PRIORITY INTERVENTIONS

HIV/AIDS prevention, treatment and care in the health sector

World Health Organization
HIV/AIDS Department

Version 1.2 – April 2009
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Table of contents

Acknowledgements .................................................................................................................................................... vi
Glossary.................................................................................................................................................................. vii

Foreword................................................................................................................................................................ viii

0 Introduction ......................................................................................................................................................... 1

1 The priority interventions for HIV/AIDS prevention, treatment and care in the health sector .............. 7

1.1 Enabling people to know their HIV status .................................................................................................... 7

1.1.1 Client-initiated HIV testing and counselling .............................................................................................. 8

1.1.2 Provider-initiated HIV testing and counselling .......................................................................................... 9

1.1.2.1 Family and partner HIV testing and counselling .................................................................................. 10

1.1.2.2 Infant and children HIV testing and counselling .................................................................................. 10

1.1.3 Blood donor HIV testing and counselling .................................................................................................. 11

1.1.4 Laboratory services for HIV diagnosis ........................................................................................................ 12

1.2 Maximizing the health sector’s contribution to HIV prevention ................................................................. 13

1.2.1 Preventing sexual transmission of HIV ..................................................................................................... 14

1.2.1.1 Promoting and supporting condom use ................................................................................................. 14

1.2.1.2 Detecting and managing sexually transmitted infections .................................................................... 15

1.2.1.3 Safer sex and risk reduction counselling ............................................................................................... 16

1.2.1.4 Male circumcision .................................................................................................................................. 16

1.2.1.5 Prevention among people living with HIV ............................................................................................ 17

1.2.1.6 Interventions targeting most-at-risk populations .................................................................................. 18

1.2.1.7 Specific considerations for HIV prevention in young people ............................................................... 20

1.2.1.8 Specific considerations for vulnerable populations ........................................................................... 21

1.2.1.9 Non-occupational post-exposure prophylaxis ...................................................................................... 23

1.2.2 Interventions for injecting drug users ........................................................................................................ 23

1.2.2.1 Needle and syringe programmes ............................................................................................................ 24

1.2.2.2 Drug dependence treatment .................................................................................................................. 25

1.2.2.3 Information, education and communication for IDUs .......................................................................... 26

1.2.3 Prevention of HIV in infants and young children ...................................................................................... 26

1.2.3.1 Family planning, counselling and contraception .................................................................................. 27

1.2.3.2 Antiretroviral medicines to prevent HIV infection in infants ............................................................... 28

1.2.3.3 Treatment, care and support for women living with HIV, their children and families ......................... 29

1.2.3.4 Infant feeding counselling and support ................................................................................................. 30

1.2.4 Prevention of HIV transmission in health settings .................................................................................... 31

1.2.4.1 Safe injections ....................................................................................................................................... 32

1.2.4.2 Safe waste disposal management .......................................................................................................... 32

1.2.4.3 Occupational health of healthcare workers .......................................................................................... 33

1.2.4.4 Occupational post-exposure prophylaxis ............................................................................................. 33

1.2.4.5 Blood safety ............................................................................................................................................ 34

1.3 Accelerating the scale-up of HIV/AIDS treatment and care ..................................................................... 35

1.3.1 Interventions to prevent illness ................................................................................................................ 36

1.3.1.1 Cotrimoxazole prophylaxis .................................................................................................................... 36

1.3.1.2 Preventing fungal infections .................................................................................................................. 37

1.3.1.3 Vaccinations .......................................................................................................................................... 37

1.3.1.4 Nutritional care and support .................................................................................................................. 38

1.3.1.5 Providing safe water, sanitation and hygiene .......................................................................................... 38

1.3.1.6 Preventing malaria ................................................................................................................................ 39

1.3.2 Treatment and care interventions .............................................................................................................. 39

1.3.2.1 Antiretroviral therapy for adults, adolescents and children ................................................................. 39

1.3.2.2 Managing opportunistic infections and co-morbidities ....................................................................... 43

1.3.2.3 Palliative care ......................................................................................................................................... 48

1.3.2.4 Tuberculosis prevention, diagnosis and treatment .................................................................................. 49

1.4 Laboratory services ......................................................................................................................................... 50

2 Strengthening and expanding health systems ............................................................................................... 53

2.1 Service delivery ............................................................................................................................................... 55

2.1.1 Integration and linkage of health services ................................................................................................. 55

2.1.2 Infrastructure and logistics ........................................................................................................................ 56

2.1.3 Demand for services ................................................................................................................................... 57

2.1.4 Management ............................................................................................................................................... 58

2.1.4.1 Strengthening management systems .................................................................................................... 58

2.1.4.2 Ensuring the technical quality of services .............................................................................................. 59

2.2 Health workforce ............................................................................................................................................ 59

2.3 Medical products and technologies ............................................................................................................. 61

2.4 Financing ......................................................................................................................................................... 62

2.5 Leadership and governance .......................................................................................................................... 63

PRIORITY INTERVENTIONS HIV/AIDS prevention, treatment and care in the health sector
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5.1 Coalition building and partnerships</td>
<td>65</td>
</tr>
<tr>
<td>2.5.1.1 Involving people living with HIV</td>
<td>65</td>
</tr>
<tr>
<td>2.5.1.2 Involving civil society and the private sector</td>
<td>66</td>
</tr>
<tr>
<td>2.5.2 Addressing stigma and discrimination</td>
<td>66</td>
</tr>
<tr>
<td>2.5.3 Delivering gender-responsive HIV interventions</td>
<td>67</td>
</tr>
<tr>
<td>3 Investing in strategic information</td>
<td>69</td>
</tr>
<tr>
<td>3.1 Strengthening health information systems</td>
<td>69</td>
</tr>
<tr>
<td>3.2 Surveillance of HIV/AIDS and sexually transmitted infections</td>
<td>70</td>
</tr>
<tr>
<td>3.3 Monitoring and evaluation of the health sector response</td>
<td>71</td>
</tr>
<tr>
<td>3.3.1 Monitoring health sector HIV programmes</td>
<td>71</td>
</tr>
<tr>
<td>3.3.2 Global monitoring and reporting</td>
<td>72</td>
</tr>
<tr>
<td>3.3.3 Patient monitoring systems</td>
<td>73</td>
</tr>
<tr>
<td>3.3.4 Prevention and assessment of HIV drug resistance</td>
<td>74</td>
</tr>
<tr>
<td>3.3.5 Pharmacovigilance</td>
<td>74</td>
</tr>
<tr>
<td>3.3.6 Evaluation</td>
<td>75</td>
</tr>
<tr>
<td>3.4 Research</td>
<td>76</td>
</tr>
<tr>
<td>3.4.1 Operational research</td>
<td>76</td>
</tr>
<tr>
<td>3.5 Using data effectively for programme improvement</td>
<td>77</td>
</tr>
<tr>
<td>3.5.1 Situation analysis</td>
<td>77</td>
</tr>
<tr>
<td>3.5.2 Setting targets</td>
<td>78</td>
</tr>
<tr>
<td>3.5.3 Data quality</td>
<td>79</td>
</tr>
<tr>
<td>4 Operationalizing the health sector response</td>
<td>80</td>
</tr>
<tr>
<td>4.1 Operational management</td>
<td>80</td>
</tr>
<tr>
<td>4.2 Strategic review and re-planning</td>
<td>80</td>
</tr>
<tr>
<td>4.2.1 Overcoming bottlenecks</td>
<td>82</td>
</tr>
<tr>
<td>4.2.2 Responding to controversial, sensitive and emerging issues</td>
<td>83</td>
</tr>
<tr>
<td>4.3 Planning and managing implementation</td>
<td>83</td>
</tr>
<tr>
<td>4.4 Planning for low-level epidemics</td>
<td>84</td>
</tr>
<tr>
<td>4.4.1 Prevention services</td>
<td>84</td>
</tr>
<tr>
<td>4.4.2 Treatment and care services</td>
<td>85</td>
</tr>
<tr>
<td>4.4.3 Considerations for middle-income countries</td>
<td>85</td>
</tr>
<tr>
<td>4.5 Planning for concentrated epidemics</td>
<td>88</td>
</tr>
<tr>
<td>4.5.1 Targeted interventions and service delivery models</td>
<td>88</td>
</tr>
<tr>
<td>4.5.2 Understanding most-at-risk populations (MARPs)</td>
<td>88</td>
</tr>
<tr>
<td>4.5.3 Priority focused interventions and delivery approaches</td>
<td>88</td>
</tr>
<tr>
<td>4.5.3.1 Services for sexually transmitted infections</td>
<td>89</td>
</tr>
<tr>
<td>4.5.3.2 Services for injecting drug users</td>
<td>89</td>
</tr>
<tr>
<td>4.5.3.3 Services for sex workers</td>
<td>90</td>
</tr>
<tr>
<td>4.5.3.4 Services for men who have sex with men</td>
<td>91</td>
</tr>
<tr>
<td>4.6 Planning for generalized HIV epidemics</td>
<td>95</td>
</tr>
<tr>
<td>4.6.1 Prevention</td>
<td>95</td>
</tr>
<tr>
<td>4.6.2 Decentralization of integrated prevention, treatment and care</td>
<td>95</td>
</tr>
<tr>
<td>4.6.2.1 Community mobilization and involvement of people living with HIV</td>
<td>101</td>
</tr>
<tr>
<td>4.6.2.2 Most-at-risk groups in generalized epidemics</td>
<td>101</td>
</tr>
<tr>
<td>4.6.2.3 Where to implement: generalized epidemics</td>
<td>102</td>
</tr>
<tr>
<td>5 Conclusion</td>
<td>103</td>
</tr>
<tr>
<td>6 Key resources</td>
<td>104</td>
</tr>
</tbody>
</table>
Acknowledgements

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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3TC</td>
<td>Lamivudine</td>
</tr>
<tr>
<td>ABC</td>
<td>Abacavir</td>
</tr>
<tr>
<td>AFASS</td>
<td>Acceptable, feasible, affordable, sustainable and safe</td>
</tr>
<tr>
<td>AFB</td>
<td>Acid fast bacilli</td>
</tr>
<tr>
<td>ALT</td>
<td>Alanine aminotransferase</td>
</tr>
<tr>
<td>ART</td>
<td>Antiretroviral therapy</td>
</tr>
<tr>
<td>ARV</td>
<td>Antiretroviral</td>
</tr>
<tr>
<td>AZT</td>
<td>Azidothymidine, Zidovudine</td>
</tr>
<tr>
<td>BCG</td>
<td>Bacille Calmette-Guerine (vaccine)</td>
</tr>
<tr>
<td>BMI</td>
<td>Body mass index</td>
</tr>
<tr>
<td>CCM</td>
<td>Country coordinating mechanism</td>
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<tr>
<td>CITC</td>
<td>Client-initiated testing and counselling</td>
</tr>
<tr>
<td>DBS</td>
<td>Dried blood spot</td>
</tr>
<tr>
<td>DNA</td>
<td>Deoxyribonucleic acid</td>
</tr>
<tr>
<td>DOTS</td>
<td>Directly observed treatment</td>
</tr>
<tr>
<td>EFV</td>
<td>Efavirenz</td>
</tr>
<tr>
<td>EIA/ELISAs</td>
<td>Enzyme immunoassays</td>
</tr>
<tr>
<td>FTC</td>
<td>Emtricitabine</td>
</tr>
<tr>
<td>HBV</td>
<td>Hepatitis B virus</td>
</tr>
<tr>
<td>HCV</td>
<td>Hepatitis C virus</td>
</tr>
<tr>
<td>HIV</td>
<td>Human immunodeficiency virus</td>
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<tr>
<td>HIVDR</td>
<td>HIV drug resistance</td>
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<tr>
<td>HPV</td>
<td>Human papillomavirus</td>
</tr>
<tr>
<td>IDU</td>
<td>Injecting drug users/use</td>
</tr>
<tr>
<td>IMAI</td>
<td>Integrated management of adult and adolescent illness</td>
</tr>
<tr>
<td>IMPAC</td>
<td>Integrated management of pregnancy and childbirth</td>
</tr>
<tr>
<td>LPV</td>
<td>Lopinavir</td>
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<tr>
<td>M&amp;E</td>
<td>Monitoring and evaluation</td>
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<tr>
<td>MARP</td>
<td>Most-at-risk population</td>
</tr>
<tr>
<td>MDR</td>
<td>Multidrug-resistant</td>
</tr>
<tr>
<td>MSM</td>
<td>Men who have sex with men</td>
</tr>
<tr>
<td>NAT</td>
<td>Nucleic acid testing</td>
</tr>
<tr>
<td>NGO</td>
<td>Nongovernmental organization</td>
</tr>
<tr>
<td>NNRTI</td>
<td>Non-nucleoside reverse transcriptase inhibitor</td>
</tr>
<tr>
<td>NRTI</td>
<td>Nucleoside reverse transcriptase inhibitor</td>
</tr>
<tr>
<td>NSP</td>
<td>Needle and syringe programmes</td>
</tr>
<tr>
<td>NVP</td>
<td>Nevirapine</td>
</tr>
<tr>
<td>OST</td>
<td>Opioid substitution therapy</td>
</tr>
<tr>
<td>PCP</td>
<td>Pneumocystis pneumonia</td>
</tr>
<tr>
<td>PEP</td>
<td>Post-exposure prophylaxis</td>
</tr>
<tr>
<td>PI</td>
<td>Protease inhibitor</td>
</tr>
<tr>
<td>PITC</td>
<td>Provider-initiated testing and counselling</td>
</tr>
<tr>
<td>PLHIV</td>
<td>People living with HIV</td>
</tr>
<tr>
<td>PMTCT</td>
<td>Prevention of mother-to-child transmission</td>
</tr>
<tr>
<td>RAR</td>
<td>Rapid assessment and response</td>
</tr>
<tr>
<td>RDA</td>
<td>Recommended daily allowance</td>
</tr>
<tr>
<td>RFB</td>
<td>Rifabutin</td>
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<tr>
<td>RMP</td>
<td>Rifampicin</td>
</tr>
<tr>
<td>RNA</td>
<td>Ribonucleic acid</td>
</tr>
<tr>
<td>RPR</td>
<td>Rapid plasma reagin</td>
</tr>
<tr>
<td>RTV</td>
<td>Ritonavir</td>
</tr>
<tr>
<td>SIGN</td>
<td>Safe Injection Global Network</td>
</tr>
<tr>
<td>STI</td>
<td>Sexually transmitted infection</td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>TDF</td>
<td>Tenofovir</td>
</tr>
<tr>
<td>TG</td>
<td>Transgender people</td>
</tr>
<tr>
<td>UNAIDS</td>
<td>Joint United Nations Programme on HIV/AIDS</td>
</tr>
<tr>
<td>UNFPA</td>
<td>United Nations Population Fund</td>
</tr>
<tr>
<td>VCT</td>
<td>Voluntary counselling and testing, now referred to as client-initiated testing and counselling (CITC).</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>XDR</td>
<td>Extensively drug-resistant</td>
</tr>
</tbody>
</table>
Foreword

Defining knowledge and knowledge gaps relevant to health, helping to establish health policy, issuing technical guidance and recommendations, and monitoring health trends are core functions of the World Health Organization (WHO). Since the early 1980s, WHO has been active in translating the evolving science of HIV/AIDS into practical advice for countries as they respond to this severe, heterogeneous and complex epidemic.

WHO coordinated the early global response to HIV/AIDS through its Special (later Global) Programme on AIDS. Working closely with ministries of health in low- and middle-income countries, WHO provided evidence-based programmes to combat this new disease. Following the establishment of Joint United Nations Programme on HIV/AIDS (UNAIDS) in 1996, and the agreed division of labour between its cosponsoring organizations, WHO remained the lead agency for the health-sector response to HIV/AIDS.

The rapidity of change in scientific understanding of HIV/AIDS, along with the breadth of the response, meant that technical advice on prevention, diagnosis, treatment and care could quickly become obsolete. WHO had no system in place to update earlier guidance, to discard it, or to confirm on an ongoing basis that it was still relevant. The range of technical guidance was diverse, and there was no single place where it could be easily accessed in a ‘one-stop shopping’ approach.

The year 2003 saw the launch of three key initiatives in the global AIDS response: the Global Fund to Fight AIDS, Tuberculosis and Malaria, the United States President’s Emergency Plan for AIDS Relief, and the WHO/UNAIDS ‘3 by 5’ initiative. The resulting programmatic scale-up highlighted a need for sound, evidence-based, impartial guidance for public health action.

Building on the achievements of the ‘3 by 5’ and other initiatives, leaders of G8 countries meeting in 2005 in Gleneagles, Scotland, committed to working with international organizations to develop and implement a ‘package’ of interventions, with a view to achieving universal access to HIV prevention, treatment, care and support—a goal later endorsed by Member States at the United Nations General Assembly. However, the nature of this essential package had yet to be defined.

In the aftermath of the ‘3 by 5’ Initiative, WHO has been acutely aware of the increasing importance of the health sector in the quest for universal access, and in tracking the epidemic and monitoring the response. The original call by G8 leaders for a package of interventions—coupled with the need for ongoing and updated user-friendly technical guidance—led WHO to develop this umbrella report that brings together in one place key WHO guidance and references for the health sector response to HIV/AIDS.

Priority interventions: HIV/AIDS prevention, treatment and care in the health sector defines the essential interventions the health sector should deliver, and provides key references and links to web-based resources. WHO launched an initial version of the document in August 2008, at the global AIDS conference in Mexico City. This updated report, published online and as a CD-ROM, will be further adapted as recommendations evolve. It offers WHO’s best attempt to assemble and package normative advice for the health sector on the essential response to HIV/AIDS. We hope it will prove useful for all people who work in the health sector as they confront the realities of HIV/AIDS throughout the world.

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Director

1 December, 2008
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0 Introduction

0.1 Towards universal access

Every day, more than 6800 people become infected with HIV and more than 5700 die, mostly because they have no access to HIV prevention, treatment and care services. Despite progress made in scaling up the response over the last decade, the HIV pandemic remains the most serious infectious disease challenge to global public health. Of eight key areas covered by the Millennium Development Goals, six—reduced poverty and child mortality, increased access to education, gender equality, improved maternal health and efforts to combat major infectious diseases—are being undermined by continuing transmission of HIV and its progression to AIDS.

International mobilization to combat HIV has increased substantially since the Millennium Development Goals were established in 2000. The United Nations 2001 Declaration of Commitment on HIV/AIDS marked the beginning of a sea change in the response to AIDS. In subsequent years, it was followed by ever increasing political and financial commitment. The WHO/UNAIDS ‘3 by 5’ initiative, major donors such as the Global Fund to Fight AIDS, Tuberculosis and Malaria, the World Bank’s Multi-country AIDS Programme, the US President’s Emergency Plan for AIDS Relief and other partners’ programmes have all contributed to a dramatic scale-up of antiretroviral therapy (ART) in many low- and middle-income countries.

By December 2007, an estimated 3 million people living with HIV were receiving ART in low- and middle-income countries, representing 31% of the estimated 9 million people in need. However, the number of new HIV infections remains high—an estimated 2.5 million in 2007—because too many people are unable to access HIV prevention services. Prevention efforts have often been late in starting, under-resourced and poorly supported, even though it is now well recognized that a comprehensive approach of HIV prevention, treatment and care is essential for reducing new infections and AIDS deaths.

The achievements of the ‘3 by 5’ Initiative inspired the current commitment to universal access. In 2005, G8 leaders announced their intention to “… work with WHO and UNAIDS and other international organizations to develop and implement a package of HIV prevention, treatment and care, with the aim of coming as close as possible to universal access to treatment for all those who need it by 2010”.

In September 2005, 191 United Nations Member States endorsed the universal access goal at the High-Level Plenary Meeting of the 60th Session of the United Nations General Assembly. In June 2006, a United Nations General Assembly High-Level Meeting on AIDS reaffirmed both the 2001 Declaration of Commitment on HIV/AIDS and the universal access goal. In July 2008 at their Hokkaido Tokyo Summit, G8 leaders reaffirmed their commitment to the universal access goal, and also called for enhanced efforts to address gender inequalities and stigma and discrimination, and to expand access to sexual and reproductive health services, especially for adolescents and most-at-risk populations.

The global partners’ continuing reaffirmation of their commitment to the universal access goal highlights the need for an accelerated scale-up of a comprehensive package of HIV prevention, treatment and care, and for a more rapid strengthening of health-care systems.

‘Universal access’ means establishing an environment in which HIV prevention, treatment, care and support interventions are available, accessible and affordable to all who need them. It covers a wide range of interventions that are aimed at individuals, households, communities and countries.

---

1 AIDS epidemic update. UNAIDS, WHO. 2007
2 Progress on global access to HIV antiretroviral therapy: A report on ‘3 by 5’. WHO. June 2005
3 United Nations. The declaration of commitment on HIV/AIDS. 2001
6 Final G8 communiqué. Gleneagles, Scotland. July 2005
7 United Nations. 60/262. Political declaration on HIV/AIDS. 2006
0.2 The health sector response

Scaling up a comprehensive package of HIV prevention, treatment and care, and strengthening health care systems will require the mobilization of partners from many sectors. However, partners in the health sector have special responsibilities for providing leadership and coordination, given that their sector provides so many of the critical opportunities for scaling up HIV-related services.

WHO is the UNAIDS cosponsor with primary responsibility for promoting and supporting health sector initiatives. As such, WHO has established priorities under five strategies for action in critical areas where the health sector in each country must invest if it is to make significant progress towards achieving the universal access goal.9

1. enabling people to know their HIV status
2. maximizing the health sector’s contribution to HIV prevention
3. accelerating the scale-up of HIV/AIDS treatment and care
4. strengthening and expanding health systems
5. investing in strategic information to guide a more effective response.

As defined by WHO, the health sector is “… wide ranging and encompasses organized public and private health services (including those for health promotion, disease prevention, diagnosis, treatment and care); health ministries, non-governmental organizations; community groups; and professional associations; as well as institutions which directly input into the health care system (e.g. pharmaceutical industry and teaching institutions).”10, 11

0.3 The public health approach

Efforts to scale up HIV programmes have resulted in a wide variety of service delivery models, guidelines and tools. WHO promotes a public health approach to health service delivery for HIV.12, 13 The foundation of this approach is identifying and implementing priority HIV prevention, treatment and care interventions to be delivered by the health sector; standardizing and simplifying protocols and tools to allow expansion and decentralization of services; and optimizing financial and human resources to deliver the most appropriate and effective interventions for the greatest good for the greatest number of people.

The principles that should guide the health sector response include:

- ensuring the full and proactive involvement of governmental, nongovernmental (NGO) and private sector organizations and of civil society, especially people living with HIV, including people most-at-risk of infection;
- tailoring interventions to where the burden of the disease lies, taking into account the nature of the epidemic and the context (e.g. cultural traditions, social attitudes, political, legal and economic constraints) in specific settings;
- creating a supportive enabling environment by addressing stigma and discrimination, applying human rights principles and promoting gender equity, as well as by reforming laws and law enforcement to ensure that they adequately respond to the public health issues raised by HIV and AIDS;
- offering a continuum of home, community and health facility services in conjunction with outreach to and consultation with community leaders and members, and especially with people living with and affected by HIV.

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12 See WHO terminology compendium: WHO dictionary of public health
0.4 Priority interventions

The priority interventions described in Chapter 1 are the complete set of interventions recommended by WHO to mount an effective and comprehensive health sector response to HIV and AIDS.

Universal access in the health sector requires that the priority interventions be delivered in ways that are physically accessible, publicly acceptable, affordable and of satisfactory quality.

The full package of priority interventions is ideal or ‘aspirational’. The actual package of priority interventions chosen by each country should be based on practical considerations such as the nature of the country’s epidemic, the context (cultural traditions, etc.), the country’s unique approach to service delivery (e.g. through some mix of public, nongovernmental and private providers), and the availability of financial, human and other resources.

The priority health-sector interventions for HIV prevention, treatment and care include:

- interventions based in health facilities, including information, education and supplies and services for preventing HIV transmission in health care settings; preventing sexual HIV transmission; managing sexually transmitted infections (STIs); preventing mother to child HIV transmission; providing harm reduction for injecting drug users (IDUs); HIV testing and counselling; preventing HIV transmission by people living with HIV; preventing the progression of HIV infection to AIDS; and the clinical management of treatment and care for people living with HIV;
- interventions based in communities, including community-based prevention; treatment preparedness and support for HIV and tuberculosis (TB); condom promotion; provision of clean injecting equipment; HIV testing and counselling, home-based care; and psychosocial support, including peer support;
- interventions delivered through outreach to most-at-risk populations, including integrated HIV testing, counselling, treatment and care services in drop-in centres and similar locations, including mobile sites;
- national measures required for supporting service delivery, including leadership and governance; advocacy; strategic planning; programme management; procurement and supply management; laboratory services; human resources; financing; and HIV and STI strategic information management systems.

0.5 Tailoring priority interventions to the type of HIV epidemic

At global, national and local levels the HIV epidemic comprises a multitude of diverse epidemics. The priority given to different interventions may vary from place to place according to the particular characteristics of the epidemic and its context (see Box 1).
Box 1. Typology of HIV epidemics

WHO and UNAIDS define the different types of HIV epidemics as follows:

**Low-level HIV epidemics**
HIV may have existed for many years, but it has never spread to substantial levels in any sub-population. Recorded infection is largely confined to individuals with higher risk behaviour: e.g. sex workers, drug injectors, men having sex with other men. Numerical proxy: HIV prevalence has not consistently exceeded 5% in any defined sub-population.

**Concentrated HIV epidemics**
HIV has spread rapidly in a defined sub-population, but is not well-established in the general population. This epidemic state suggests active networks of risk within the sub-population. The future course of the epidemic is determined by the frequency and nature of links between highly infected sub-populations and the general population. Numerical proxy: HIV prevalence is consistently over 5% in at least one defined subpopulation, but is below 1% in pregnant women in urban areas.

**Generalized HIV epidemics**
In generalized epidemics, HIV is firmly established in the general population. Although subpopulations at high risk may contribute disproportionately to the spread of HIV, sexual networking in the general population is sufficient to sustain an epidemic independent of sub-populations at higher risk of infection. Numerical proxy: HIV prevalence consistently over 1% in pregnant women.

Within generalized epidemics, there is a large range of HIV prevalence, including countries with HIV prevalence greater than 15%. The guidance provided for generalized epidemics in this document would also apply to these epidemics.

The selection of priority interventions and target populations needs to be based on a clear understanding of the epidemiology of HIV in the country—who is being infected, where, how and why—together with a detailed understanding of the most appropriate interventions for the particular setting. To successfully curtail transmission, effective prevention services must reach geographic areas and populations where HIV is spreading most rapidly and the interventions must be at sufficient scale and intensity to achieve impact. Similarly, effective services for treatment and care must reach geographic areas where people with HIV are located.

### 0.6 Tailoring priority interventions to the context of the epidemic

The unique characteristics of the epidemic need to be considered, but successful tailoring also requires taking context into consideration. This means assessing the health system’s readiness and its unique nature in a particular geographic area (e.g. who are the service providers, how are they financed, etc.); cultural traditions; social attitudes; political will; requirements for additional staff and facilities and equipment and supplies; and costs and available sources of financing. Such an assessment is best kept current through a regularly updated situation analysis.

Once the epidemic’s typology and context are well understood, a number of key principles can be used to guide the selection and prioritization of interventions and of appropriate service delivery approaches (see Box 2).
Box 2. Selecting and prioritizing interventions and service delivery approaches

In all epidemics:

- place top priority on accelerating prevention;
- select prevention interventions that match current patterns of HIV transmission;
- focus on geographic areas and populations where HIV is spreading most rapidly;
- Select HIV testing and counselling approaches that will optimize entry to prevention, treatment and care;
- plan treatment and care services that are accessible and will be used by those affected or targeted (this requires designing/configuring services that are acceptable to injecting drug users, sex workers and men who have sex with men);
- select the most effective service delivery approaches for implementing the interventions—through households, communities, health centres, hospitals, or outreach to most-at-risk populations;
- ensure HIV testing, counselling, prevention, and treatment and care services include outreach services to most-at-risk populations.

In low-level epidemics:

- recognize that affected individuals are often from marginalized populations and subject to stigma and discrimination;
- plan service delivery to match the distribution of people most-at-risk of infection and people living with HIV;
- define an optimal package of services and referral linkages to reach these groups;
- emphasize prevention so HIV incidence remains low.

In concentrated epidemics:

- recognize that effective targeted interventions require information on most-at-risk populations and their access to services;
- target interventions to most-at-risk populations, usually sex workers, transgender people, injecting drug users, and men who have sex with men;
- prioritize special interventions for injecting drug use wherever the practice occurs;
- ensure adequate coverage of prevention interventions for identified most-at-risk populations;
- use outreach by peers or people trusted by the target population, self-help and community groups, and local clinics able to provide friendly services for particular populations.

In generalized epidemics:

- select service delivery approaches able to address the high risk of infection, many new infections, multiple affected groups, and large numbers of people requiring treatment and care;
- decentralize HIV services to health centres and into the community;
- integrate HIV prevention, treatment and care services within primary care;
- emphasize prevention for people living with HIV;
- recommend HIV Provider-Initiated Testing and Counselling to all patients seeking care, and to pregnant or breastfeeding women.

See Chapter 4 for further detail and resources.

0.7 Objectives of this document

This document aims to:

1. describe the priority health sector interventions that are needed to achieve universal access to HIV prevention, treatment and care;
2. summarize key policy and technical recommendations developed by WHO and its partners and related to each of the priority health sector interventions;
3. guide the selection and prioritization of interventions for HIV prevention, treatment and care;
4. Direct readers to the key WHO resources and references containing the best available information on the overall health sector response to HIV/AIDS, and on the priority health sector interventions, with the aim of promoting and supporting rational decision-making in designing and delivering HIV-related services.

0.8 Target readers

This report is intended for a broad readership of public health decision-makers, national AIDS programme managers, health providers and workers (governmental, non-governmental and private), international, national and local donors, and civil society, including people living with and affected by HIV.

The document is structured as follows:

**CHAPTER 1: The priority interventions for HIV/AIDS prevention, treatment and care in the health sector**

This chapter describes the priority health sector interventions for HIV/AIDS that are recommended by WHO. It summarizes relevant technical recommendations in each intervention area and provides references to the key resources, with links to online versions if they are available.

**CHAPTER 2: Strengthening health systems**

This chapter discusses specific components of health system strengthening that need to be considered when scaling up the priority health sector interventions for HIV/AIDS. These components include integration and linkage of health services; infrastructure and logistics; human resource development; equitable access to medical products and technologies; health financing; advocacy and leadership; mobilizing partnerships including with people living with HIV; and addressing gender, stigma and discrimination.

**CHAPTER 3: Strategic information**

This chapter highlights the importance of strategic information about the epidemic to guide planning, decision-making, implementation and accountability of the health-sector response to HIV/AIDS.

**CHAPTER 4: Making the health sector response operational**

This chapter discusses HIV programme management and provides guidance on critical issues to consider when selecting and prioritizing interventions in different types of HIV epidemics.

**CHAPTER 6: Key resources to support implementing priority health sector interventions for HIV prevention, treatment and care**

This chapter is organized by intervention area and provides references to and descriptions of a wide range of tools and other resources for scaling up the health-sector response to HIV.

To ensure broad access, this document will be available in an electronic version (on the web and a CD-ROM). It is designed to be a living report, making it possible for WHO to continually learn from and contribute to the rapidly-evolving experiences of scaling up the health sector response to HIV. WHO will update its content on a regular basis and maintain a current version online.
1 The priority interventions for HIV/AIDS prevention, treatment and care in the health sector

Background

To achieve a comprehensive response to HIV/AIDS, the health sector has to take responsibility for delivering interventions to prevent new HIV infections, and to improve quality of life and avert premature death in adults and children living with HIV. When implemented together at sufficient scale and intensity, the priority interventions outlined in this chapter constitute an effective and equitable health sector response to HIV/AIDS.

Based on the best available evidence, these priority interventions are recommended by WHO. They include a wide range of interventions for providing knowledge of HIV status, preventing transmission of HIV and other sexually transmitted infections, and providing treatment and care for HIV/AIDS.

Section 1.1 discusses interventions under the first strategy for action: enabling people to know their HIV status. Section 1.2 discusses interventions under the second strategy for action: maximizing the health sector’s contribution to HIV prevention. Section 1.3 discusses interventions under the third strategy for action: accelerating the scale-up of HIV/AIDS treatment and care.

The effectiveness of the HIV response depends on the scale of implementation of the priority interventions. It is also contingent on the quality and characteristics of service provision, the broad cultural and social context, and the level of community commitment to and participation in efforts to counter stigma and discrimination.

HIV-related stigma and discrimination are often prevalent within health services, and are critical obstacles to provision and uptake of health sector interventions. Stigma and discrimination—often pervasive at all levels of society—sustain an environment where it is difficult for health services to attract the people who most need the interventions. HIV-related stigma and discrimination can be reduced through strong leadership and concrete measures in national strategic planning and programme design and implementation. Such measures can help countries reach key targets for universal access, and can also promote and protect human rights and foster respect for people living with and affected by HIV/AIDS.

Other factors that can enhance the effectiveness of the HIV response include a coordinated and participatory national strategic plan for HIV; a level of commitment to an HIV response consistent with human rights and fundamental freedoms; and a level of commitment to informing and consulting with the community during all phases of policy and programme design and implementation. Collaboration with the community should include promoting a supportive and enabling environment for women; addressing underlying prejudices and inequalities; and including women’s involvement in the design of social and health services that work for them.

For each priority intervention, there is a brief description and, in some cases, a discussion of the actions required to support its implementation. There is also a summary of relevant recommendations from current technical guidelines, and references to the full guidelines and other key resources.

Chapter 6: Key resources provides a more comprehensive list of current tools, guidelines and resources to support implementation of the priority interventions.

1.1 Enabling people to know their HIV status

Increasing the numbers of people who know their HIV status—especially among most-at-risk populations—through HIV testing and counselling is key to expanding access to HIV prevention, treatment and care.

WHO guidance on HIV testing and counselling aims to achieve synergies between medical ethics, human rights and clinical and public health objectives. The fundamental principle of HIV testing is that it must be accompanied by basic pre-test information to enable the client to make an informed and voluntary decision to be tested. The ‘Three Cs’ – informed Consent, Counselling and Confidentiality—should always be maintained. Additional tools are being developed to address the ‘Three Cs’ as they apply to children and adolescents.
The UNAIDS/WHO policy on HIV testing and counselling defines two main categories:14
i) client-initiated HIV testing and counselling (CITC);
ii) provider-initiated HIV testing and counselling (PITC)

For both categories the following applies: it is crucial that those who will be tested receive pre-test counselling so they can provide informed consent. After testing, those found to be HIV-negative should learn how to remain negative. Those found to be HIV-positive should learn how to prevent transmission to others and maintain their own good health. Additionally, they should receive clinical assessment and referral to appropriate services.

**Pre-test information** can be provided in the form of individual counselling sessions or in group health information talks and should provide information on: the clinical and prevention benefits of testing; the potential risks, including stigma and discrimination, abandonment or violence; the measures that will be taken to guarantee confidentiality of test results; services that are available in the case of either an HIV-negative or an HIV-positive test result; and the fact that individuals have the right to decline the test.

**Post-test counselling** for HIV-negative persons should provide basic information that includes an explanation of the test result, the window period for the appearance of HIV-antibodies and a recommendation to re-test, if appropriate. It should also include advice on methods to prevent sexual transmission, and provision of male or female condoms and their use. In the case of injecting drug users, it might also include provision or advice on where to obtain substitution therapy and safe injection equipment and how to use it.

**Post-test counselling** for HIV-positive persons should provide psychosocial support to cope with the emotional impact of the test result, referral to treatment and care services, disclosure to sexual and injecting partners, basic advice on methods to prevent HIV transmission, provision of male and female condoms and guidance on their use, and other measures outlined in section 1.4 for people living with HIV/AIDS.

WHO and UNAIDS recommend ‘beneficial disclosure’ where HIV-positive individuals themselves notify sexual or drug-injecting partners of their HIV status, where appropriate. Informing partners is an effective means of reducing HIV transmission. It also facilitates prevention, care, support and adherence to treatment, and promotes greater openness about HIV within communities.

**Key resources:**

1. UNAIDS/WHO policy statement on HIV testing

2. Opening up the HIV/AIDS epidemic: Guidance on encouraging beneficial disclosure, ethical partner counselling & appropriate use of HIV case-reporting

3. HIV counselling and testing e-library

4. Guidelines for the implementation of reliable and efficient diagnostic HIV testing, Region of the Americas
   English: [http://www.paho.org/English/AID/FCH/AI/LAB_GUIDE_ENG.PDF](http://www.paho.org/English/AID/FCH/AI/LAB_GUIDE_ENG.PDF)

1.1.1 Client-initiated HIV testing and counselling

Client-initiated testing and counselling (CITC), also called voluntary counselling and testing (VCT), occurs when people come to a service to find out their HIV status.

CITC emphasizes individual risk assessment and counselling that addresses the implications of taking an HIV test and the strategies for reducing risk. Counselling covers prevention both prior to and after receiving test results and, if results are positive, referral to care, treatment and support services.

**Summary of recommendations**

WHO and UNAIDS recommend that known and innovative approaches be used to scale up and expand access to CITC. These approaches should optimize convenience for clients, decentralize services and provide testing and counselling in a wide variety of settings—including health facilities, community-based locations and work places—and through outreach services that may be stationary.

14 Available at: [http://www.who.int/entity/hiv/pub/vct/en/hivtestingpolicy04.pdf](http://www.who.int/entity/hiv/pub/vct/en/hivtestingpolicy04.pdf)
or mobile. They should offer services outside normal working hours and remove any financial barriers to testing and related services.

In the case of low or concentrated epidemics, the programmatic focus should be on increasing access and uptake among most-at-risk populations. In the case of generalized epidemics, CITC should be made widely available using a variety of approaches.

**Key resources:**

1. WHO HIV testing and counselling (TC) toolkit
   

2. International Organization for Migration guide for counsellors: IOM HIV counselling in the context of migration health assessment
   

1.1.2 Provider-initiated HIV testing and counselling

Provider-initiated testing and counselling (PITC) occurs when HIV testing and counselling is recommended by health providers as a standard part of medical care to individuals attending health facilities. The purpose of PITC is to enable specific clinical decisions to be made and/or specific medical services to be offered that would not be possible without knowledge of the person’s HIV status.

PITC includes testing and counselling for adults, children and infants when HIV is suspected; the routine recommendation of testing for all patients or specified groups of patients accessing health facilities; and the recommendation of testing for family members and partners of HIV-positive people.

**Summary of recommendations**

WHO and UNAIDS recommend that PITC start with basic pre-test information provided either on an individual or group basis. PITC should require informed consent, with the client given all necessary information to make a rational decision, and given the opportunity to decline testing. This opportunity should be given in private, in the presence of a health provider. Post-test counselling should be tailored to the test result and, in the case of a positive result, should be more extensive. As with all HIV testing, confidentiality should be guaranteed and health providers should take measures to ensure that this guarantee is upheld.

The UNAIDS/WHO guidance on PITC specifies situations in which health providers should recommend testing and counselling based on the characteristics of the epidemic in a given setting.

**In all HIV epidemics,** HIV testing and counselling is recommended for all patients whose clinical presentation might result from underlying HIV infection. Testing and counselling is also recommended for all HIV-exposed children, and prior to HIV post-exposure prophylaxis.

**In low-level or concentrated epidemics,** PITC is not recommended for all patients attending health facilities, but should be considered in a range of specific situations (where patients have come for STI services; where services are provided to most-at-risk populations; where patients have come for antenatal, childbirth and postpartum services, or tuberculosis (TB) and hepatitis-related services).

**In generalized epidemics,** PITC is recommended for all patients attending health facilities, regardless of whether they show signs or symptoms of underlying HIV infection, or of their reason for coming to a health facility, including for men prior to circumcision.

HIV testing and counselling as early as possible during pregnancy enables pregnant women to access interventions for reducing HIV transmission to their infants and to benefit from prevention, treatment and care, and is therefore recommended.

**Key resources:**

7. Guidance on provider-initiated HIV testing and counselling in health facilities
   
   

8. WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children
   
   http://www.who.int/hiv/pub/guidelines/HIVstaging150307.pdf

9. HIV testing and counselling in TB clinical settings tools
   
   http://www.cdc.gov/globalaids/pa_hiv_tools.htm

   
1.1.2.1 Family and partner HIV testing and counselling

It is important that people diagnosed HIV-positive be encouraged to disclose their HIV status to those who need to know (e.g. sexual and needle-sharing partners), and to propose HIV testing and counselling to their sex or needle-sharing partners. It is equally important that they be supported in these endeavours. The testing and counselling of sexual and needle-sharing partners can be done either in the health facility—for example, following counselling of a couple—or through referral to another facility that welcomes client-initiated HIV testing and counselling.

Since parents generally accompany their children during visits to child health services, opportunities arise to recommend HIV testing and counselling for both parents and siblings of HIV-infected children. This should be done especially for mothers of HIV-infected children, and for women who were not tested while using prevention of mother-to-child transmission (PMTCT) services.

Summary of recommendations

HIV testing and counselling should be recommended for sex partners, drug-injecting partners, children and other immediate family members of all people living with HIV, in cases where horizontal or vertical transmission may have occurred. Identifying these people is often contingent on active support for beneficial disclosure, where HIV-positive individuals notify their partners and encourage them to seek HIV testing and counselling. Within a family-centred approach to HIV testing, once a family member is identified as having HIV, health workers should encourage and actively facilitate HIV testing for other family members, where possible and appropriate, through couples, or family testing and counselling services.

Key resources:

7. Guidance on provider-initiated HIV testing and counselling in health facilities

2. Opening up the HIV/AIDS epidemic: Guidance on encouraging beneficial disclosure, ethical partner counselling & appropriate use of HIV case-reporting

1.1.2.2 Infant and children HIV testing and counselling

WHO and UNAIDS provider-initiated testing and counselling (PITC) guidelines and antiretroviral therapy (ART) guidelines provide guidance on when health care providers should recommend HIV testing and counselling for infants and children. The HIV exposure status of infants should be established at their first contact with the health system, ideally before six weeks of age. Maternal, newborn and child health clinics, where a child receives her or his first set of vaccinations, provide important opportunities for ensuring that the mother’s HIV status is known and that the infant’s HIV exposure is determined. Specific recommendations on testing in infants and children will be reviewed at an expert meeting to be held 20–21 November 2008, and further guidance on counselling and disclosure for children is under development.

Summary of recommendations

PITC should be recommended for all infants and children when HIV is suspected or HIV exposure is recognized. This includes testing and counselling for all infants and children suspected of having TB, and those with malnutrition who do not respond to appropriate nutritional therapy.

All HIV-exposed infants should have viral testing at or around four to six weeks of age, or at the earliest opportunity for those seen after six weeks. If viral testing is not available, presumptive clinical diagnosis in accordance with nationally defined algorithms will be required. HIV infection should be confirmed through HIV antibody testing at or around 18 months as part of clinical management.
WHO recommends that maternal or infant HIV antibody testing and counselling be performed for infants of unknown HIV exposure status in all settings when local or national antenatal HIV prevalence is greater than 5% (or locally determined thresholds). In such settings, infant testing can initially be done using HIV antibody testing, and those with detectable HIV antibody should then go on to have viral testing.

HIV testing and counselling should be recommended for all immediate family members of infants and children known to be exposed to or infected with HIV.

In children older than 18 months, HIV can be diagnosed based on HIV antibody testing, as in adults. In infants and children younger than 18 months, viral tests are recommended to diagnose HIV.

**Key resources:**

12. Scale up of HIV-related prevention, diagnosis, care and treatment for infants and children: A programming framework
13. Antiretroviral therapy for HIV infection in infants and children: towards universal access: recommendations for a public health approach

### 1.1.3 Blood donor HIV testing and counselling

It is the responsibility of a blood transfusion service to provide an adequate supply of safe blood and blood products, while ensuring the safety of both the recipient and the donor. Globally, more than 81 million units of whole blood are collected annually and at least seven million donors are deferred from blood donation.

In accordance with national protocols and standards, quality-assured screening of all donated blood for transfusion-transmissible infections is a critical HIV prevention strategy. Inadequate screening coverage or poor quality control systems compromise the safety of the blood supply, and also hinder the management of blood donors who test HIV-positive. About one million donated units are excluded annually because they contain transfusion-transmissible infections.

The blood transfusion service is often the first point of contact of the general public with the health system. It is uniquely suited to promote healthy living and to advise millions of blood donors on lifestyle issues that affect their health. Counselling of blood donors is necessary before (pre-donation counselling) and after (post-donation counselling) blood is collected, and should be preceded by pre-donation information and discussion. Effective pre-donation discussion and counselling are vital activities of the blood transfusion service, and are needed to encourage appropriate donor self-deferral.

Post-donation counselling is a necessary part of care for infected donors. It is also important in promoting health maintenance and regular donation by healthy donors. Donors need to be informed of the test result since it has an impact on their health and prevents the use of their donated blood. Blood transfusion services have responsibilities to confirm test results and notify donors of HIV, hepatitis B and C, or any other infections identified, thus giving an opportunity to donors to access treatment and care. These services also have responsibilities to promote low-risk behaviour that reduces the risk of the spread of infection. Effective blood donor counselling can make significant contributions to national initiatives that aim to prevent future transmission of infection and promote healthy lifestyles. It can also lead to family testing and counselling and advice on follow-up and referral.

The WHO Global Database on Blood Safety reported that of 173 countries surveyed in 2004–5, only 48 provide counselling to blood donors, both before and after donation, and in all the facilities collecting blood in the country. Many countries still have no clear policy on blood donor counselling in the context of blood donation, and need guidance and support in setting up blood donor counselling services.

**Summary of recommendations**

Develop and implement a national strategy to screen all donated blood for HIV and other transfusion-transmissible infections, using the most appropriate and effective technologies.
Maintain good laboratory practice and quality assurance systems that ensure the use of standard operating procedures in all aspects of blood screening and processing.

Include blood donor deferral, confirmatory testing, notification, counselling and referral in the national blood policy.

Encourage donors and the general public to avoid using blood transfusion services as health assessment services or alternatives to HIV testing and counselling services. Defer individuals who wish to donate blood mainly to have an HIV test.

Conduct effective pre-donation discussion and counselling to encourage appropriate donor self-deferral, and to promote health maintenance and regular donation by HIV-negative donors.

Provide post-donation counselling by staff with HIV counselling skills for donors who require this service.

Refer those donors found infected with HIV, hepatitis or other transfusion-transmissible infections for long-term follow-up and care.

Key resource:

14. WHO Blood transfusion safety (WHO web page)
   http://www.who.int/bloodsafety/en/

1.1.4 Laboratory services for HIV diagnosis

Adequate quantities of high-quality laboratory services, skills and commodities are required to meet increased demand for HIV testing. WHO laboratory recommendations for HIV testing cover:

- selection of affordable technologies;
- strategies and algorithms for HIV testing protocols suited to different purposes, e.g. for blood transfusion safety, surveillance or clinical care;
- quality assurance and good management of testing and laboratory systems.

The WHO recommendations describe various testing strategies appropriate for different HIV testing purposes, such as HIV diagnosis in clinical care settings, research and surveillance, or ensuring blood transfusion safety. These strategies take into consideration the characteristics of the epidemic and HIV prevalence in the populations to which the people being tested belong. A testing algorithm describes the combination and sequence of specific HIV assays used for a given HIV testing strategy. WHO recommendations for the selection and use of HIV antibody tests are currently being updated.

Summary of recommendations

National HIV testing guidelines should provide specific testing algorithms for each of the testing purposes and specify which test kits should be used and in what order. Selection of test kits and the order in which they are used are critically important for the good performance of the testing algorithm.

Serial testing is recommended for most HIV testing purposes. For clinical care, serial testing is usually recommended; if the result of the first HIV antibody test is negative, then the test is reported as negative. If the initial test result is positive, the specimen is tested with a second test using different antigens and/or platforms. In populations with an HIV prevalence of 5% or more, a second positive test result is considered to indicate a true positive result. In low prevalence settings where false positive results are more likely, a third test is usually recommended. WHO and UNAIDS recommend serial testing in most settings because it is cheaper than parallel testing, since a second test is required only when the initial test is positive.

Parallel testing is more costly because of the number of assays and the labour required (particularly in low prevalence settings), but it may reduce the time needed to obtain a final test result. Parallel testing strategies can be considered in special circumstances such as, for example, the onset of labour, to determine a mother's HIV status and whether or not there is need for antiretroviral prophylaxis to prevent mother-to-child transmission of HIV.

Key resource:

15. Revised recommendations for the selection and use of HIV antibody tests.

Quality management systems should be established at all sites carrying out HIV testing. The systems should include validated standard operating procedures, internal and external quality
assessment (e.g. proficiency testing), testing aligned with national algorithms, and use of HIV assays approved and validated by the national reference laboratory. Ongoing quality assurance is required to monitor and evaluate the performance of each test within the national algorithm, and to ensure ongoing performance of the testing technology and algorithm.

**Key resources:**

16. Guidelines for assuring the accuracy and reliability of HIV rapid testing: Applying a quality system approach  

17. Overview of HIV Rapid Test Training Package  
http://www.cdc.gov/dls/la/hivtraining/Overview.pdf

18. HIV rapid test training: Framework for a systematic roll-out  

Rapid HIV tests are recommended when there are efforts to expand access to HIV testing and counselling services, particularly within community settings or health facilities where laboratory services are weak or absent. They do not require specialized equipment, allow a quick turn-around, usually have internal controls and can be operated by trained non-laboratory personnel, including lay service providers. Increasingly, HIV assays are being produced in countries with less-stringent regulatory systems, and the performance of these assays warrants close attention before they are adopted into national testing algorithms.

**Key resource:**

19. HIV assays: Operational characteristics (Phase 1). Report 14: Simple/rapid tests  

Enzyme immunoassays (EIA or ELISAs) are very well suited to the needs of blood transfusion services and other high volume testing services such as reference laboratories, busy inpatient facilities, and for the purposes of surveillance. However, these tests require specialized laboratory equipment and staff. Some EIA and rapid tests allow combined detection of HIV antigen and antibody.

**Key resources:**

20. HIV assays: Operational characteristics (Phase 1). Report 15: Antigen/Antibody ELISAS  

21. Guidelines for appropriate evaluations for HIV testing technologies in Africa  

National HIV/AIDS programmes should establish laboratories with the capacity to perform viral testing for HIV in infants. Assays suitable to use for early infant diagnosis include HIV DNA nucleic acid tests (NATs) such as polymerase chain reaction (PCR) and HIV RNA nucleic acid testing technologies (PCR and other methods). For HIV testing in infants, blood samples can be collected on filter paper (dried blood spots or DBSs) which offers advantages over other specimen collection methods, including ease of collection and transport. Yet, to date, only HIV DNA detection assays can be used to diagnose HIV in infants using specimens collected on DBS. Plasma specimens are required for using HIV RNA methods for diagnosis. HIV RNA assays demonstrate the presence of HIV for purposes of diagnosis, and allow quantitative measurement of HIV RNA. However, there is currently insufficient evidence to recommend that these assays be performed on DBS specimens.

1.2 Maximizing the health sector’s contribution to HIV prevention

Primary prevention of HIV transmission requires implementation of a wide range of activities involving the health and other sectors.

HIV prevention in the health sector should include interventions aimed at changing individuals’ behaviour and addressing cultural norms, social attitudes and behaviour that may increase people’s vulnerability to HIV infection. It should also include biomedical interventions such as condoms, clean needles and providing ART to pregnant women for their own health, or ARVs for prevention of antepartum and intrapartum HIV transmission. Prevention programmes for prophylaxis and safe delivery usually require a combination of several interventions. In sub-Saharan African countries with very high HIV prevalence, biomedical interventions including male circumcision in HIV-negative men may also be important components of HIV prevention when combined with HIV testing and counselling and promotion of condom use.

It is critical to complement HIV prevention for those who are uninfected with prevention for people already living with HIV. A key concern for people living with HIV is to prevent inadvertent HIV
transmission. Other concerns include preventing illness, receiving care for opportunistic infections and accessing antiretroviral treatment. Interventions to address their need to engage in sexual activity without fear of transmitting the virus to their sexual partners are highlighted below (see section 1.2.1.5 and section 1.2.3). Recommendations for preventing illness and other aspects of care and treatment are outlined in section 1.3.1. Also, since the meaningful involvement of people living with HIV is instrumental in facilitating patient-provider understanding and effective HIV responses, it is described in section 2.5.2.

When prioritizing HIV prevention interventions, emphasis should be placed on those interventions that are likely to have the greatest impact, and that can be implemented at sufficient scale to have such impact. Interventions should be tailored to the burden of disease and the nature of the epidemic in specific settings, as well as to the capacity and level of health services in those settings (see Chapter 4).

**Key resources:**

22. Practical guidelines for intensifying HIV prevention: towards universal access

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings

24. Glion consultation on strengthening the linkages between reproductive health and HIV/AIDS: family planning and HIV/AIDS in women and children
   [http://www.who.int/entity/hiv/pub/advocacymaterials/glionconsultationsummary_DF.pdf](http://www.who.int/entity/hiv/pub/advocacymaterials/glionconsultationsummary_DF.pdf)

25. Linkages between HIV and SRH: Technical documents and advocacy materials (web page)
   [http://www.who.int/reproductive-health/hiv/docs.html](http://www.who.int/reproductive-health/hiv/docs.html)

1.2.1 Preventing sexual transmission of HIV

1.2.1.1 Promoting and supporting condom use

The correct and consistent use of male condoms reduces the risk of sexual transmission of HIV by 80% to 90%. Evidence indicates that female condoms may offer similar levels of protection against HIV infection.

Essential HIV prevention interventions include providing free condoms to those most in need, and ensuring that condoms are available to all sexually active people. Social marketing combines marketing strategies that increase the demand and supply of condoms at subsidized cost.

**Summary of recommendations**

Promotion of male and female condom use should be scaled up as part of comprehensive HIV prevention programmes. These programmes should ensure that quality condoms are accessible to those who need them when they need them, and that people have the knowledge and skills to use them correctly and consistently. Male and female condoms should be made available universally, either free or at low cost, and should be promoted in ways that help overcome social and personal obstacles to their use.

For some high risk populations, such as male sex workers and men who have sex with men, providing water-based lubricant is absolutely essential. Female and male condoms should be procured according to the standards and quality assurance procedures established by WHO, the United Nations Population Fund (UNFPA) and UNAIDS. Condoms should be stored and distributed according to international norms and standards.

As part of a multisectoral response, the health sector should provide guidance on sex education, school-based HIV education, mass media communications and education messaging, and other behaviour change interventions designed to increase demand and improve use of condoms by young people and high risk groups.

**Key resources:**

26. Position statement on condoms and HIV prevention

27. The male latex condom: Specification and guidelines for condom procurement
   [http://www.who.int/reproductive-health/publications/m_condom/who_specification_04.pdf](http://www.who.int/reproductive-health/publications/m_condom/who_specification_04.pdf)
1.2.1.2 Detecting and managing sexually transmitted infections

Similar behaviours put people at risk for both sexually transmitted infections (STIs) and HIV. People with STIs may be at higher risk of acquiring or transmitting HIV infection.

Programmes for the prevention and treatment of STIs, especially among populations at higher risk for sexual transmission of HIV, remain important elements of HIV prevention programmes.

Services for STI prevention, case management and partner treatment also contribute to HIV prevention by promoting correct and consistent condom use, and supporting health education and behaviour change. A range of models for delivering STI services are required to ensure most-at-risk and vulnerable populations have access to these services. STI services provide opportunities for access to HIV testing and counselling.

**Summary of recommendations**

WHO recommends that countries expand the provision of good quality STI care into primary health care, sexual and reproductive health services and HIV services. Comprehensive STI services include:

- correct diagnosis by syndrome or laboratory test;
- provision of effective treatment at first encounter;
- reduction in further risk-taking behaviour through age-appropriate education and counselling;
- promotion and provision of condoms, with clear guidance on correct and consistent use;
- notification and treatment of STIs in sexual partners, when applicable;
- screening and treatment for syphilis in pregnant women;
- provision of hepatitis and human papillomavirus (HPV) vaccines to prevent genital and liver cancers;
- HIV testing and counselling in all settings providing care for STIs.

For primary care settings in low- and middle-income countries, WHO recommends syndromic management of STIs in patients presenting with consistently recognized signs and symptoms. Treatment for each syndrome should be directed against the main organisms responsible for the syndrome within that geographical setting. National guidelines based on identified patterns of infection and disease should be developed and disseminated to all providers of STI care.

Every country should ensure that interventions for STI prevention and care are integrated or closely coordinated with national AIDS programmes.

**Key resources:**


31. Guidelines for the management of sexually transmitted infections

32. STI interventions for preventing HIV: Appraisal of the evidence
   Publication anticipated in early 2009.

33. IMAI acute care STI/genitourinary problem training course participant’s manual (part of IMAI acute care guideline module).

34. Periodic presumptive treatment for sexually transmitted infections: Experience from the field and recommendations for research

35. WHO regional strategy for the prevention and control of sexually transmitted infections 2007-2015
   [http://www.searo.who.int/LinkFiles/Publications_WHO_Regional_Strategy_STI.pdf](http://www.searo.who.int/LinkFiles/Publications_WHO_Regional_Strategy_STI.pdf)
1.2.1.3 Safer sex and risk reduction counselling

Behavioural interventions at an individual, group or community level can generate safer sexual behaviour. However, it is critically important to sustain interventions for behaviour and to provide prevention tools over long periods of time. Counselling (i.e. a confidential dialogue between a client and a counsellor) can enable clients to take personal decisions related to HIV and to adopt safer sexual behaviours to reduce their risk of transmitting or acquiring HIV. The counselling process should include evaluating the personal risk of HIV transmission, discussing how to prevent infection, and assisting in identifying and overcoming impediments to safer behaviour.

Summary of recommendations

Individual and small group dialogue between providers and clients in health settings serves as an important opportunity for providing information and counselling on safer sex and risk reduction. Health care providers should routinely assess if patients are at risk or have symptoms of STIs. Those identified as being at ongoing risk may require more intensive counselling and support to reduce risky behaviour, including a reduction in number of partners.

Risk reduction counselling includes, for example, information on prevention of transmission of STIs and HIV through condom use, including for most-at-risk populations. Counselling on delay of sexual debut and reduction of number of sexual partners, including visits to sex workers and reduction of concurrent partnership, is recommended to prevent sexual transmission among heterosexual partners. However, the benefit of this counselling for men having sex with men has not been established.

Specific measures may be needed to support and counsel discordant couples and individuals in multiple concurrent partnerships, as well as for men having sex with men.

Safe sex counselling for prevention of transmission of HIV and other STIs should be integrated into sexual and reproductive health services, especially those dealing with family planning and STI services.

Community-based behavioural interventions complement facility-level provider-client interactions. Community-based interventions should include peer outreach for hard-to-reach populations for whom the following should be provided: information on HIV and other STIs; risk reduction counselling; and the distribution of prevention commodities such as condoms, clean needles and syringes.

Key resources:

36. SEX-RAR guide: The rapid assessment and response guide on psychoactive substance use and sexual risk behaviour

http://whqlibdoc.who.int/publications/2006/924159425X_eng.pdf

37. Youth-centered counseling for HIV/STI prevention and promotion of sexual and reproductive health: a guide for front-line providers

1.2.1.4 Male circumcision

Randomized trials in areas of high HIV prevalence have demonstrated that male circumcision reduces the risk of heterosexually acquired HIV in men by approximately 60%. This evidence supports the findings of many observational studies. There is no definitive evidence that male circumcision reduces the risk of HIV transmission from men to women, or between men who have sex with men.

Summary of recommendations

WHO recommends that male circumcision undertaken by appropriately trained health providers be considered as part of a comprehensive HIV prevention package. Services should be scaled up for defined geographic settings and priority should be given to males in areas where HIV prevalence in the general populations exceeds 15%.

Male circumcision does not provide complete protection against HIV, so men and women who consider male circumcision as an HIV preventive method should continue to use other prevention methods such as male and female condoms, delaying sexual debut and reducing the number of sexual partners.
HIV testing and counselling should be recommended for all males seeking circumcision, but should not be mandatory. Surgery should be done in an appropriate clinical setting by trained health providers. Where access to male circumcision services is limited, priority could be given to HIV-negative men who have indications of being at higher risk for HIV, such as men presenting with an STI.

Counselling should stress that resumption of sexual relations before complete wound healing may increase the risk of acquisition of HIV infection among recently circumcised HIV-negative men. Men who undergo circumcision should abstain from sexual activity for at least six weeks, or until surgical wounds are completely healed.

There should be broad community engagement to introduce or expand access to safe male circumcision services. Such engagement also serves as a means of communicating accurate information about the intervention to both men and women.

Careful monitoring and evaluation of the impact of male circumcision for HIV prevention should be conducted to monitor and minimize potential negative gender-related impacts of male circumcision.

**Key resources:**

1. Male circumcision information package
   - [http://www.who.int/hiv/mediacentre/infopack_en_1.pdf](http://www.who.int/hiv/mediacentre/infopack_en_1.pdf)
   - [http://www.who.int/hiv/mediacentre/infopack_en_2.pdf](http://www.who.int/hiv/mediacentre/infopack_en_2.pdf)

   - French: [http://www.who.int/entity/hiv/mediacentre/MCrecommendations_fr.pdf](http://www.who.int/entity/hiv/mediacentre/MCrecommendations_fr.pdf)

3. Male circumcision: Global trends and determinants of prevalence, safety and acceptability

4. Manual for male circumcision under local anaesthesia
   - [http://www.who.int/hiv/pub/malecircumcision/who_mc_local_anaesthesia.pdf](http://www.who.int/hiv/pub/malecircumcision/who_mc_local_anaesthesia.pdf)

5. Male circumcision quality assurance: A guide to enhancing the safety and quality of services
   - [http://www.who.int/hiv/pub/malecircumcision/qa_guide/](http://www.who.int/hiv/pub/malecircumcision/qa_guide/)

6. Male circumcision quality assurance toolkit
   - [http://www.who.int/hiv/pub/malecircumcision/qa_toolkit/](http://www.who.int/hiv/pub/malecircumcision/qa_toolkit/)

7. Safe, voluntary, informed male circumcision and comprehensive HIV prevention programming: Guidance for decision-makers on human rights, ethical and legal considerations

8. Male circumcision and HIV prevention in Eastern and Southern Africa communications guidance

9. Operational guidance for scaling up male circumcision services for HIV prevention
   - [http://www.who.int/hiv/pub/malecircumcision/op_guidance/](http://www.who.int/hiv/pub/malecircumcision/op_guidance/)

### 1.2.1.5 Prevention among people living with HIV

Addressing the prevention needs of people living with HIV is a critical challenge for the health sector. Expanding access to HIV testing and antiretroviral therapy will increase the number of people living with HIV who can benefit from comprehensive HIV prevention, treatment and care services in the health sector.

Most people living with HIV will remain sexually active. Health providers should respect their right to do so and support them and their partners in preventing further HIV transmission, including through the provision of condoms. For some, knowledge about their HIV infection may not prompt a change in behaviour to reduce further HIV transmission, and additional support may be needed.

A large proportion of HIV infections occur within HIV discordant, stable partnerships. HIV-negative partners in discordant couples (where one partner is HIV-negative and the other HIV-positive) are at high risk of HIV infection and represent an important group for prevention efforts. Evidence from studies of individual partners and both partners in HIV discordant couples shows that counselling and condom provision are effective in preventing HIV transmission.

Recommendations to prevent HIV-associated illness are described in section 1.3.1.
Summary of recommendations

People living with HIV should be counselled on safer sex interventions to prevent HIV transmission to others, and on how to avoid contracting sexually transmitted infections. They should also be provided with condoms.

Ongoing behavioural counselling and psychosocial support should be given to HIV-discordant couples through couples counselling and support groups that cover topics such as HIV-transmission-risk reduction, reproductive health issues, couples communication and condom provision.

Key resources:

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
   English: http://www.who.int/hiv/pub/imai/Chronic_HIV_Care7.05.07.pdf

1.2.1.6 Interventions targeting most-at-risk populations

The health sector is responsible for configuring and supporting comprehensive programmes and service delivery models that address the needs of populations most-at-risk for HIV, and for ensuring that these services are accessible, acceptable and equitable. In many countries, sex workers and men who have sex with men are criminalized and stigmatized, increasing high-risk behaviours and discouraging them from accessing health services. Where these barriers to implementing priority interventions exist, there is a need to actively create a supportive policy, legal and social environment that facilitates equitable access to prevention, treatment and care.

The interventions listed below are often best delivered through community-based organizations doing outreach, or at health facilities.

Key resource:

22. Practical guidelines for intensifying HIV prevention: towards universal access

1.2.1.6.1 Interventions targeting sex workers

Sex workers are among the groups most vulnerable to and affected by HIV. Specific behaviours can place sex workers, their clients and regular partners at risk, and contextual factors can further exacerbate their vulnerability to HIV. The evidence base is firmly established to support a range of interventions to prevent transmission of HIV and other sexually transmitted infections in sex work settings, to provide care and support services, and to empower sex workers to improve their own health and well-being. Interventions can be tailored for brothel or other entertainment establishments, or for more informal street-based and home-based settings.

Worldwide, only a few countries have implemented sex worker programmes of sufficient scale to prevent transmission of HIV and other STIs. There is solid public health evidence demonstrating the effectiveness of comprehensive condom use programmes targeting sex workers or entertainment establishment workers, but most countries still have structural barriers that must be addressed to facilitate equitable access to services.

A comprehensive set of interventions are recommended to increase condom use and safe sex, reduce the STI burden and maximize sex-worker involvement in and control over their working and social conditions.

Summary of recommendations

Systematic collection of strategic information on HIV and other STIs among sex workers and their clients is required to guide comprehensive programme implementation.

Programme planning must include formative assessments to determine the needs and vulnerabilities of sex workers, and sex workers should be proactively involved in the design and delivery of programmes.
The health sector should also promote legal and social frameworks that are rights-based and consistent with public health and HIV prevention goals.

Priority interventions targeting sex workers to prevent sexual transmission of HIV and other STIs include:

- promoting and supporting condom use, including water-based lubricants for male sex workers (see section 1.2.1.1);
- detecting and managing STIs (see section 1.2.1.2);
- information, education and communication through peer outreach;
- enabling people to know their HIV status (see section 1.1).

Other health sector interventions for HIV prevention, treatment and care of sex workers are described in the following sections:

- Family planning, counselling and contraception (see section 1.2.3.1);
- HIV treatment and care (1.3);
- Prevention of HIV in infants and young children (see section 1.2.3);
- Prevention of viral hepatitis (see section 1.3.2.2.5);
- Prevention of HIV transmission through drug use (see section 1.2.2);
- Social support including for income generation and legal services.

HIV and STI prevention activities for sex workers can be delivered at health facilities, in community-based settings, and through peer outreach.

Key resources:

48. Toolkit for targeted HIV/AIDS prevention and care in sex work settings

49. Guidelines for the management of sexually transmitted infections in female sex workers

35. WHO regional strategy for the prevention and control of sexually transmitted infections 2007-2015
   http://www.searo.who.int/LinkFiles/Publications_WHO_Regional_Strategy_STI.pdf

50. 100% condom use programme in entertainment establishments
   http://www.wpro.who.int/LinkFiles/Publications_WHO_Regional_Strategy_STI.pdf

34. Periodic presumptive treatment for sexually transmitted infections: Experience from the field and recommendations for research

51. HIV and sexually transmitted infection prevention among sex workers in Eastern Europe and Central Asia
   English: http://whqlibdoc.who.int/unaids/2006/9291734942_eng.pdf
   Russian: http://whqlibdoc.who.int/unaids/2006/9291734365_rus.pdf

1.2.1.6.2 Interventions targeting MSM and transgender people

While much is known about the HIV epidemic among men who have sex with men (MSM) and transgender people (TGs) in high-income countries, information is limited on the prevalence of HIV among MSM and TGs in low- and middle-income countries. Overall, HIV transmission among MSM in low- and middle-income countries appears to be greatly underreported. There is also a lack of information on access to services for HIV prevention, treatment and care among MSM and TGs in those countries.

Recent evidence suggests that sexual transmission of HIV and other STIs among MSM is resurfacing as a problem in the major cities of Asia, Europe, Latin America and North America. Unprotected anal sex between men is increasingly being reported in sub-Saharan Africa as well. Surveys in several countries have also shown that many MSM have female partners or are married.

MSM and TGs still face stigma or are driven underground through laws or policies criminalizing MSM behaviours in many countries. Adopting a rights-based approach will ensure that MSM, TGs and their male and female sexual partners have the right to information and commodities, enabling them to protect themselves against HIV and other STIs, as well as information on where to seek appropriate care for these infections. Importantly, this approach also ensures their right to access appropriate and
effective prevention and care services of the highest possible quality, delivered free from discrimination.

Summary of recommendations

The health sector has an important role to play by including services for MSM and TGs in its programme priorities and by advocating for decriminalization of same-sex acts and for legislation against discrimination based on sexual orientation.

Programme planning needs to include formative assessments to determine the risks and needs of MSM and TGs, and these affected groups should be fully engaged in designing and implementing the interventions.

Priority interventions targeting MSM and TGs to prevent sexual transmission of HIV and other sexually transmitted infections should include:

- promoting and supporting condom use, including water-based lubricants (see section 1.2.1.1);
- detection and management of sexually transmitted infections (see section 1.2.1.2);
- prevention and treatment of viral hepatitis (see section 1.3.2.2.3);
- enabling people to know their HIV status (see section 1.1);
- outreach through peers, the internet and fixed or mobile services to MSM and TGs to broaden their access to information, education and communication, condoms and water-based lubricants, as well as prevention interventions including STI care, and counselling and referral.

Other health-sector interventions for HIV prevention, treatment and care for MSM and TGs are described in the following sections:

- HIV treatment and care (see section 1.3);
- Prevention of viral hepatitis (see section 1.3.2.2.3);
- Prevention of HIV transmission through drug use (see section 1.2.2);
- community-based behaviour change communication (e.g. posters and brochures in venues frequented by MSM and TGs);
- social support and legal services.

Key resources:

52. Rapid assessment and response: Adaptation guide on HIV and men who have sex with men (MSM-RAR)
53. Policy brief: HIV and sex between men
54. Between men: HIV STI prevention for MSM
    http://www.aidsalliance.org/graphics/secretariat/publications/msm0803_between_men_Eng.pdf
55. AIDS and men who have sex with men
    http://whqlibdoc.who.int/unaids/2000/a62375_eng.pdf
56. 2007 European guideline (IUSTI/WHO) on the management of proctitis, proctocolitis and enteritis caused by sexually transmissible pathogens

1.2.1.7 Specific considerations for HIV prevention in young people

In order for young people to benefit from HIV prevention, health services must take their unique concerns and needs into consideration. In terms of content, the basic package of interventions to prevent HIV is much the same for young people as it is for adults. However, young people are unlikely to use available services unless:

- staff have been trained to understand young people and their concerns and to address any needs relating to consent and confidentiality;
- facilities and services have been designed or modified to be adolescent/youth-friendly with consideration given to appropriate opening times, affordability and privacy;

15 Young people includes adolescents and youth 10–24 years.
attention is paid to fostering parents’ and communities’ support for youth-friendly services, and to attracting young people to those services.

Prevention services for adults can be modified so that they are also appropriate for young people, but there should also be youth-specific prevention in settings where young people are more likely to access them. These may include schools, universities, youth clubs, popular youth hang-outs, workplaces, and pharmacies.

The health sector should support community outreach to young people by providing guidance and linkages between services in the health sector and other sectors. Some young people belong to most-at-risk groups. Therefore, services targeting those groups should also be designed or modified to be youth-friendly, or else supplemented with services specifically geared to young members of those most-at-risk groups.

The health sector also has a responsibility to ensure there is serological and behavioural surveillance to provide strategic information on young people and HIV (see section 3.2). This requires data to be disaggregated by age and sex, analysed, and used to guide policies and programming. The health sector should play a stewardship and advocacy role for young people (see section 2.5), and it should ensure a supportive political, legal and social environment that addresses the specific needs of young people.

Summary of recommendations

Prevention for young people provided by the health sector should include:

- information and counselling to help young people acquire the knowledge and skills to delay sexual initiation, limit the numbers of sexual partners, use condoms correctly and consistently, avoid substance use or, if injecting drugs, use sterile equipment;
- condoms for sexually active young people;
- harm reduction for young people who are injecting drug users;
- diagnosis and treatment of sexually transmitted infections;
- male circumcision (in high prevalence settings);
- HIV testing and counselling;
- access to HIV treatment and care services;
- consideration of HPV vaccination for young females.

Key resources:

57. Preventing HIV/AIDS in young people: a systematic review of the evidence from developing countries
   http://whqlibdoc.who.int/trs/WHO_TRS_938_eng.pdf
58. Global consultation on the health services response to the prevention and care of HIV/AIDS among young people
59. Adolescent friendly health services: An agenda for change

1.2.1.8 Specific considerations for vulnerable populations

1.2.1.8.1 Displaced, mobile and migrant populations

In 2007, 67 million people were forced to flee their homes throughout the world: 26 million were internally displaced due to armed conflict, 25 million due to natural disasters, and 16 million were refugees. Increased vulnerability to HIV associated with displacement, sexual violence, and disruption of families and social and community structures, has been evident in some complex emergencies. However, in some instances, refugees or populations in conflict situations may be less at risk of HIV transmission than surrounding populations when protected in camps and supported by international organizations, or when living in isolation.

In emergency situations, access to HIV services is often limited by the breakdown of health systems. Often emergency situations occur in remote areas where populations have little access to HIV-related services; these may provide opportunities to extend HIV services to new populations and then sustain them after the emergencies are over.
Millions of people each year migrate within countries or across countries and along borders. Increased vulnerability to HIV, associated with displacement and the disruption of families and social and community structures, has been evident in many settings with migrant and mobile populations. Sex workers are among highly mobile populations, and labour migrants and truckers constitute a large portion of their clientele. In many cases, their work is illegal and their presence is not documented; these factors limit their access to HIV care and ART services. All migrant and mobile populations are difficult to reach with behaviour change communications and other prevention interventions. This is due, in part, to the fact that their movement places them in situations where they are ethnic minorities and face cultural and language barriers.

**Summary of recommendations**

Access to health services should be based on the principle of equity, ensuring equal access according to need without discrimination that could lead to the exclusion of displaced, migrant or mobile people.

Displaced, migrant and mobile populations should have access to services and levels of care equivalent to those provided to surrounding populations.

Interventions to provide information and education about prevention of HIV and other STIs should be made available at points of departure and arrival of migrant and mobile populations, including ethnic minorities, who may require information and education in their own languages.

Universal access to antiretroviral treatment for those who need it is now considered a minimum standard of care; displaced, mobile and migrant populations should receive this treatment as a human right.

**Key resources:**

60. Consensus statement: delivering antiretroviral drugs in emergencies: neglected but feasible
http://www.who.int/hac/techguidance/ght/HIV_AIDS_101106_arvemergencies.pdf

61. Guidelines for HIV/AIDS interventions in emergency settings

62. Antiretroviral medication policy for refugees

**1.2.1.8.2 Prisoners and people in other closed settings**

Prisons and other closed settings are key points of contact; millions of people in such settings are living with or at high risk of HIV infection. It is in the interest of public health that all people in these settings have access to HIV prevention, treatment and care. They are entitled to the same standard of health as all other members of society.

A wide range of services are required for people in prisons and similar settings, including condom distribution, clean needle and syringe provision, opioid substitution therapy, HIV testing and counselling, provision of antiretroviral therapy, and treatment for sexually transmitted infections.

Prison authorities should work with people in other branches of the criminal justice system and with health authorities and nongovernmental organizations to ensure continuity of care, including ART, from community to prison and back to community, and also between prisons.

**Summary of recommendations**

Prisons and other closed settings should offer a full range of HIV prevention, treatment and care services and commodities, including HIV testing and counselling and ART.

**Key resources:**

63. Effectiveness of interventions to address HIV in prisons (Evidence for action series website)

64. Policy brief: Reduction of HIV transmission in prisons (Evidence for action on HIV/AIDS and injecting drug use)

65. Status paper on prisons, drugs and harm reduction
http://www.euro.who.int/document/e85877.pdf
1.2.1.9 Non-occupational post-exposure prophylaxis

HIV post-exposure prophylaxis involves the short-term use of antiretroviral drugs for preventing HIV infection in individuals who may have been exposed to HIV.

Summary of recommendations

WHO recommends that HIV post-exposure prophylaxis be included in the management of sexual assault, and be made available to all HIV-negative people who may have been exposed to HIV through sexual assault.

Sexual and reproductive health facilities should have up-to-date policies and procedures for managing and assisting individuals who have experienced significant mucous membrane exposure to HIV through sexual violence.

Whether comprehensive services are provided on-site or through referral, providers should follow clear and consistent protocols for management. The necessary supplies, materials and referral information should be made available to deal confidentially, sensitively and effectively with people who have experienced sexual violence.

WHO recommends that management of non-occupational post-exposure prophylaxis include:

- evaluation of the person with potential non-occupational exposure to HIV;
- counselling;
- assessing the HIV status of the source (e.g. the assailant) if possible;
- provision of antiretrovirals for prophylaxis based on a defined protocol;
- emergency contraception;
- presumptive treatment of sexually transmitted infections, and
- follow-up counselling.

Key resource:

66. Post-exposure prophylaxis to prevent HIV infection: Joint WHO/ILO guidelines on post-exposure prophylaxis (PEP) to prevent HIV infection

1.2.2 Interventions for injecting drug users

Wherever injecting drug use occurs, countries should implement a comprehensive set of interventions for HIV prevention, treatment and care for injecting drug users (IDUs). These interventions are also known as harm reduction programmes.

Despite overwhelming public health evidence demonstrating the effectiveness of harm reduction interventions, many decision-makers remain reluctant to implement or scale up these interventions because of their controversial nature. Intense advocacy, citing public health evidence, is often required to initiate and sustain harm reduction programmes.

Where there are barriers to implementing harm reduction interventions, there is a need to create a supportive policy, legal and social environment that facilitates equitable access to prevention and treatment for all, including IDUs. There is also a need for appropriate models of service delivery, health systems strengthening, and strategic information to guide harm reduction programmes. For example, procuring and distributing opioid agonist medicines, such as methadone, may require special measures and procedures.

Comprehensive harm reduction programming: A comprehensive package of HIV prevention, treatment and care for IDUs includes the following nine interventions:

1. needle and syringe programmes (NSPs) (see section 1.2.2.1);
2. drug dependence treatment in particular opioid substitution therapy (see section 1.2.2.2);
3. targeted information, education and communication for IDUs (see section 1.2.2.3);
4. enabling people to know their HIV status (see section 1.1);
5. HIV treatment and care (see section 1.3)
6. promoting and supporting condom use (see section 1.2.1.1);
7. detection and management of sexually transmitted infections (see section 1.2.1.2);
8. prevention and treatment of viral hepatitis (see section 1.3.1.3 and 1.3.2.2.5);
9. tuberculosis prevention, diagnosis and treatment (see section 1.3.2.4).

Community-based outreach is the most effective way of delivering HIV prevention, treatment and care to IDUs, and of referring them to specific services for opioid substitution therapy and antiretroviral therapy. Services for IDUs should take into account that the majority of IDUs are male and have sexual partners, that some sell sex to pay for their habit, and that injecting drug use occurs at all levels of society.

Summary of recommendations

Stand-alone interventions are known to have little impact, so policy-makers should insist on a comprehensive package of interventions. All key interventions should be scaled up, at the necessary intensity, until they cover all drug users. The comprehensive package should be tailored to the country’s known drug-use patterns and to other unique elements of the national context.

The health sector should play a major role in providing advocacy—together with the evidence to support that advocacy—to obtain the political commitments necessary to initiate and sustain harm reduction programmes for IDUs.

Key resources:

67. Policy and programming guide for HIV/AIDS prevention and care among injecting drug users
   http://www.who.int/hiv/pub/prev_care/policyprogrammingguide.pdf

68. Advocacy guide: HIV/AIDS prevention among injecting drug users

69. Policy briefs and technical papers on HIV/AIDS and injecting drug users (Evidence for action series website)

63. Effectiveness of interventions to address HIV in prisons (Evidence for action series website)

70. HIV prevention, treatment and care for injecting drug user (IDU) and prisons (Webpage)
   http://www.who.int/hiv/topics/idu/en/index.html

1.2.2.1 Needle and syringe programmes

Access to and use of sterile injecting equipment is highly effective in reducing HIV risk behaviour and transmission. Evidence shows that needle and syringe programmes (NSPs) also provide opportunities for delivering harm reduction information and related services, including referrals for drug dependence treatment. NSPs can reduce the risk of other infections (such as viral hepatitis, septicaemia and abscesses) and do not increase injecting drug frequency or prevalence.

NSPs increase access to sterile injecting equipment and should be diversified to include outreach through communities and peer groups, dedicated needle and syringe exchange and dispensing services, pharmacy programmes, vending machines, and drug dependence treatment services. The full range of injecting equipment should be covered, including needles, syringes, sterile mixing water, alcohol swabs, and containers for mixing, dispensing and transporting drugs.

It is also critical that NSPs cover the safe disposal of used equipment to minimize re-use or accidental needle-stick injuries. Safe disposal can be promoted through education of IDUs, needle exchange programmes, and placement of sharps containers in drug-using locations. Decontamination methods for cleaning used injection equipment, such as bleach programmes, are not recommended as a first line of intervention and should be used only if sterile injecting equipment cannot be obtained.
Summary of recommendations

Access to sterile injecting equipment through NSPs is a key evidence-based intervention to reduce transmission of HIV in IDUs.

Key resources:

74. Effectiveness of sterile needle and syringe programming in reducing HIV/AIDS among injecting drug users (Evidence for action technical papers)

75. Guide to starting and managing needle and syringe programmes
   http://www.who.int/hiv/edu/Guide_to_Starting_and_Managing_NSP.pdf

76. Treatment and care for HIV-positive injecting drug users
   http://www.searo.who.int/en/Section10/Section18/Section356_14247.htm

   Module 1: Drug use and HIV in Asia
   http://www.searo.who.int/LinkFiles/Publications_Module_01_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 2: Comprehensive services for injecting drug users
   http://www.searo.who.int/LinkFiles/Publications_Module_02_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 3: Initial patient assessment
   http://www.searo.who.int/LinkFiles/Publications_Module_03_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 4: Managing opioid dependence
   http://www.searo.who.int/LinkFiles/Publications_Module_04_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 5: Managing non-opioid drug dependence
   http://www.searo.who.int/LinkFiles/Publications_Module_05_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 6: Managing ART in injecting drug users
   http://www.searo.who.int/LinkFiles/Publications_Module_06_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 7: Adherence counselling for injecting drug users
   http://www.searo.who.int/LinkFiles/Publications_Module_07_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 8: Drug interactions
   http://www.searo.who.int/LinkFiles/Publications_Module_08_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 9: Management of coinfections in HIV-positive injecting drug users
   http://www.searo.who.int/LinkFiles/Publications_Module_09_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 10: Managing pain in HIV-infected injecting drug users
   http://www.searo.who.int/LinkFiles/Publications_Module_10_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 11: Psychiatric illness, psychosocial care and sexual health
   http://www.searo.who.int/LinkFiles/Publications_Module_11_Treatment & Care_for_HIV_positive_IDUs.pdf

   Module 12: Continuing medical education
   http://www.searo.who.int/LinkFiles/Publications_Module_12_Treatment & Care_for_HIV_positive_IDUs.pdf

   Trainer manual
   http://www.searo.who.int/LinkFiles/Publications_Module_13_Treatment & Care_for_HIV_positive_IDUs.pdf

1.2.2.2 Drug dependence treatment

Approaches to drug and alcohol dependence management include pharmacotherapy, and psychosocial interventions that are often delivered in combination.

For individuals with opioid dependence, the most effective treatment is opioid substitution therapy (OST). There is good evidence that OST leads to substantial reductions in illicit opioid use, criminal activity, deaths attributable to overdose, and risk behaviour related to HIV transmission (including injection frequency and sharing of injecting equipment). Studies have also demonstrated that OST improves retention rates in drug dependency treatment, adherence to antiretroviral therapy, and overall health and well-being. Both buprenorphine and the more widely used methadone are included on the WHO Model List of Essential Medicines.

Psychosocial treatment of drug dependence has limited effectiveness in managing drug dependence, with high relapse rates. There is no evidence that this treatment reduces HIV transmission rates, though it may complement OST. Unlike the case of opioid users, there are no effective substitution therapies for people with amphetamine-type stimulant, cocaine, hallucinogen or hypnosedative dependence. Though not very effective, psychosocial treatment remains the only option for non-opioid users today.

There is no evidence that compulsory treatment programmes are effective for treating drug dependence of any kind, or for preventing HIV transmission.

Alcohol dependence and short-term abuse are also associated with unsafe sexual behaviour.16

Summary of recommendations

Opioid substitution therapy is recommended as the most effective treatment for opioid dependence, and requires initial supervised administration, adequate treatment doses and longer-term maintenance regimens (at least six months). Inadequate doses of methadone are a common cause of OST failure and relapse. Average effective methadone doses range from 60–120mg, although higher doses may be required.

Key resources:

77. Treatment of opioid dependence (WHO webpage)

78. WHO recommendations for clinical mentoring to support scale-up of HIV care, antiretroviral therapy and prevention in resource-constrained settings

79. Effectiveness of drug dependence treatment in prevention of HIV among injecting drug users (Evidence for action technical papers)

80. WHO/UNODC/UNAIDS position paper: substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention

1.2.2.3 Information, education and communication for IDUs

HIV risk-reduction messages for IDUs should address all modes of HIV transmission, including sexual risk taking. Messages on reducing risk from injecting should be based on a harm-reduction hierarchy, and should encourage IDUs to adopt progressively less risky behaviours, moving from indiscriminate sharing of injecting equipment; to reducing the number of sharing partners and frequency; to decontaminating used equipment; to using only sterile equipment and to adopting non-injecting drug use (e.g. smoking or ingesting); to stopping drug use altogether.

Summary of recommendations

Community-based and peer-led outreach is an effective strategy for providing information, education and communication to IDUs.

Key resource:

71. Effectiveness of community-based outreach in preventing HIV/AIDS among injecting drug users (Evidence for action technical papers)

1.2.3 Prevention of HIV in infants and young children

A comprehensive approach to preventing HIV in infants and young children consists of four elements:

- primary prevention of HIV transmission (also see section 1.2.1);
- prevention of unintended pregnancies among women living with HIV (see section 1.2.3.1);
- prevention of HIV transmission from women living with HIV to their children (see section 1.2.3.2 and 1.2.3.4), and
- provision of treatment, care and support for women living with HIV, their children and families (see section 1.2.3.3).

WHO recommends implementing all four components of the comprehensive approach. It also promotes integrating prevention of mother-to-child transmission (PMTCT) of HIV with maternal, newborn and child health care; antiretroviral therapy; family planning; reproductive health; and STI services to ensure the delivery of a package of essential services for quality maternal, newborn and child care. HIV testing is recommended for all pregnant women, as explained in the section on Provider-initiated testing and counselling (see section 1.1.2.)
Summary of recommendations

Health services should provide effective interventions to reduce sexual transmission of HIV, with a particular focus on preventing new HIV infections in women during pregnancy or the breastfeeding period.

Women with HIV should be supported in the choice they make for their reproductive life. Health services should ensure women with HIV are (1) provided with the skills, knowledge and commodities necessary to avoid unintended pregnancy or (2) are given support for planning a pregnancy.

All pregnant women with HIV should receive antiretroviral (ARV) medicines: either ARV treatment for life, if eligible for therapy, or combined ARVs for prophylaxis to reduce HIV transmission.

All women with HIV should have access to an essential package of services during childbirth, including assistance from a skilled birth attendant.

All infants born to women living with HIV should receive ARV prophylaxis and follow-up care and support.

Health services should ensure that women with HIV and their infants have access to the skills, knowledge and support needed to make infant feeding safe, so as to reduce HIV transmission and to promote child survival.

Please refer also to the report sections referenced above.

Key resources:

   http://www.who.int/hiv/mctc/StrategicApproaches.pdf

82. Guidance on global scale-up of the prevention of mother to child transmission of HIV: towards universal access for women, infants and young children and eliminating HIV and AIDS among children


83. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants in resource-limited settings: towards universal access: recommendations for a public health approach

84. Testing and counselling for prevention of mother-to-child transmission of HIV (TC for PMTCT) support tools
   http://www.womenchildrenhiv.org/wchiv?page=vc-10-00#S3.4X
   http://www.womenchildrenhiv.org/wchiv?page=vc-10-00-fr

85. IMAI-IMPAC integrated PMTCT training course
   http://www.who.int/hiv/capacity/IMAIsharepoint/en/

1.2.3.1 Family planning, counselling and contraception

Family planning helps women and men make informed choices about their sexual and reproductive lives, including the timing and spacing of births, which can improve their own health and substantially increase their child’s chances of survival and good health. Most women, men and young people with HIV are sexually active and need information and assistance to make decisions about family planning and reproduction. Preventing unintended pregnancies is an important, though often neglected component of preventing HIV transmission to infants.

Summary of recommendations

The consistent and correct use of condoms continues to be the most effective contraceptive method that protects against both (1) acquiring and transmitting HIV and other STIs, and (2) unintended pregnancy.

Counselling and family planning services for women living with HIV should provide information on:

- effectiveness and safety of contraceptive methods to prevent pregnancy, if so desired;
- risk of HIV transmission for HIV-discordant couples;
- risk of HIV transmission to the infant, and the effectiveness of antiretroviral medicines in reducing HIV transmission;
• the benefits and risks of various infant-feeding choices.

Women living with HIV can safely and effectively use most of the same contraceptive methods used by women without HIV. However, to also reduce risk of transmission of HIV and other sexually transmitted infections, these methods must be combined with condom use.

Women living with HIV and taking antiretroviral therapy need to consider that several antiretroviral drugs either decrease or increase the bioavailability of steroid hormonal contraceptives.

Key resources:

   http://whqlibdoc.who.int/publications/2006/924159425X_eng.pdf

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings

86. Reproductive choices and family planning for people living with HIV - Counselling tool
   http://www.who.int/reproductive-health/publications/flipcharts/flipchart_fp_hiv_flipchart.pdf
   http://www.who.int/hiv/capacity/IMAIsharepoint/en/

87. Strengthening linkages between family planning and HIV: reproductive choices and family planning for people living with HIV
   http://www.who.int/reproductive-health/hiv/hiv_tecbrief_fp.pdf

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
   English: http://www.who.int/hiv/pub/imai/genericpalliativecare082004.pdf

1.2.3.2 Antiretroviral medicines to prevent HIV infection in infants

HIV may be transmitted to the infant during pregnancy, delivery or through breastfeeding. If no interventions are provided, an estimated 20–25% of the infants of HIV-infected women will acquire HIV up to and including during delivery. Transmission is increased in women with more clinically advanced disease, low CD4 cell counts, and high HIV viral load. Antiretroviral (ARV) medicines and optimal infant feeding practices are necessary to reduce HIV transmission to the infant and to promote child survival. These recommendations will be reviewed in 2009.

Summary of recommendations

WHO recommends that all pregnant women with HIV receive antiretroviral medicines, either ARV therapy (ART) for life or combined ARV for prophylaxis, to reduce vertical transmission.

Women with clinical and/or immunological criteria to start ART must do so as early as possible in pregnancy (also see section 1.2.3.3) and should continue it throughout their lives.

Pregnant women with HIV and who are at clinical stage 3 with CD4 < 350 should start ART. Otherwise, recommendations to start ART are the same as for all adults.

Pregnant women in need of ART can be asymptomatic, so CD4 testing should be performed whenever HIV is diagnosed in pregnancy.

Pregnant women with HIV who need ART should be treated with a full combination regimen, and AZT-containing regimens are recommended (see Table 1).

For HIV-positive women who do not yet need ART for their own health, combination ARV regimens for prophylaxis are recommended (see Table 2).

The HIV-exposed infant requires ARV prophylaxis at birth (see Table 3).

For HIV-positive women who present to health services late in the pregnancy or at labour and delivery, ARVs are also recommended for both the mother and newborn.

WHO does not currently recommend ARV drugs be given to infants solely to prevent breastfeeding transmission.
Table 1. Recommended first line combination antiretroviral treatment regimens for a pregnant woman

<table>
<thead>
<tr>
<th>Mother</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antepartum</td>
<td>AZT + 3TC + NVP - twice daily</td>
</tr>
<tr>
<td>Intrapartum</td>
<td>AZT + 3TC + NVP - twice daily</td>
</tr>
<tr>
<td>Postpartum</td>
<td>AZT + 3TC + NVP - twice daily</td>
</tr>
</tbody>
</table>

AZT: Azidothymidine, Zidovudine; 3TC: Lamivudine; NVP: Nevirapine.

Source: WHO 2006. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants: Towards universal access

Table 2. Recommended antiretroviral regimens for prophylaxis in pregnant women not yet eligible for ART

<table>
<thead>
<tr>
<th>Mother</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antepartum</td>
<td>AZT starting at 28 weeks of pregnancy or as soon as feasible thereafter</td>
</tr>
<tr>
<td>Intrapartum</td>
<td>Sd-NVP + AZT/3TC</td>
</tr>
<tr>
<td>Postpartum</td>
<td>AZT/3TC x 7 days</td>
</tr>
</tbody>
</table>


Source: WHO 2006. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants: Towards universal access

Table 3. Recommended antiretroviral regimens for prevention of resistance and prophylaxis of intra-partum transmission in infants

<table>
<thead>
<tr>
<th>Infant</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 4 weeks maternal ART</td>
<td>AZT x 7 days</td>
</tr>
<tr>
<td>&lt; 4 weeks maternal ART</td>
<td>AZT x 4 weeks</td>
</tr>
<tr>
<td>At least 4 weeks maternal prophylactic ARV</td>
<td>Sd-NVP + AZT x 7 days</td>
</tr>
<tr>
<td>&lt; 4 weeks maternal prophylactic ARV</td>
<td>Sd-NVP + AZT x 4 weeks</td>
</tr>
</tbody>
</table>


Source: WHO 2006. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants: Towards universal access

Key resources:

83. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants in resource-limited settings: towards universal access: recommendations for a public health approach
   French: http://www.who.int/entity/hiv/mtct/guidelines/AntiretroviralsFR.pdf

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
   English: http://www.who.int/hiv/pub/imai/IMCI_chronic_HIV_Care7.05.07.pdf

1.2.3.3 Treatment, care and support for women living with HIV, their children and families

During pregnancy, women living with HIV also need the other prevention and care interventions listed in sections 1.3.1 and 1.3.2 of this chapter, including cotrimoxazole prophylaxis, screening for and treatment of TB, counselling and care relating to nutrition, and psychosocial support. Pregnant women already receiving cotrimoxazole should continue prophylaxis throughout pregnancy and postpartum.

HIV-exposed infants need a range of interventions to promote their survival, protect them from HIV infection, and provide them with early antiretroviral treatment if they have acquired HIV infection.

Summary of recommendations

Infants known to be exposed to HIV should have a viral test (HIV nucleic acid test, or NAT) at four to six weeks of age or at the earliest opportunity for infants seen after they are six weeks old.

HIV-exposed infants should be regularly followed up.
In settings where local or national antenatal HIV seroprevalence is greater than 5%, infants under six weeks of age and with unknown HIV exposure status should be offered maternal or infant HIV antibody testing and counselling in order to establish exposure status.

Health services should provide a full set of child survival interventions to HIV-exposed and HIV-infected infants.

All HIV-infected infants should start ART (see section 1.3.2.1).

Key resources:

83. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants in resource-limited settings: towards universal access: recommendations for a public health approach
   French: http://www.who.int/entity/hiv/mtct/guidelines/Antiretrovirals%20FR.pdf

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings

12. Scale up of HIV-related prevention, diagnosis, care and treatment for infants and children: A programming framework

13. Antiretroviral therapy for HIV infection in infants and children: towards universal access: recommendations for a public health approach

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
   English: http://www.who.int/hiv/pub/imai/Chronic_HIV_Care7.05.07.pdf


1.2.3.4 Infant feeding counselling and support

Breastfeeding reduces child mortality and has health benefits that extend into adulthood. WHO recommends exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with appropriate complementary foods for two years or beyond.

However, without HIV-related interventions, an estimated 5% to 20% of infants born to women living with HIV will become infected through breastfeeding, depending on the duration and type of breastfeeding. The risk of transmission of HIV through breastfeeding increases with advanced maternal disease, low CD4 cell count, high viral load and mixed feeding. The risk of transmission also increases with prolonged duration of breastfeeding. A range of interventions is necessary to reduce breastfeeding transmission of HIV in settings where replacement feeds cannot be provided safely.

Summary of recommendations

The most appropriate infant feeding option for an HIV-infected mother depends on her particular circumstances.

Exclusive breastfeeding is recommended for HIV-infected women for the first six months of life unless replacement feeding is Acceptable, Feasible, Affordable, Sustainable and Safe (AFFASS) for mothers and their infants before that time.

When replacement feeding is AFFASS, it is recommended that all HIV-infected women avoid breastfeeding.

Breastfeeding mothers of infants or young children who are known to be HIV-infected should be strongly encouraged to continue breastfeeding.

Health services should help women make appropriate infant feeding choices and should continue to offer infant feeding, counselling and support, regardless of the woman’s decision. This is particularly important at key points when feeding decisions may be reconsidered, such as the time of infant testing for HIV, and when the infant is six months old.

Health service support is also needed beyond six months to ensure optimal feeding of infants when exclusive breastfeeding alone is no longer adequate.
At six months, complementary feeding needs to be introduced, and if replacement feeding is still not AFASS, then continued breastfeeding with additional complementary foods is recommended. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.

Women who are taking antiretroviral therapy can breastfeed their infants if replacement feeding is not AFASS, but they should be made aware that some antiretroviral medicines are found in the mother’s milk.

**Key resources:**

90. WHO HIV and infant feeding technical consultation - consensus statement


91. Complementary feeding: Report of the global consultation, and summary of guiding principles for complementary feeding of the breastfed child


93. IMCI chart booklet for high HIV settings

94. HIV and infant feeding: framework for priority action


   Portuguese: [http://whqlibdoc.who.int/publications/portuguese/9248590772_por.pdf](http://whqlibdoc.who.int/publications/portuguese/9248590772_por.pdf)

**1.2.4 Prevention of HIV transmission in health settings**

Though estimates vary by region, as many as 5–10% of new HIV infections in low- and middle-income countries may be attributable to exposures in health care settings, including unsafe injections, unsafe blood and occupational exposures. However, experts acknowledge that there is substantial uncertainty around this estimate.

In health care settings, transmission of HIV can be prevented through primary prevention measures such as standard precautions, injection safety, blood safety and safe waste disposal, as well as secondary prevention measures, such as post-exposure prophylaxis for occupational exposure.

Comprehensive infection control strategies and procedures can dramatically reduce the risk of transmission associated with health care. However, implementing infection control guidelines does require a permanent HIV prevention and control structure, specific equipment and trained and motivated staff.

**Summary of recommendations**

All health facilities should:

- have a zero tolerance policy for HIV transmission, an infection control plan, a person or team responsible for infection control, and available supplies to ensure the implementation of preventive measures;

- use standard precautions.

**Standard precautions** minimize the spread of infection associated with health care and avoid direct and indirect contact with blood, body fluids, secretions and non-intact skin. They are the basic infection control precautions in health care and include:

- attention to hand hygiene before and after any patient contact, and after contact with contaminated items, whether or not gloves are worn;

- wearing personal protective equipment, based on risk assessment, to avoid contact with blood, body fluids, excretions and secretions;

- appropriate handling of patient-care equipment and soiled linen;

- safe disposal of sharps immediately after use;

- not recapping needles.
**Key resources:**

95. Aide memoire: Infection control standard precautions in health care  

56. Joint ILO/WHO guidelines on health services and HIV/AIDS  
   Spanish: [http://www.who.int/entity/hiv/pub/prev_care/who_ILOGuidelines_sp.pdf](http://www.who.int/entity/hiv/pub/prev_care/who_ILOGuidelines_sp.pdf)  

**1.2.4.1 Safe injections**

Injection is one of the most common health procedures. Each year some 16 billion injections are administered in low- and middle-income countries. The vast majority, around 95%, are given as part of curative care. Immunization accounts for around 3% of all injections, with the remainder for other indications, including use of injections for transfusion of blood and blood products and contraceptives.

In certain regions of the world, use of injections has overtaken the real need, reaching levels that are not based on rational medical practice. In some situations, as many as 90% of patients who visit a primary health provider receive an injection; more than 70% of these injections are unnecessary, or could be given in an oral formulation.

A safe injection does no harm. However, unsafe injections expose millions of health care patients to infections, including hepatitis B and C viruses, and HIV. Worldwide, up to 39% of injections are given with syringes and needles re-used without sterilization, and in some countries this proportion is as high as 70%.

The Safe Injection Global Network (SIGN) promotes injection safety and provides normative guidance related to injection safety and infection prevention.

**Summary of recommendations**

Promote and coordinate the development of strategies, tools and guidelines to ensure rational and safe use of injections.

Develop a behavioural change strategy targeting health care workers and patients. This includes culturally adapted communication strategies targeting health workers and the community to reduce injection overuse and create consumer demand for safety devices. Twenty years into the HIV pandemic, knowledge of HIV among patients and health workers in some countries has driven consumer demand for safe injection equipment and has substantially improved injection practices.

Ensure continuous availability of good quality equipment and supplies. Simply increasing the availability of safe injection equipment can stimulate demand and improve practices.

Manage waste safely and appropriately. Waste disposal is frequently not an integral part of health planning, and unsafe waste management is common. National health waste management strategies require a national policy, a comprehensive system for implementation, and improved awareness and training of health workers at all levels, as well as the selection of appropriate options for local solutions.

**Key resource:**

96. Injection safety toolbox: Resources to assist in the management of national safe and appropriate use of injection policies (WHO webpage)  

**1.2.4.2 Safe waste disposal management**

Safe waste disposal is key to preventing the transmission of blood borne pathogens. Sharps waste, although produced in small quantities, is highly infectious. Contaminated needles and syringes, when poorly managed, represent a particular threat to staff and patients. They also pose a threat to the community at large when waste ends up in uncontrolled areas and dump sites at the health facility, where needles and syringes may be scavenged and re-used.
Summary of recommendations

Promote environmentally sound management policies for health waste.

Key resources:

97. Healthcare waste management (web page)

98. Operations manual for the delivery of HIV prevention, care and treatment at primary health centres in high-prevalence resource-constrained settings
   http://www.who.int/hiv/capacity/IMAItagpoint/en

1.2.4.3 Occupational health of healthcare workers

For health workers, exposure to the blood of those receiving care occurs most often via accidental injuries from sharps, such as syringe needles, scalpels, lancets, broken glass or other objects contaminated with blood. Poor patient care practices by HIV-infected medical staff may also expose the patient to infection. Also, when injecting and other equipment is poorly sterilized, HIV may be passed from an HIV-infected individual to an uninfected patient within the health care setting.

Protecting the occupational health of health workers and ensuring that they know their status and receive HIV treatment as appropriate is an important priority for the health sector. Please also see Infection Control in section 1.3.2.4.

Summary of recommendations

A good occupational health programme aims to identify, eliminate and control exposure to hazards in the workplace.

Designate a person to be responsible for the occupational health programme.

Allocate a sufficient budget to the programme and procure the necessary supplies for the personal protection of health workers.

Provide training to health care workers and involve them in identifying and controlling hazards.

Promote health workers' knowledge of their own HIV, hepatitis and TB status through employment/pre-placement screening.

Provide immunization against hepatitis B.

Implement standard precautions.

Provide free access to post exposure antiretroviral prophylaxis for HIV.

Promote reporting of incidents and quality control of services provided.

Key resources:

56. Joint ILO/WHO guidelines on health services and HIV/AIDS
   Spanish: http://www.who.int/entity/hiv/pub/prev_care/who_iolo_guidelines_sp.pdf
   Russian: http://www.who.int/entity/hiv/pub/guidelines/lowhogo_guidelines_ru.pdf
   Arabic: http://www.who.int/entity/hiv/pub/guidelines/lowhogo_guidelines_arabic.pdf
   Indonesian: http://www.who.int/entity/hiv/pub/guidelines/lowhogo_guidelines_indonesian.pdf
   Vietnamese: http://www.who.int/entity/hiv/pub/guidelines/lowhogo_guidelines_vietnamese.PDF

99. Protecting healthcare workers: Preventing needlestick injuries toolkit (website)

100. IMAI acute care

1.2.4.4 Occupational post-exposure prophylaxis

Post-exposure prophylaxis (PEP) is a necessary secondary HIV prevention measure in health settings. This is because there will always be rare instances in which primary prevention fails and health workers or patients may be accidentally (or through unsafe procedures) exposed to the risk of HIV transmission.
The vast majority of incidents of occupational exposure to blood-borne pathogens, including HIV, occur in health settings. PEP for HIV consists of a comprehensive set of services to prevent infection developing in an exposed person, including: first aid care; counselling and risk assessment; HIV testing and counselling; and, depending on the risk assessment, the short term (28-day) provision of antiretroviral drugs, with support and follow up.

**Summary of recommendations**

WHO recommends that PEP be provided as part of a comprehensive prevention package that manages potential exposure to HIV and other infectious hazards.

Occupational PEP should also be available not just to health workers, but to all other workers who could be exposed while performing their duties (e.g. social workers, police or military personnel, rescue workers, and refuse collectors).

There should be appropriate training for service providers to ensure the effective management and follow-up of PEP.

Antiretroviral (ARV) drugs for PEP should be initiated as soon as possible after exposure, within the first few hours and no later than 72 hours.

ARV drugs for PEP should not be prescribed to people already known to have been infected with HIV prior to the exposure incident.

HIV testing is recommended. The administration of ARV drugs for PEP should never be delayed because of testing procedures. If the first test is negative, it should be repeated after three and six months.

WHO recommends that the PEP ARV regimen contain two Nucleoside Reverse Transcriptase Inhibitor (NRTI) drugs. If HIV drug resistance is suspected, the addition of a protease inhibitor may be considered.

ARVs for PEP should be administered for 28 days.

Any occupational exposure to HIV should lead to an evaluation of the working environment and procedures. When appropriate, working conditions and safety precautions should be improved.

**Key resources:**

66. Post-exposure prophylaxis to prevent HIV infection: Joint WHO/ILO guidelines on post-exposure prophylaxis (PEP) to prevent HIV infection

56. Joint ILO/WHO guidelines on health services and HIV/AIDS
   Spanish: http://www.who.int/entity/hiv/pub/prev_care/who_iolo_guidelines_sp.pdf
   Russian: http://www.who.int/entity/hiv/pub/guidelines/iolo_guidelines_ru.pdf
   Arabic: http://www.who.int/entity/hiv/pub/guidelines/who_iolo_guidelines_arabic.pdf
   Indonesian: http://www.who.int/entity/hiv/pub/guidelines/who_iolo_guidelines_indonesian.pdf

1.2.4.5 Blood safety

Unsafe blood transfusion is a well documented mode of transmission of HIV and other infections. Millions of patients requiring transfusion do not have timely access to safe blood. In many countries, even if blood is available, many recipients of blood and blood products are at risk of transfusion-transmissible infections, including HIV, as a result of poor blood donor recruitment and selection practices, and the use of unscreened blood.

Access to safe blood transfusion is an essential part of modern health care. Every national AIDS programme needs to promote the establishment of national blood programmes to ensure the availability of safe blood and blood products through a nationally coordinated blood transfusion service. A well-organized blood transfusion service based on voluntary non-remunerated donations, with quality systems in all areas, is a prerequisite for the safe and effective use of blood and blood products. WHO has developed an integrated strategy to promote the provision of safe and adequate supplies of blood and to reduce the risks associated with transfusion.
Summary of recommendations

Establish well-managed and nationally-coordinated blood transfusion services, with country-wide quality systems that can provide adequate and timely supplies of safe blood for all patients who require it.

Collect blood, plasma, platelets and other blood components only from voluntary unpaid blood donors from low-risk populations, and use stringent donor selection procedures.

Ensure good laboratory practice in all aspects of the provision of safe blood, from donation to testing for transfusion-transmissible infections (HIV, hepatitis viruses, syphilis and other infectious agents) to blood grouping, to compatibility testing, to the issuing of blood.

Reduce unnecessary transfusions through the appropriate clinical use of blood including, where possible, the use of intravenous replacement fluids and other simple alternatives to transfusion.

Key resources:

14. WHO Blood transfusion safety (WHO web page)  
http://www.who.int/bloodsafety/en/

101. Aide memoire on blood safety for national blood programmes  

102. Global database on blood safety (WHO web page)  
http://www.who.int/bloodsafety/global_database/en/

http://www.who.int/hiv/pub/meetingreports/Second_Line_Antiretroviral.pdf

1.3 Accelerating the scale-up of HIV/AIDS treatment and care

For infants, children or adults living with HIV, a comprehensive package of prevention, treatment and care interventions should be made available. Early referral after HIV diagnosis is essential, and is most urgent for infants, children or adults with signs and symptoms of HIV and, also, for all pregnant women. Interventions to prevent HIV transmission and prevent ill health are often referred to as ‘positive prevention’ or ‘prevention for positives’.

Health services should deliver a complete package of interventions for all people with HIV, ideally starting well before the need for antiretroviral therapy (ART), with pre-ART care that includes regular assessment of the clinical and immunological stage of infection. Interventions for treatment and care include ART and treatment and management of common infections, co-morbidities and toxicities. However, the interventions should also address cardiovascular disease, malignancies, palliative care and end-of-life care.

To optimize and maximize the benefit of ART, specific efforts to prepare for and support adherence are required. Nutritional support is critical, particularly for infants, children and pregnant women. Mental health disorders, including alcohol and other substance use, need to be addressed, as does the need for psychosocial support. The interventions described in this document are recommended to improve quality of life and to prevent morbidity and mortality, and the health sector is largely responsible for providing these interventions.

Health services should be configured to provide the complete range of interventions described in this document, or a so-called ‘continuum of care’. There should be careful consideration of the special needs of injection drug users, sex workers, young people, and men who have sex with men. There should also be family care, built around the family as a unit needing care, even where only one or two members have HIV (see also Chapter 4 on intervention mix and targeting).

Not all interventions will be necessary or equally important in all countries, or for all target populations or settings within those countries. Local and national epidemiology and context will largely determine which interventions are most appropriate. Attention must also be paid to costs, including the costs of making interventions available and accessible to all who need them. The hidden costs of laboratory testing, transportation and time away from work need to be taken into account. None of these costs should be allowed to impede access to services by people who need them.
Laboratory services required to accelerate the scale up of treatment and care are discussed in section 1.4.

1.3.1 Interventions to prevent illness

Interventions to prevent illness include chemoprophylaxis against common opportunist infections; measures to reduce the incidence of pneumonia, diarrhoea and other conditions that are more common or more serious in children or adults with HIV; screening to detect common malignancies and other co-morbidities; and immunization. Table 4 summarizes those and other essential and optional interventions to prevent illness in people living with HIV, including prevention of viral hepatitis, TB and other conditions. These interventions are further discussed in sections 1.3.1.1–1.3.1.6).

Table 4. Interventions to prevent illness in people living with HIV

<table>
<thead>
<tr>
<th>Recommended</th>
<th>Consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotrimoxazole</td>
<td>Influenza vaccine</td>
</tr>
<tr>
<td>Safe water, water treatment methods</td>
<td>Yellow fever vaccination if no advance or severe disease</td>
</tr>
<tr>
<td>Sanitation, proper disposal of faeces</td>
<td></td>
</tr>
<tr>
<td>Hand washing with soap after defecation or handling faeces</td>
<td></td>
</tr>
<tr>
<td>Hepatitis vaccine for Hep B core antibody negative adults</td>
<td></td>
</tr>
<tr>
<td>TB screening</td>
<td></td>
</tr>
<tr>
<td>Isoniazid preventive therapy for TB</td>
<td></td>
</tr>
<tr>
<td>Intermittent preventive treatment for malaria in pregnant women in malarious areas</td>
<td></td>
</tr>
<tr>
<td>Indoor residual spraying and insecticide-treated bednets if living in malarious areas</td>
<td></td>
</tr>
<tr>
<td>Full nutritional assessment</td>
<td></td>
</tr>
<tr>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td>Chemoprophylaxis for Cryptococcus</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal vaccine for adults (polysaccharide vaccine) if CD4 &gt; 500</td>
<td></td>
</tr>
</tbody>
</table>

Key resources:

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
   English: http://www.who.int/hiv/pub/imali/Chronic_HIV_Care7.05.07.pdf

1.3.1.1 Cotrimoxazole prophylaxis

Cotrimoxazole is an effective, well tolerated and inexpensive antibiotic used to prevent Pneumocystis pneumonia (PCP) and toxoplasmosis in adults and children with HIV. It is also effective against other infectious and parasitic diseases, and should be an essential part of pre-antiretroviral therapy care.

Summary of recommendations

WHO recommends that the criteria for HIV-infected adults be adapted depending on the disease burden in different settings. All HIV-infected adults with a previous episode of PCP require cotrimoxazole prophylaxis, as do all HIV-infected infants and children under five years of age. In settings where diagnosis of HIV in exposed children may be delayed due to lack of laboratory testing capacity, it is recommended that all children born to HIV-positive women should commence cotrimoxazole at around four to six weeks of age, or on first contact with health services.

Countries may choose to simplify these recommendations in settings with high prevalence of HIV and limited health infrastructure, and recommend universal cotrimoxazole prophylaxis for everyone living with HIV, irrespective of their CD4 count or clinical state.
It is generally recommended that, once started, cotrimoxazole prophylaxis for adults living with HIV be continued indefinitely. However, discontinuation may be necessary if adverse drug reactions occur. Due to insufficient data at this time, stopping cotrimoxazole due to a sustained favourable response to ART cannot be recommended either for adults or children in low- or middle-income settings with limited access to CD4 counts.

**Key resource:**

104. Guidelines on co-trimoxazole prophylaxis for HIV-related infections among children, adolescents and adults: recommendations for a public health approach

   **English:** http://whqlibdoc.who.int/publications/2006/9789241594707_eng.pdf
   **French:** http://whqlibdoc.who.int/publications/2007/9789242594706_fre.pdf

1.3.1.2 Preventing fungal infections

Cryptococcus is a significant cause of illness and death in children and adults with HIV. Other fungal infections may be important depending on local epidemiological patterns (e.g. Penicillium marneffei in Asia).

**Summary of recommendations**

In areas where cryptococcal disease is common, antifungal prophylaxis with azoles should be considered for people with HIV if they have clinically severe disease or very low CD4 cell counts (< 100/mm3), whether or not they are receiving antiretroviral therapy. Prior to beginning primary prophylaxis with azoles, active cryptococcal and other invasive fungal infections should be excluded. People with HIV who are taking azoles, especially those who are taking other hepatotoxic drugs, require monitoring for adverse events. Secondary prophylaxis is recommended for patients after completing treatment for cryptococcal disease.

**Key resource:**

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings


1.3.1.3 Vaccinations

Recommendations on routine childhood and catch-up vaccinations for adults and children with HIV are being reviewed by WHO expert committees in 2008, and readers are encouraged to check for updated guidance.

**Summary of recommendations for children**

As early in life as possible, HIV-exposed infants and children should receive all vaccines under the Expanded Programme for Immunization, including Haemophilus influenzae type B and pneumococcal vaccine. This should be done according to recommended national immunization schedules. However, the schedules may require some modification for infants and children with HIV.

Because of the increased risk of early and severe measles infection, infants with HIV should receive a dose of standard measles vaccine at six months of age, with a second dose as soon after nine months of age as possible, unless they are severely immunocompromised at that time. Similarly, immunization with pneumococcal conjugate vaccine or Haemophilus influenzae type B conjugate vaccine should be delayed if the child is severely immunocompromised.

New findings indicate a high risk of disseminated bacille Calmette-Guérin (BCG) disease developing in infants who have HIV, and BCG vaccine should therefore not be given to children known to have HIV. However, infants cannot normally be identified as being infected with HIV at birth, so BCG vaccination should usually be given to all infants at birth, regardless of HIV exposure, in areas with high prevalence of TB and of HIV.

**Summary of recommendations for adults**

Vaccine-preventable diseases, especially hepatitis B and influenza, are among the major causes of illness among adults with HIV. However, the efficacy of hepatitis B vaccine is related to the degree of immunosuppression induced by HIV. Where serological testing for hepatitis B virus is available, WHO recommends three doses of standard- or double-strength hepatitis B vaccine for adults with HIV who are susceptible (i.e. antibody to hepatitis B core antigen negative) and have not been vaccinated previously. Vaccine response (titre of hepatitis B surface antibody after three doses of hepatitis B
vaccine) can be measured and, if suboptimal, revaccination may be considered. In settings where serologic testing is not available and hepatitis B prevalence is substantial, programme managers may choose to offer three doses of hepatitis B vaccine to all adults with HIV.

Where available and feasible, annual influenza vaccination with the inactivated subunit influenza vaccine should be offered to adults with HIV. Moreover, if influenza vaccine is indicated in the context of a large epidemic or pandemic, adults with HIV should receive inactivated influenza vaccine.

There is insufficient information to make recommendations about human papillomavirus vaccination for young females with HIV.

**Key resources:**

- Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings
- Vaccine-preventable diseases, vaccines and vaccination
- Revised BCG vaccination guidelines for infants at risk for HIV infection

**1.3.1.4 Nutritional care and support**

Children and adults with HIV have increased energy needs, but symptoms of HIV or opportunistic infections may lead to reduced dietary intake, decreased appetite, difficulty swallowing, and malabsorption. This, combined with environmental factors—such as a lack of regular access to a nutritious balanced diet—means HIV and nutrition interactions are complex.

Evidence-based nutrition interventions should be part of all national HIV care and treatment programmes. Routine assessment should be made of diet and nutritional status (weight and weight change, height, Body Mass Index or mid-upper arm circumference, symptoms and diet) for people living with HIV. Assessment of diet should aim to ensure that protein and micronutrient intake are adequate for the patient’s energy needs, and that potential drug-food (including herbal and traditional remedies) interactions are avoided. Individual and household food security should also be evaluated.

**Summary of recommendations**

WHO recommends that all children and adults should receive one recommended daily allowance (RDA) of micronutrients, regardless of their HIV status. This is best provided by food, including fortified food. Where the micronutrient content of the daily diet is inadequate, a daily multi-micronutrient supplement is required (one RDA is recommended). There is no evidence for increased protein requirements exceeding that of a balanced diet, where protein contributes about 10–15% of the total energy intake.

Whenever feasible, people with HIV and their families who lack the means to meet their basic dietary needs should be assisted in achieving food security. Assistance might, for example, include supplements to their income, or direct provision of some of their food.

**Key resources:**

- Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings
- Nutrition counselling, care and support for HIV-infected women
- Integrating nutrition and food assistance into HIV care and treatment programmes: operational guidance
  [http://www.who.int/hiv/topics/arv/who_wfp_nutrition.pdf](http://www.who.int/hiv/topics/arv/who_wfp_nutrition.pdf)
- WHO Executive Board EB116/12 116th Session 12 May 2005: Nutrition and HIV/AIDS

**1.3.1.5 Providing safe water, sanitation and hygiene**

Simple, accessible and affordable interventions to ensure safe household water and sanitation (i.e. management of human waste) reduce the risk of transmission of water-borne and other enteric pathogens. Where programmes offer replacement feeding or early weaning from breastfeeding for infants of women with HIV, effective water treatment is essential to protect the infants’ health. Interventions for point-of-use water, sanitation and personal hygiene require continued motivation for
and reinforcement of behaviour change. Over the long-term, governments and development partners should address the larger problem of inadequate access to piped supplies of safe water in homes.

**Summary of recommendations**

Household-based water treatment and storage of water in containers that reduce manual contact are recommended for people living with HIV and their households. Steps should be taken to ensure they have a minimum of 20 litres of water per person per day.

To reduce diarrhoeal disease among people living with HIV and their families or households, disposal of faeces in a toilet, latrine or, at a minimum, burial in the ground is recommended. Hygiene interventions should include hygiene education and promotion of hand washing with soap, along with the provision of soap for people living with HIV and their caregivers and households.

**Key resource:**

1. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings


1.3.1.6 Preventing malaria

In malarious areas, infants and children under five years of age and pregnant women with HIV are at high risk of complications resulting from coinfection with malaria, so they should be provided with malaria prevention and treatment.

**Summary of recommendations**

Infants, children under five and pregnant women with HIV who live in malarious areas should be provided with insecticide-treated mosquito nets and/or residual spraying of their rooms and homes to reduce their exposure to malaria. Pregnant women with HIV who are already receiving cotrimoxazole prophylaxis do not require sulfadoxine-pyrimethamine-based intermittent preventive therapy for malaria. However, in areas of malaria transmission, pregnant women living with HIV who are not taking cotrimoxazole should be given at least three doses of intermittent preventive treatment for malaria as part of their routine antenatal care.

**Key resource:**

1. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings


1.3.2 Treatment and care interventions

Management of the full range of HIV-related conditions should be based on clear guidelines and standardized protocols.

Interventions for care and treatment are discussed in the following sections and include, for example:

- Regular periodic clinical assessment, both pre-ART and post-ART (see section 1.3.2.1)
- Treatment preparedness and adherence support (see section 1.3.2.1.1)
- Management of opportunistic infections and co-morbidities (see section 1.3.2.2)
- Prevention and treatment of mental health disorders (see section 1.3.2.2.7)
- Palliative care (see section 1.3.2.3).

1.3.2.1 Antiretroviral therapy for adults, adolescents and children

A public health approach to antiretroviral therapy (ART) facilitates quality HIV treatment for all who need it, an essential component of the universal access goal. It promotes simplified and standardized clinical decision-making, drug regimens and formularies, and patient data recording systems. It requires that national drug prescription and clinical care guidelines be supported by regular supplies of quality-assured drugs, and that these drugs be made available to patients free at the point of service delivery.

Early referral to ART services and measures to retain patients in care are essential to the achievement of good patient and programme outcomes. To maintain the effectiveness of first- and second-line antiretroviral regimens, WHO recommends that countries develop a national strategy for
HIV drug resistance prevention and assessment (see section 3.3.4). WHO also recommends any expansion or improvement of laboratory services that may be necessary for diagnosis and treatment of HIV, opportunistic infections and related conditions, and to support monitoring of treatment effectiveness (see section 1.4).

**Summary of recommendations**

Regular periodic clinical and immunological staging to determine need for treatment is recommended for adults and children with HIV. Where laboratory services are available and affordable, determining viral load may provide additional information. At present, it is not clear in which situations targeted or routine viral load testing will be of benefit in low- and middle-income countries.

WHO recommends that criteria for starting ART be defined in national protocols and that these be based on the minimum clinical data and, wherever available, CD4 counts. Laboratory eligibility criteria, including any requirements that may be in place for CD4 or viral load, should not be used to delay starting ART, especially for patients who meet the clinical criteria for starting ART.

Recommendations for initiating ART in adults, adolescents and children are shown in Table 5–Table 7. These recommendations are reviewed and updated regularly and readers are encouraged to check for updates. For pregnant women, ART is also essential to prevent vertical transmission (see section 1.2.3.2). Revised criteria have recently been developed for initiating antiretroviral therapy among infants. Revised recommendations have been developed for infants requiring ART who have been exposed to nevirapine pre-delivery, perinatally or post delivery. WHO recommends that all infants diagnosed with HIV start immediate ART.

Currently recommended first-line regimens for adults, adolescents and children contain two nucleoside reverse transcriptase inhibitors (NRTIs) plus one non-nucleoside reverse transcriptase inhibitor (NNRTI) drug. WHO recommends the use of fixed-dose combination regimens to support adherence and programme delivery. For adults, AZT or Tenofovir combined with 3TC or Emtricitabine (FTC) are the preferred first-line NRTI medicines. In children, AZT or Abacavir (ABC) combined with 3TC are preferred. First-line regimens for people with active hepatitis B should contain Tenofovir and Lamivudine and avoid nevirapine whenever possible. For people with HIV-2 infection, a triple nucleoside regimen is recommended.

Guidelines or protocols produced by WHO regional offices also provide specific recommendations that can be used to guide national technical reference groups developing national recommendations. Regional guidelines for the WHO Regional Offices for Southeast Asia, Europe, the Americas/Pan American Health Organization, and the Western Pacific are referenced in Chapter 6.

**Patients who develop failure of their first-line therapy will need second-line therapy.** Treatment failure is recognized by using, at a minimum, clinical criteria and CD4 cell thresholds and, where feasible, the results of viral load monitoring. WHO recommends changing the entire drug regimen if treatment failure has occurred. The protease inhibitor (PI) class of drugs is usually reserved for second-line treatment, preferably supported by two new NRTIs. Recent technical consultations have addressed which second-line drugs are most feasible, affordable and safe, and how clinical, immunological and viral load criteria are best used to recognize treatment failure.

**Table 5. WHO recommendations for initiating antiretroviral therapy in adults and adolescents (2006)**

<table>
<thead>
<tr>
<th>WHO clinical stage</th>
<th>CD4 testing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not available</td>
</tr>
<tr>
<td>1</td>
<td>Do not start ART</td>
</tr>
<tr>
<td>2</td>
<td>Do not start ART</td>
</tr>
<tr>
<td>3</td>
<td>Start ART</td>
</tr>
<tr>
<td>4</td>
<td>Start ART</td>
</tr>
</tbody>
</table>
Table 6. WHO recommendations for initiating antiretroviral treatment in infants and children

<table>
<thead>
<tr>
<th>Criteria to start ART in infants and children</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td>% CD4</td>
</tr>
<tr>
<td>Absolute CD4 #</td>
</tr>
</tbody>
</table>

# Absolute CD4 count is naturally less constant and more age-dependent than %CD4; it is not therefore appropriate to define a single threshold.

Table 7. Summary of WHO preferred antiretroviral treatment recommendations for infants, children and adults

<table>
<thead>
<tr>
<th>Patient group</th>
<th>Preferred first line regimen</th>
<th>Preferred second line regimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant not exposed to ARV</td>
<td>NVP + 2 NRTI</td>
<td>Boosted PI + 2 NRTI</td>
</tr>
<tr>
<td>Infant with unknown ARV exposure</td>
<td>NVP + 2 NRTI</td>
<td>Boosted PI + 2 NRTI</td>
</tr>
<tr>
<td>Infant exposed to NVP</td>
<td>LPV/r + 2NRTI</td>
<td>NNRTI + 2 NRTI</td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children 3 years or over</td>
<td>NNRTI + 2 NRTI</td>
<td>Boosted PI + 2 NRTI</td>
</tr>
<tr>
<td>Adult or adolescents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult or adolescent</td>
<td>NNRTI + 2 NRTI</td>
<td>Boosted PI + 2 NRTI</td>
</tr>
<tr>
<td>Woman starting ART in pregnancy</td>
<td>NVP + AZT + 3TC</td>
<td>Doesn’t apply</td>
</tr>
<tr>
<td>Women starting ART within 6 months of single dose NVP</td>
<td>NNRTI + 2 NRTI or 3 NRTI</td>
<td>Doesn’t apply</td>
</tr>
<tr>
<td>Concomitant conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child, adolescent or adult with severe anaemia</td>
<td>NVP + 2NRTI (avoid AZT)</td>
<td>Boosted PI + 2NRTI (avoid AZT)</td>
</tr>
<tr>
<td>Child, adolescent or adult with TB</td>
<td>EFV + 2 NRTI or 3 NRTI</td>
<td>Boosted PI * + 2 NRTI</td>
</tr>
<tr>
<td>Adult or adolescent with Hepatitis B</td>
<td>TDF + 3TC + NNRTI</td>
<td>Boosted PI + 2 NRTI**</td>
</tr>
<tr>
<td>Adult or adolescent with Hepatitis C</td>
<td>EFV + 2 NRTI</td>
<td>Boosted PI + 2 NRTI</td>
</tr>
<tr>
<td>IDU</td>
<td>NNRTI + 2 NRTI</td>
<td>Boosted PI + 2 NRTI</td>
</tr>
<tr>
<td>HIV-2 or dual infection</td>
<td>3 NRTI</td>
<td>Boosted PI + 2 NRTI</td>
</tr>
</tbody>
</table>

* If using RMP in the TB regimen, LPV/r + extra dose of RTV is the recommended PI option, based on pK interactions. If RFB or an alternative TB regimen without RMP is used, any bPI at its conventional dosage can be used.

** If long-term anti-HBV therapy is still needed, consider maintaining 3TC and/or TDF, in addition to the new 2 NRTI backbone.

NNRTI = Non-nucleoside reverse transcriptase inhibitor, NRTI= nucleoside/nucleotide reverse transcriptase inhibitor, PI= Protease inhibitor, IDU= Injecting drug user, AZT= Azidothymidine, Zidovudine, EFV= Efavirenz, NVP = Nevirapine, LPV= Lopinavir/ritonavir, RTV= Ritonavir TDF= Tenofovir, 3TC= Lamivudine

RMP= Rifampicin, RFB= Rifabutin, HBV= Hepatitis B virus.

Key resources:

8. WHO case definitions of HIV for surveillance and revised clinical staging and immunological classification of HIV-related disease in adults and children
   http://www.who.int/hiv/pub/guidelines/HIVstaging150307.pdf

13. Antiretroviral therapy for HIV infection in infants and children: towards universal access: recommendations for a public health approach

110. Antiretroviral therapy for HIV infection in adults and adolescents: recommendations for a public health approach: 2006 revision
    Addendum: http://www.who.int/entity/hiv/art/ARTadultsaddendum.pdf

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
    English: http://www.who.int/hiv/pub/imalimci/Chronic_HIV_Care7.05.07.pdf
1.3.2.1.1 Treatment preparedness and adherence support

Interventions to ensure treatment preparedness and support adherence optimize the effectiveness of ART and minimize the development of drug resistance. The ability of patients to follow treatment plans is frequently compromised by various factors, including stigma and discrimination against patients and their families, treatment costs they cannot afford, and the nature and tolerability of available ARV therapies. The level of readiness by patients to follow health worker recommendations is a major factor that can be addressed through information, education and counselling. Equally important are practical matters, such as the need for free or affordable transportation to and from treatment centres and the need for those centres to have convenient opening hours for patients.

Treatment preparedness and adherence support for children requires support from their parents or other primary caregivers. Children on the verge of adolescence and adolescents require special attention; they are at a stage of life where they may be inclined to ignore or rebel against the advice of adults, unless adults show respect for their emerging autonomy. Health care providers have responsibilities to assess risk of non-adherence by children and adolescents, and deliver necessary interventions to support adherence. This requires a multidisciplinary approach involving key staff at health centres to ensure convenient opening hours, free or affordable transportation, reduced direct or indirect costs of care, the provision of meals if appropriate, and so on.

Community and patients’ organizations often play key roles in supporting adherence, through peer monitoring, home visits and other means. Informal or formal social support from family, friends, community, and patients’ organizations has consistently shown to be important for treatment preparedness, adherence and good health outcomes.

Summary of recommendations

Interventions that target adherence should be tailored to the particular illness-related needs of each patient. Health care providers should be prepared to assess their patient’s readiness to adhere, offer advice on how to do it, and monitor the patient’s progress at every contact. For particular patient groups, such as infants and pregnant women, expedited treatment preparedness is often necessary, and more intensive and ongoing adherence support may be required.

Effective adherence support interventions include client-centred behavioural counselling and support, support from peer educators trained as ‘expert patients’, and community treatment supporters. These interventions involve encouraging people to disclose their HIV status and providing them with treatment tools such as pillboxes, diaries and patient reminder aids. There should be site-based assessments to evaluate the extent to which services such as free transport might improve adherence.
Key resources:

119. Adherence to long-term therapies: Evidence for action
http://www.who.int/chp/knowledge/publications/adherence_introduction.pdf
http://www.who.int/hiv/pub/prev_care/therapies/en/

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district
hospital outpatient clinic
English: http://www.who.int/hiv/pub/imai/Chronic_HIV_Care7.05.07.pdf

1.3.2.1.2 Patient monitoring

Infants, children and adults with HIV require clinical and laboratory monitoring at predetermined
intervals. Monitoring may include clinical assessment, CD4 cell count and other tests, depending on
the symptoms or signs identified. Regular patient monitoring can identify problems with adherence,
toxicity and effectiveness of ART and TB-HIV co-treatment. Nationally standardized patient monitoring
tools (patient records, registers, and reports) facilitate high-quality patient monitoring (see section
3.3.3).

1.3.2.2 Managing opportunistic infections and co-morbidities

Standardized clinical protocols should reflect the burden of HIV and prevalent co-morbidities. Certain
conditions are common in infants, children or adults living with HIV and may herald disease
progression. Clinical care should manage the common acute and chronic conditions associated with
HIV.

Key resources:

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district
hospital outpatient clinic
English: http://www.who.int/hiv/pub/imai/Chronic_HIV_Care7.05.07.pdf

100. IMAI acute care

93. IMCI chart booklet for high HIV settings

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings

120. IMAI OI training course (based on IMAI Acute Care guideline module)
http://www.who.int/hiv/capacity/IMAIsharepoint/en

121. Global action plan for the prevention and control of pneumonia (GAPP): report of an informal consultation

1.3.2.2.1 Managing HIV-related conditions

At a minimum, case management protocols for adults and children with HIV should include the
conditions listed below, as well as other locally prevalent conditions.

Infections:

- Candida (oesophageal and mucosal)
- Cryptococcal meningitis
- Cytomegalovirus infection
- Herpes virus infections (zoster and simplex)
- Hepatitis B and C
- Pneumocystis pneumonia (PCP)
- Septicaemia (including especially Gram negative and Gram positive for IDU)
- Severe bacterial pneumonia
- Malaria
- Toxoplasmosis
• Tuberculosis including multidrug-resistant (MDR) and extensively drug-resistant (XDR) (see section 1.3.2.4)
• Atypical mycobacteria
Neurological conditions:
• Neuropathy
• Encephalopathy
• Progressive Multifocal Leukoencephalopathy (PML)
• Dementia
• Developmental delay
Skin disorders:
• Seborrhoeic dermatitis
• Prurigo
• Infections
• Drug reactions
Malignancies:
• AIDS defining malignancies
  • Kaposi’s sarcoma
  • Non-Hodgkin’s lymphoma, including primary cerebral lymphoma
  • Cervical cancer
  • Hepatocellular carcinoma
Cardiovascular and metabolic conditions:
• Atherosclerosis
• Dyslipidemia
• Diabetes
• Lipodystrophy
• Cardiomyopathy
Mental health disorders:
• Substance use disorders
• Attempted suicide
• Major depression
• Psychoses
• Anxiety disorders
Others:
• Lymphocytic interstitial pneumonia (LIP) in children
Key resources:
47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
  English: http://www.who.int/hiv/pub/imai/Chronic_HIV_Care7.05.07.pdf
100. IMAI acute care
93. IMCI chart booklet for high HIV settings
122. Integrated management of childhood illness, complementary course on HIV/AIDS
  Module 1: http://whqlibdoc.who.int/publications/2006/9789241594370.m1_eng.pdf
  Module 2: http://whqlibdoc.who.int/publications/2006/9789241594370.m2_eng.pdf
1.3.2.2 Managing pneumonia

Children and adults living with HIV have higher rates of pneumonia and mortality in both resource-constrained and high-income settings. In sub-Saharan Africa, pneumonia is the leading cause of hospital admission, and the most common cause of death among children younger than five years who have HIV. The case fatality rate for pneumonia in infants and younger children with HIV is very high. In adults, pneumonia is often more serious, and may be caused by a range of aetiologies.

Summary of recommendations

In patients with presumed pneumonia who fail to respond to standard antibiotics, TB, PCP pneumonia, fungal and other opportunistic pathogens need to be considered. PCP is a common cause of severe pneumonia in people with HIV infection and should always be considered.

Key resources:

- **IMAI acute care**

1.3.2.3 Managing diarrhoea

Chronic persistent diarrhoea is common in infants, children and adults living with HIV, and may be more difficult to diagnose and manage.

Summary of recommendations

Clinical protocols should cover case management for the full range of opportunistic pathogens.

Key resources:

- **Implementing the new recommendations on the clinical management of diarrhoea: Guidelines for policy makers and programme managers**

1.3.2.4 Managing malnutrition

Weight loss and malnutrition are common symptoms of HIV in infants, children and adults, and may be due to reduced food intake, impaired absorption, increased food needs due to opportunistic infections, or other causes. Evaluation of weight loss should include assessing symptoms and signs that could indicate underlying disease, notably chronic diarrhoea and TB. Successful treatment of the underlying disease may result in weight gain. Usually, standard management protocols can be followed, but responses may be poor and antiretroviral therapy may be required.
Summary of recommendations

Specialized therapeutic foods are required for persons with Body Mass Index (BMI) <16, and for infants and children with moderate or severe malnutrition. Supplementary feeding may be required for mild-to-moderately malnourished adults (BMI <18.5) and children.

Key resources:

126. Community-based management of severe acute malnutrition: A Joint Statement by the World Health Organization, the World Food Programme, the United Nations

1.3.2.2.5 Treating viral hepatitis

In many areas of the world, chronic liver disease caused by either hepatitis B virus (HBV) or hepatitis C virus (HCV) in patients with HIV is common, and this disease is now becoming one of the leading causes of morbidity and mortality among people living with HIV in many regions. Globally, approximately 10% of people with HIV have chronic hepatitis B. Men who have sex with men have higher rates of HBV/HIV coinfection than injecting drug users or heterosexuals.

HCV and HIV coinfection is particularly frequent in areas with a high prevalence of intravenous drug users; in some areas, up to two-thirds of injection drug users have chronic hepatitis C. In Europe, up to 30% of HIV-infected individuals are coinfected with HCV. The course of HBV- and HCV-related liver disease may be accelerated with HIV. Liver toxicity and related morbidity is not uncommon when using ARVs in the presence of underlying chronic hepatitis B and/or C. In HBV/HIV-coinfected patients with cirrhosis, hepatocellular carcinoma may appear at an earlier age and be more aggressive in those with HIV-infection.

Summary of recommendations

WHO recommends that national health authorities establish prevention and treatment strategies for HBV and HCV in HIV coinfected individuals, as well as activities to prevent HBV and HCV transmission.

In addition to the key resources listed below, detailed recommendations for clinical management can be found in clinical protocols from the WHO Regional Office for Europe and in other regional resources noted in Chapter 6.

Key resources:

127. HIV/AIDS treatment and care for injecting drug users: Clinical protocol for the WHO European Region
    http://www.euro.who.int/document/SHA/e90840_chapter_5.pdf

128. Management of Hepatitis C and HIV coinfection: clinical protocol for the WHO European region

129. Prevention of hepatitis A, B and C and other hepatotoxic factors in people living with HIV: Clinical protocol for the WHO European Region

130. WHO EURO hepatitis website
    http://www.euro.who.int/aids/hepatitis/20070621_1

1.3.2.2.6 Managing malaria

Current recommendations on diagnosis and management of malaria in people living with HIV are no different than those for the general population. These recommendations are due to be reviewed in late 2008.

Summary of recommendations

For adults and children with HIV living in malarious areas who have a fever, evaluation of the cause of fever and, where possible, laboratory confirmation of malaria infection are preferred, instead of presumptive treatment of fever as malaria. Available malaria tests may include microscopy or rapid diagnostic tests. People with HIV who develop malaria require standard recommended antimalarial
treatment. Patients with HIV who are receiving cotrimoxazole prophylaxis should not be given sulfadoxine-pyrimethamine.

Key resources:

131. Guidelines for the treatment of malaria
http://www.who.int/malaria/docs/TreatmentGuidelines2006.pdf

132. Malaria and HIV interactions and their implications for public health policy
French: http://www.who.int/entity/hiv/pub/meetingreports/malariahivfr.pdf

1.3.2.2.7 Preventing and treating mental health disorders

Prevention and treatment of mental health disorders and provision of psychological and social support are often neglected in people living with HIV, despite the fact that they are critical components of care. HIV infection itself can lead to poor mental health including impaired cognition. In infants and children, it can lead to impaired neurological development and low attainment of developmental milestones. Timely antiretroviral therapy effectively prevents HIV related encephalopathy, but other conditions common in people with HIV include depression, anxiety and substance use. These can interfere with treatment adherence. Alcohol use is also a risk factor for unsafe sex and HIV transmission.

Promoting and supporting mental health throughout a chronic illness require a number of interventions, including psychosocial support delivered by trained lay providers and clinicians, basic counselling for depression, and psychotherapeutic interventions to address recognized psychiatric disorders. Brief interventions can address harmful and hazardous alcohol use. Mental health-related issues for people living with HIV should be addressed at all levels of the health system. This requires referrals connecting HIV-related services with mental health services, and linkages with psychological and social support resources in community.

Summary of recommendations

All people with HIV should be offered or provided referral to a comprehensive set of psychosocial interventions (e.g. individual and group counselling, peer support groups, family and couples counselling, and adherence support). People living with HIV who have mental health conditions, such as depression and alcohol and other substance dependence, should be provided with specific psychosocial and psychotherapeutic interventions and, when indicated, medication for these conditions. Services should be configured to support families and ensure that the needs of infants, children and adolescents are met. Delirium, dementia, suicide, major depression, psychoses and anxiety disorders all need specific interventions and may require psychotropic medication.

Key resources:


134. Psychosocial support groups in Antiretroviral (ARV) Therapy: Module 4 in the WHO mental health and HIV/AIDS series

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
English: http://www.who.int/hiv/pub/imaichronic_HIV_Care7.05.07.pdf

1.3.2.2.8 Counselling

Counselling is an essential component of HIV services, and requires specific skills and competencies from health workers and lay providers.

Summary of recommendations

Counselling is required in a range of clinical situations in order to:

- provide emotional support;
- help patients cope with challenges and fears related to diagnosis of HIV, transmission to infants, sexual partners and other family members;
• help patients cope with the need for lifelong antiretroviral therapy;
• help patients prioritize problems and find their own solutions;
• help patients who are depressed or anxious;
• address other aspects of HIV prevention, care and treatment (post-testing counselling, disclosure of HIV status, safe sex, negotiating condom use, adherence);
• intervene in crisis situations (e.g. bereavement or to prevent suicide).

Health workers, including counsellors, also require support to prevent and respond to burnout.

Key resources:

135. Basic counselling guidelines for ARV programmes

47. IMAI-IMCI chronic HIV care with ARV therapy and prevention: Interim guidelines for health workers at health centre or district hospital outpatient clinic
English: http://www.who.int/hiv/pub/imai/Chronic_HIV_Care7.05.07.pdf

136. IMAI general principles of good chronic care

1.3.2.3 Palliative care

Palliative care can improve the quality of life of patients facing life-threatening illness and of their families. It offers prevention and relief of suffering by means of early identification, and assessment and treatment of pain and other physical, psychosocial and spiritual needs. It calls for a multidisciplinary team approach that addresses the needs of patients and their families.

Palliative care provides relief from pain and other distressing symptoms; integrates psychological and spiritual aspects of patient care; and provides support systems to help patients and their families live as actively as possible until death, and to cope during both illness and death.

A central focus of palliative care is pain assessment and treatment, with the use of opioid and non-opioid analgesics according to an analgesic ladder. The analgesics are provided together with non-medical treatments. This requires addressing any limitations in access to opioid analgesics, as well as reservations some health workers may have about prescribing or administering analgesics.

Summary of recommendations

Pain demands both specific management of the cause, and control of the pain itself. The analgesic ladder involves starting pain relief with a non-opioid analgesic such as aspirin, paracetamol or ibuprofen. If pain persists or increases, an opioid analgesic such as codeine should be added for mild to moderate pain. If the pain is still not controlled or increases, codeine should be stopped and oral morphine added to the aspirin, paracetamol or ibuprofen. Morphine for home use is available as a liquid.

Quality of life can be significantly improved by: treating other physical symptoms with medication and home remedies; ensuring preventive care in the bedridden patient, with careful attention to mobility, skin care and hygiene; providing psychosocial support to patients and families, including support for caregivers and bereavement counselling; and spiritual support.

People living with HIV should be encouraged to manage most symptoms themselves, and community and peer groups and organizations can provide much of the other support.

Key resources:

88. Palliative care: symptom management and end-of-life care
English: http://www.who.int/hiv/pub/imai/genericpalliativecare082004.pdf

137. WHO’s pain ladder (web page)

138. IMAI palliative care training course
http://www.who.int/hiv/capacity/IMAIsharepoint/en

139. Caregiver booklet: Symptom management and end of life care (draft)
1.3.2.4 Tuberculosis prevention, diagnosis and treatment

In many parts of the world, TB is the leading cause of HIV-related morbidity and mortality. It accounts for about 12% of all HIV-related deaths. In countries with high HIV prevalence, up to 80% of people with TB test positive for HIV, and HIV-positive individuals are more likely to have reactivation and reinfection of TB. This is of increasing concern, given the emergence of TB drug resistance, including multi-drug and extensively drug resistance disease. Some most-at-risk groups (e.g. IDUs, prisoners and health workers in some settings) are at greater risk of infection and of developing active TB.

Summary of recommendations

WHO recommends that TB and HIV/AIDS control programmes collaborate through an established coordinating body, undertake joint TB/HIV planning, ensure surveillance of HIV prevalence among TB patients, and also ensure the monitoring and evaluation of activities (see section 2.1.1 and Chapter 3).

The burden of HIV in TB patients should be reduced through HIV testing and counselling for TB patients and those suspected of having TB, and through provision of condoms and other HIV preventive interventions (see section 1.2), cotrimoxazole prophylaxis (see section 1.3.1.1) and HIV treatment and care (see section 1.3.2).

The burden of TB in people living with HIV should be reduced through what are sometimes called the ‘Three Is for HIV/TB’: intensified TB case finding, Isoniazid preventive therapy and infection control for TB.

Intensified TB case finding in people living with HIV is essential since TB is a curable disease. Intensified HIV case finding in people with TB is also essential because cotrimoxazole prophylaxis can prevent complications.

WHO strongly recommends TB screening for all infants, children and adults with HIV. In addition, the information provided to all patients with HIV, and caregivers of infants and children with HIV, should address the risk of acquiring TB, ways of reducing exposure, the clinical manifestations of TB, the risks of transmitting TB to others and, where appropriate, TB preventive therapy. Screening for TB is also essential to stop it from becoming worse, and to determine whether patients are eligible for Isoniazid preventive therapy.

The TB status of HIV-infected patients should be monitored on all visits to health providers. Those with symptoms or signs suggestive of TB should undergo further clinical investigation. Most-at-risk populations, including injecting drug users, require specific targeting. Approaches to reducing the risk of latent TB infection progressing to TB-disease include treatment of the latent TB itself and, also, improvement in immune function as a result of antiretroviral therapy.

TB infection control measures are essential to prevent the spread of TB through populations. Appropriate infection control measures (for example, developing a TB infection control plan, ‘fast-tracking’ coughing patients, assuring rapid TB diagnosis, and improving ventilation) should be implemented and reviewed periodically to minimize the transmission risk.

Isoniazid is an effective, well tolerated and inexpensive antibiotic for TB preventive therapy, and should be provided to all people with HIV once active TB disease has been excluded. Criteria for starting Isoniazid for HIV-infected adults may be adapted for different country settings. However, once the therapy is started, WHO recommends Isoniazid daily for six months. Specialist advice should be sought for preventive therapy for those with multidrug-resistant or extensively drug-resistant TB. Previous TB is not a contraindication to TB-preventive therapy.

Key resources:

141. Guidelines for implementing collaborative TB and HIV programme activities

23. Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings
142. Three I's Meeting: Intensified Case Finding (ICF), Isoniazid Preventive Therapy (IPT) and TB Infection Control (IC) for people living with HIV  
http://www.who.int/hiv/pub/meetingreports/WHO_3is_meeting_report.pdf

143. Isoniazid preventive therapy (IPT) for people living with HIV  

144. Guidelines for the prevention of tuberculosis in health care facilities in resource-limited settings  

145. Tuberculosis infection control in the era of expanding HIV care and treatment. Addendum to the WHO Guidelines for the prevention of tuberculosis in health care facilities in resource-limited settings  

146. The global plan to Stop TB, 2006-2015  
Arabic: http://www.stopb.org/globalplan/assets/documents/GPII_Arabic.pdf

147. Tuberculosis care with TB-HIV co-management: Integrated Management of Adolescent and Adult Illness (IMAI)  

148. IMAI TB infection control at health facilities  
http://www.who.int/hiv/pub/imai/TB_HIVModule23_05_07.pdf  

1.3.2.4.1 Treating HIV-associated tuberculosis

The Directly Observed Treatment, Short-course (DOTS) principles are well-recognized as the most effective approach to managing TB in people living with HIV. They may develop TB at any stage in the course of HIV infection, but the incidence increases with the severity of immunosuppression. Among children under five, there is often rapid progression from infection with TB to serious TB disease. Since people living with HIV are more likely to have smear-negative extrapulmonary TB, the reliance on smear microscopy is a concern. So is the fact that chest X-ray patterns may be atypical in people with HIV, particularly where there is severe immunosuppression, and this can also make diagnosis of TB difficult.

**Summary of recommendations**

WHO recommends scaling up access to culture-based diagnosis for people living with HIV. Recommended TB treatment based on a four-drug initial phase and a continuation phase remains the same for adults and children with HIV. Thioacetazone is contraindicated, as it can result in potentially fatal skin hypersensitivity.

**Key resources:**

149. Guidance for national tuberculosis programmes on the management of TB in children  

150. TB/HIV: a clinical manual: 2nd edition  

147. Tuberculosis care with TB-HIV co-management: Integrated Management of Adolescent and Adult Illness (IMAI)  

1.4 Laboratory services

Strengthening laboratory services is an essential component of strengthening and expanding health systems. Accurate and reliable clinical laboratory testing is an essential component of a public health approach to disease management. Health workers need laboratory services in order to assess the status of a patient’s health, make accurate diagnoses, formulate treatment plans, and monitor and predict the benefits and adverse effects of treatment. Laboratory services should provide accurate, reliable and timely results.
A tiered laboratory network is an integrated system of laboratories organized in alignment with the public health delivery network in a country. In low-income settings, four levels of laboratories are usually recognized within the national network. The primary level is at health posts, clinics or centres. The secondary level is at district hospitals and other facilities to which people are referred at primary level. The tertiary level is at regional hospitals or other regional health administrative units. The fourth and highest level consists of a national reference laboratory. In exceptional cases, national reference functions may be provided by laboratories outside of national administrative units and, instead, inside specialized facilities, e.g. for HIV drug resistance or virological diagnosis.

A national reference laboratory is responsible for overseeing the training of medical staff in good laboratory practice and biosafety; proper clinical use of essential laboratory tests; and appropriate selection and use of laboratory technologies and equipment, including maintenance and quality assurance of equipment.

Summary of recommendations

WHO recommends that national health authorities be guided by HIV programme staff and national technical experts, and develop a consolidated plan with complete financial data for strengthening laboratory capacity and identifying the HIV-related diagnostic reagents, technologies and equipment that are appropriate for their country.

Basic laboratory procedures, testing strategies and protocols for using specific markers should be validated and standardized at the national level, and quality systems put in place for all levels of laboratory services.

National guidelines should stipulate basic laboratory procedures, testing strategies, standard operating procedures and quality-control systems.

There should be expanded access to CD4 testing, especially to optimize HIV care for pregnant women, facilitate their timely initiation of antiretroviral therapy and achieve ambitious targets for the elimination of HIV infection in infants and children.

WHO recommends HIV drug resistance testing be performed as part of a national strategy for prevention monitoring and surveillance of HIV drug resistance (see section 3.3.4).

WHO also recommends a minimum essential list of investigations and laboratory tests for each level of the health system. Those recommended for the primary and secondary levels (i.e. local health facilities and district hospitals) are outlined in Table 8.
### Table 8. Essential lab tests at the primary and secondary levels

<table>
<thead>
<tr>
<th>Essential lab tests at health centre</th>
<th>Additional essential lab tests at district hospital</th>
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<tbody>
<tr>
<td><strong>HIV diagnostics</strong></td>
<td><strong>HIV diagnostics</strong></td>
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<tr>
<td>▪ Rapid HIV antibody tests (first and second tests)</td>
<td>▪ Rapid HIV antibody tests (first, second and third tests)</td>
</tr>
<tr>
<td>▪ Infant diagnosis; preparation of dried blood spot (DBS) and send out for viral testing</td>
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<tr>
<td><strong>Haemoglobin or haematocrit determination</strong></td>
<td></td>
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<tr>
<td><strong>Blood collection and send-out for CD4 cell absolute count and percentage</strong></td>
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<tr>
<td><strong>TB diagnostics</strong></td>
<td></td>
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<tr>
<td>▪ Sputum send-out for smear microscopy (or on-site acid fast bacilli (AFB) smear microscopy)</td>
<td>▪ Acid fast bacilli (AFB) smear microscopy</td>
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<tr>
<td>▪ Sputum send-out for culture and drug susceptibility testing</td>
<td>▪ Sputum send-out for culture and drug susceptibility testing</td>
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<tr>
<td><strong>Malaria tests (if in endemic area)</strong></td>
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<tr>
<td>▪ Peripheral blood smear (PBS) preparation and smear microscopy or</td>
<td><strong>Serum alanine aminotransferase (ALT)</strong></td>
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<tr>
<td>▪ Rapid test to detect and discriminate between Plasmodium falciparum and mixed Plasmodium species</td>
<td><strong>Blood sugar (glucose)</strong></td>
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<tr>
<td><strong>Rapid syphilis test</strong></td>
<td><strong>Serum creatinine and blood urea nitrogen</strong></td>
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<tr>
<td><strong>Rapid pregnancy test</strong></td>
<td><strong>Gram stain</strong></td>
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<tr>
<td><strong>Urine dipstick for sugar and protein</strong></td>
<td><strong>Syphilis - rapid plasma reagin (RPR)</strong></td>
</tr>
<tr>
<td><strong>TB diagnostics</strong></td>
<td><strong>Basic cerebrospinal fluid and urine microscopy</strong></td>
</tr>
<tr>
<td>▪ Acid fast bacilli (AFB) smear microscopy</td>
<td><strong>Bilirubin determination for neonates</strong></td>
</tr>
<tr>
<td>▪ Serum alanine aminotransferase (ALT)</td>
<td><strong>Blood and sputum cultures (send out)</strong></td>
</tr>
<tr>
<td>▪ Blood sugar (glucose)</td>
<td><strong>Cryptococcal antigen and/or India ink</strong></td>
</tr>
<tr>
<td>▪ Serum creatinine and blood urea nitrogen</td>
<td><strong>Lactic acid</strong></td>
</tr>
<tr>
<td>▪ Gram stain</td>
<td><strong>Type and cross match for transfusion</strong></td>
</tr>
<tr>
<td>▪ Basic cerebrospinal fluid and urine microscopy</td>
<td><strong>Pulse oximetry</strong></td>
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<tr>
<td>▪ Bilirubin determination for neonates</td>
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<tr>
<td>▪ Blood and sputum cultures (send out)</td>
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<tr>
<td>▪ Cryptococcal antigen and/or India ink</td>
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<tr>
<td>▪ Lactic acid</td>
<td></td>
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<tr>
<td><strong>Key resources:</strong></td>
<td></td>
</tr>
<tr>
<td>151. WHO consultation on technical and operational recommendations for scale-up of laboratory services and monitoring HIV antiretroviral therapy in resource-limited settings: (Expert meeting, Geneva, 2004)</td>
<td><a href="http://www.who.int/hiv/pub/meetingreports/labmeetingreport.pdf">http://www.who.int/hiv/pub/meetingreports/labmeetingreport.pdf</a></td>
</tr>
<tr>
<td>152. Essential list of laboratory equipment and supplies for HIV testing</td>
<td><a href="http://www.afro.who.int/aids/laboratory_services/resources/list-laboratory.pdf">http://www.afro.who.int/aids/laboratory_services/resources/list-laboratory.pdf</a></td>
</tr>
<tr>
<td>4. Guidelines for the implementation of reliable and efficient diagnostic HIV testing, Region of the Americas</td>
<td><a href="http://www.paho.org/English/AD/FCH/AI/LAB_GUIDE_ENG.PDF">http://www.paho.org/English/AD/FCH/AI/LAB_GUIDE_ENG.PDF</a></td>
</tr>
<tr>
<td>153. Consultation on technical and operational recommendations for clinical laboratory testing harmonization and standardization: Helping to expand sustainable quality testing to improve the care and treatment of people infected with and affected by HIV/AIDS, TB, and Malaria.(22-24 January 2008 Maputo, Mozambique)</td>
<td><a href="http://www.who.int/diagnostics_laboratory/3by5/Maputo_Meeting_Report_7_7_08.pdf">http://www.who.int/diagnostics_laboratory/3by5/Maputo_Meeting_Report_7_7_08.pdf</a></td>
</tr>
<tr>
<td>154. CD4+T cell enumeration technologies: technical information</td>
<td><a href="http://www.who.int/diagnostics_laboratory/CD4_Technical_Advice_ENG.pdf">http://www.who.int/diagnostics_laboratory/CD4_Technical_Advice_ENG.pdf</a></td>
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