3. HEALTH SECTOR INTERVENTIONS FOR HIV PREVENTION

Key findings

■ More data are becoming available on the epidemiology of HIV infection among population groups at high risk of HIV, including in generalized HIV epidemics. Yet, of 149 low- and middle-income countries, only 41 reported conducting systematic surveillance of HIV among people who inject drugs, 44 among men who have sex with men and 65 among sex workers. Data on the coverage of HIV prevention, treatment and care among these groups are also limited.

■ Among 92 low- and middle-income countries which provided information on programmes and policies targeted at injecting drug users, 30 reported having needle and syringe programmes, and 26 offered opioid substitution therapy. Needle and syringe programmes distributed a median of 24.4 syringes per injecting drug user per year in Europe and Central Asia and 26.5 in East, South and South-East Asia, far below the internationally recommended target of 200 syringes per injecting drug user per year. While there are examples of scale-up efforts in many settings, injecting drug users continue to face legal and social barriers in accessing health services.

■ The median percentage of condom use by surveyed men who have sex with men during the last time they had anal sex with a male partner was around 60% in 37 low- and middle-income countries, with country variations. HIV prevalence among men who have sex with men is higher than among the general population in many countries; and homophobia and criminalization of same-sex behaviour continue to hinder the response. The year 2008 refocused international attention on the HIV epidemic among men who have sex with men with the publication of new data and scientific consultations to define priority health sector interventions to address their needs.

■ Among sex workers, the median reported rate of condom use with their most recent client was 86% among 56 low- and middle-income countries. Programmes promoting 100% condom use by sex workers have been successfully implemented in many settings. Such approaches should be expanded with due attention to the local context and the heterogeneity of sex work, both formal and informal.

■ Early identification and treatment of sexually transmitted infections is a critical element in controlling HIV infection, especially among people with multiple sexual partners. The median reported prevalence of syphilis among sex workers in low- and middle-income countries was 6% (42 countries).

■ All 13 priority countries in sub-Saharan Africa with high rates of heterosexual HIV transmission and low rates of male circumcision have established policies and programmes to scale up male circumcision to reduce the risk of heterosexually-acquired HIV infection in men. Recent studies showed that the protective effect of male circumcision on HIV acquisition was sustained for at least 42 months. Future efforts will focus on improving service delivery with quality assurance.

■ Among countries that provided data on screening for transfusion-transmissible infections (including HIV, hepatitis B, hepatitis C and syphilis), around 25% reported being unable to screen all donated blood for one or more of these infections. The availability and safety of blood and blood products for transfusion is of continuing concern, especially in low- and middle-income countries.

■ More low- and middle-income countries reported the establishment and implementation of post-exposure prophylaxis policies in 2008. All reporting countries indicated that their policies covered occupational exposure to HIV, and 75% covered non-occupational exposure, such as in the case of sexual assault.

■ Ongoing research on new prevention technologies, such as vaccines, microbicides and antiretroviral pre-exposure prophylaxis, offers future opportunities for the health sector to expand its contribution to HIV prevention. Further research is also needed on the optimal use of antiretroviral therapy for HIV prevention in the future, including the feasibility and acceptability of such approaches.
It is recognized now more than ever that an effective health sector response to HIV requires a balanced approach that integrates HIV prevention, treatment, care and support. More than 25 years since the beginning of the epidemic, the number of new infections continues to be unacceptably high, with as many as 2.7 million [2.2 million – 3.2 million] people, including 370 000 [330 000–410 000] children, newly infected with HIV in 2007. Improved data from low- and middle-income countries have highlighted the importance of population groups at high risk of acquiring HIV (including injecting drug users, sex workers and men who have sex with men) in influencing the spread of HIV, including in countries with generalized epidemics. Consequently, greater emphasis is being placed on tailoring HIV prevention programmes to the local country or community context and on using combination prevention approaches that deliver a range of prevention interventions at the same time.

The health sector plays a key role in scaling up the implementation of HIV prevention interventions.1 Priority health sector interventions include a combination of various behavioural and biomedical approaches, including established interventions such as promoting the use of condoms and clean injecting equipment; providing opioid substitution therapy and other drug dependence treatment; preventing HIV infection in health care settings; and preventing and managing other sexually transmitted infections, including viral hepatitis. HIV prevention in the health sector also focuses on averting HIV transmission from mother to child (Chapter 5) and making focused HIV prevention services available to population groups most at risk. In 2007, male circumcision was also recommended as an HIV prevention intervention, following evidence from three randomized controlled trials that clearly indicated its effect in protecting against HIV acquisition among heterosexual men (section 3.3). In addition, health services need to engage meaningfully with affected communities of people living with HIV to address their prevention needs, maximize their health and prevent further transmission.

Ongoing research on new biomedical prevention approaches and technologies, such as vaccines, topical microbicides and antiretroviral pre-exposure prophylaxis, offers future opportunities for the health sector to expand its contribution to HIV prevention. Recent studies involving serodiscordant couples have also suggested the potential of antiretroviral therapy to reduce HIV transmission (1). Further research is needed to identify the population-level effects of scaling up antiretroviral therapy on HIV epidemics and to carefully consider the financial and operational feasibility of such approaches in the future, including their ethical implications (Box 3.1).

Box 3.1. Using antiretroviral drugs for HIV prevention

The use of antiretroviral drugs to prevent HIV transmission is emerging as a potential new set of interventions for the prevention portfolio. Antiretroviral drugs, combined with HIV testing of pregnant women and appropriate infant feeding practices, are already being used to prevent HIV transmission from pregnant women to their children (Chapter 5). Guidance also exists on the use of antiretroviral drugs for post-exposure prophylaxis, and research is ongoing on their use for pre-exposure prophylaxis (section 3.6). Studies have also provided observational evidence that antiretroviral therapy may reduce the sexual transmission of HIV in generalized epidemics, especially among discordant couples (1).

Some recent research studies have modelled the effects of antiretroviral therapy on HIV prevention. In a mathematical model using data from British Columbia, Canada, researchers assessed the effect of expanding antiretroviral therapy coverage on the number of individuals testing newly positive for HIV and on related costs over the next 25 years (2). They estimated that expanding antiretroviral therapy can substantially reduce the growth of the epidemic and related costs. Scientists from WHO presented a theoretical mathematical model of the potential impact of universal voluntary HIV testing and counselling followed by immediate antiretroviral therapy, irrespective of clinical stage or CD4 count (3). The results of the modelling exercise suggested that, in a generalized epidemic as severe as that in southern Africa, HIV incidence may be reduced by 95% in 10 years and this approach may save money in the medium term.

These theoretical models raise several questions regarding their assumptions and their applicability in other settings. In November 2009, WHO will convene an international consultation of researchers, clinicians, prevention experts, human rights specialists and ethicists, national programme representatives and community groups to identify research priorities to explore the feasibility, acceptability and implications of the optimal use of antiretroviral therapy for HIV prevention.

3.1. Preventing HIV infection among populations at high risk of acquiring HIV

This section presents data on access to HIV prevention programmes by injecting drug users, sex workers and men who have sex with men. Focusing attention on these population groups, which may be at high risk of HIV infection through their behaviour, is an important priority for the health sector. Data on access to HIV interventions by prisoners are also reported due to the confl uence of high-risk behaviour and lack of access to prevention services among the incarcerated population.

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1 This chapter focuses on health sector interventions for HIV prevention, and does not address multisectoral HIV prevention interventions outside of the health sector.
Biological and behavioural surveillance of a population group most at risk of acquiring HIV is critically important for programme planning. UNAIDS and WHO are developing guidance on conducting surveillance among population groups at risk of HIV infection as a result of high-risk behaviour. Nevertheless, in 2008, of 149 low- and middle-income countries, only 41 reported conducting systematic surveillance of HIV among people who inject drugs, 44 among men who have sex with men and 65 among sex workers. Although a country’s priorities for conducting HIV surveillance among various population groups depend on the local epidemic pattern, these data highlight the overall need to expand and strengthen data collection and analysis efforts to better address the needs of different population groups at risk (Box 3.2).

### 3.1.1. People who inject drugs

Globally, the number of people who inject drugs appears to be growing. In 2008, the Reference Group to the United Nations on HIV and Injecting Drug Use published population size estimates of injecting drug users from 148 countries. The authors estimate that between 11 and 21 million people inject drugs worldwide, with the largest numbers concentrated in China, the United States of America and the Russian Federation. Based on available data, the authors also estimate that between 0.8 million and 6.6 million people worldwide who inject drugs are living with HIV, of whom the largest numbers are in eastern Europe, East and South-East Asia and Latin America.

New guidance, higher-quality surveillance and improved reporting by targeted programmes for injecting drug users have encouraged countries and partners to focus on the needs and coverage of services for this population and provide evidence of progress. However, too many countries continue to fall short of meeting their health promotion and HIV prevention needs. Further, remembering that substance dependence is a health condition is important. The criminalization of this behaviour and the failure to recognize comorbid conditions in many people who inject drugs are important factors which prevent universal access to HIV interventions for them in many countries.

WHO, UNODC and UNAIDS recommend a comprehensive package of nine interventions for HIV prevention, treatment and care among people who inject drugs. These are: (1) needle and syringe programmes, (2) opioid substitution therapies (for opioid users) and other drug dependence treatments, (3) HIV testing and counselling, (4) antiretroviral therapy, (5) prevention and treatment of sexually transmitted infections, (6) condom promotion for injecting drug users and their sexual partners, (7) targeted information, education and communication, (8) diagnosis, treatment and vaccination of viral hepatitis and (9) prevention, diagnosis and treatment of TB. These nine interventions are included in the recommended comprehensive package because they have the greatest impact on HIV prevention and treatment and are based on a wealth of scientific evidence that supports their efficacy (6–8). The combination of interventions and their content depends on the country context (Box 3.3).
Box 3.3. Developing and updating normative guidance on harm reduction

WHO and partners continue to review the evidence base and develop normative guidance on issues related to harm reduction. Recent publications include Policy guidelines for collaborative TB and HIV services for injecting drug users and other drug users: an integrated approach (9), Guide to managing and scaling up needle and syringe programmes (10) and Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence (11) and region-specific publications (12–16).

In addition, the WHO, UNODC, UNAIDS technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users (5) has provided an important step forward towards harmonizing definitions and interventions to be included in a comprehensive package of HIV prevention, treatment and care for injecting drug users and proposing consistent methods to measure and compare countries’ progress towards universal access. Several regional and national programmes as well as the Reference Group to the United Nations on HIV and Injecting Drug Use have already adopted the framework and indicators proposed in this guide. Other United Nations bodies, including the Commission on Narcotic Drugs, have referred to adopting and using this framework, and major bilateral and multilateral donors have expressed interest in using the indicators. In July 2009, a United Nations Economic and Social Council Resolution on HIV/AIDS (17) endorsed this guide. This is the first year that WHO, UNICEF and UNAIDS have collected and reported data on the key indicators recommended in the guide. More detailed information is expected to become available through this process in the coming years.

Table 3.1. Number of low- and middle-income countries reporting the availability of the comprehensive package of interventions for the prevention, treatment and care of HIV among people who inject drugs, 2008

<table>
<thead>
<tr>
<th>Availability of intervention</th>
<th>Needle and syringe programmes</th>
<th>Opioid substitution therapy</th>
<th>Other drug dependence treatment</th>
<th>HIV testing and counselling</th>
<th>Antiretroviral therapy</th>
<th>Prevention and treatment of sexually transmitted infections</th>
<th>Condom programming for injecting drug users and their sexual partners</th>
<th>Targeted information, education and communication</th>
<th>Viral hepatitis diagnosis, treatment and vaccination</th>
<th>Prevention, diagnosis and treatment of TB among injecting drug users</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>East, South and South-East Asia</strong></td>
<td>Yes</td>
<td>14</td>
<td>10</td>
<td>14</td>
<td>21</td>
<td>19</td>
<td>21</td>
<td>16</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td><strong>No</strong></td>
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<td>13</td>
<td>9</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td>5</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
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<td>11</td>
<td>11</td>
<td>11</td>
<td>10</td>
<td>11</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td><strong>No</strong></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
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<td>3</td>
<td>2</td>
<td>6</td>
<td>10</td>
<td>11</td>
<td>9</td>
<td>7</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
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<td>14</td>
<td>9</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>9</td>
<td>8</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td><strong>Middle East and North Africa</strong></td>
<td>Yes</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td><strong>No</strong></td>
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<td>8</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>3</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Sub-Saharan Africa</strong></td>
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<td>0</td>
<td>0</td>
<td>2</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>3</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td><strong>No</strong></td>
<td>31</td>
<td>31</td>
<td>29</td>
<td>19</td>
<td>19</td>
<td>19</td>
<td>28</td>
<td>23</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td>30</td>
<td>26</td>
<td>39</td>
<td>61</td>
<td>61</td>
<td>59</td>
<td>39</td>
<td>52</td>
<td>30</td>
</tr>
<tr>
<td><strong>No</strong></td>
<td>62</td>
<td>66</td>
<td>52</td>
<td>32</td>
<td>31</td>
<td>34</td>
<td>52</td>
<td>40</td>
<td>61</td>
<td>63</td>
</tr>
</tbody>
</table>

Note: The total number of reporting countries varies across interventions because some countries did not provide information for all interventions.
Several organizations monitor the global response to the HIV epidemic among people who inject drugs, including WHO, UNODC, the Reference Group to the United Nations on HIV and Injecting Drug Use and the International Harm Reduction Association. Each regularly publishes important data using official and unofficial sources that help put the response and measures of progress towards universal access into context.

Ninety-two low- and middle-income countries reported information to WHO, UNAIDS and UNICEF on the existence of programmes and policies targeted at injecting drug users (Table 3.1). Needle and syringe programmes were available in 30 countries, and 26 reported providing opioid substitution therapy. Sixty-one countries have policies permitting needle and syringe programmes or opioid substitution therapy. Opioid substitution therapy is relevant only in countries where other drugs may be in use, such as in some parts of Latin America.

The data also show regional variation in the availability of interventions for people who inject drugs. All reporting countries in Europe and Central Asia (no information was available from the Russian Federation, the country with the most injecting drug users in this region) indicated providing needle and syringe programmes, opioid substitution therapy and other drug dependence treatment. Most reporting countries in East, South and South-East Asia also provided these interventions. In Latin America and the Caribbean, as well as the Middle East and North Africa, most reporting countries do not provide these three interventions. In sub-Saharan Africa, no countries provide needle and syringe programmes or opioid substitution therapy. Opioid substitution therapy is relevant only in countries with epidemics of opioid dependence but not in countries where other drugs may be in use, such as in some parts of Latin America.

Table 3.2 presents information on the availability of policies related to HIV prevention, treatment and care for people who inject drugs among 30 low- and middle-income countries that also reported data on HIV prevalence among injecting drug users. Of the regions with the most countries reporting, the median reported HIV prevalence among injecting drug users was about four times higher in East, South and South-East Asia than in Europe and Central Asia. Many of the countries with high reported HIV prevalence (>5%) among injecting drug users indicate having adopted a number of the recommended prevention policies, although the adoption of needle and syringe programmes and opioid substitution therapy is clearly still lagging. In the only two sub-Saharan African countries (Kenya and Nigeria) reporting these

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of interventions adopted as policy</th>
<th>Needle and syringe programmes</th>
<th>Opioid substitution therapy</th>
<th>Percentage of injecting drug users who are living with HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>7</td>
<td>Yes</td>
<td>Yes</td>
<td>9%</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>9</td>
<td>Yes</td>
<td>Yes</td>
<td>2%</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>9</td>
<td>Yes</td>
<td>Yes</td>
<td>0%</td>
</tr>
<tr>
<td>Cambodia</td>
<td>6</td>
<td>Yes</td>
<td>Yes</td>
<td>24%</td>
</tr>
<tr>
<td>China</td>
<td>8</td>
<td>Yes</td>
<td>Yes</td>
<td>8%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>9</td>
<td>Yes</td>
<td>Yes</td>
<td>52%</td>
</tr>
<tr>
<td>Iran (Islamic Republic of)</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>19%</td>
</tr>
<tr>
<td>Jordan</td>
<td>6</td>
<td>Yes</td>
<td>Yes</td>
<td>0%</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>4%</td>
</tr>
<tr>
<td>Kenya</td>
<td>6</td>
<td>Yes</td>
<td>Yes</td>
<td>35%</td>
</tr>
<tr>
<td>Latvia</td>
<td>6</td>
<td>Yes</td>
<td>Yes</td>
<td>23%</td>
</tr>
<tr>
<td>Lithuania</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>4%</td>
</tr>
<tr>
<td>Maldives</td>
<td>6</td>
<td>Yes</td>
<td>Yes</td>
<td>0%</td>
</tr>
<tr>
<td>Morocco</td>
<td>8</td>
<td>Yes</td>
<td>Yes</td>
<td>0%</td>
</tr>
<tr>
<td>Myanmar</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>34%</td>
</tr>
<tr>
<td>Nepal</td>
<td>8</td>
<td>Yes</td>
<td>Yes</td>
<td>35%</td>
</tr>
<tr>
<td>Nigeria</td>
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<td>Yes</td>
<td>Yes</td>
<td>6%</td>
</tr>
<tr>
<td>Oman</td>
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<td>Yes</td>
<td>Yes</td>
<td>7%</td>
</tr>
<tr>
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<td>9</td>
<td>Yes</td>
<td>Yes</td>
<td>2%</td>
</tr>
<tr>
<td>Philippines</td>
<td>7</td>
<td>Yes</td>
<td>Yes</td>
<td>7%</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>6</td>
<td>Yes</td>
<td>Yes</td>
<td>17%</td>
</tr>
<tr>
<td>Romania</td>
<td>9</td>
<td>Yes</td>
<td>Yes</td>
<td>7%</td>
</tr>
<tr>
<td>Serbia</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>5%</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>19%</td>
</tr>
<tr>
<td>Thailand</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>48%</td>
</tr>
<tr>
<td>The former Yugoslav</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>7%</td>
</tr>
<tr>
<td>Republic of Macedonia</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>7%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>14%</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>7</td>
<td>Yes</td>
<td>Yes</td>
<td>20%</td>
</tr>
<tr>
<td>Total (Yes)</td>
<td>26</td>
<td>19</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The nine recommended interventions are: (1) needle and syringe programmes, (2) opioid substitution therapies (for opioid users) and other drug dependence treatments, (3) HIV testing and counselling, (4) antiretroviral therapy, (5) prevention and treatment of sexually transmitted infections, (6) condom promotion for injecting drug users and their sexual partners, (7) targeted information, education and communication, (8) diagnosis, treatment and vaccination of viral hepatitis, and (9) prevention, diagnosis and treatment of TB.

For the purpose of counting in this table, opioid substitution therapies and other drug dependence treatments are counted as two interventions, bringing the total to 10 interventions.
Table 3.3 Availability and coverage of harm reduction programmes for people who inject drugs in reporting low- and middle-income countries, by region, 2006–2008*  

<table>
<thead>
<tr>
<th>Number of countries reporting</th>
<th>32</th>
<th>28</th>
<th>28</th>
<th>19</th>
<th>27</th>
<th>25</th>
<th>31</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europe and Central Asia</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenia</td>
<td>0.0</td>
<td>15.1</td>
<td>54%</td>
<td>95%</td>
<td>56%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>0.7</td>
<td>0.1</td>
<td></td>
<td>62%</td>
<td>21%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Belarus</td>
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<td>0.0</td>
<td>21.7</td>
<td>74%</td>
<td>8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
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<td>1.0</td>
<td></td>
<td>32%</td>
<td>21%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>0.8</td>
<td></td>
<td></td>
<td>94%</td>
<td>66%</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>Georgia</td>
<td>0.1</td>
<td>0.2</td>
<td>31</td>
<td>17%</td>
<td>93%</td>
<td>48%</td>
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</tr>
<tr>
<td>Kazakhstan</td>
<td>1.2</td>
<td>116.4</td>
<td>47%</td>
<td>60%</td>
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</tr>
<tr>
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<tr>
<td>Latvia</td>
<td>1.3</td>
<td>18.3</td>
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<td>83%</td>
<td>23%</td>
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<td>Lithuania</td>
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<td>43.5</td>
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<tr>
<td>Montenegro</td>
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<tr>
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<td></td>
<td>96%</td>
<td>68%</td>
<td>17%</td>
<td></td>
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<td>15.6</td>
<td>21%</td>
<td>80%</td>
<td>29%</td>
<td>5%</td>
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</tr>
<tr>
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<td>54.4</td>
<td></td>
<td>6%</td>
<td>39%</td>
<td>19%</td>
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<tr>
<td>The former Yugoslav Republic of Macedonia</td>
<td>1.9</td>
<td>1.0</td>
<td>24.4</td>
<td>73%</td>
<td>51%</td>
<td>1%</td>
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<tr>
<td>Ukraine</td>
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<td>28.8</td>
<td>46%</td>
<td>84%</td>
<td>55%</td>
<td>14%</td>
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</tr>
<tr>
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<td>40%</td>
<td>84%</td>
<td>36%</td>
<td>13%</td>
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<tr>
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<td>0.4</td>
<td>24.4</td>
<td>43%</td>
<td>83%</td>
<td>42%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Latin America and the Caribbean</strong></td>
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<td></td>
<td></td>
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<tr>
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<td></td>
<td></td>
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</tr>
<tr>
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<tr>
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<td>70%</td>
<td>73%</td>
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<td></td>
</tr>
<tr>
<td><strong>East, South and South-East Asia</strong></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>2.3</td>
<td>101.8</td>
<td>2%</td>
<td>32%</td>
<td>43%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>1.0</td>
<td>58.8</td>
<td>56%</td>
<td>66%</td>
<td>68-79%</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>India*</td>
<td>1.1</td>
<td>26.6</td>
<td>10-83%</td>
<td>29-88%</td>
<td>44-100%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>2.7</td>
<td>6.8</td>
<td>45%</td>
<td>82%</td>
<td>34%</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Iran (Islamic Republic of)</td>
<td>26.6</td>
<td>34.0</td>
<td>20%</td>
<td>74%</td>
<td>33%</td>
<td>19%</td>
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<tr>
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<td>15.9</td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Myanmar</td>
<td>0.2</td>
<td>46.8</td>
<td>53%</td>
<td>8%</td>
<td>78%</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
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<td>24.4</td>
<td>31%</td>
<td>93%</td>
<td>58%</td>
<td>35%</td>
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<tr>
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<td>51%</td>
<td>77%</td>
<td>31%</td>
<td>29%</td>
<td></td>
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<td>Philippines</td>
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<td>2.5</td>
<td>14%</td>
<td>48%</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Sri Lanka</td>
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<td>0.0</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>48%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>10.5</td>
<td>181.1</td>
<td>43%</td>
<td>89%</td>
<td>57%</td>
<td>20%</td>
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</tr>
<tr>
<td><strong>Median – East, South and South-East Asia</strong></td>
<td>1.0</td>
<td>0.1</td>
<td>26.5</td>
<td>33%</td>
<td>77%</td>
<td>43%</td>
<td>20.5%</td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td></td>
<td></td>
<td></td>
<td>6%</td>
<td>40%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td><strong>Median – all reporting countries</strong></td>
<td>1.1</td>
<td>0.3</td>
<td>24.4</td>
<td>37.5%</td>
<td>79%</td>
<td>42%</td>
<td>13%</td>
</tr>
</tbody>
</table>

* These data must be considered in the context of the methodological notes on the quality and interpretation of data (Box 3.2). Data from national programmes (the number of needle and syringe programmes per 1000 injecting drug users, the number of opioid substitution therapy sites per 1000 injecting drug users, and the number of syringes and needles distributed by needle and syringe programmes per injecting drug user per year) cannot be compared with the other data presented in this table which are derived from surveys, which may represent small sample sizes and misestimate coverage.

b Ranges are excluded from median calculations.

c 79% with commercial sex partners and 68% with non-regular partners.
data, neither needle and syringe programmes nor opioid substitution therapy are available. The epidemic among injecting drug users in sub-Saharan Africa is increasingly recognized as important, and surveillance is relatively recent.

Data on the coverage of harm reduction interventions are limited (Table 3.3). Thirty-two countries reported data on the number of sites providing needle and syringe programmes per 1000 injecting drug users and 28 countries on the number of opioid substitution therapy sites per 1000 injecting drug users, with most reports from two regions: Europe and Central Asia (14 and 15 countries for the two interventions respectively) and East, South and South-East Asia (13 and 10 countries respectively). Europe and Central Asia had about 1.3 needle and syringe sites per 1000 injecting drug users, slightly more than in East, South and South-East Asia (1.0). The pattern of availability of opioid substitution therapy services is similar: 0.4 sites per 1000 injecting drug users in Europe and Central Asia and 0.1 in East, South and South-East Asia.

Europe and Central Asia and East, South and South-East Asia are also the two regions where information is more widely available on the number of syringes and needles distributed by needle and syringe programmes per injecting drug user per year. The median numbers of syringes distributed by needle and syringe programmes per injecting drug user per year were about 24.4 in Europe and Central Asia and 26.5 in East, South and South-East Asia, but with important variation among countries. These coverage levels are far below the internationally recommended target of 200 syringes provided per injecting drug user per year, which is likely to have affect the HIV epidemic (5).

Additional data are available from surveys among people who inject drugs. Among the 19 countries reporting data from surveys measuring the coverage of HIV prevention programmes, less than 40% of injecting drug users report having been reached by such programmes in the last 12 months.1 In Europe and Central Asia, the median percentage of injecting drug users reporting the use of sterile injecting equipment the last time they injected was 83%, but the median percentage reporting the use of a condom the last time they had sexual intercourse was only 42%. The same pattern can be seen among injecting drug users in East, South and South-East Asia. These data are self-reported from surveys among injecting drug users and cannot be compared to data received through national reporting. The survey data also may misestimate coverage (Box 3.4).

3.1.2. Men who have sex with men

The year 2008 marked a turning point for refocusing international attention on the HIV epidemic among men who have sex with men with the publication of new data, scientific consultations and community mobilization. The XVII International AIDS Conference held in Mexico City in 2008 provided an unprecedented platform to draw attention to the need to strengthen HIV surveillance, prevention and care for men who have sex with men. It called for improved access to health services for men who have sex with men and for transgender people, greater investment in strategic information related to the HIV epidemic and response and an end to stigma, discrimination, homophobia and prejudiced legislation in all regions of the world.

WHO and UNDP hosted a global consultation in September 2008 to define interventions and identify the role of the health sector in scaling up the provision of prevention and treatment of HIV and sexually transmitted infections for men who have sex with men (21). It recommended that health services be provided within a framework of sexual health that also considers mental issues of identity, self-esteem and sexual behaviour and care for substance use disorders and victims of violence. Surveillance, monitoring and research are equally essential to understand the epidemic and to tailor adequate responses.

In addition, regional consultations were held in Asia and the Pacific, Europe, Latin America and the Caribbean and sub-Saharan Africa to address specific epidemiological, programmatic and human rights issues related to scaling up HIV services for men who have sex with men (Box 3.5). Consultations noted gaps in knowledge due to a lack of surveillance or behavioural surveys and absent or underutilized health services and emphasized the need to address the social and legal obstacles to scaling up programmes (22,23).

Several recent publications have provided data on the epidemiology of HIV among men who have sex with men in different regions. More and more Asian countries are now conducting routine HIV surveillance among men who have sex with men. Cohort studies are under way in countries such as Thailand and have allowed HIV incidence data to be measured among these populations (24). The data from Thailand show that the HIV incidence increased in each biennial survey (2003 onwards), with a notable increase in incidence among the youngest age group of men who have sex with men (15–22 years). The HIV prevalence among men who have sex with men in China, where many cities now have several years of repeated surveys, is also climbing steadily (25,26). The HIV prevalence in Indonesia ranges between 2.0% in Bandung and 8.1% in Jakarta (27).

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1 United Nations General Assembly Special Session on HIV/AIDS (UNGASS) indicator 9 on the percentage of injecting drug users reached with HIV prevention programmes in the last 12 months. Survey respondents were asked the following questions: (1) Do you know where you can go if you wish to receive an HIV test? (2) In the last 12 months, have you been given condoms (e.g. through an outreach service, drop-in centre or sexual health clinic)? (3) In the last 12 months, have you been given sterile needles and syringes (e.g. by an outreach worker, a peer educator or from a needle-exchange programme)? The numerator of the indicator is the number of respondents from most-at-risk population groups who replied yes to both questions, and the denominator is the total number of respondents surveyed.
Box 3.4. Country experiences in scaling up interventions for people who inject drugs

**MENAHRA – creating a positive policy environment in the Middle East and North Africa**

In 2007, WHO and the International Harm Reduction Association partnered to establish the Middle East and North Africa Harm Reduction Network (MENAHRA) with the support of the Drosos Foundation. MENAHRA consists of three subregional knowledge hubs (in the Islamic Republic of Iran, Lebanon and Morocco) as well as a regional network and provides financial support to strengthen the role of civil society in implementing harm reduction in the region. In the first year of activity, the Network focused on setting priorities among the countries in the region based on thorough assessment of the severity of their situations, their needs and their readiness to implement harm reduction interventions (Fig. 3.1). Capacity-building of the knowledge hubs themselves and training of about 1500 people in the region took place in the second year. By the end of 2013, MENAHRA aims to introduce or scale up opioid substitution therapy and needle and syringe programmes in most participating countries.

**Measuring the level of the epidemic and service coverage in Zanzibar, United Republic of Tanzania**

Although injecting drug use has probably been present in the African continent for more than a decade, efforts to conduct surveillance and provide prevention services are very recent. A 2007 survey in Zanzibar, United Republic of Tanzania, found that three fourths of injecting drug users have been injecting for seven years or more. The same survey revealed that nearly half (47%) of injecting drug users could not obtain clean needles when needed, most typically citing vendors (pharmacy or illicit drug sellers) being closed or otherwise unavailable (19). Condom use in this population was rare, regardless of sex partner type (paid or unpaid). Overall, less than half knew where to obtain an HIV test, and only 22% reported having had the test. The survey found an HIV prevalence of 16%; 13% of male injecting drug users were men who have sex with men; and 25% of female injecting drug users were involved in sex work. The HIV prevalence among men who have sex with men who injected drugs was 25% (20).

**Scaling up HIV interventions in Ukraine**

An estimated 300 000 to 400 000 people 15 years and older live with HIV in Ukraine. Among those tested, more than half have reported injecting drug use, making this a major risk factor of the HIV epidemic in Ukraine. In 2008, 95 000 of the estimated 230 000–360 000 injecting drug users were reached by various HIV prevention activities: needle and syringe programmes, voluntary HIV testing and counselling, testing and treatment of sexually transmitted infections, counselling and referral. Nevertheless, access to opioid substitution therapy is still severely limited: by August 2009, only 4300 of the conservatively estimated 53 000 opiate injecting drug users needing opioid substitution therapy were enrolled in buprenorphine- and methadone-based programmes.

Buprenorphine-based pilot programmes started in Ukraine in 2004 and confirmed the effectiveness, efficiency and safety of substitution therapy. Methadone was accepted and imported in mid-2008 as an additional substitution medicine, paving the way for significant scaling up of these services. More than 3500 injecting drug users were admitted to methadone programmes between June 2008 and July 2009. Along with the introduction of opioid substitution therapy came the development of models of integrated care, aiming at addressing commonly clustered health conditions, including HIV, drug dependence, TB, hepatitis and sexually transmitted infections, in a comprehensive and coordinated manner.

A new National HIV/AIDS Plan 2009–2013 was developed based on an extensive external evaluation undertaken in 2007. It recognizes the importance of expanding the focus of targeted services for injecting drug users from prevention to treatment. It is expected that 20 000 people will be receiving opioid substitution therapy by 2013 in accordance with international recommendations, helping to redress imbalances in access to antiretroviral therapy and to break the chain of HIV transmission associated with injecting drug use. The integrated approach to care and treatment will be a leading theme in the upcoming expansion of antiretroviral therapy and opioid substitution therapy services in the country, which in turn should provide a model for the region.
In Latin America and the Caribbean, where the HIV epidemic is recognized as mainly affecting men who have sex with men and transgender people, half of all HIV infections in this region in 2007 were estimated to result from unprotected anal intercourse between men (28). Across the region, the ratio of male/female HIV infection remains at 2-3 to 1.

Recent data have also shed important light on the dynamics of the HIV epidemic in many countries in sub-Saharan Africa, where homophobia and criminalization of same-sex relations have often hindered an effective response. The reported HIV prevalence among men who have sex with men was found to be as high as or higher than the background prevalence among men, as measured in general population surveys such as in the United Republic of Tanzania (29). A study in Botswana, Malawi and Namibia found that condom use was rare, and petroleum-based lubricants were reportedly used frequently, thus rendering the condoms ineffective. Sixteen per cent of men surveyed also reported concurrent male and female sex partners (30). Data from Kenya show an HIV-1 prevalence of 43% among men who reported sex with men exclusively and 12% among men who reported sex with both men and women; and 44% of recently sexually active men reported no condom use at all with casual partners (31). In South Africa, reported HIV prevalence among men who have sex with men approached 50% in Johannesburg versus 11% among men participating in a household survey (32) and 14% in KwaZulu-Natal (32). A recent literature review of HIV infection among men who have sex with men in Africa (34) identified 19 surveys published through May 2009 from 13 countries in addition to several unpublished works, highlighting the expansion of available data. For each country, the HIV prevalence among men who have sex with men was higher than that among the adult male population. The article concludes that national commitments to achieve universal access to HIV services for men who have sex with men are lagging, running against strong social currents that include the illegality of sex among men.

Box 3.5. Regional political commitments to address the health needs of men who have sex with men

Latin America and the Caribbean

The population of homosexual, bisexual and other men who have sex with men and transgender people has been disproportionately affected by the HIV epidemic in the Americas. Although the HIV prevalence is less than 1% among the general population in most countries of the region, it may be between 5 and 20 times higher among men who have sex with men. Stigma and discrimination associated with homophobia play a significant role in fuelling the epidemic, and fear of ostracism and mistreatment, associated with feelings of guilt and shame, alienate people from accessing preventive programmes, outreach activities and health services for screening and treatment of infections.

Countries such as Argentina, Brazil, Colombia and Mexico have addressed homophobia through sensitization campaigns to reduce negative attitudes towards sexual minorities and improve their overall quality of life. All countries in Latin America have removed punitive legislation that prosecuted men who have sex with men, thereby enabling strategies and actions to address the prevention and care needs of these groups. During the XVII International AIDS Conference in Mexico City in 2008, health and education ministers from the countries of Latin America and the Caribbean declared that comprehensive sexuality education and health care services for youth must pay due attention to sexual diversity. The WHO Regional Office for the Americas is providing support to an initiative launched by the national AIDS programmes of Brazil and Mexico to expand access, coverage and utilization of high-quality care services for men who have sex with men in the region. Two regional expert consultations were held in 2008 and 2009 to develop a toolkit to ensure the provision of high-quality care services for homosexual, bisexual and other men who have sex with men in the context of primary health care.

Asia and the Pacific

In February 2009, the WHO Regional Office for the Western Pacific held a region-wide consultation on the health sector response to HIV/AIDS among men who have sex with men. The consultation, which marked a first step to give higher priority to the health needs of men who have sex with men in the region, was conducted in partnership with UNDP, UNAIDS and national partners and attended by participants from 13 countries in the region. The main objectives of the consultation were to define ways to improve the availability of data on the HIV epidemic among men who have sex with men and transgender people; to review experiences of provision of health services to these groups in the region; and to identify key actions and recommendations to scale up their access to services.

The consultation served as a platform to galvanize regional commitment to address the needs of men who have sex with men and transgender people and drew consensus around regional priorities for action. Participants recognized the gaps in information on the epidemic among men who have sex with men and transgender people and called for efforts to strengthen and harmonize data collection. The consultation also recommended that steps be taken to build the capacity of health providers to address the specific health of men who have sex with men and transgender people, set priorities for the allocation of resources and promote enabling environments. A follow-up meeting defined an essential package of health services for men who have sex with men in the region, to be published by the end of 2009.
Table 3.4. Availability, coverage and impact of prevention interventions for men who have sex with men in reporting low- and middle-income countries, 2006–2008*

<table>
<thead>
<tr>
<th>Number of countries reporting</th>
<th>Percentage of men who have sex with men reached with HIV prevention programmes in the past 12 months</th>
<th>Percentage of men reporting the use of a condom the last time they had anal sex with a male partner</th>
<th>Percentage of men who have sex with men who are living with HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Europe and Central Asia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenia</td>
<td>10%</td>
<td>2%</td>
<td>7%</td>
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<td>Azerbaijan</td>
<td>49%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Belarus</td>
<td>70%</td>
<td>3%</td>
<td>7%</td>
</tr>
<tr>
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<td>49%</td>
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<td>7%</td>
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<td>5%</td>
<td>7%</td>
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<td>3%</td>
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<td>7%</td>
<td>7%</td>
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<td>61%</td>
<td>5%</td>
<td>7%</td>
</tr>
<tr>
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<td>39%</td>
<td>39%</td>
<td>5%</td>
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<tr>
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<td>26%</td>
<td>36%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Median – Latin America and the Caribbean</strong></td>
<td>26%</td>
<td>36%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>East, South and South-East Asia</strong></td>
<td>26%</td>
<td>36%</td>
<td>9%</td>
</tr>
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<td><strong>Mediag – East, South and South-East Asia</strong></td>
<td>26%</td>
<td>36%</td>
<td>9%</td>
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<td>Bangladesh</td>
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<td>8%</td>
<td>8%</td>
</tr>
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<td>31%</td>
<td>8%</td>
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<tr>
<td>China</td>
<td>39%</td>
<td>39%</td>
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<td>India*</td>
<td>16-97%</td>
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<td>8%</td>
</tr>
<tr>
<td>Indonesia</td>
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<tr>
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<td>8%</td>
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<td>19%</td>
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<td>19%</td>
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<td>12%</td>
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<td>24%</td>
<td>8%</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>94%</td>
<td>94%</td>
<td>8%</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>26%</td>
<td>26%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Median – East, South and South-East Asia</strong></td>
<td>26%</td>
<td>26%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Sub-Saharan Africa</strong></td>
<td>28%</td>
<td>28%</td>
<td>8%</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>28%</td>
<td>28%</td>
<td>8%</td>
</tr>
<tr>
<td>Burundi</td>
<td>28%</td>
<td>28%</td>
<td>8%</td>
</tr>
<tr>
<td>Ghana</td>
<td>51%</td>
<td>51%</td>
<td>8%</td>
</tr>
<tr>
<td>Mali</td>
<td>54%</td>
<td>54%</td>
<td>8%</td>
</tr>
<tr>
<td>Nigeria</td>
<td>57%</td>
<td>57%</td>
<td>8%</td>
</tr>
<tr>
<td>Senegal</td>
<td>57%</td>
<td>57%</td>
<td>8%</td>
</tr>
<tr>
<td>Togo</td>
<td>60%</td>
<td>60%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Median – Sub-Saharan Africa</strong></td>
<td>28%</td>
<td>28%</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Median – all reporting countries</strong></td>
<td>28%</td>
<td>28%</td>
<td>8%</td>
</tr>
</tbody>
</table>

* These data must be considered in the context of the methodological notes on the quality and interpretation of data (Box 3.2).
* Ranges are excluded from median calculations.
In Europe and Central Asia, the HIV prevalence among men who have sex with men has been documented to be at least 5% in some low- and middle-income countries, such as Croatia, Estonia, Georgia, Latvia and the Russian Federation; and even higher in convenience samples of men who have sex with men in particular locations such as Tashkent, Uzbekistan (11%) and Odessa, Ukraine (23%). Several countries such as Bulgaria, Croatia, Georgia, Kyrgyzstan and the Russian Federation (Yekaterinburg) also report high lifetime syphilis prevalence among men who have sex with men (33).

In North America, western Europe and Australia, where longitudinal data are more widely available, a recently published analysis suggests that recent upward trends in HIV prevalence among men who have sex with men are not limited to emerging economies and resource-limited countries (36). The rate of HIV notifications among men who have sex with men declined by 5.2% per year from 1996–2000 but increased by 3.3% per year from 2000-2005. During the period of increasing HIV diagnoses, primary and secondary syphilis diagnoses also increased among men who have sex with men.

Among countries reporting data from surveys to WHO, UNICEF and UNAIDS in 2009, median coverage by prevention programmes for men who have sex with men in the 12 months preceding the surveys was 24% in East, South and South-East Asia and 31% in Europe and Central Asia (Table 3.4).1

Men who have sex with men in Latin American and the Caribbean reported the highest median rate of condom use during the last anal intercourse with a male partner (66%), with considerable regional disparities. The range of reported condom use was also wide in East, South and South-East Asia, varying from 5% to 87%. These data indicate the need to redouble efforts to reach these populations with tailored prevention messages and activities, combat legal and social stigma and discrimination and increase political commitment to ensure access to health irrespective of sexual orientation.

3.1.3. Sex workers
Almost 20 years after Thailand instituted a 100% condom use policy for sex workers and 15 years after the major impact of the programme was reported, the median percentage of sex workers reporting condom use with their most recent client among 56 reporting low- and middle-income countries was 86% (Table 3.5). As expected, the range of individual country figures was wide, varying from 13% to 99%, indicating that some countries are lagging behind in coverage.

Sub-Saharan Africa had the highest median reported HIV prevalence among sex workers (20% for 13 reporting countries), despite median coverage by prevention programmes2 of 76% and a median rate of condom use with the last client of 86%. East, South, and South-East Asia, in contrast, had the lowest median HIV prevalence, 2%, with substantial variation among countries. Coverage by prevention programmes and use of condom with the last client were lower, at 49% and 80%, respectively. In Latin America and the Caribbean, among 13 countries that reported data, median HIV prevalence among sex workers reached 4%. Condom use with the last client was relatively high, at 95%.

The evidence indicates unequivocally that efforts to reach male and female sex workers must be reinforced and expanded. Further, a focus on brothel-based sex workers alone is clearly insufficient to assure adequate prevention coverage. The 100% condom use message pioneered in Thailand (Box 3.6) should be replicated, but greater sensitivity to the heterogeneity of sex work, both formal and informal, is required. Innovative outreach programmes that bring sex workers in contact with public health services are required to overcome the hidden nature of many sex workers in societies where sex work is illegal and poorly tolerated. Outreach work may also be required where opportunity costs related to taking the time to access services are high. Universal access for sex workers can only be achieved if policies and services reflect the needs of the sex workers.

---

1 United Nations General Assembly Special Session on HIV/AIDS (UNGASS) indicator 9 on the percentage of men who have sex with men reached with HIV prevention programmes in the past 12 months. Respondents were asked the following questions: (1) Do you know where you can go if you wish to receive an HIV test? (2) In the last 12 months, have you been given condoms (e.g., through an outreach service, drop-in centre or sexual health clinic)? The numerator of the indicator is the number of respondents in the most-at-risk population group who replied yes to both questions, and the denominator is the total number of respondents surveyed.

2 Respondents were asked the following questions: (1) Do you know where you can go if you wish to receive an HIV test? (2) In the last 12 months, have you been given condoms (e.g., through an outreach service, drop-in centre or sexual health clinic)? The numerator of the indicator is the number of respondents in the most-at-risk population group who replied yes to both questions, and the denominator is the total number of respondents surveyed.
Table 3.5. Availability, coverage and impact of prevention interventions for sex workers in reporting low- and middle-income countries, 2006–2008

<table>
<thead>
<tr>
<th>Number of countries reporting</th>
<th>Percentage of sex workers reached with HIV prevention programmes in the past 12 months</th>
<th>Percentage of female and male sex workers reporting the use of a condom with their most recent client</th>
<th>Percentage of sex workers who are living with HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe and Central Asia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Armenia</td>
<td>4%</td>
<td>99%</td>
<td>0%</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>40%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Belarus</td>
<td>86%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>36%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Estonia</td>
<td>94%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Georgia</td>
<td>80%</td>
<td>94%</td>
<td>7%</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>72%</td>
<td>93%</td>
<td>7%</td>
</tr>
<tr>
<td>Kyrgyzstan</td>
<td>80%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Lithuania</td>
<td>92%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Montenegro</td>
<td></td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>93%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Romania</td>
<td>66%</td>
<td>91%</td>
<td>91%</td>
</tr>
<tr>
<td>Serbia</td>
<td>32%</td>
<td>91%</td>
<td>2%</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>39%</td>
<td>69%</td>
<td>2%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>69%</td>
<td>86%</td>
<td>9%</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>75%</td>
<td>75%</td>
<td>2%</td>
</tr>
<tr>
<td>Median – Europe and Central Asia</td>
<td>66%</td>
<td>90.5%</td>
<td>2%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>90%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Barbados</td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Bolivia (Plurinational State of)</td>
<td>29%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colombia</td>
<td>94%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>84%</td>
<td>0.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>42%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Ecuador</td>
<td>76%</td>
<td>95%</td>
<td>4%</td>
</tr>
<tr>
<td>El Salvador</td>
<td>75%</td>
<td>97%</td>
<td>5%</td>
</tr>
<tr>
<td>Guatemala</td>
<td></td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Honduras</td>
<td>23%</td>
<td>68%</td>
<td>3%</td>
</tr>
<tr>
<td>Mexico</td>
<td>36%</td>
<td>96%</td>
<td>6%</td>
</tr>
<tr>
<td>Paraguay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peru</td>
<td>42%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Uruguay</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median – Latin America and the Caribbean</td>
<td>42%</td>
<td>95%</td>
<td>4%</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algeria</td>
<td></td>
<td></td>
<td>4%</td>
</tr>
<tr>
<td>Morocco</td>
<td>49%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Yemen</td>
<td>61%</td>
<td>1.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>East, South and South-East Asia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>12%</td>
<td>63%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Cambodia</td>
<td>94%</td>
<td>99%</td>
<td>13%</td>
</tr>
<tr>
<td>China</td>
<td>55%</td>
<td>85%</td>
<td>0.5%</td>
</tr>
<tr>
<td>India</td>
<td>56%</td>
<td>13-87%</td>
<td>5%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>40%</td>
<td>70%</td>
<td>10%</td>
</tr>
<tr>
<td>Iran (Islamic Republic of)</td>
<td>58%</td>
<td>55%</td>
<td>10%</td>
</tr>
<tr>
<td>Lao People’s Democratic Republic</td>
<td>49%</td>
<td>95%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Maldives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myanmar</td>
<td>76%</td>
<td>94%</td>
<td>18%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>60%</td>
<td>94%</td>
<td>0%</td>
</tr>
<tr>
<td>Nepal</td>
<td>41%</td>
<td>75%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Box 3.6. Country experiences in scaling up HIV interventions for sex workers

Addressing the needs of non-brothel-based sex workers in Thailand

Recent evidence suggests that the highly successful HIV prevention programmes aimed at sex workers over the past decade may now be eroding. The structure of sex work has changed substantially, with fewer brothel-based sex workers and more non-venue-based sex workers who are excluded from the annual sentinel surveillance system. A survey of HIV prevalence and risk behaviours among female sex workers in Bangkok and Chiang Rai interviewed 707 sex workers in Bangkok and 366 in Chiang Rai. A total of 73% of Bangkok participants were non-venue-based versus 24% in Chiang Rai. The adjusted rate of condom use with the last client was higher in Bangkok (93%) than Chiang Rai (69%); HIV prevalence was also higher in Bangkok (20%) than in Chiang Rai (10%). Importantly, the HIV prevalence in this survey was significantly higher than 2007 sentinel surveillance findings among sex workers (Bangkok, 2.5%; Chiang Rai, 2.6%) (37).

Promoting 100% condom use in Côte d’Ivoire

In 2008, the Government of Côte d’Ivoire and WHO undertook a detailed assessment of the epidemic situation and the national response to improve the provision of HIV prevention and care services for sex workers in the country. The situation analysis revealed that, despite some success, existing programmes were only distributing an average of 16 condoms per sex worker per year and there was no national policy to promote and support the widespread use of condoms by sex workers. It also noted that programmes were mostly outside the Ministry of Health and did not involve district health authorities. Following the assessment, the Government of Côte d’Ivoire, along with partners and stakeholders, plans to scale up a 100% condom use programme among sex workers across the country, with free distribution of condoms and increased access to HIV testing, care and treatment services. It will also accelerate efforts to develop norms and guidelines for treating sexually transmitted infections, build programme management capacity, and expand surveillance among these groups. Other countries in sub-Saharan Africa such as Kenya are following a similar approach to meet the objectives of the regional strategy to accelerate HIV prevention (38).
3.1.4. Prisoners

Detained or incarcerated people are often at higher risk for HIV infection than the non-incarcerated population (39). Although most prisoners contract HIV infection outside of prison, the risk of HIV transmission while incarcerated is augmented by sharing contaminated injecting, tattooing or other body-piercing equipment or through unprotected sex. In addition, this population group is largely out of reach of the formal health care system in the community, making prisons an important focus of health sector HIV interventions. An increasing number of countries have introduced HIV programmes in prisons since the early 1990s (Box 3.7), but many exclude the most effective interventions such as needle and syringe programmes.

Box 3.7. Country experiences in scaling up HIV interventions in prisons

Providing a comprehensive package of interventions in the Republic of Moldova

Local nongovernmental organizations in the Republic of Moldova began providing HIV education and a wide range of harm reduction services, including psychological support, counselling, distribution of clean injection equipment and condoms, and more recently, methadone, in prisons in 1999. Ten years later, the Republic of Moldova remains one of only a few countries in the world that provide comprehensive harm reduction services in prisons, granting prisoners free, anonymous and confidential access to an extensive range of materials and supplies that can greatly reduce risks to their health.

Overall, more than two thirds of adult prisoners sentenced in the Republic of Moldova have access to harm reduction services. In all the prisons where harm reduction services are provided, the experience has been positive – needles have never been used to cause harm to prison staff or fellow prisoners, drug use has not increased and available data suggest a reduction in HIV and hepatitis C incidence. The total number of needles and syringes exchanged in prisons in the Republic of Moldova increased from 3650 in 2000-2001 when the project was operating in only one prison to about 84 000 in 2006-2007. About 2000 HIV tests are performed each year.

The Republic of Moldova initiated methadone treatment in 2004. Despite various measures to expand access, the overall coverage of methadone remains low, reaching less than 1% of the estimated number of people who inject opioids in the country. The Republic of Moldova was also the first among the countries of the former Soviet Union to introduce methadone in penitentiary institutions in 2005. Since then, 120 prisoners have received methadone in the five opioid substitution therapy sites within the penitentiary system (40).

Service delivery has been accompanied by the expansion of training; and awareness about HIV and risk behaviour is nearly universal among prisoners and prison staff, from guards to administrators. The awareness has helped reduce HIV-related discrimination and stigma, thereby improving the lives of prisoners living with HIV. Priorities for the future include ensuring a continuum of care, including harm reduction and opioid substitution therapy, following the detainee’s release and ensuring better access to treatment for hepatitis C in prison settings.

Providing HIV testing and counselling in Swaziland (41)

Swaziland has 12 prisons each with a maximum capacity of 500 prisoners. In 2007, Population Services International collaborated with the Ministry of Health and the Correctional Services to bring HIV testing and counselling to Matsapha Prison, the country’s central prison. Monthly outreach services were also initiated in the 12 prison institutions, and a permanent testing and counselling site was established at Matsapha central. Inmates who tested positive were referred to the nearest hospitals or health centres for further care (transported by the correctional services for security reasons). According to the Prisons Act, condoms cannot be distributed to inmates, but other education and communication materials for HIV prevention were provided to inmates whether they test HIV positive or negative. In total, 198 inmates and officers were trained as peer educators, with a further 10 officers receiving training to provide HIV testing and counselling. Approximately 1150 inmates, prison personnel and their dependants tested for HIV at the site. The HIV prevalence within the facility was 26% for the prisoners.

Peer education to scale up HIV prevention Thailand

A study in Thailand established an HIV peer education programme and testing and counselling service in a prison of 900 male inmates (Prison A). One year later, a cross-sectional survey was conducted to evaluate the intervention at Prison A and to assess needs at Prison B, a 4000-inmate men’s facility with no HIV intervention (42). At Prison A, 50 volunteer inmates were trained to provide peer education on HIV, including referrals to prison testing and counselling services, and condoms were made available on request. A total of 746 male inmates were surveyed in both prisons. Potential HIV risk behaviour in prison included sharing tattoo equipment (64%), modifying the penis such as cuts or insertions intended to increase sexual pleasure (27%), anal sex (14%) and injecting drugs (1%). Most inmates at Prison A had been exposed to peer education (82%) and reported that they trusted the confidentiality of prison-based HIV counselling and testing services (70%) and planned to use these services (75%). Among inmates engaging in anal sex, all of those at Prison A and 20% at Prison B believed that condoms were easy to access in prison; further, easy access to condoms, made possible through the HIV intervention at Prison A, was strongly associated with condom use. Of 171 inmates who accessed testing and counselling, 13 (8%) tested HIV-positive; all 13 were enrolled in HIV care and 3 began antiretroviral therapy.
Table 3.6. Percentage of detainees who received an HIV test in the past 12 months and who know the results, 2006–2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Received an HIV test and know the results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosnia and Herzegovina</td>
<td>97%</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>57%</td>
</tr>
<tr>
<td>Latvia</td>
<td>48%</td>
</tr>
<tr>
<td>Republic of Moldova</td>
<td>7%</td>
</tr>
<tr>
<td>Serbia</td>
<td>14%</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>11%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>25%</td>
</tr>
<tr>
<td>Median</td>
<td>25%</td>
</tr>
</tbody>
</table>

Access to services for controlling sexually transmitted infections is crucial to prevent HIV infection among population groups at high risk of acquiring HIV such as sex workers and men who have sex with men. Access to services for controlling sexually transmitted infections also provides opportunities for early treatment of sexually transmitted infections, counselling and communication for behaviour change; provides access to HIV testing in population groups with sexually transmitted infections and offers opportunities for prevention education and counselling for people with acute or established HIV infection; and serves as an entry point into care programmes for people living with HIV.

Among 42 countries that provided data on the prevalence of syphilis among sex workers, the median reported prevalence was 6%. The highest rates were reported from countries in Europe and Central Asia. Data available from 31 countries suggest that syphilis is also an issue of concern among men who have sex with men, especially in Latin America and the Caribbean, where the median prevalence rate was above 10%, more than double the global median.

Sex workers have special social and health needs, especially in societies with high levels of stigma or legal barriers that impede their access to health services. In such settings, dedicated services may need to be offered to ensure high levels of access to health interventions. Thirty-five low- and middle-income countries reported data on the targeted delivery of services to sex workers for the prevention and management of sexually transmitted infections in 2008. The global median availability was just under 1 clinic per 1000 sex workers, ranging from 0.5 in the Middle East and North Africa to 2.1 in Europe and Central Asia. In Asia, among 12 reporting countries, the estimated median service provision was 0.92 service points for every 1000 sex workers, ranging from 0.06 per 1000 in Malaysia to 5 per 1000 in the Lao People’s Democratic Republic.

1 The definition of a case of syphilis varies. These data should be construed, at a minimum, as representing serological history of syphilitic rapid plasma reagin (RPR) or Venereal Disease Research Laboratory (VDRL) screening.

2 Several countries indicated that sex workers receive services for sexually transmitted infections in non-targeted clinics, so this figure is likely to underestimate true coverage.
3.3. Male circumcision

Male circumcision is now recognized as an additional important health sector intervention to reduce the risk of men heterosexually acquiring HIV infection, especially in countries with high rates of heterosexual HIV infection and low rates of male circumcision. Three randomized controlled trials carried out in sub-Saharan Africa to assess the impact of male circumcision on HIV acquisition among heterosexual men (44–46) showed a strong protective effect, with an approximately 60% reduction in the risk of acquiring HIV. Additional research has demonstrated that the duration of the beneficial impact of male circumcision on HIV transmission is also longer than indicated by earlier evidence (47). Data presented at the XVII International AIDS Conference in Mexico City in 2008 showed that the protective effect of male circumcision was sustained for at least 42 months, well beyond the 2-year period originally estimated.

A growing body of evidence also suggests that male circumcision can protect against other sexually transmitted infections. Research carried out in Uganda concluded that circumcision significantly reduced the incidence of HSV-2 and the prevalence of human papillomavirus infections (48). In one study in South Africa, male circumcision helped reduce the risk of acquiring HSV-2 by about half (49). In the United States, researchers found that male circumcision may reduce persistent human papillomavirus infections. Among study participants who became infected with human papillomavirus, circumcised men were more likely than uncircumcised men to have their immune systems clear the virus by the end of the study (50).

In 2007, an international panel of experts convened by WHO and UNAIDS provided guidance for country managers, policy-makers and implementing partners on how male circumcision services should be introduced and expanded (31). The recommendations emphasize that male circumcision should be scaled up as part of a comprehensive, integrated HIV prevention package, informed by the social and cultural context. Provider-initiated HIV testing and counselling is recommended before male circumcision. The recommendations also reinforce that circumcision should be accompanied by appropriate communication regarding the lack of evidence of its protective effect in heterosexual men living with HIV; that surgery should be delivered in an appropriate clinical setting by trained health care providers; and that human rights principles should guide service delivery.

The consultation meeting also reached consensus that countries with HIV prevalence rates above 15%, generalized heterosexual HIV epidemics and low rates of male circumcision should consider urgently scaling up access to male circumcision services. Thirteen countries, including Botswana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Uganda, the United Republic of Tanzania, Zambia and Zimbabwe, were identified as priorities for action.

Since then, all 13 countries have made progress towards establishing the necessary conditions to increase the availability of male circumcision services. Political commitment has been strong, with active political involvement at the highest levels. The successful engagement of traditional leaders and elders in Kenya (Box 3.9), Lesotho and Namibia in supporting male circumcision has also been pivotal, as has been the effective involvement of women’s groups in Zimbabwe. Partnerships involving national and local governments, donors and technical support agencies have been created to sustain and accelerate progress. The Male Circumcision Consortium in Kenya and the Male Circumcision Partnership in Swaziland and Zambia are actively supporting their respective government programmes.

Situation analyses have been conducted or are underway in all 13 priority countries with multi-stakeholder consultations. Kenya has formally adopted national guidance on male circumcision, while Lesotho, Namibia, South Africa, Swaziland and Zimbabwe all have draft policies. Botswana

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**Box 3.8. Herpes simplex virus type 2 and HIV**

Genital herpes caused by herpes simplex virus type 2 (HSV-2) infection is a major factor in fueling the HIV epidemic, with research showing that people who have HSV-2 infection are two times more likely to acquire HIV compared with those who are not infected with HSV-2, and individuals who are HIV and HSV-2 coinfected are five times more likely to transmit HIV to their sexual partner and have higher levels of HIV in their blood and genital secretions. Although recent trial outcomes showed that treating HSV-2 with an antiviral drug reduces genital ulcers due to HSV-2 and modestly reduces HIV levels in the blood, these effects were not sufficient to reduce the risk of HIV transmission. Since HSV-2 infection is one of the most common sexually transmitted infections worldwide and is especially prevalent in areas with high rates of HIV infection, with up to 90% of people who have HIV also being infected with HSV-2, preventing primary herpes infection is an important intervention for preventing HIV transmission. In addition, the general public and health care workers have low awareness of HSV-2 in most low- and middle-countries. HIV and sexually transmitted infection programmes should be better coordinated and make optimal use of opportunities for synergy. More potent interventions to control HSV-2 infection are needed to affect HIV transmission as is the availability of a vaccine against HSV-2 infection.
Box 3.9. Scaling up male circumcision to reduce the risk of HIV infection among heterosexual men in Kenya

In 2007, Kenya adopted a guidance statement on the role of voluntary male circumcision in reducing the risk of HIV infection among sexually active, HIV-negative men (53). Since then, the country has moved swiftly to operationalize the provision of male circumcision services as part of an integrated prevention approach that includes behaviour change, condom use and HIV testing.

Male circumcision is now formally integrated into Kenya’s National AIDS Strategic Plan III (2009/2010 - 2012/2013), which aims at increasing the proportion of circumcised men aged 15-49 years from 84% to 94% by 2013 on a nationwide basis, with coverage in each region reaching at least 80% (54). The successful completion of these targets will require performing 150 000 male circumcisions per year over five years, and they are expected to contribute significantly to achieve the national goal of cutting the rate of new HIV infections by half by the end of this period. The resources required to perform 750 000 male circumcisions are estimated to be between US$ 37 million and US$ 56 million.

Community engagement has been vital throughout policy design and rollout. Consultations involved a wide range of participants, including health care workers, faith-based organizations, women’s and youth groups and community leaders. The service delivery model is centred on clinical officers and nurses as initial providers, and procedures can be performed at all levels of care, including mobile, dedicated “voluntary male circumcision clinics”. Currently, 124 facilities offer comprehensive male circumcision services in Nyanza Province, where HIV prevalence is 15%, more than twice the national average. Three hundred providers have been trained, including physicians, clinical officers, nurses and support staff. As of May 2009, 20 000 male circumcisions had already been performed. In April 2009, a team involving partners and the Ministry of Health carried out quality assurance visits in several sites and concluded that most performed well according to WHO standards.

Kenya’s experience shows that rolling out male circumcision is feasible and that political and sociocultural challenges are surmountable with the right partnerships and the appropriate level of buy-in and involvement. However, while piecemeal interventions may yield positive benefits at the individual level, the full public health effects of male circumcision programmes can only be realized through rapid scale-up.

and Kenya have already officially launched national strategies, while Swaziland, Zambia and Zimbabwe have developed draft implementation plans. In Botswana, the objective is to increase the proportion of circumcised adult males to 80% by 2014. Most countries have integrated catch-up strategies to reach adult men first, given the low prevalence rates of male circumcision, but longer-term, neonatal circumcision is also being considered as an additional approach. Actual service provision has started in Kenya, with pilot projects in South Africa, Zimbabwe and Zambia. Adverse event rates in all countries remain low, at less than 3%.

To further assist programme managers, WHO developed several tools and guidelines in 2008 in collaboration with countries and implementing partners to facilitate programme planning, situation analysis, costing and impact assessment and monitoring and evaluation. Technical reference manuals, with training and quality assurance packages, were also produced, along with a communication guide and an information kit to enhance country-level communication and advocacy. A male circumcision clearinghouse website was launched, with the aim of facilitating policy and programmatic decision-making by collating available evidence and research outcomes on male circumcision, including the tools and guidelines mentioned above (52).

Although considerable progress has been achieved in the past two years, several important constraints still need to be addressed. Human resources for country programming as well as for service delivery must be considerably increased and reinforced. Programme managers need greater clarity regarding the availability of funding to scale up male circumcision services and how to access them. Further guidance is needed on how to effectively engage traditional providers in service delivery, address sociocultural barriers and reach men living with HIV without discriminating and stigmatizing them. Future efforts will focus on strengthening service delivery with quality assurance and increasing the numbers of circumcisions performed.

3.4. Blood safety

All types of blood donors give more than 85 million blood donations every year.1 The availability and safety of blood and blood products for transfusion is of continuing concern, especially in low- and middle-income countries, where HIV and other infections, such as hepatitis B, hepatitis C and syphilis, being transmitted through blood transfusion remains an issue of concern. Curtailing the burden of HIV due to unsafe blood transfusion requires implementing an integrated strategy, with a nationally coordinated blood transfusion service; collecting blood from voluntary, unpaid donors; screening all donated blood for transfusion-transmissible infections such as HIV; and ensuring adequate training and follow-up of health care providers.

1 Based on 2007 data from 162 countries participating in the WHO Blood Safety Indicators Survey.
The minimum level of donation required to meet a country’s most basic requirements for blood is estimated to include 1% of the population. These requirements are higher in countries with more advanced health care systems. The availability of blood, as measured by donations per 1000 population, varies widely across the world, with the lowest levels in low- and middle-income countries. The average blood donation rate in high-income countries is 16 times greater than that in low-income countries. Seventy-three low- and middle-income countries report collecting fewer than 10 donations per 1000 population (Fig. 3.2). Blood shortages not only lead to serious health effects such as death from postpartum haemorrhage but also contribute to an increased risk of HIV and hepatitis transmission because an inadequate stock of blood forces reliance on unsafe family replacement or paid donors and greater pressure to issue blood without testing.

Ensuring blood donation from voluntary, unpaid donors and screening blood for HIV and other transfusion-transmissible infections with appropriate quality assurance procedures are key to minimizing the risk of introducing infected blood into the blood supply. Although 57 countries report collecting 100% of their blood supplies from voluntary, unpaid donors, 42 countries collect less than 25% of their supplies from these donors, and a significant amount of the blood supply still depends on family or replacement and paid blood donors. Thirty-one countries still report collecting paid donations, amounting to more than 1 million donations in total.

Of 162 countries that provided data on screening for transfusion-transmissible infections (including HIV, hepatitis B, hepatitis C and syphilis), 41 reported being unable to screen all donated blood for one or more of these infections. Data from 121 countries indicate that only 40% of blood donations collected in low-income countries are screened following basic quality assurance procedures (use of standard operating procedures and participation in external quality assessment) versus 74% in middle-income countries and 99% in high-income countries. For 22% of the total donations collected in 41 countries, the status of whether the basic quality assurance procedures are followed for blood screening is still unknown.

Fig. 3.2. Blood donation per 1000 population, 2007
Hospital transfusion committees and systems for reporting adverse transfusion reactions are prerequisites to monitor the safe and rational use of blood and blood products. Data provided by 96 countries indicate that only 39% of hospitals performing transfusions in low-income countries, 62% in middle-income countries and 80% in high-income countries have a transfusion committee. In addition, 40% of hospitals in low-income countries, 71% in middle-income countries and 92% in high-income countries have a system for reporting adverse transfusion events. Further efforts are clearly needed to ensure safe blood supplies worldwide.

3.5. Post-exposure prophylaxis

Post-exposure prophylaxis is short-term antiretroviral therapy to reduce the likelihood of HIV infection after potential exposure, either occupationally or through sexual intercourse. WHO recommends that health care settings provide post-exposure prophylaxis as part of a comprehensive universal precautions package that reduces staff exposure to infectious hazards at work. The recommendations also cover exposure to HIV in non-occupational situations, such as in sexual assault (53).

Box 3.10. New prevention technologies

**Pre-exposure prophylaxis**

Pre-exposure prophylaxis is an experimental strategy using antiretroviral drugs to prevent HIV infection. Animal models have demonstrated proof of concept, and a trial completed in western Africa has shown safety (56). Clinical trials testing the efficacy of tenofovir and tenofovir/emtricitabine as pre-exposure prophylaxis agents are underway in multiple countries on four continents. Most of these trials use daily oral prophylaxis, although some test topical formulations and intermittent strategies as well. Efficacy trials of daily oral pre-exposure prophylaxis among men who have sex with men in Latin America and among injecting drug users in Thailand, as well as a trial of a topical gel among women in South Africa, are likely to provide the first results, possibly in early 2010. If results are promising, much work will still remain to assure that the research can be translated into an effective intervention that health systems can deliver. Further research will also need to be carried out to understand how the widespread use of pre-exposure prophylaxis may affect drug resistance levels and its impact on compensating for behaviour and adverse health effects. A consultation hosted by WHO in October 2009 will address what additional research is critical and must be conducted on a priority basis to enable the implementation of pre-exposure prophylaxis to move forward if the current trials demonstrate effectiveness.

**Microbicides**

Microbicides are products that can be used to prevent HIV infection through sexual intercourse with an HIV-positive partner. Women can use them to protect themselves from HIV infection through sexual intercourse with an HIV-positive partner. Most products tested to date have been in the form of vaginal gels applied before intercourse, similarly to spermicidal gels, and are designed to kill the HIV virus, prevent the virus from accessing the vaginal tissues or block key steps in the process whereby the virus attaches itself to target cells.

Only one of these products has shown any reduction in the risk of HIV infection when tested in large-scale clinical trials among women at risk of acquiring HIV infection. This product, 0.5% PRO 2000 gel, showed a 30% reduction in HIV incidence (not statistically significant) compared with users of a similar “placebo” gel that contained no active ingredient – HIV incidence was reduced from 3.9 infections per 100 woman-years to 2.7 infections per 100 woman-years. The study showed that the product was safe and well tolerated with minimal side effects (57).

A further study of the same product conducted by the Microbicides Development Programme is expected to release results in late 2009. If it confirms the results of the previous study, PRO 2000 will be the first microbical product shown to be safe and effective in preventing HIV infection in women. Subsequent work will focus on ensuring that the product is made available to women who would benefit most and on ensuring product registration and adoption in countries with generalized HIV epidemics. Even a partly effective product, if widely used, could strongly affect HIV incidence in such countries (58).

Other microbical products in early clinical trials or in preclinical evaluation are based on antiretroviral agents, similar to those used for therapy, that specifically target different stages of the HIV life cycle - attachment, entry or replication. Although the products most advanced in clinical testing are gels, similar to the previous types of microbicides, the new products have the potential to be delivered through slow-release systems similar to how hormonal contraception can be delivered though a vaginal ring that protects for up to three months. A trial currently underway in South Africa with tenofovir gel is expected to release results in early 2010.

Although the main focus of microbicide research and development is on products that will prevent HIV acquisition during vaginal intercourse, products that are also safe and effective for reducing HIV risk during anal intercourse urgently need to be developed. Such products would be used by both men and women. Rectal safety is a critical element of the evaluation of current microbicide candidates, as any product might be used as a lubricant during anal sex. A product shown to be effective vaginally might be assumed to be safe and effective for anal intercourse, but rectal tissue is very much more vulnerable to HIV than vaginal tissue. This remains an active and important area for research.
More countries provided information regarding the establishment and implementation of post-exposure prophylaxis policies in 2008 than in 2007. In 2008, 107 of 110 reporting low- and middle-income countries declared having a national policy or protocol to provide post-exposure prophylaxis versus 69 of 73 reporting low- and middle-income countries in 2007. Of 70 countries that provided this information in both 2007 and 2008, 4 countries (Burundi, Cambodia, Ethiopia and Lao People’s Democratic Republic) did not report having a policy in 2007 but indicated having one in 2008.

All reporting low- and middle-income countries with post-exposure prophylaxis policies in both 2007 and 2008 indicated that these policies covered occupational exposure to HIV, such as through needle-stick injuries in health care settings. In 2008, 75% of reporting countries with post-exposure prophylaxis policies covered non-occupational exposure versus 62% in 2007.

The percentage of health facilities providing post-exposure prophylaxis services varies widely across countries, creating difficulty in assessing global trends. Establishing policies and protocols does not translate simultaneously into programme implementation. In 44 countries that provided comparable data on the availability of post-exposure prophylaxis services in health facilities, the reported number of health facilities with post-exposure prophylaxis available increased from 3516 in 2007 to 4150 in 2008. The availability of post-exposure prophylaxis services is higher at the tertiary levels of the health care system. In 2008, 92% of reporting countries provided post-exposure prophylaxis in reference hospitals and centres at the tertiary level, 80% at the regional or district levels and 72% in all sites providing antiretroviral therapy, including at the community level.

3.6. Prevention and care for people living with HIV

All people living with HIV have the right to health with access to essential HIV prevention and care services to know their HIV status, improve their quality of life, delay progression of disease and prevent transmission to others. In 2008, WHO issued guidance outlining a core set of 13 evidence-based health sector interventions for adults and adolescents living with HIV resource-limited settings, to be adapted according to countries’ burdens of disease, epidemiology and infrastructure capacity (59). These interventions include:

- co-trimoxazole prophylaxis;
- prevention and management of TB/HIV coinfection;
- preventing fungal infections;
- sexually transmitted and other reproductive tract infections;
- preventing malaria;
- selected vaccine-preventable diseases (hepatitis B, pneumococcal disease, influenza and yellow fever);
- nutrition;
- family planning;
- preventing the mother-to-child transmission of HIV;
- needle and syringe programmes and opioid substitution therapy; and
- water, sanitation and hygiene.

The implementation and promotion of these essential interventions require close collaboration between the health sector and communities of people living with HIV. At an international technical consultation co-organized by the Global Network of People Living with HIV/AIDS (GNP+) and UNAIDS in 2009, participants agreed that efforts to implement positive prevention must address the myriad health and prevention needs of individuals living with HIV and recognize the links between prevention, treatment, care, support and human rights. The key elements of such an approach would begin with leadership and engagement of people living with HIV to scale up access to the essential health sector interventions as defined by WHO as well as efforts to reduce stigma and discrimination; promote gender equality; provide social and economic support; and empower people living with HIV.

The consultation also generated consensus on the use of a new, working term labelled “positive health, dignity and prevention” to better describe this integrated paradigm, with agreement that such an approach requires a human rights framework supported by protective laws to ensure non-discrimination, reduce stigma, change harmful gender norms and enable people living with HIV to protect themselves and others through empowerment and with dignity.

Numerous community-based projects provide examples of such collaborative efforts between the health sector and people living with HIV, such as the Community Education and Referral: Supporting Adherence to Antiretroviral Treatment and Prevention for People with HIV in Zambia (ACER) project and the Regional Outreach Addressing AIDS through Development Strategies (ROADS) project in eastern and central Africa (Box 3.11).
Box 3.11. Positive Health, Dignity and Prevention in practice in Nepal

The National Association of People Living with HIV/AIDS in Nepal (NAP+N), in collaboration with Family Health International Nepal, has been supporting eight community-based organizations led by people living with HIV to implement positive prevention programmes that address the HIV prevention needs of people living with HIV and their partners, families and communities (60). This work is being undertaken in collaboration with the National Centre for AIDS and STD Control in Nepal, a government body within the Ministry of Health and Population.

The project includes individual-level interventions such as counselling for serodiscordant and seroconcordant couples on disclosure and safer sexual and injecting behaviour; condom promotion and distribution; the promotion of healthy lifestyles and positive thinking and living; and referral to HIV counselling and testing and HIV care, support and treatment services.

At the community level, participating organizations coordinate education and outreach activities through community discussion forums that include peer support and sensitization around reducing HIV-related stigma and discrimination and capacity-building activities for the community-based organizations. The programme has noted increased self-esteem and confidence and improved health-seeking behaviour among people living with HIV as well as strengthened advocacy efforts at the local level. The engagement of people living with HIV in the programme has also increased access to care, support and treatment services.

The role of the health sector remains crucial in addressing the needs of people living with HIV and their communities. It is essential that the health sector address the prevention of common illnesses along with addressing people’s sexual and reproductive health needs and rights. To do so, health care workers should be trained in the technical aspects of prevention and care for people living with HIV and receive training to confront incidents of stigma and discrimination within health care settings. In this experience in Nepal, partnering and collaborating with community-based organizations of people living with HIV has been an important step for addressing these needs comprehensively.
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