

MANAGING COMMON COINFECTIONS AND COMORBIDITIES

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Goal of this chapter

To provide a summary of selected existing clinical recommendations and relevant resource documents on preventing and managing common coinfections and comorbidities in the context of the broad continuum of HIV care, with a focus on resource and capacity limited settings.

8 CLINICAL GUIDANCE ACROSS THE CONTINUUM OF CARE: MANAGING COMMON COINFECTIONS AND COMORBIDITIES

Introduction

Various coinfections, comorbidities and other health conditions are common among people living with HIV and have implications for their treatment and care, including the timing and choice of ARV drugs. This section provides a brief overview of the most common and important conditions. It summarizes selected key recommendations from already existing WHO guidelines and related materials, focusing on the screening, prophylaxis and timing of ART for these conditions; it does not cover their broader management. Sources and links are provided for relevant guidelines, including the evidence base and rationale supporting different recommendations. The strength of recommendations and quality of evidence is rated using either the GRADE system (strong or conditional recommendations and high, moderate, low and very low quality of evidence) or an alternative grading used prior to 2008 (A (strongly recommended) to C (optional)) and I–IV (level of evidence). In some cases, the sources and web links only are provided. These recommendations were not reviewed or discussed during the 2013 guideline development process, but are included as part of the consolidation of guidance related to HIV care and ARV drugs.

8.1 Prevention, screening and management of common coinfections

8.1.1 Co-trimoxazole preventive therapy



Background

Co-trimoxazole preventive therapy (CPT) should be implemented as an integral component of a package of HIV-related services. Existing recommendations cover initiation of co-trimoxazole preventive therapy among adults, adolescents, pregnant women and children for prevention of *Pneumocystis pneumonia*, toxoplasmosis and bacterial infections, as well as benefits for malaria prophylaxis and discontinuation of co-trimoxazole preventive therapy.

Source for recommendations

Guidelines on co-trimoxazole prophylaxis for HIV-related infection among children, adolescents and adults: recommendations for a public health approach. Geneva, World Health Organization, 2006 (www.who.int/hiv/pub/plhiv/ctx/en) (1).

These recommendations will be updated in 2014.

Key selected existing recommendations

Table 8.1 shows the recommendations. Refer to the Web Annex (www.who.int/hiv/pub/guidelines/arv2013/annexes) for methodology used in rating the quality of evidence.

Table 8.1 Criteria for initiating, discontinuing and monitoring co-trimoxazole preventive therapy according to the 2006 WHO guidelines

Age	Criteria for initiation	Criteria for discontinuation ^a	Dose of co-trimoxazole	Monitoring approach
HIV-exposed infants	In all, starting at 4–6 weeks after birth (A-III)	Until the risk of HIV transmission ends or HIV infection is excluded (A-I)	See Annex 7	Clinical at 3-monthly intervals (A-III)
<1 year	In all ^b (A-II)	Until 5 years of age regardless of CD4% or clinical symptoms ^c (A-IV) or Never (A-IV)		
1–5 years	WHO clinical stages 2, 3 and 4 regardless of CD4 % or Any WHO stage and CD4 <25% (A-I) or In all ^b (C-IV)	Never (A-IV)	See Annex 7	Clinical at 3-monthly intervals (A-III)
≥5 years, including adults	Any WHO stage and CD4 count <350 cells/mm ³ (A-III) ^d or WHO 3 or 4 irrespective of CD4 level (A-I) or In all ^b (C-III)	Never (A-IV) or when CD4 ≥350 cells/mm ³ after 6 months of ART ^e (C-IV) or CD4 ≥200 cells/mm ³ after 6 months of ART ^c (B-I)	See Annex 7: for <30 kg, 960 mg daily	Clinical at 3-monthly intervals (A-III)

^a Discontinue also if the person has Stevens-Johnson syndrome, severe liver disease, severe anaemia, severe pancytopenia or negative HIV status.

Contraindications to co-trimoxazole preventive therapy: severe allergy to sulfa drugs; severe liver disease, severe renal disease and glucose-6-phosphate dehydrogenase (G6PD) deficiency.

^b In all regardless of CD4 percentage or clinical stage in settings with high HIV prevalence, high infant mortality due to infectious diseases and limited health infrastructure.

^c If initiated primarily for *Pneumocystis pneumonia* or toxoplasmosis prophylaxis.

^d Some countries may choose to adopt a CD4 threshold of <200 cells/mm³.

^e In settings with high prevalence of bacterial infections or malaria.



8.1.2 Tuberculosis



Background

Among people living with HIV, TB is the most frequent life-threatening opportunistic infection and a leading cause of death. ART should be provided to all people with HIV with active TB disease. HIV care settings should implement the WHO *Three I's* strategy: intensified TB case-finding, isoniazid preventive therapy (IPT) and infection control at all clinical encounters.

Source for recommendations

- *WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders*. Geneva, World Health Organization, 2012 (www.who.int/tb/publications/2012/tb_hiv_policy_9789241503006/en) (2).

Additional guidance

- *Guidelines for intensified tuberculosis case-finding and isoniazid preventive therapy for people living with HIV in resource-constrained settings*. Geneva, World Health Organization, 2011 (www.who.int/tb/challenges/hiv/ICF_IPTguidelines/en/index.html).
- *WHO policy on TB infection control in health-care facilities, congregate settings and households*. Geneva, World Health Organization, 2009 (www.who.int/tb/publications/2009/9789241598323/en).
- *Treatment of tuberculosis: guidelines for national programmes*. 4th ed. Geneva, World Health Organization, 2010 (http://whqlibdoc.who.int/publications/2010/9789241547833_eng.pdf).
- *Improving the diagnosis of and treatment of smear-negative pulmonary and extrapulmonary TB among adults and adolescents: recommendations for HIV prevalent and resource-constrained settings*. Geneva, World Health Organization, 2007 (<http://wholibdoc.who.int/2007/HTM>).
- *Rapid implementation of the Xpert MTB/RIF diagnostic test: technical and operational "how-to". Practical considerations*. Geneva, World Health Organization, 2011 (whqlibdoc.who.int/publications/2011/9789241501569_eng.pdf).
- *Recommendations for investigating contact of persons with infectious tuberculosis in low- and middle-income countries*. Geneva World Health Organization, 2012 (http://apps.who.int/iris/bitstream/10665/77741/1/9789241504492_eng.pdf).
- *Guidelines for the programmatic management of drug-resistant tuberculosis*. Geneva World Health Organization, 2011 (http://whqlibdoc.who.int/publications/2011/9789241501583_eng.pdf).
- *Childhood tuberculosis guidelines*. Geneva, World Health Organization, forthcoming (expected 2013).

Key selected existing recommendations

TB case-finding and antituberculosis treatment (2)

- Adults and adolescents living with HIV should be screened for TB with a clinical algorithm; those who report any one of the symptoms of current cough, fever, weight loss or night sweats may have active TB and should be evaluated for TB and other diseases (Fig. 8.1) (*strong recommendation, moderate-quality evidence*).
- Children living with HIV who have any of the following symptoms of poor weight gain, fever or current cough or contact history with a TB case may have TB and should be evaluated for TB and other conditions. If the evaluation shows no TB, children should be offered isoniazid preventive therapy regardless of their age (Fig. 8.2) (*strong recommendation, low-quality evidence*).
- TB patients with known positive HIV status and TB patients living in HIV-prevalent settings should receive at least six months of rifampicin treatment regimen (*strong recommendation, high-quality evidence*).

The optimal dosing frequency is daily during the intensive and continuation phases (*strong recommendation, high-quality evidence*).

- Xpert MTB/RIF should be used as the initial diagnostic test in individuals suspected of having HIV-associated TB or multidrug-resistant TB (*strong recommendation*).

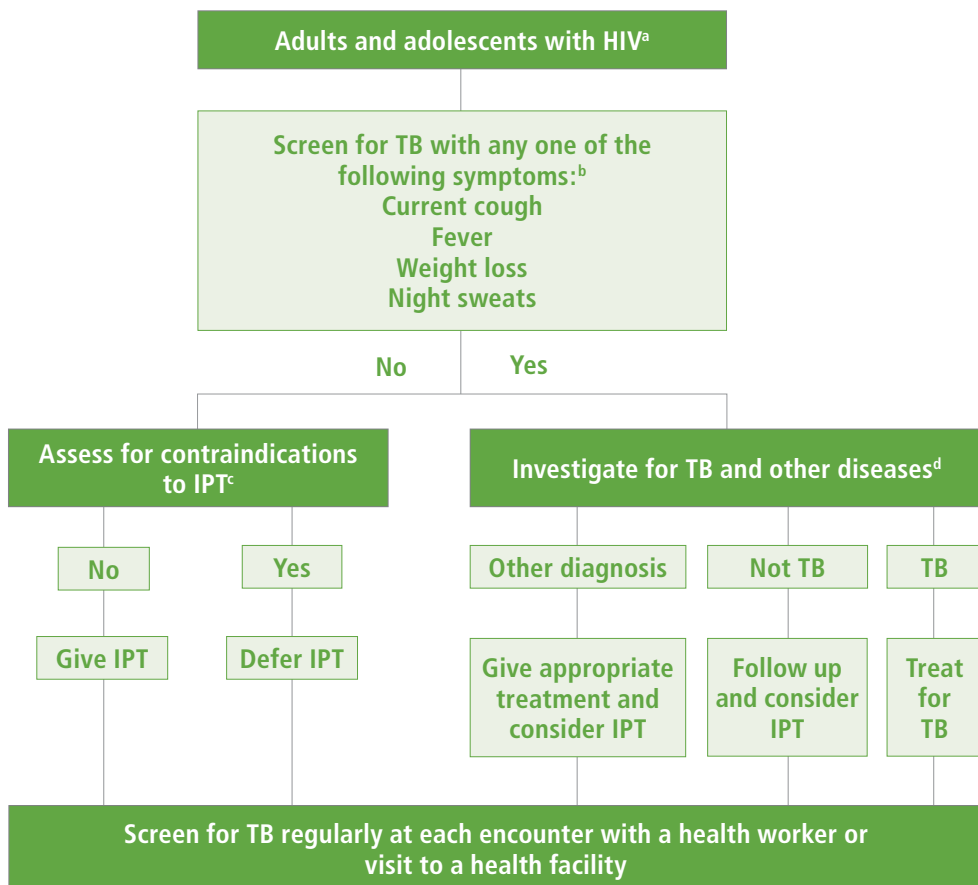


Key selected existing recommendations

Isoniazid preventive therapy (IPT) (2)

- Adults and adolescents living with HIV should be screened with a clinical algorithm; those who do not report any one of the symptoms of current cough, fever, weight loss or night sweats are unlikely to have active TB and should be offered IPT
(*strong recommendation, moderate-quality evidence*).
- **Duration of IPT**
 - Adults and adolescents who are living with HIV, have unknown or positive tuberculin skin test (TST) status and are unlikely to have active TB should receive at least six months of IPT as part of a comprehensive package of HIV care. IPT should be given to such individuals irrespective of the degree of immunosuppression, and also to those on ART, those who have previously been treated for TB and pregnant women
(*strong recommendation, high-quality evidence*).
 - Adults and adolescents living with HIV who have an unknown or positive TST status and who are unlikely to have active TB should receive at least 36 months of IPT. IPT should be given to such individuals irrespective of the degree of immunosuppression, and also those on ART, those who have previously been treated for TB and pregnant women
(*conditional recommendation, moderate-quality evidence*).
- A TST is not a requirement for initiating IPT in people living with HIV
(*strong recommendation, moderate-quality evidence*).
People living with HIV who have a positive TST benefit more from IPT; TST can be used where feasible to identify such individuals
(*strong recommendation, high-quality evidence*).
- Providing IPT to people living with HIV does not increase the risk of developing isoniazid-resistant TB. Therefore, concerns regarding the development of INH resistance should not be a barrier to providing IPT
(*strong recommendation, moderate-quality evidence*).
- Children living with HIV who do not have poor weight gain, fever or current cough are unlikely to have active TB
(*strong recommendation, low-quality evidence*).
- Children living with HIV who are more than 12 months of age and who are unlikely to have active TB on symptom-based screening and have no contact with a TB case should receive six months of IPT (10 mg/kg/day) as part of a comprehensive package of HIV prevention and care services
(*strong recommendation, moderate-quality evidence*).
- In children living with HIV who are less than 12 months of age, only those who have contact with a TB case and who are evaluated for TB (using investigations) should receive six months of IPT if the evaluation shows no TB disease
(*strong recommendation, low-quality evidence*).
- All children living with HIV, after successful completion of treatment for TB disease, should receive isoniazid for an additional six months
(*conditional recommendation, low-quality evidence*).

Fig. 8.1 Algorithm for TB screening among adults and adolescents living with HIV in HIV-prevalent and resource-constrained settings



IPT: isoniazid preventive therapy

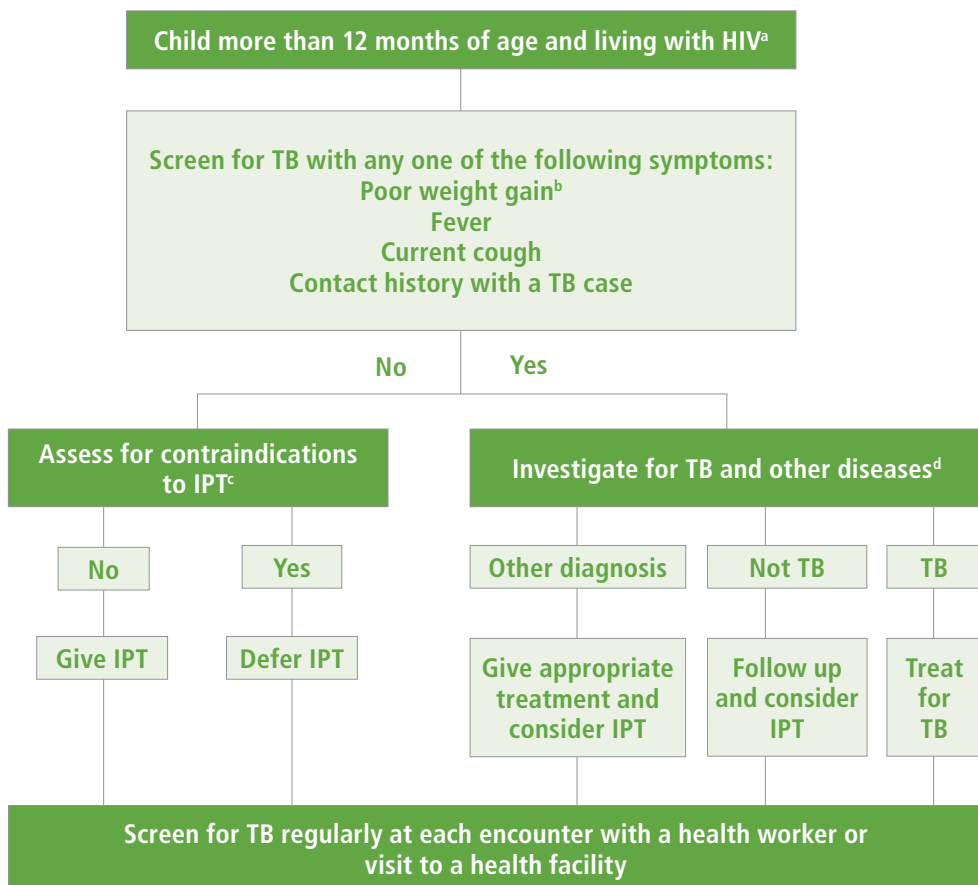
^a Every adult and adolescent should be evaluated for eligibility to receive antiretroviral therapy. Infection control measures should be given priority to reduce *Mycobacterium tuberculosis* transmission in all settings that provide care.

^b Chest radiography can be done if available but is not required to classify people into TB and non-TB groups. In settings with high HIV prevalence and a high TB prevalence among people living with HIV (such as exceeding 10%), strong consideration must be given to adding other sensitive investigations.

^c Contraindications include: active hepatitis (acute or chronic), regular and heavy alcohol consumption and symptoms of peripheral neuropathy. Past history of TB and current pregnancy should not be contraindications for starting isoniazid preventive therapy. Although not a requirement for initiating isoniazid preventive therapy, tuberculin skin testing may be performed as a part of eligibility screening in some settings.

^d Investigations for TB should be performed in accordance with existing national guidelines.

Fig. 8.2 Algorithm for TB screening among children older than one year of age and living with HIV



IPT: isoniazid preventive therapy

^a All infants younger than one year should be provided with isoniazid preventive therapy if they have a history of household contact with a person with TB.

^b Poor weight gain is defined as (1) reported weight loss or very low weight (weight for age less than -3 z-score), (2) underweight (weight for age less than -2 z-score), (3) confirmed weight loss ($>5\%$) since the last visit or (4) growth curve flattening.

^c Contraindications include: active hepatitis (acute or chronic) and symptoms of peripheral neuropathy. A past history of TB should not be a contraindication to starting isoniazid preventive therapy. Although not a requirement for initiating isoniazid preventive therapy, tuberculin skin testing may be performed as part of eligibility screening in some settings.

^d Investigations for TB must be performed in accordance with existing national guidelines.

Infection control

Background

People living with HIV are at high risk of acquiring TB in health care facilities and congregate settings. National TB programmes and national HIV programmes should provide managerial direction for implementing TB infection control programmes. Each health care facility should have a TB infection control plan for the facility that includes administrative, environmental and personal protection measures to reduce the transmission of TB in health care and congregate settings and surveillance of TB disease among workers (Box 8.1). Health care workers with HIV should be provided with ART and isoniazid preventive therapy if they are eligible.

Sources for recommendations

- *WHO policy on TB infection control in health-care facilities, congregate settings and households*. Geneva, World Health Organization, 2009 (www.who.int/tb/publications/2009/9789241598323/en) (3).
- *Guidelines for the programmatic management of drug-resistant tuberculosis*. Geneva, World Health Organization, 2011 (http://whqlibdoc.who.int/publications/2011/9789241501583_eng.pdf) (4).
- *WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders*. Geneva, World Health Organization, 2012 (www.who.int/tb/publications/2012/tb_hiv_policy_9789241503006/en) (2).
- *Childhood tuberculosis guidelines*. Geneva, World Health Organization, forthcoming (expected 2013) (5).

Box 8.1. Summary of recommendations for key actions for infection control (3)

Administrative (facility-level infection control committee and protocols)

- A triage system to identify people suspected of having TB
- Separate people with suspected or confirmed TB
- Cough etiquette and respiratory hygiene
- Rapid diagnosis with Xpert MTB/RIF (with prompt treatment of active TB) (*strong recommendation, low-quality evidence*).

Health workers and carers

- Surveillance and information
- Package of care for HIV-positive workers (ART and isoniazid preventive therapy)
- Protective equipment (particulate respirator masks that meet or exceed N95 standards)
- Relocation for health care workers living with HIV to a lower-risk area (*strong recommendation, high-quality evidence*).

Environmental

- Ventilation (mechanical)
- Ventilation (natural)
- Upper-room ultraviolet germicidal irradiation (*strong recommendation, low-quality evidence*).

Personal

- Spend as much time as possible outside
- Cough etiquette
- Sleep alone while smear-positive
- Avoid congregate settings and public transport while smear-positive (*strong recommendation, low-quality evidence*).

Key selected existing recommendations

Timing of ART for adults and children with TB

- ART should be started in all TB patients, including those with drug-resistant TB, irrespective of the CD4 count (*strong recommendation, low-quality evidence*) (4).
- Antituberculosis treatment should be initiated first, followed by ART as soon as possible within the first 8 weeks of treatment (*strong recommendation, moderate-quality evidence*). The HIV-positive TB patients with profound immunosuppression (such as CD4 counts less than 50 cells/mm³) should receive ART immediately within the first two weeks of initiating TB treatment (2).
- ART should be started in any child with active TB disease as soon as possible and within eight weeks following the initiation of antituberculosis treatment irrespective of the CD4 count and clinical stage (*strong recommendation, low-quality evidence*) (5).
- Efavirenz should be used as the preferred NNRTI in patients starting ART while on antituberculosis treatment (*strong recommendation, high-quality evidence*) (2).

- Section 7.2 provides more detailed information and recommendations on the co-treatment of TB and HIV.
- More detailed information and recommendations on drug interactions between ARV drugs and TB drugs are available in the Web Annex (www.who.int/hiv/pub/guidelines/arv2013/annexes).

Multidrug-resistant TB and HIV

Background

Multidrug-resistant TB (MDR-TB) is defined as TB that is resistant to at least isoniazid and rifampicin. Patients with both HIV and MDR-TB face complicated clinical management, fewer treatment options and poorer treatment outcomes. Limited information is available about the association between HIV and MDR-TB at the population level, especially because only 40% of the people with active TB are tested for HIV (6). Outbreaks of MDR-TB among people with HIV have been documented in hospital and other settings, especially in eastern Europe and in southern African countries with a high HIV prevalence (7).

People with HIV with suspected drug-resistant TB should be tested using Xpert MTB/RIF where possible, since this test is more sensitive for detecting TB among people with HIV and rapidly detects rifampicin resistance, thus greatly shortening the time to diagnosing and treating MDR-TB.

The burden of MDR-TB should be reduced by strengthening HIV prevention, improving infection control and improving collaboration between HIV and TB control activities, with special attention to the groups at the highest risk of MDR-TB and HIV infection, such as people who inject drugs and those exposed in congregate settings.

Source for recommendation

- *Guidelines for the programmatic management of drug-resistant tuberculosis*. Geneva, World Health Organization, 2011 (http://whqlibdoc.who.int/publications/2011/9789241501583_eng.pdf) (4)

Additional guidance

- *Rapid implementation of the Xpert MTB/RIF diagnostic test: technical and operational "how-to". Practical considerations*. Geneva, World Health Organization, 2011 (http://whqlibdoc.who.int/publications/2011/9789241501569_eng.pdf).

Key selected existing recommendation (4)

- WHO recommends ART for all patients with HIV and drug-resistant TB, requiring second-line anti-tuberculosis drugs irrespective of CD4 cell count, as early as possible (within the first eight weeks) following initiation of anti-tuberculosis treatment (*strong recommendation, very-low-quality evidence*).

8.1.3 Cryptococcal infection



Background

Cryptococcal meningitis is one of the most important opportunistic infections and a major contributor to high mortality before and after ART is initiated. WHO 2011 Rapid Advice covers diagnosis, screening and prevention of cryptococcal infection, induction, consolidation and maintenance regimens, monitoring and managing toxicities, timing of ART and discontinuing maintenance regimens. Full guidelines will be published at the end of 2013.

Source for recommendations

- *Rapid advice: diagnosis, prevention and management of cryptococcal disease in HIV-infected adults, adolescents and children*. Geneva, World Health Organization, 2011 (www.who.int/hiv/pub/cryptococcal_disease2011) (8).

Key selected existing recommendations

Screening and prophylaxis (8)

- Use of routine serum or plasma *Cryptococcus neoformans* antigen (CrAg) screening in ART-naïve adults, followed by pre-emptive antifungal therapy if CrAg-positive and asymptomatic, to reduce the development of cryptococcal disease, may be considered prior to ART initiation in patients with a CD4 count of less than 100 cells/mm³ and where this population also has a high prevalence of cryptococcal antigenaemia (*conditional recommendation, low-quality evidence*).
- Routine use of antifungal primary prophylaxis for cryptococcal disease in people living with HIV with a CD4 count of less than 100 cells/mm³ and who are CrAg-negative or where CrAg status is unknown is not recommended prior to ART initiation (*strong recommendation, high-quality evidence*).
- The use of routine CrAg screening and pre-emptive antifungal therapy in ART-naïve adolescents and children with a CD4 count of less than 100 cells/mm³ prior to ART initiation is not recommended (*conditional recommendation, low-quality evidence*).



Timing of ART (8)

- Immediate ART initiation is not recommended in patients with cryptococcal meningitis due to the high risk of immune reconstitution inflammatory syndrome with central nervous system disease, which may be life-threatening (*conditional recommendation, low-quality evidence*).
 - Among people living with HIV with a recent diagnosis of cryptococcal meningitis, ART initiation should be deferred until there is evidence of a sustained clinical response to antifungal therapy and
 - after two to four weeks of induction and consolidation treatment with amphotericin containing regimens combined with flucytosine or fluconazole; or
 - after four to six weeks of induction and consolidation treatment with a high-dose oral fluconazole regimen (*conditional recommendation, low-quality evidence*).
- See the source above for recommendations on discontinuing secondary prophylaxis.

8.1.4 Hepatitis B and C



Background

Chronic hepatitis B virus infection affects 5–20% of the 33 million people living with HIV worldwide, and hepatitis C affects 5–15%, although this may be up to 90% among people who inject drugs (9,10). The burden of coinfection is greatest in low- and middle-income countries, particularly in South-East Asia and sub-Saharan Africa for hepatitis B. Viral hepatitis is an increasing cause of morbidity and mortality among people living with HIV, including those on ART. A comprehensive approach includes prevention, hepatitis B and hepatitis C screening, hepatitis B vaccination and treatment and care for people with HIV coinfecting with hepatitis B and/or hepatitis C.

Additional guidance

- *Guidance on prevention of viral hepatitis B and C among people who inject drugs*. Geneva, World Health Organization, 2012 (www.who.int/hiv/pub/guidelines/hepatitis/en/index.html).

Guidance on timing of ART in hepatitis B and C

- **Hepatitis B: when to start and what to start.** See sections 7.1.1, 7.1.4 and 7.2.7.
- **Hepatitis C: when to start and what to start.** Initiating ART among people with HIV and hepatitis C should follow the same general principles as for the general population of people living with HIV (section 7.1).

The WHO guidelines for the management of hepatitis C are scheduled to be published in 2014. They will provide detailed guidance on hepatitis C screening, hepatitis C-specific treatment and general hepatitis C care.

8.1.5 Malaria



Background

People with HIV with immunosuppression living in malaria-endemic areas are at high risk of complications of malaria, and all infants and children under five years of age and pregnant women are at particular risk of severe malaria and its complications.

Key interventions to control malaria include prompt and effective treatment with artemisinin-based combination therapies and using insecticide-treated nets and indoor residual spraying with insecticide to control the vector mosquitoes. An additional intervention recommended in areas of high transmission for specific high-risk groups is intermittent preventive treatment during pregnancy and seasonal malaria chemoprophylaxis.

People living with HIV who develop malaria should receive prompt, effective antimalarial treatment regimens. Parasitological confirmation should be undertaken for all suspected malaria cases using either microscopy or a rapid diagnostic test.

The drugs used to treat malaria and ARV drugs may share toxicities (particularly sulfa-based drugs) and may have clinically important pharmacokinetic interactions (especially artemesinins, lumefantrine, NNRTIs and protease inhibitors). For this reason, people receiving treatment for both HIV and malaria should be monitored closely for adverse drug reactions, and people with HIV receiving zidovudine, or efavirenz should, if possible, avoid amodiaquine-containing artemisinin-based combination regimens because of increased risk of neutropaenia in combination with zidovudine, and hepatotoxicity in combination with efavirenz.

Source for recommendations

- *Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings*. Geneva, World Health Organization, 2008 (www.who.int/hiv/pub/prev_care/OMS_EPP_AFF_en.pdf) (11).

Additional guidance

- *Guidelines for the treatment of malaria*. 2nd ed. Geneva, World Health Organization, 2010 (www.who.int/malaria/publications/atoz/9789241547925/en/index.html).
- *WHO policy recommendation: seasonal malaria chemoprevention (SMC) for Plasmodium falciparum malaria control in highly seasonal transmission areas of the Sahel sub-region in Africa*. Geneva, World Health Organization, 2012 (www.who.int/malaria/publications/atoz/who_smc_policy_recommendation/en/index.html).
- *Technical Expert Group meeting on intermittent preventive treatment in pregnancy (IPTp)*. Geneva, World Health Organization, 2007 (www.who.int/malaria/publications/9789241596640/en).
- *Intermittent preventive treatment for infants using sulfadoxine-pyrimethamine (SP-IPTi) for malaria control in Africa: implementation field guide*. Geneva, World Health Organization, 2011 (www.who.int/malaria/publications/atoz/whoivb11_07/en/index.html).
- *Test, treat and track. Scaling up diagnostic testing, treatment and surveillance for malaria*. Geneva, World Health Organization, 2012 (www.who.int/malaria/publications/atoz/test_treat_track_brochure.pdf).
- Additional information: malaria [web site]. Geneva, World Health Organization, 2013 (www.who.int/topics/malaria/en).



Key selected existing recommendations (11)^a

- In areas of stable malaria transmission, people living with HIV (as for the general population) should routinely use insecticide-treated bed-nets or have access to indoor residual spraying to reduce their exposure to malaria infection. (A-I)
- Treatment or intermittent preventive treatment with sulfadoxine-pyrimethamine should not be given to patients with HIV receiving co-trimoxazole prophylaxis. (A-III)

^aSee the Web Annex (www.who.int/hiv/pub/guidelines/arv2013/annexes) for methodology used in rating quality of evidence.

8.1.6 Sexually transmitted infections and cervical cancer



Background

HIV, other sexually transmitted infections and non-sexually transmitted infections of the reproductive tract frequently coexist. Most of these infections are asymptomatic, especially among women. However, even asymptomatic sexually transmitted infections can cause complications, be transmitted to sexual partners and enhance HIV transmission. Further, HIV infection alters the natural history of sexually transmitted infections. The objectives of diagnosing and managing sexually transmitted infections include identifying the infection and providing appropriate treatment and preventing transmission. Screening, diagnosis and treatment of sexually transmitted infections should be offered routinely as part of comprehensive HIV care among adults and adolescents.

WHO guidelines on treating and managing sexually transmitted infections are scheduled to be updated in 2014. Other recent guidelines cover recommendations on periodic screening and periodic presumptive treatment for asymptomatic sexually transmitted infections in sex workers, and periodic testing for asymptomatic urethral and rectal *Neisseria gonorrhoeae* and *Chlamydia trachomatis* infections and asymptomatic syphilis infection among female sex workers, men who have sex with men and transgender people.

Cervical cancer is a preventable disease and is curable if diagnosed and treated early. Women living with HIV have a higher risk of pre-cancer and invasive cervical cancer. The risk and persistence of human papillomavirus infection increases with decreasing CD4 count and increasing HIV viral load. Invasive cervical cancer is a WHO HIV clinical stage 4 condition. Women living with HIV should be followed closely for evidence of pre-cancerous changes in the cervix, regardless of ART status or CD4 count and viral load. Cervical cancer screening leads to early detection of precancerous and cancerous cervical lesions that will prevent serious morbidity and mortality. Thus, all women with HIV should be screened for cervical cancer regardless of age. Immediate management for pre-cancerous and cancerous lesions should be provided. WHO guidance covers human papillomavirus vaccination and prevention, screening and treatment and palliative care of cervical cancer. To date, concerns about safety or reduced efficacy among females who may be infected with HIV should not defer the initiation of large-scale HPV immunization. HIV testing should not be a prerequisite before routine HPV immunization.

Additional guidance

Sexually transmitted infections

- *Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings*. Geneva, World Health Organization, 2008 (www.who.int/hiv/pub/prev_care/OMS_EPP_AFF_en.pdf).
- *Guidelines for the management of sexually transmitted infections*. Geneva, World Health Organization, 2004 (www.who.int/hiv/pub/sti/pub6/en).
- *Global strategy for the prevention and control of sexually transmitted infections: 2006–2015. Breaking the chain of transmission*. Geneva, World Health Organization, 2007. (www.who.int/reproductivehealth/publications/rtis/9789241563475/en/index.html).
- *WHO meeting report. Report of the Expert Consultation and review of the latest evidence to update guidelines for the management of sexually transmitted infections*. Geneva, World Health Organization, 2011 (www.who.int/reproductivehealth/publications/rtis/rhr_11_37/en).
- WHO guidelines on the syndromic approach to managing people with symptoms of sexually transmitted infections and treating specific sexually transmitted infections are scheduled to be updated in 2014.
- *Prevention and treatment of HIV and other sexually transmitted infections for sex workers in low- and middle-income countries*. Geneva, World Health Organization, 2012 (www.who.int/hiv/pub/guidelines/sex_worker/en).
- *Prevention and treatment of HIV and other sexually transmitted infections among men who have sex with men and transgender people. Recommendations for a public health approach*. Geneva, World Health Organization, 2011 (www.who.int/hiv/pub/guidelines/msm_guidelines2011/en).

Cervical cancer

- Human papillomavirus vaccines: WHO position paper. *Weekly Epidemiological Record*, 2009, 84:118–131 (www.who.int/wer/2009/wer8415.pdf).
- *Comprehensive cervical cancer prevention and control: a healthier future for girls and women*. Geneva, World Health Organization, 2013 (www.who.int/reproductivehealth/topics/cancers/en/index.html).
- *WHO guidelines on use of cryotherapy for cervical intraepithelial neoplasia*. Geneva, World Health Organization, 2011 (http://whqlibdoc.who.int/publications/2011/9789241502856_eng.pdf).

8.1.7 Vaccines for people living with HIV



Background

People living with HIV should be assessed for eligibility for vaccination at all stages of care. HIV-exposed infants and children and young adults with HIV should receive all vaccines under routine vaccination according to recommended national immunization schedules. Those with more severe immunosuppression may be at higher risk of complications from live vaccines. Inactivated vaccines are more effective among people receiving ART and those without immunosuppression, but they are safe and can be used with some efficacy in all groups.



Additional guidance

- For complete vaccination schedules and detailed guidance: *WHO recommendations for routine immunization – summary tables* [web site]. Geneva, World Health Organization, 2012 (www.who.int/immunization/policy/immunization_tables/en/index.html).
- For position papers on each vaccine, and statement about use in people living with HIV: (www.who.int/immunization/documents/positionpapers/en/index.html).

8.2 Preventing and managing other comorbidities and chronic care for people living with HIV

8.2.1 Screening for and care of noncommunicable diseases



Background

People living with HIV are at increased risk of developing a range of noncommunicable diseases (NCDs), including cardiovascular disease, diabetes, chronic lung disease and some types of cancer (12,13). With effective ART, people living with HIV are also living longer and experiencing NCDs associated with ageing. Both HIV and NCDs require health systems that can deliver effective acute and chronic care and support adherence to treatment. Chronic HIV care provides the opportunity for screening, monitoring and managing NCDs, especially through primary care. Integrating interventions such as nutrition assessment, dietary counselling and support, smoking cessation, promoting exercise, monitoring blood pressure and where available cholesterol as part of HIV care provide opportunities for reducing the risks of NCDs among people living with HIV. WHO has defined a package of essential NCDs (WHO PEN) interventions along with recommendations on screening for and treating NCDs. Additional guidance on diagnosis and management of NCDs in people living with HIV is planned for 2014.

Additional guidance

- *Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings*. Geneva, World Health Organization, 2010 (www.who.int/cardiovascular_diseases/publications/pen2010/en).
- *Prevention and control of noncommunicable diseases: guidelines for primary health care in low-resource settings*. Geneva, World Health Organization, 2012 (http://apps.who.int/iris/bitstream/10665/76173/1/9789241548397_eng.pdf).

8.2.2 Mental health



Background

People living with HIV and their carers may have a wide range of mental health needs. The most common mental health comorbidities among people living with HIV include depression, anxiety, dementia and other cognitive disorders and substance use disorders. HIV care settings provide an opportunity to ensure the detection and management of mental disorders among people living with HIV. Treatment or lack of treatment for these conditions can affect adherence to ARV drugs, retention in care and may involve potential side effects and drug interactions.

WHO has no specific recommendations on screening and treatment for mental disorders among people living with HIV. The Mental Health Gap Action Programme (mhGAP) intervention guide for mental, neurological and substance use disorders in non-specialized health settings makes recommendations related to general mental health that can be relevant to people living with HIV. Additional guidance on management of mental health conditions in people living with HIV is planned for 2014.

Additional guidance

- *mhGAP Intervention Guide for mental, neurological and substance use disorders in non-specialized health settings*. Geneva, World Health Organization, 2010 (http://whqlibdoc.who.int/publications/2010/9789241548069_eng.pdf).

8.2.3 Drug use and drug use disorders



Background

People living with HIV who use drugs may experience a range of disorders related to their drug use, including drug dependence, intoxication, withdrawal and overdose. Injecting drug use is associated with a range of bloodborne and local infections, including viral hepatitis, septicæmia and bacterial endocarditis, in addition to HIV.

WHO has developed guidance for the treatment of opioid dependence and prevention of hepatitis B and C among people who inject drugs.

WHO, UNODC and UNAIDS recommend a comprehensive package of nine interventions for HIV prevention, treatment and care for people who inject drugs, including needle and syringe programmes, opioid substitution therapy, HIV testing and counselling, ART, preventing and treating sexually transmitted infections, condom programmes, targeted behaviour change communication, preventing and treating viral hepatitis and preventing and treating TB.

Additional guidance

- WHO, UNODC and UNAIDS. *Technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users*. Geneva, World Health Organization, 2012 (www.who.int/hiv/pub/idu/targets_universal_access/en/index.html).
- *Guidelines for the psychosocially assisted pharmacological treatment of opioid dependence*. Geneva, World Health Organization, 2009 (http://whqlibdoc.who.int/publications/2009/9789241547543_eng.pdf).
- *Guidance on prevention of viral hepatitis B and C among people who inject drugs*. Geneva, World Health Organization, 2012 (www.who.int/hiv/pub/guidelines/hepatitis/en/index.html).



8.2.4 Nutritional care and support

8.2.4.1 Among adolescents and adults living with HIV



Background

Low energy intake combined with increased energy demands because of HIV infection (14–17) and related infections may lead to HIV-related weight loss and wasting. In addition, an altered metabolism, reduced appetite and higher incidence of diarrhoea may lower nutrient intake and absorption and also lead to nutrient losses. These effects may all be compounded in low income, food insecure contexts. Low body mass in adults (body mass index^{vi} less than 18.5kg/m²), weight loss and wasting in children are all independent risk factors for HIV disease progression and mortality (18,19). Nutritional assessment (anthropometry, clinical and dietary assessment), counselling and support should be an integral component of HIV care and conducted at enrolment in care and monitored during all HIV care and treatment. Malnourished HIV patients, especially in food insecure contexts, may require food supplements, in addition to ART, to ensure appropriate foods are consumed to support nutritional recovery. Weight loss or failure to regain or maintain a healthy weight at any stage of HIV infection or ART should trigger further assessment and appropriate interventions.

WHO is currently revising recommendations for nutritional care and support of adolescents and adults living with HIV, including pregnant and lactating women.

8.2.4.2 Among children living with HIV



Background

Nutritional assessment is essential to identify malnutrition and growth faltering early. Infants and children should undergo initial nutritional assessment (evaluation of nutritional status, diet and symptoms) and then be weighed and have height measured at each visit and monitored with reference to WHO or national growth curves. Growth monitoring should also be integrated into the assessment of ART response (20). If poor growth is identified, then further assessment should be performed to determine the cause, and plan appropriate response. The 2009 guidelines for an integrated approach to the nutritional care of children living with HIV provide details of nutritional interventions.

Additional guidance

- *Guidance on Nutrition assessment, education, counselling and support for adolescents and adults living with HIV.* Geneva, World Food Programme and World Health Organization, 2013.
- *Guidelines on HIV and infant feeding.* Geneva, World Health Organization, 2010 (http://whqlibdoc.who.int/publications/2010/9789241599535_eng.pdf).
- *Guidelines for an integrated approach to the nutritional care of HIV-infected children (6 months – 14 years): handbook. Preliminary version for country introduction.* Geneva, World Health Organization, 2009 (http://whqlibdoc.who.int/publications/2009/9789241597524_eng_Handbook.pdf).
- WHO and FAO. *Nutritional care and support for people living with HIV/AIDS: a training course.* Geneva, World Health Organization, 2009 (www.who.int/nutrition/publications/hiv aids/9789241591898/en/index.html).

^{vi}Body mass index: indicates adequacy of weight in relation to height for older children, adolescents and adults. It is calculated as the weight in kg divided by the height in metres squared. The acceptable range for adults is 18.5 to 24.9, and for children this varies with age.

8.2.5 Palliative care: symptom management and end-of-life care



Background

Throughout all stages of HIV disease, and when receiving treatment, people living with HIV may experience various forms of pain and other discomfort. Care providers should identify and treat the underlying cause when possible, while controlling the pain. Further, effectively managing the side effects of ART is important to support adherence.

Additional guidance

- *IMAI district clinician manual: hospital care for adolescents and adults. Guidelines for the management of common illnesses with limited resources.* Geneva, World Health Organization, 2011 (www.who.int/hiv/pub/imai/imai2011/en).

8.2.6 Other relevant general guidance on care

8.2.6.1 Family planning, counselling and contraception



Additional guidance

- *Medical eligibility criteria for contraceptive use.* 4th ed. Geneva, World Health Organization, 2009 (www.who.int/reproductivehealth/publications/family_planning/9789241563888/en/index.html).
- *Hormonal contraception and HIV. Technical statement 16 February 2012.* Geneva, World Health Organization, 2012 (www.who.int/reproductivehealth/publications/family_planning/9789241563888/en/index.html).



8.2.6.2 Providing safe water, sanitation and hygiene



Additional guidance

- *Essential prevention and care interventions for adults and adolescents living with HIV in resource-limited settings.* Geneva, World Health Organization, 2008 (www.who.int/hiv/pubprev_care/OMS_EPP_AFF_en.pdf).
- *Evaluating household water treatment options: health-based targets and microbiological performance specifications.* Geneva, World Health Organization, 2011 (www.who.int/water_sanitation_health/publications/2011/evaluating_water_treatment.pdf).
- *Guidelines for drinking-water quality.* 4th ed. Geneva, World Health Organization, 2011 (http://whqlibdoc.who.int/publications/2011/9789241548151_eng.pdf).