing HIV when they are initiated as early as possible in the course of a country's epidemic and are targeted toward people at highest risk.<sup>15</sup>

# PREVENTING BLOOD BORNE TRANSMISSION— WHAT WORKS

**Injection drug use accounts for an estimated 10% of HIV infections globally, and transfusion of HIV-infected blood is believed to be responsible for an additional 5% to 10% of infections. Sub-standard hygienic practices in some health care settings also pose a risk of HIV transmission.**

## Harm Reduction Programs for Injection Drug Users

Harm reduction programs that provide clean needles and syringes have been shown to be effective in reducing the risk of HIV acquisition and transmission among injection drug users, without contributing to an increase in drug use. For example:

- ▶ An international analysis of 81 cities found that the number of people infected with HIV decreased an average of 6% in cities with needle and syringe programs, while HIV rates increased 6% in cities without these programs.<sup>16</sup>
- ▶ A review of more than 400 scientific papers and public health reports found no evidence that needle and syringe

programs are associated with an increase in the number of people injecting drugs.<sup>17</sup>

- ▶ Needle and syringe programs also connect drug users to other health programs. A 2002 report by the U.S. National Institute on Drug Abuse concluded that these programs “serve as a bridge...by offering opportunities for HIV testing, and by providing referrals for drug abuse treatment.”<sup>18</sup>

## Blood Supply Safety

In developed countries, routine screening of the blood supply has virtually eliminated the risk of HIV transmission through donated blood.<sup>19</sup> In recent years, a number of developing countries have also put in place procedures and technology to protect the blood supply. For example, India has made blood safety a significant focus of its HIV control efforts.

UNAIDS recommends three essential elements of an effective blood safety program:

- ▶ National blood transfusion service run on a not-for-profit basis
- ▶ Policy of excluding paid donors and relying on voluntary, low-risk donors
- ▶ Screening all donated blood for HIV<sup>20</sup>

## SUPPORTIVE POLICIES

HIV prevention is most effective when it is supported by strong and visible political leadership, and by policies that address the root causes of vulnerability to HIV, including:

- ▶ **Anti-stigma measures** that prevent discrimination against people with HIV and vulnerable groups
- ▶ **Gender equality initiatives**, including programs to enhance women's education and economic independence, and laws to combat sexual violence and trafficking
- ▶ **Involvement of communities and HIV-infected individuals** in educating people about HIV, and in developing, implementing, and evaluating prevention programs

## Infection Control in Health Care Settings

Countries that require health workers to adopt “universal precautions” have succeeded in making HIV transmission extremely rare in health care settings.<sup>21</sup> This approach treats every patient as potentially infectious, requires workers to wear protective gear, and trains workers to use syringes properly and sterilize all equipment and surfaces.

## HIV PREVENTION IN THE ERA OF EXPANDED TREATMENT ACCESS

Access to antiretroviral treatment is at last becoming a global priority. Yet long-term success against HIV requires simultaneous expansion of both treatment and prevention.

Unless the incidence of HIV is sharply reduced, treatment will not be able to keep pace with all those who need it. For example, while more than 1 million people are currently receiving antiretroviral treatment, more than 4 million new HIV infections occur every year.<sup>22</sup>

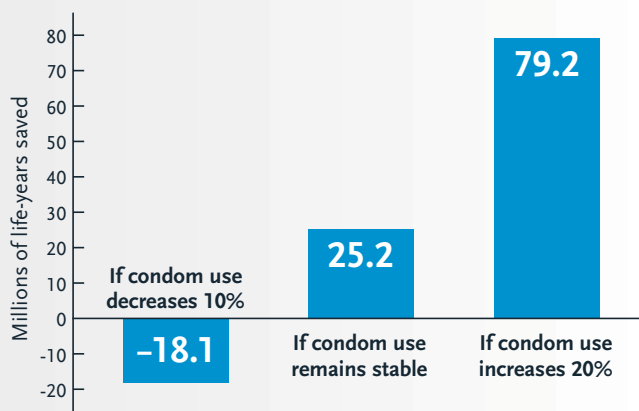
**New Opportunities:** HIV treatment provides new opportunities to revitalize prevention. As access to antiretrovirals expands, millions of people could be drawn into health care settings, where HIV prevention counseling, condoms, and other services can be delivered.

In addition, there is evidence that the increased availability of treatment leads to increased HIV testing rates.<sup>23</sup> As more people know their HIV status, prevention strategies can target the different needs of people who are HIV-infected and those who are not.<sup>24</sup>

**New Challenges:** Access to treatment also presents new challenges for prevention. Experience in industrialized countries suggests that HIV treatment access—if not accompanied by prevention—can alter people’s perception of the risk of HIV, and lead to increases in risk behavior and new infections.<sup>25</sup>

Research highlights the importance of pairing treatment and prevention. In Uganda, when HIV-infected adults were provided antiretrovirals along with prevention counseling, condoms, and HIV testing for their partners, risky sexual behavior declined by 70%, and there were few instances of HIV transmission to uninfected partners.<sup>26</sup> In India, projections by the World Bank estimate a savings of millions of lives if condom use remains stable or increases in the era of expanded treatment access. However, if condom use decreases by just 10%, HIV rates could actually increase, underscoring the critical need for HIV prevention and treatment to be brought to scale simultaneously.<sup>27</sup>

Impact of Treatment Access on Epidemic in India



Source: M. Over et al., 2004

## PREVENTING MOTHER-TO-CHILD TRANSMISSION—WHAT WORKS

In 2005, 700,000 children under age 15 were infected with HIV, the vast majority from their mothers—in the womb, during birth, or through breastfeeding.

The best strategy for preventing mothers from transmitting HIV to their newborns is to help women of childbearing age avoid HIV infection in the first place. However, for women who are infected, there are a number of effective strategies for preventing mother-to-child transmission:

### Antiretroviral Drugs

A landmark clinical trial in 1999 and subsequent studies have shown that the inexpensive antiretroviral drug nevirapine can reduce the risk of an HIV-infected mother transmitting HIV to her child by nearly 50%.<sup>28</sup> One dose of nevirapine is given to the mother at the onset of labor, and one dose is given to the newborn within 72 hours of birth.

Combinations of antiretrovirals—including nevirapine, zidovudine (AZT) and/or 3TC—are also used to prevent mother-to-child transmission, and can reduce the risk of infection even more than nevirapine alone. However, single-dose nevirapine is often more affordable and practical for resource-limited settings.<sup>29</sup>

### Breastfeeding Alternatives

The chance of an HIV-infected mother transmitting HIV to her newborn increases by up to half with prolonged breastfeeding. Ideally, HIV-infected mothers should have access to breastfeeding alternatives, such as infant formula. Early weaning from breastfeeding may also help minimize HIV transmission.<sup>30</sup>

### Caesarean Delivery

Caesarean delivery also significantly reduces the risk of mother-to-child HIV transmission.<sup>31</sup> However, caesarean deliveries are often not available or practical in developing countries, where many women lack access to hospital birthing facilities.

## REAL-WORLD EVIDENCE OF EFFECTIVENESS

A number of real-world success stories demonstrate how proven prevention strategies can avert new HIV infections:

- ▶ **Uganda** implemented a combination prevention program that included public awareness efforts, promotion of abstinence and monogamy, condoms for sexually active people, and free HIV testing. During the 1990s, HIV rates among pregnant women declined by nearly two-thirds, and the national HIV rate was cut nearly in half.<sup>32</sup>
- ▶ **Brazil** has combined prevention efforts targeted to high-risk groups with general awareness campaigns, universal access to treatment, and a nationwide testing initiative. In addition to marked reductions in HIV-related deaths,

Brazil has witnessed significant declines in risk behavior and new infections.<sup>33</sup>

- ▶ **Cambodia** launched a combination national HIV prevention program in the 1990s. Between 1997 and 2000, HIV rates among pregnant women declined by almost one-third, and Cambodian men reported increases in condom use.<sup>34</sup>
- ▶ **Industrialized countries** have also had success in HIV prevention. In the U.S., prevention efforts targeted to men who have sex with men helped reduce annual infections from 150,000 in the mid-1980s to 40,000 by the early 1990s.<sup>35</sup>

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**About the Global HIV Prevention Working Group:** The Global HIV Prevention Working Group is a panel of 50 leading public health experts, clinicians, biomedical and behavioral researchers, and people affected by HIV/AIDS, convened by the Bill & Melinda Gates Foundation and the Henry J. Kaiser Family Foundation. The Working Group seeks to inform global policy-making, program planning, and donor decisions on HIV prevention, and to advocate for a comprehensive response to HIV/AIDS that integrates prevention, treatment, and care. Working Group publications are available at [www.gatesfoundation.org](http://www.gatesfoundation.org) and [www.kff.org](http://www.kff.org).