



# THE PRESCRIBER

Promoting Rational Use of Drugs and Correct Case Management in Basic Health Services

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HIV/AIDS: Prevention, Treatment, and Care

**B**Y 1998, OVER 32 MILLION PEOPLE were infected with HIV, the virus that causes AIDS. Another 12 million people had died from HIV/AIDS since the epidemic began in the late 1970s. In 1997 alone, 2.3 million people died of this disease. About half of these deaths were of women, and 460 000 of children under 15 years of age.

The virus continues to spread very fast, causing 16 000 new infections a day. In 1997, that meant 5.8 million new infections, including 600 000 young children.

HIV/AIDS is already among the top 10 killers in the world. Its impact will become even more severe. First, because HIV is spreading very fast. Second, because it may take many years to develop an effective vaccine and even longer to find a cure. Many experts think that HIV will soon move into the top five killers, overtaking even such a major cause of death as diarrhoeal diseases.

HIV/AIDS is concentrated in the developing world. In fact, it is concentrated in poor countries least able to afford to care for infected people. In many industrialized countries, HIV infection rates are falling because of prevention programmes. So are the number of AIDS cases, largely because of new drug treatments that slow the development of AIDS.

The region worst hit by HIV/AIDS is sub-Saharan Africa. This region has nearly 21 million people living with HIV. Fully 83% of the world's HIV/AIDS deaths have occurred here. Within sub-Saharan Africa, southern and eastern Africa are especially badly hit. (Infection rates are at a lower level in West Africa, but continue to rise.) In some of these countries as many as 20% of all adults are infected with HIV. The levels of infection are even higher in urban areas. In one town in Zimbabwe, a study showed that 59% of expectant mothers had HIV. But even in such a severe situation, strong prevention programmes can make an impact. Uganda has managed to bring down infection rates in both rural and urban areas.

In North Africa and the Middle East, levels of infection are currently low and just about 200 000 people are estimated to have HIV. However, the risk behaviours that can lead to rapid spread are present.

Since the early 1990s, HIV has spread rapidly in many countries of South and South-East Asia. The number of new infections each day in Asia is now nearly as high as the number in sub-Saharan Africa. India already has about 4 million HIV-infected people, more than any other country in the world.

Eastern Europe has been hit recently by a sharp increase in HIV infection. Since 1994, HIV infection rates have risen about six-fold across the entire region. Several countries of the former Soviet Union, including the Russian Federation and Ukraine, have had very high increases, much of it related to unsafe drug injecting.

The picture in Latin America and the Caribbean region is mixed. In some countries, particularly in the Caribbean, the levels of infection are rising rapidly. In Haiti and the Dominican Republic, 8% of pregnant women in urban areas are infected with HIV. In Brazil, nearly 10 million people are expected to die from HIV/AIDS over the next 12 years.

Worldwide, the most severe impact of HIV has been on adults in their sexually active years (roughly 15 to 49). The adult death rate has more than doubled in some places. In many other areas, HIV/AIDS is the single biggest cause of adult death.

## THIS ISSUE TELLS YOU ABOUT

- How health workers can help to prevent the spread of HIV
- Drugs for preventive care and treatment of HIV-related infections
- A new short-course drug treatment that can prevent mother-to-child transmission
- HIV and infant feeding
- Children and HIV
- What health workers can do to help children orphaned by HIV
- Why voluntary and confidential counselling and testing services for HIV are recommended
- Focusing prevention on young people
- Helping people with HIV/AIDS live better
- Special concerns of health workers



But HIV/AIDS affects almost all age groups and both men and women.

○ Young adult men and women are the most rapidly growing group of infected people. Over half of all new infections now occur in young adults under 25 years.

○ About 3.8 million children, almost all in developing countries, have been infected with HIV since the epidemic began. Most were infected through their mothers before or during birth or through breastfeeding. About 2.7 million have already died.

○ From the start of the epidemic, about 8.2 million children have lost their mothers to HIV/AIDS. Many have lost their fathers too. In 1997 alone, about 1.6 million children were orphaned by HIV. Over 90% of these orphans live in sub-Saharan Africa.

In some countries HIV/AIDS is reversing progress made in life expectancy and infant and child mortality. Within the next two years, life expectancy in 15 sub-Saharan African countries is expected to be 11 years shorter than it would have been had HIV/AIDS never appeared. The infant

mortality rate in Zimbabwe is expected to rise by 138% by the year 2010 as a result of HIV/AIDS. Child mortality is rising even more, because the bulk of child HIV/AIDS deaths is concentrated in the period from 1 to 5 years of age.

## What is HIV? What is AIDS?

AIDS – Acquired Immune Deficiency Syndrome – is caused by HIV, a virus that attacks the body's immune system. A is for Acquired, which means that the condition is not hereditary or inborn. I and D stand for Immune Deficiency – a person's immune, or protective, system breaks down and he or she becomes vulnerable to many infections. S is for Syndrome, a combination of signs and symptoms that form a distinct clinical picture of a disorder. HIV refers to the Human Immunodeficiency Virus.

There are two serotypes of HIV. HIV-1 is the main serotype worldwide, HIV-2 occurs most commonly in West Africa. They both cause AIDS and the routes of transmission are the same. However, HIV-2 transmission is slightly less easy and HIV-2 may cause slower progression to HIV-related infections and AIDS.

In adults, there is a long and variable latent period from HIV infection to the emergence of HIV-related infections and AIDS. An adult infected with HIV may have no symptoms for 10 years or more. But almost all (if not all) HIV-infected people will develop HIV-related diseases or AIDS. (The period without symptoms is shorter in children.) Infectious diseases are the immediate cause of death in over 90% of people with advanced HIV infection.

Though the term AIDS is widely used, for medical purposes it has been replaced by stage-by-stage classifications of HIV infection. AIDS refers only to the late stages of immune suppression.

## WHAT CAN HEALTH WORKERS DO?

**T**hough the overall picture is grim, there are at least some positive developments. These give health workers at all levels great opportunities to prevent and treat HIV and so to make a very important contribution to tackling this huge problem.

● New drug combinations have been developed that slow the onset of HIV/AIDS and extend survival. These drugs can help people living with HIV/AIDS (PLHA) live for several years longer and more healthily.

● There is a new short-course drug treatment to help prevent transmission from mother to child.

● More and more is known about how to provide preventive care and treatment of HIV-related infections. These are an effective means of prolonging and improving the quality of life of PLHA.

● Much more is now known about how to best prevent the spread of HIV. And there is strong proof that prevention efforts do work. Infection rates are levelling off in some countries, including Uganda, Thailand, Senegal and many industrialized countries. To help health workers make full use of such opportunities, this double issue of *The Prescriber*

provides the latest information about the prevention strategies that work and the treatment of conditions common in PLHA. *Prevention and care are two sides of the same coin. All prevention efforts reduce or limit the final number of infected people needing care. Whenever care is provided, there is a golden opportunity to provide or reinforce prevention education. As a result, health workers can play a major role in both prevention and care.*

○ A large section of this issue is devoted to primary prevention. The key elements of prevention programmes are discussed in the next section. The treatment of other sexually transmitted diseases (STDs), which help transmit HIV, is covered in the prescribing tables at the end of this issue – pages 15 to 17.

○ PLHA need access to preventive care and treatment of HIV-related infections. It is very important that they get the best services and care possible and that they not be discriminated against. The prescribing tables provide complete details of the latest treatment guidelines for the most important HIV-related infections – pages 17 to 21. The tables provide information on commonly used drugs, most of which are on the WHO Model List of Essential Drugs. More sophisticated drugs whose very high prices make it unlikely

that they will be available for public health use in most developing countries are discussed in this issue but are not covered in the prescribing tables.

- Apart from preventive care and treatment of HIV-related infections, health workers can help PLHA by providing palliative care, that is, medical treatment that reduces a patient's obvious symptoms and suffering – page 11.
- Basic steps to improve caring for PLHA at home are described for sharing with those who provide such care –

pages 12 to 13. Some guidance on the organization of support groups is also given since such organizations can provide wide-ranging benefits to PLHA, as well as help ease the many demands on health workers.

- The concerns about HIV that health workers have for themselves are addressed – pages 13 to 14. Like anyone else, health workers can prevent themselves from becoming infected. They can also learn how to share the burden and stress of the HIV/AIDS problem in ways that help everyone.

## PREVENTION OF HIV INFECTION

The best prevention campaigns work on many levels at the same time:

- Health education to modify sexual or drug-taking behaviour and to encourage the adoption of protective measures, for example through the promotion and provision of cheap condoms and clean injection equipment, and information on their correct use.
- Detection and treatment of other STDs, since these conditions help transmit HIV.
- Treatment with drugs, improved antenatal care and safer delivery, and alternatives to breastfeeding to reduce mother-to-child transmission. Mother-to-child (or vertical) transmission refers to transmission of HIV from the mother to the child in the uterus (womb), during childbirth, or through breastfeeding. Of course, the use of this medical term puts no blame or stigma on the woman.
- Voluntary and confidential counselling and testing.
- Prevention of blood-borne transmission.

It is very important that prevention programmes be continued over the long term. And prevention efforts will only succeed in an environment where people living with HIV are not discriminated against and where HIV is not stigmatized.

In the West African country of Senegal, for instance, the response to the emergence of HIV/AIDS was fast and strong. Political leaders took the lead. They publicly talked about the dangers posed by HIV to the country. They sought the support of religious and other community leaders in prevention efforts. Sex education was integrated into primary and secondary school teaching. Treatment for STDs was made

widely available and STD rates have fallen. The use of condoms was strongly pushed, so much so that condom use has risen to very high levels. All this has kept HIV rates low.

### 1. PREVENTING SEXUAL TRANSMISSION

#### ■ ENCOURAGING BEHAVIOUR CHANGE

The health worker should play a key role in the prevention of HIV transmission. He or she can provide information about HIV/AIDS and should also provide counselling to patients who have concerns about their risks of HIV infection. By

### How is HIV transmitted?

HIV is found in blood, semen, vaginal fluid and breastmilk. The virus can be transmitted through:

- Exchange of HIV-infected body fluids such as semen, vaginal fluid or blood during unprotected vaginal or anal sexual intercourse. Other sexually transmitted diseases increase the risk of HIV transmission. Worldwide the most important route of transmission is through heterosexual intercourse.
- Blood, including contaminated blood transfusions, medical, surgical or dental equipment, intravenous drug injections and skin-piercing instruments.
- Pregnancy, birth or breastfeeding, if the mother is infected with HIV.

#### How is HIV not transmitted?

- HIV is not transmitted through saliva, tears, vomit, faeces or urine.
- HIV is not passed through unbroken skin, which forms an effective barrier.
- HIV is not spread through casual contact such as touching someone with HIV or something they have used, or sharing the same toilet seat, washing water or swimming pool.
- Nursing or caring for someone with HIV is not risky provided that sensible precautions are followed, such as disposing of sharp needles carefully and keeping cuts covered.
- HIV is not transmitted by mosquitoes.
- HIV is not transmitted to or from an infant or young child by cuddling, bathing, feeding or playing.

*A person infected with HIV is not a public health danger. Adults, young people and children need to know that they run no risk of getting the virus from ordinary social contact with HIV-infected adults or children. Health workers can play a major role in encouraging people of all ages to be sympathetic towards people who are infected with HIV.*



being positive and caring towards PLHA, the health worker can make others rethink their attitudes and change their future behaviour. This positive, understanding approach will also reduce the stigma attached to HIV/AIDS, both within the health care setting and in the community.

Ideally, health workers should all have sensitivity training regarding caring for PLHA and their families. Additionally, health care workers should have adequate training in prevention and risk reduction counselling, including guidance on how to discuss delicate issues (such as sexuality and risk behaviour) with clients in a manner which is non-judgemental, culturally appropriate and sensitive to each client's specific needs and situation.

Health workers should discuss prevention of HIV infection with every patient they see. By providing information about how the infection is transmitted, helping people understand how they can protect themselves, and making referrals to appropriate prevention and care resources, health workers can make a very important contribution to prevention efforts.

It is often difficult for health workers to find the time and the opportunity during a consultation to discuss HIV prevention. If necessary, priority could be given to discussing HIV with young people and in antenatal consultations, as well as during sessions for mother and child health, family planning and STD treatment.

It is very important to discuss sexual transmission with young people. Studies have shown that good quality sexual and reproductive health programmes can delay the age of first intercourse and protect sexually active young people from unwanted pregnancy and from STDs, including HIV. (See box on *Focusing prevention on young people*.)

Health workers should also try to direct their messages at the whole community in order to address stigma and discrimination and to raise awareness of HIV and its prevention.

Illustration of young people under trees

## Focusing prevention on young people

In many developing countries, about half of the population is under the age of 18 years. All these people face life-long risks of acquiring HIV. Efforts to control the spread of HIV will only succeed if great importance is given to making sure that young people have the information and services needed to adopt safer sexual behaviours.

Although adults have difficulty admitting this fact, it is clear that teenagers are a highly sexually active group. In countries with high HIV rates, both young men and young women become vulnerable to the sexual transmission of HIV as soon as they start having sex, because the pool of potential partners is often already heavily infected. Young adults are also vulnerable to infection through drug injecting.

Also, prevention works particularly well when it is focused on the needs of the young. Where information, skills training, and services are made available to young people, they are often more likely to make use of them than their elders. This is probably because they have not yet developed rigid habits in their sexual behaviour. So they must be encouraged to adopt safer behaviours from the start of their sexual lives. Every opportunity must be used – beginning with primary school – to help them learn the information and practical skills they will need to ensure that they do not acquire HIV despite the life-long risks. Apart from information, young people need access to prevention tools and to youth-friendly services where they can get counselling and reproductive health care, including treatment for STDs.

Government authorities, the public and health workers must try to ensure that health services are youth-friendly – that they meet the special needs of young people. The more protection countries can ensure for the rights of young people – including their right to life-saving information and youth-friendly services – the less vulnerable young people will be to HIV.

Because the vast majority of HIV infections are transmitted via sexual intercourse, both heterosexual and homosexual, people need to know how to protect themselves when engaging in sexual activities. In addition, they need to have access to cheap and high-quality condoms.

Up till recently, the male condom was the only method available for protection against STDs, including HIV. Now, however, the female condom can provide women and men with an alternative option for barrier protection. The female condom is a sheath that a woman inserts into her vagina. Just like a male condom, it is effective as both a contraceptive and protection against disease.

In their discussions with patients about sex and risk reduction, health workers should focus on attitudes and practices that make it difficult for women (especially young women) to protect themselves from unsafe or unwanted sex. This is very important because many cultural and social traditions do not allow women to have an equal say in sexual and reproductive matters. To avoid stigmatizing women, the health worker should discuss with couples – rather than with just the woman – such issues as HIV prevention, voluntary and confidential counselling and testing, and HIV and infant feeding.

### ■ TREATING SEXUALLY TRANSMITTED DISEASES

Diagnosis and treatment of STDs other than HIV/AIDS should be a key component of HIV prevention efforts. This is because STDs multiply the risk of HIV transmission. The presence of an STD – particularly those that cause genital ulcers – raises the risks of acquiring HIV. Also, it is now known that an HIV-infected person who also has an STD is

nine times more likely to pass on HIV. In one recent study, improved treatment of STDs led to a 40% reduction in the rate at which HIV was spreading. Most STDs are treatable.

Many countries are setting up combined HIV and STD control programmes because both require similar kinds of education and prevention efforts. During the past few years, several countries have reported a reduction in curable STDs, achieved by providing the following:

- Promotion of safer sexual behaviour and provision of condoms.
- Effective and early treatment of men *and women* at affordable prices.
- Integration of STD prevention and care into basic health services. (This was a key element.)
- Tracing, treating and counselling of sexual partners.
- Appropriate clinical follow-up.
- Training primary health care health workers to use locally adapted syndromic case management guidelines and to develop a sympathetic approach.
- Reliable drug supplies, surveillance systems and referral centres with diagnostic facilities.

In addition, it is very important that services be provided sensitively and that they meet the needs of both *women* and men.

It is unavoidable that at primary health care (PHC) level, STDs will generally be treated solely on the basis of clinical presentation. Although STDs are caused by more than 20 micro-organisms, they present themselves mainly in seven syndromes. See the table on STD Syndromes in the prescribing tables, page 17.

So STDs can be treated syndromically. The aim of syndromic management is to identify one of the seven syndromes and treat it accordingly with a multi-drug therapy that will cover the main pathogens that cause it. WHO recommends that the simple flow-charts it has developed for syndromic management be adapted to local conditions. This is very important because there may be large variations from area to area in antibiotic resistance among causative organisms. (Ask your district health officer or Ministry of Health for such flow charts.)

Syndromic case management has many advantages:

- It is easy to use, does not need STD specialists, and is suitable for any level of the health system, including primary health care.
- It is rapid. So it allows health workers to focus on providing essential advice, such as on condom use, on notifying sexual partners and getting them treated, and the importance of complying with the multi-drug therapy.

- It allows treatment of the infections at the first visit, without the need for return visits.
- It is inexpensive as laboratory tests are not needed.
- It is usually very effective. This prevents the risk of further spread of infection and at the same time lowers the risks of complications and sequelae.
- It can be integrated with a simple partner notification system.

A single-dose oral regimen should be used whenever this is an effective option. When repeated oral doses are prescribed for out-patients, drug administration should be supervised if possible. While syndromic management is very useful, where laboratory facilities are available these should be used for confirmatory testing and screening.

## 2. PREVENTING MOTHER-TO-CHILD TRANSMISSION

An HIV-infected mother in a developing country faces a 25-45% risk of giving birth to a child who is infected. Beyond the risk of transmission during pregnancy and childbirth, breastfeeding the infant adds a risk of transmission of 15% or more depending on the duration of breastfeeding and other factors that scientists are trying to understand. In developing countries, between one-third and half of all HIV infections in young children are acquired through breastfeeding.

During 1997, 600 000 children were born with HIV infection, over 1 600 every day. Since the epidemic's beginning, 2.7 million children under the age of 15 years have died of HIV/AIDS. Ninety per cent of these infections were caused by mother-to-child transmission. In

***About two-thirds of babies born to HIV-infected mothers do not become infected with HIV.***

severely affected areas, mother-to-child transmission is already doubling infant and child mortality rates.

What can the health worker do to help prevent this type of transmission?

The most effective and important way of preventing mother-to-child transmission is to prevent the infection of the mother or mother-to-be (and of her sexual partner) through the prevention strategies discussed above.

And all pregnant women should be offered the following:

- Voluntary and confidential counselling and testing for HIV, which should be built into antenatal care services or provided in free-standing sites.
- If a woman's test result is positive, she should be offered the short-course antiviral drug treatment (see section on *Antiviral treatment for preventing mother-to-child transmission*, below), if possible.



○ If her test result is positive, she should be informed about the risks of HIV transmission through breastfeeding and about alternative infant-feeding methods (see section on *Breastfeeding*, below).

○ Good antenatal care and advice on good nutrition is important for all mothers-to-be, but even more so for those who are living with HIV. Many women in developing countries are undernourished or suffer from particular nutrient deficiencies like Vitamin A deficiency, which probably increase the risk of transmitting HIV to their babies.

○ Safer delivery care is very important for mothers-to-be who are infected with HIV (see the section on *Safer delivery* and the box on *Safer delivery at home*).

■ **Antiviral treatment for preventing mother-to-child transmission** A recent scientific trial has shown that mother-to-child HIV transmission *during pregnancy and delivery* can be greatly lowered if HIV-infected pregnant women receive a course of 300mg zidovudine (AZT or ZDV), taken orally twice daily, beginning with the 36 week of gestation of pregnancy until the onset of labour, and then 300mg every three hours from the onset of labour to delivery. Their infants are not given AZT. In this study in Thailand, the transmission rate was 9.2% in the group of HIV-infected pregnant women that received AZT, but 18.6% in the group that did not receive AZT.

It is important to note that these women did not breastfeed. Not only does breastfeeding by HIV-infected mothers pose additional risks of transmission, but pregnant women who have been treated with AZT may have higher levels of HIV in their breastmilk once they end treatment.

In industrialized countries, longer and more complex treatments – of both the mother and her infant – have lowered the rate of mother-to-child transmission even more and are now regular medical practice. For example, in France and parts of the USA all pregnant women are encouraged to have an HIV test and to consider antiviral treatment with AZT or other antivirals. In these countries, mother-to-child transmission rates have fallen to as low as 5%.

WHO has added AZT to the Model List of Essential Drugs as a treatment to prevent mother-to-child transmission only. (AZT should not be used for monotherapy for PLHA because it is now known to be

*The Prescriber will regularly update you on developments on the use of AZT for preventing mother-to-child transmission, including the pilot projects that are currently being carried out by UNICEF, UNAIDS and WHO in 11 developing countries.*

ineffective and quickly gives rise to resistance.) The implementation of treatment with AZT for preventing mother-to-child transmission requires the identification of HIV-positive women at an early enough stage of pregnancy. For this, pregnant women need access to voluntary and confidential counselling and testing services, which must be made widely available.

## Safer delivery at home

Many women in developing countries give birth at home. Health workers and birth attendants – and even the family or pregnant woman herself – can help to reduce HIV transmission during delivery at home by using sterile instruments and following good hygienic practices. Health workers, birth attendants or the families themselves should acquire Clean Birth Kits (CBKs), which provide the supplies needed to conduct a clean delivery. The CBK is disposable after use and is packed in a sturdy plastic bag. They are usually available from public health services or from pharmacies. Each CBK has a pictorial brochure on how to conduct a delivery.

The CBK contains:

- A plastic sheet, about 0.05mm thick and 1 metre by 1 metre in area.
- A bar of soap.
- Two wooden sticks to clean nails.
- A small plastic or wooden handbrush for scrubbing hands.
- Two lengths of clean but non-sterile tape, half a metre in length, for tying the umbilical cord.
- One pack of five, double-edged razor blades.

The health worker or birth attendant should also use gloves or plastic bags, particularly for handling the afterbirth.

If CBKs are not available, the health worker should ask the family to collect the delivery materials provided in it.

While treatment with AZT is an important preventive strategy, AZT may not be accessible to all pregnant women and should therefore be viewed as only one part of a broad prevention plan for mother-to-child transmission.

■ **Safer delivery** An HIV-positive woman is more likely to transmit the infection to her child if her waters break more than four hours before delivery, and if labour is prolonged or difficult. Some studies suggest that the risk of transmission is reduced if the baby is delivered by caesarean section rather than by vaginal delivery. However, this has not been definitely proved in developing countries and the operation itself is risky for the mother. Episiotomy, in which a cut is made to the entrance to the birth canal in the hope of easing delivery, should be avoided as far as possible. It increases the risk of HIV transmission. Artificial rupturing of the membranes should also be avoided.

■ **Breastfeeding** All women considering pregnancy, or who are already pregnant or are already breastfeeding need to know that there is a risk of HIV transmission through breastfeeding. Women with HIV infection have the virus in their breastmilk as well as in their blood.

A mother or mother-to-be who does not know her HIV status should have the opportunity to go for voluntary and confidential counselling and testing. If she tests negative, she should be informed of the benefits of breastfeeding and the risks of artificial feeding. She should also be told of the

importance of protecting herself against HIV infection during pregnancy and the breastfeeding period (and of course later too) – and given information on how to prevent HIV infection.

If she tests positive, she should be given the full facts about the risks of breastfeeding and about alternative infant-feeding methods. (If referral facilities for special counselling on infant feeding are available, they should be offered to her.) With this information she can make her own considered decision about how to feed her infant. The most difficult question facing a mother is whether her circumstances permit her access to adequate alternatives to breastfeeding and the means to prepare and give them safely to her infant. If she can, then the risk of death and illness from other infections, as well as from HIV, can be kept to a minimum. If she is not able to, then the risks to her infant's health of not breastfeeding may be greater than the risk from the possible transmission of HIV through breastfeeding.

The alternatives to breastfeeding are: commercial infant formula; home-prepared formula (modified animal milks, dried milk powder and evaporated milk); unmodified cow's milk; modified breastfeeding (mother expresses milk which is then boiled briefly to kill the virus); breastmilk banks functioning according to recognized standards; and wet nursing.

If an HIV-positive mother chooses not to breastfeed, then the health worker should teach her to prepare adequate amounts of alternative feeds as safely as possible to minimize the risks of diarrhoea and malnutrition. The

mother should be taught to give feeds using a cup rather than a bottle. She should be provided clear instructions and demonstrations on how to clean utensils, prepare feeds and to cup-feed. The health worker should watch the mother prepare and give at least one feed to ensure that she has understood the instructions. Suitable cups could be provided if families do not have them. Where possible, other family members should also be shown how to prepare and give alternative feeds, especially if the mother is too ill to feed the infant herself. Because infants who are not breastfed are at very high risk of developing serious infections, health workers have a special responsibility to carefully follow-up such infants through their first year. And it is important that health workers advise mothers who choose not to breastfeed about using safe and effective family planning methods.

If an HIV-positive mother decides to breastfeed, she should be supported in her choice. Health workers should ensure that the mother is not discriminated against or accused of placing her infant at risk of HIV. She should be provided support for exclusive breastfeeding and information about the option of ending breastfeeding as soon as she is able to provide adequate alternative feeding. The mother should be advised about how to prevent and manage breast conditions, especially cracked and bleeding nipples, by positioning and attaching the infant correctly at the breast. Health workers should ask the mother to seek treatment promptly for breastfeeding difficulties or infant mouth problems such as thrush, ulcers or candidiasis.



## Voluntary and confidential counselling and testing

There are many strong public health reasons why voluntary and confidential counselling and testing for HIV should be encouraged in developing countries. Health workers should advocate to their governments and authorities that such services be expanded.

When a person has been for voluntary and confidential counselling and testing, they can make choices based on their individual situation – ideally, with the advice and support of health workers. For example, aware that he or she is HIV-negative, a person may be more likely to follow safe sex practices. Or if a person is infected, they can use condoms to protect their sex partners from infection.

Voluntary and confidential counselling and testing help improve the quality of the lives of people with HIV/AIDS, as well as of their families and communities. When people know that they are infected, they can maintain their health better by maintaining good nutrition and by seeking preventive care and early treatment for HIV-related infections. They can make informed choices about childbearing and can consider family planning. Mothers-to-be can seek the short-course treatment with AZT (see section on *Antiviral treatment for preventing mother-to-child transmission*). Mothers can seek advice on alternatives to breastfeeding to protect their infants. Parents can begin early in planning for their survivors. They may choose to join community support groups (see *Organizing with others* on page 12). They can pressure local or national authorities to improve standards of care and services for affected individuals, families and communities.

The more people who know that they are HIV-positive – and who are willing to share that information – the more public awareness grows that HIV/AIDS is not immediately fatal, nor a threat in ordinary social contact. Increasing public awareness and reducing stigma is good for society and for the individual.

Also, studies in developing countries suggest that many people would like to have access to these services.

Even in situations where testing cannot be provided, counselling helps people assess their risk of infection and provides information so that people can change their behaviours to reduce the risk of acquiring HIV or of passing it on.

With suitable training, any health worker can be a counsellor. Even members of a community can be good counsellors.

Confidentiality is very important to making a success of testing and counselling or even of counselling itself. Health workers need to assure the people who seek testing or counselling that they will not break confidentiality. At the same time, they need to convey to them the benefits of being open about the result. After all, when family members and neighbours know that someone is suffering they are likely to offer support and help. Another benefit of openness is the greater public awareness that the discussion creates. However, the person or child does risk being rejected and ostracized, and their fears and those of their carers must be respected. Under no circumstances should health workers break this trust.



## Children with HIV

In most developing countries, the number of children with HIV infection is closely related to HIV infection in women of child-bearing age. Most HIV-infected children are infected during pregnancy, birth or breastfeeding. Contaminated blood transfusions and medical equipment are thought to cause about 10% of HIV infection in young children.

A few infants become ill in the first few weeks of life. Most children start to become ill before 2 years of age. A few children remain well for several years. In developing countries, the majority of HIV-infected children die very young, by the age of 5. But effective treatment, preventive care and good nutrition can prolong life and improve the quality of life.

Clinical diagnosis of HIV in children is difficult because the signs are often not specific for HIV infection and overlap with common childhood illnesses. In most developing countries, HIV in infants and young children is diagnosed only on the basis of clinical signs. This is because HIV testing is not available or is expensive, and because testing does not give a true picture of a child's HIV status before the age of 15-18 months.

Children infected with HIV may fail to thrive, suffering weight loss and delayed development. They may have common illnesses more severely, more frequently and more persistently, particularly diarrhoea, fever, repeated attacks of oral thrush, otitis media (ear infection) and skin rashes. Their illnesses may respond less well to standard treatment. They are more likely to suffer recurrent or serious bacterial infections with life-threatening consequences, for example, septicaemia, meningitis and abscesses. In general, the management of specific conditions in HIV-infected children is similar to that in other children.

Health workers should advise parents that good preventive health care, including a nutritious diet, immunization, good hygiene and a safe environment are extremely important for children with HIV. They should advise parents to look out for symptoms of illness, especially cough, fever, fast or difficult breathing, loss of appetite or poor weight gain, diarrhoea, and vomiting, and to seek treatment for these as soon as possible. Make sure the child is immunized (see below). Keep the child away from others who have pneumonia, tuberculosis (TB) and measles. Check the child's mouth for sores and thrush and have these treated promptly. Give regular nutritious food. If possible, do not allow young children to sleep in the same room as an adult suspected of having TB disease. Provide loving parental care, something and someone to play with, and education. Treat the child like all other children because children with HIV are not sick all the time and should lead as normal a life as possible.

Mothers who know themselves to be infected have to choose whether or not to breastfeed and to consider alternative infant-feeding methods. (See section on *Breastfeeding*.)

Because a breastfeeding infant has a high risk of TB infection from a mother with pulmonary TB – and a high risk of developing active TB – the infant should receive 6 months of isoniazid treatment (isoniazid 5mg/kg in a single dose daily) followed by BCG immunization. An alternative policy is to give 3 months isoniazid, then perform a tuberculin skin test. If the skin test is negative, stop the isoniazid and give BCG. If the skin test is positive, continue another 3 months of isoniazid and give BCG. If the infant is ill with TB, full anti-tuberculosis treatment should be given.

Immunization with all the EPI vaccines is very important for children with HIV as they are very vulnerable to childhood infectious diseases. Immunization should take place on the standard schedule. In countries where other vaccines such as Haemophilus influenzae type b, pneumococcal, or hepatitis B vaccine are included in routine childhood immunization, these should be given to all children regardless of their HIV status.

Follow standard immunization schedules for children with HIV with these exceptions:

- Do not give BCG vaccine or yellow fever vaccine to HIV-positive children who are *symptomatic*.
- Children who have, or who are suspected to have, HIV infection but are *not symptomatic* should be given all vaccines, including BCG and yellow fever.

(For more information about children and HIV, ask for a free copy of the October 1998 issue of *Child Health Dialogue* from Healthlink Worldwide, Farringdon Point, 29-35 Farringdon Road, London, EC1M 3JB, UK.)

Health workers should be aware that if the very act of feeding children other than by breastfeeding becomes associated in people's minds with HIV infection, mothers are at risk of exposing themselves to discrimination and social rejection. So they should ensure that steps to protect confidentiality are taken. *One important step is to assist HIV-infected mothers in private.*

Safeguards are also required to prevent promotion by the manufacturers of breastmilk substitutes, bottles and

***Mixed feeding, that is combining breastfeeding and artificial feeding, is probably the worst option as it puts the baby at risk both of HIV and of other infections. If a mother decides that breastfeeding is the best option in her circumstances, then she should be encouraged to breastfeed exclusively until she can provide adequate alternative feeds.***

teats. If a government decides to make breastmilk substitutes available to women who have tested HIV-positive and who have decided to use this alternative feeding method, it must ensure that the supply is continued for as long as the infants concerned need it. Cup-feeding should be strongly encouraged. The supply of breastmilk substitutes should not be used as a sales inducement, and consideration should be given to the use of generic, non-brand labels. Manufacturers and distributors should be reminded that the International Code of Marketing of Breast-milk Substitutes forbids all forms of promotion of breastmilk substitutes, feeding bottles and teats.

HIV-negative women and those who do not know their status may decide not to breastfeed because of their fears about HIV or as a result of misinformation. But health workers should continue to protect, promote and support breastfeeding as the best infant feeding choice for women who are HIV-negative and women who do not know their status. *They should ensure that all health education programmes continue to emphasize the benefits of breastfeeding and the dangers of*

artificial feeding, and that breastfeeding should be the norm for infants of women who are not HIV-positive. And they should ensure that instructions on the use of alternatives are given only to HIV-positive mothers and their family members. Demonstrations of feeding with breast-milk substitutes should be given separately from breastfeeding mothers.

### 3. PREVENTING BLOOD-BORNE HIV TRANSMISSION

In any health unit, HIV can be transmitted to patients through the transfusion of contaminated blood, or by unsterilized medical, surgical or dental equipment. Contaminated injections are a major route of HIV transmission in health units (see Safe Injections, *The Prescriber*, Number 15, May 1998.) *It is vital to strictly follow recommended sterilization procedures and universal precautions in health units at all times.*

Blood transfusion with contaminated blood carries the greatest risk of infection. All blood used in transfusions should be screened at the very least for contamination with HIV. Where resources permit, blood should also be screened for other pathogens, such as syphilis and hepatitis B. Reducing the use of blood transfusions and improving the safety of blood supply are key measures to reduce the risk of HIV transmission. Unfortunately, in many parts of the developing world a large share of the blood used in transfusions is not screened for HIV.

The source of HIV infection in health units can be HIV-positive patients and HIV-positive staff. Known HIV-positive staff should not perform invasive procedures on patients without taking very careful protective measures.

HIV infection is quickly spread through intravenous (i.v.) drug use if either the syringe or needle is contaminated. Intravenous drug use is a major route of HIV transmission in many parts of the world, particularly in Eastern Europe and South-East Asia. In some of these countries drug injecting

accounts for more HIV infections than sex. Health workers can help prevent transmission through this route by focusing on a package of actions:

- Education for drug users (and their sex partners) on HIV and the other diseases that can spread through blood.
- Training in skills, for instance on decision-making on drug use and negotiation of safer drug use.
- Access to sterile injection equipment through pharmacies or 'needle-exchange' programmes. Access to bleach or other means of cleaning equipment.
- Access to condoms for drug users and their partners.
- Treatment programmes to help users cut down or stop injecting.
- Information and education to reduce the demand for injected drugs.

For the many drug-injecting users who are unwilling or unable to give up injecting, less sharing of needles and better sterilization of injecting equipment can greatly lower the risk of HIV infection.

Skin-piercing instruments such as those used in ear-piercing, dental treatment, tattooing, facial marking, acupuncture or by some traditional healers can also transmit HIV if they are not sterile. It is also not safe to be shaved by a barber using an unsterilized blade if this has been used on others. Health workers should warn people of these risks. They should also urge users to sterilize their instruments before use on the next person.

HIV can also be transmitted by the instruments used in female genital mutilation if these are not sterilized after each use. Health workers should anyway always oppose this very harmful and dangerous practice.

## CARE AND TREATMENT

**T**here is no cure for HIV/AIDS – and scientists do not think that one is likely to be developed soon.

Though they do not cure HIV, some antiviral drugs help PLHA live longer and healthier lives. However, their high cost cannot be afforded by the majority of PLHA in developing countries where health budgets are limited. Sadly, the reality in most of these countries is that PLHA will probably only obtain a couple of courses of antibiotics to treat HIV-related infections when these arise and, possibly, pain killers in the last stages of disease. The most effective treatments are combination therapies of three antivirals but these cost approximately US\$12-18 000 per person per year. (*Monotherapy with a single antiviral, such as AZT, is not recommended because of serious problems of resistance.*) Treatment with these combinations also requires skilled medical administration and careful monitoring. And

patients must take 15 to 20 tablets over the day. Even in rich countries, many PLHA cannot afford these drugs or such medical care or maintain such complex drug-taking schedules. Because these combination antiviral therapies are beyond the reach of almost all developing countries, WHO does not include them on its Model List of Essential Drugs.

However, more and more is known about the preventive care and treatment of HIV-related infections. Optimal management of patients with HIV/AIDS requires the appropriate use of drugs to prevent infections, and the prompt diagnosis and treatment of these infections when they occur. For developing countries, these treatments are currently the most effective means of prolonging and improving the quality of life of an infected person. (Health workers can also ease a patient's pain and suffering by providing palliative care; see the section below on



*Caring for the symptoms: palliative care.)*

Infectious diseases are the immediate cause of death in over 90% of patients with advanced HIV infection. As HIV infection progresses and immunity declines, patients become more vulnerable to infections. Some of these infections are common within the population at large. These include tuberculosis, candidiasis (a fungal infection) and, very commonly, chronic diarrhoea with weight loss.

Many other infections are opportunistic, meaning that they develop only in individuals whose immune systems are severely weakened. These include *Pneumocystis carinii* pneumonia (PCP), cryptococcal meningitis, the *Mycobacterium avium-intracellulare* complex (MAC), cytomegalovirus (CMV) and toxoplasmosis. For unknown reasons, the pattern of opportunistic infections differs from region to region. For instance, PCP is common in people with HIV/AIDS in the USA and Europe, is occasionally found in Latin America and Asia, but is rare in Africa.

Almost all drugs that are useful for treating HIV-related infections are included in the WHO Model List of Essential Drugs, apart from expensive drugs that are used for difficult diagnoses such as MAC or CMV. See the detailed prescribing tables at the end of this issue, which give information about the drugs used in preventive care and treatment of HIV-related infections and the treatment of STDs.

The drugs available for treating the health problems of people with HIV/AIDS must be used rationally. This means that drugs must be used for the right indication, and in the right form, dose, frequency of administration, and duration of treatment.

Treatment for certain conditions commonly associated with HIV/AIDS may have to be adapted for those who are HIV-infected because of possible side-effects. Health care workers must know and be able to recognize these side effects. *For example, an HIV-positive patient who is receiving treatment for TB should not be prescribed thioacetazone (a TB drug common in some countries) because it can cause severe and sometimes fatal skin reactions. Ethambutol should be used instead in patients with known or suspected HIV-infection.*

Also, the patient should know what side effects may be expected and when to report them. Effective treatment depends on patients being actively involved with and well informed about their treatment.

Some widely used treatments are being stopped because of associated risks of HIV transmission. For example, because streptomycin has to be given by injection – and every injection carries a potential risk of HIV transmission – some TB programmes are limiting its use.

Because of limited resources and facilities, it is clear that the diagnosis and treatment of these diseases may be very

***The Prescriber will keep you updated on important developments on antivirals and other emerging treatments for HIV/AIDS.***

***If you need more information right away, write to the UNAIDS Information Centre, 20 Ave Appia, CH 1211 Geneva 27, Switzerland.***

difficult at the local level. What is being presented here and in the prescribing tables is a general overview on case management of HIV-related infections.

■ **Respiratory disease** From an early stage, HIV-infected patients are vulnerable to common pathogens of the respiratory tract, such as influenza viruses and pneumococci. As their immunity begins to fall, they also become susceptible to TB and mycoses. Finally, they may develop PCP.

TB has surged everywhere that HIV is prevalent. Compared to an individual who is not infected with HIV, an individual infected with HIV has a 10 times greater risk of developing active TB. In some African countries as many as 50% of patients with HIV also have TB. Among patients with advanced HIV infection, the disease causes many deaths.

Correct management of TB is very important. Poor treatment regimes may allow the infection to spread quickly to others who are HIV-infected. So far there is no evidence of higher rates of antibiotic resistance in HIV-infected patients. Among patients who comply with the prescribed treatment, the therapy results in rapid improvement and low rates of relapse.

In health units, HIV-positive patients and health workers face daily exposure to TB. Prompt diagnosis and treatment of patients with sputum smear-positive pulmonary TB helps to reduce exposure to TB. Out-patient diagnosis and treatment also helps reduce hospital admission. Also, known HIV-positive health workers should not work with TB patients. Wards should be kept well-ventilated and exposed to sunlight to reduce TB transmission.

■ **Diarrhoeal disease** Chronic diarrhoea is very common, affecting up to 60% of PLHA at some time in their illness. If possible, the cause of the diarrhoea should be established and specific treatment

provided. If this is not possible, management is symptomatic. Some cases (probably due to *Isospora belli*) respond to treatment with trimethoprim-sulfamethoxazole (TMP-SMX). Other cases (probably due to *Microsporidia*) respond to treatment with metronidazole. A high energy and protein diet reduces muscle wasting. Always assess the state of hydration of any patient with diarrhoea. Most patients with mild to moderate dehydration will receive oral rehydration solution. A few patients, with severe dehydration, need intravenous fluids. The use of

***To prevent the development of TB in PLHA, in areas where TB is common all HIV-infected people without active TB should be given preventive therapy with oral isoniazid. In areas where TB is not common, preventive therapy has been shown to benefit only those who have a positive tuberculin test. See the prescribing table on TB for details on drugs and doses for adults and children, as well as the box on Children with HIV, page 8.***



antidiarrhoeal agents such as codeine phosphate is appropriate when symptomatic relief is essential. (See the flow charts on case management of chronic diarrhoea included in the prescribing tables.)

■ **Neurological disorders** As many as 20% of PLHA develop neurological complications, mostly from opportunistic infections but also because HIV infects the brain. The common presentations are acute confusion, chronic behaviour change, persistent headache, difficulty in walking, poor vision, and burning sensation in the feet.

■ **Skin and mouth conditions** Most patients with HIV develop skin or mouth conditions at some point.

The most frequent HIV-associated skin condition in developing countries is ‘generalized papulo-pruritic rash’. It is very treatment resistant. Only symptomatic treatment is available, using calamine lotion, antihistamines, topical antifungals combined with 1% hydrocortisone, and strong topical corticosteroids. Among the infectious diseases, candidiasis is the most common, followed by zoster and other herpesviral infections. Scabies, staphylococcal and streptococcal diseases are also common. Diagnosis usually rests on characteristic clinical features. Drug-induced skin eruptions, which occur frequently, can complicate diagnosis.

■ **Febrile illness** Unexplained fevers occur frequently in PLHA. Diagnosis should be directed primarily to identifying the pathogens causing illness that can be effectively treated, such as TB, PCP or salmonellae.

### CARING FOR THE SYMPTOMS: PALLIATIVE CARE

Apart from preventive care and treatment of HIV-related infections, health workers must provide palliative care, which is medical treatment that at least reduces a patient’s obvious symptoms and suffering.

For example, severe pain can be treated with morphine or pethidine. When a patient is suffering acute anxiety, neuroleptics or perhaps diazepam may be prescribed. Anti-depressants, such as amitriptyline, may also be given where necessary. (See the adjoining table on *Generic drugs for common conditions suffered by people living with HIV/AIDS.*)

Health workers can also teach PLHA and their carers how to give palliative care at home. PLHA often suffer skin problems, sore mouth and throat, fevers and pain, coughs and difficulties in breathing, and diarrhoea. There are simple and low-cost ways to cope with all these problems:

- Skin problems are often the result of bed sores. To prevent bed sores, the person should be encouraged to get out of bed occasionally, and, when in bed, should change position as often as possible. Open sores should be kept clean and dry, and when a patient develops a rash, local remedies, such as coconut oil or calamine can be applied.
- Patients with a sore mouth should be encouraged to rinse

### Generic drugs for common conditions suffered by people living with HIV/AIDS

INDICATION PALLIATIVE CARE	DRUG
Allergy, anxiety, itching	Antihistaminics promethazine injection promethazine suspension chlorpheniramine tablet chlorpheniramine injection
Anxiety, convulsions	diazepam, oral diazepam injection
Convulsions	sodium valproate tablet
Depression	anti-depressants amitriptyline tablet amitriptyline tablet
Diarrhoea	loperamide tablet
Drug addiction	methadone tablet
Epilepsy, convulsions	carbamazepine tablet
Hypersecretion	Anticholinergics atropine sulfate tablet atropine sulfate injection
Itching skin rash	calamine lotion
Nausea	metoclopramide tablet metoclopramide injection
Pain, cough, diarrhoea	codeine tablet
Severe anxiety psychosis, intractable hiccups	Neuroleptics chlorpromazine tablet
Severe pain	pethidine injection pethidine tablet
Severe pain	morphine solution 10mg/5ml morphine injection 10mg/ml ampoule

with warm water mixed with a pinch of salt at least three or four times per day.

- Fevers and pain can be reduced with the help of aspirin, if available. Heavy or rough blankets should be removed. Gentle massage is helpful.
- For a cough or difficulty in breathing, the patient’s head and upper part of body should be lifted up onto the pillows. Talking to the patient reassuringly will calm fears. Windows should be kept open to allow in fresh air.
- When either a cough or diarrhoea occurs, the person should be given more to drink, so as to prevent dehydration. Diarrhoea can also be treated with oral rehydration solution (Four level teaspoons of sugar and half a level teaspoon of salt mixed with one litre of boiled water).



# ENCOURAGING POSITIVE LIVING

Individuals and their families affected by HIV/AIDS need more help from medical and other services, but very often they receive less. Providing special information for HIV-infected adults and children and their carers can make a tremendous difference to the quality of their lives. When a health worker makes this effort – and offers the service in a positive and caring way – it can boost not only the physical health of the sufferer but also improve the emotional and spiritual environment for everyone.

PLHA should be told about ‘living positively’ (see the next paragraph) and the need to plan for the future. Most will need special sessions with the health worker in which they can discuss at length issues which particularly concern them. Where possible, they should be told of local support groups and community organizations that can help them. They can also be encouraged to form their own groups.

■ **Living positively** PLHA need to know that with proper care, good nutrition and treatment, HIV-infected adults and children can survive for longer and live lives of better quality. All should be encouraged to live as normal a life as possible, participating in family and community activities and talking and having fun with others.

Having discovered they are infected with HIV, people are prone to depression and often want to drink too much alcohol or take drugs in an attempt to forget their condition. If they can be persuaded to take care of themselves and to join support groups instead, the beneficial effect for their immune system – and therefore their health – can be considerable.

■ **Staying healthy** Although there are no special foods for PLHA, it is extremely important that they eat a nutritious diet. A well-nourished person is less vulnerable to illness. Both HIV and poor nutrition can damage the immune system.

PLHA should be advised to eat a variety of foods every day, including those that are rich in vitamins and minerals as well as in energy and protein. These include fish, milk, poultry, cereals, nuts, carrots, green leafy vegetables and fruits. All food and water should be stored in covered containers and, where possible, only freshly cooked food should be eaten. If the drinking water is not safe, it should be boiled.

■ **Caring at home** As discussed in the section on palliative care, family members, neighbours and volunteers caring for those living with HIV/AIDS can carry out basic nursing tasks if given some support from health workers. They can also learn simple procedures to prevent the infection from spreading. Like health workers, carers also need support if they are to be able to continue providing good quality care over an extended period. If community groups exist to help carers, information about them should be provided. Where little such help is available, carers should be encouraged to form groups with others who are in similar situations to themselves.

■ **Organizing with others** Many health workers are finding that their work with HIV/AIDS patients is taking up more and more time. This is partly because HIV/AIDS is affecting ever-increasing numbers of people, and also because the disease is not simply a medical issue. The people who are infected and their families need information and support on many issues. Alone, health workers cannot possibly meet all these needs.

One way to share these responsibilities is by encouraging social, professional, religious and other community groups to support those living with HIV and their carers. Or health workers can stimulate the formation of new ‘self-help’ groups, based on affected people and their carers. If things go well, those who have been helped to set up a first self-help group should be able to help others set up further groups. Similarly, if one existing social, religious or other group begins to work on HIV/AIDS then others will see the importance of doing this too.

picture  
of food



## What health workers can do to help children orphaned by HIV

Since the beginning of the epidemic, some 8.2 million children under the age of 15 have lost their mothers to HIV. Many of them have also lost their fathers. In 1997 alone, around 1.6 million children were orphaned by HIV, mostly in sub-Saharan Africa. Many times these numbers are now watching their infected parents become sick and die.

Given the size of this crisis and the very vulnerable situation of orphans, all sectors of a society have to work together if these many millions of children are to be saved from the worst kinds of suffering. In particular, health workers have very important roles to play, on both personal and work levels.

On the work level, health workers can give special attention to orphans or to children whose parents are sick. Such children are at very high risk of acquiring preventable diseases and infections because of their families' poverty and because they get very little care.

Second, health workers can help correct the great discrimination faced by such children when they – or their carers – try to access health care. Because many people assume that children orphaned

by HIV/AIDS are also infected and will die even if given medical care, these children are very often denied health care. Health workers can make the public understand that about two-thirds of children born to HIV-positive parents do not contract HIV, can grow up to be as healthy as any other child, and need medical attention just like all children. And because such children are often isolated by other families because of fears that they have HIV and that it can be transmitted by casual contact, by correcting these assumptions health workers will help to ensure that these children get to live more normal and promising lives, for instance by continuing at school.

As members of society and the community, health workers can build community and political support for meeting the needs of orphans. For instance, health workers can encourage support for protecting the property rights of orphans or of women (if only the father is infected). Orphans or widows without resources are vulnerable to every kind of hardship. But if they have some inheritance they have a greater chance of being taken in by relatives or neighbours or even of looking after themselves.

It may initially seem time-consuming for a health worker to become involved in community organization. However, the presence of an effective group means that the health worker has somewhere to refer patients to for support or other types of care.

Nevertheless, there will always remain many difficult issues that the health worker will have to give time to. These may include the pre-counselling that is necessary before someone is referred for voluntary and confidential testing, or convincing someone who is infected that 'living positively' can dramatically improve the quality of life. Equally, it may mean opening a discussion with parents who have HIV/AIDS about how best to provide for their children after they die.

A key to the process of organizing community initiatives is to approach it in a way that will make people feel 'We did it ourselves!' The more participants feel responsible for the success of the group, the more likely it is to work. First, a group of founder members needs to be identified, and they then need to discuss and become clear about the main aims

of the group. Next, they should bring together potential members to discuss these aims.

Self-help groups create opportunities to meet and to share ideas and practical information with others who face similar difficulties. They can offer emotional support and counselling. They can form the basis for advocacy and campaigning. They can also provide a basis for getting loans or earning an income. They can offer an opportunity for supporting and training others in setting up more groups.

Groups work best when their members have similar expectations. Groups working on HIV/AIDS issues are more likely to succeed if they are run by PLHA. And if their members share similar experiences, for example, as HIV-infected women or injecting drug users, this also helps.

Not everyone who is invited to join community groups will want to do so. Some people will not stay long. This does not always mean failure. No group can meet everyone's needs, and some people join during a particular crisis. When the crisis passes they may prefer not to continue.

## SPECIAL CONCERNS OF HEALTH WORKERS

**T**he HIV/AIDS epidemic has had a very strong impact on the work and personal lives of all types of health workers. There are ever-greater and more complicated demands on health services, which has worsened the availability of drugs, beds, staff time and other resources. There is greater demand on health workers to understand and provide treatment for the range of HIV-related problems, which affect almost all age groups. There are the understandable demands by PLHA, their carers and their families to provide them with information and support. On a personal level too, health workers or people in their families

may be infected with HIV, or may have lost relatives or friends. And like other people, health workers and their families also face the fear of getting infected with HIV.

For the health worker who chooses to go for HIV-testing, confidentiality is particularly important. Many may not want an HIV test if they know the staff who will be testing or counselling. No health worker should be forced to disclose their HIV status at the request of patients or other staff.

To understand and to cope with these stresses, health workers should consider setting up their own support groups. In many developing countries, health workers have already



done this, with very good results. In these groups health workers find strength through sharing fears and concerns. They also share information and learn from each other's experiences.

■ **Risks of infection at work** A question frequently asked by health workers is whether they are at great risk of acquiring HIV through their work. This is not so. In fact, health workers face very low risks of infection at work, especially if they follow the universal infection control procedures described below. Indeed, worldwide only 200 cases of HIV infection acquired during health care work have been proved. *Most HIV-infected health workers acquire HIV infection outside the workplace, by sexual transmission from an HIV-infected partner or spouse.* At work, the much higher risk of infection is from TB and from hepatitis B and C.

The risks of acquiring HIV at work are as follows:

- Splashes of HIV-infected blood or body fluid on intact skin present almost no risk of HIV transmission.
- HIV-infected blood or body fluid on cuts or grazes, or in the eye, presents a possible risk if much blood or fluid is in contact with the cut, graze or eye for a significant length of time.
- Needle-stick injuries involving HIV-infected blood, where the skin is punctured by a sharp needle (needle, scalpel or other sharp instrument), present a higher risk of transmission. But even this risk is low, estimated at 1 in 300.

In areas with high HIV rates, health workers should assume that all blood and body fluids are infectious.

The risks of acquiring HIV or other blood-borne diseases in the health unit can be reduced by strictly and always following these universal precautions:

- Careful handling, cleaning and disposal of all 'sharps' (needles, scalpels, blades). Sharps can be disposed in a sharps box.
- Handwashing with soap before and after procedures.

- Covering broken skin, sores or cuts with a waterproof plaster or dressing before contact with patients. It is very important that midwives and birth attendants cover insect bites, open wounds, sores and cuts on their hands and arms before attending a delivery.

- Using protective barriers such as gloves, gowns and eye masks, if possible.
- Protecting your eyes during delivery of a baby, surgery or during invasive procedures.
- Avoiding mouth to mouth resuscitation – use bag and mask.
- Disposing safely of waste contaminated with blood and body fluids.
- Careful handling of soiled linen and washing laundry at high temperatures or with chemical disinfectant.

Accidents will happen and therefore it might be useful to put a poster on the wall of the clinic outlining procedures that should be taken.

**1** If infectious body fluids have been spilled, clean them up immediately using soap and water, or a chemical disinfectant, if available.

**2** If eyes or skin have been splashed with blood or body fluid, wash them as soon as possible with water (for eyes) and soap (for skin). Do not scrub skin or use disinfectant chemicals, as this may cause cuts or grazes.

**3** If skin has been cut or pricked, let the wound bleed for two minutes. Try to assess the risk of transmission. Unless a lot of blood is involved, such as with a hollow needle, there is no need to worry. If a health worker has been exposed to a significant amount of blood from a patient, WHO advises that the patient and health worker be tested soon after exposure, and the health worker tested again after 6 months. (The first test on the health worker will not confirm HIV infection since antibodies cannot be detected until 3 months after infection.)

**4** Report the accident to the manager, so that steps can be taken to avoid similar exposures in the future.

In many industrialized countries, health workers are offered post-exposure prophylactic treatment with antiviral drugs, but this is not generally available in most developing countries. In developing countries, bi-therapy with antiviral drugs (for at least 2 weeks) or monotherapy with AZT (250-300mg twice a day for 4 weeks) if it has not yet been widely used in the country, are possible options. It should be noted that not enough is known about the effectiveness of post-exposure prophylactic treatments and that the average risk of infection following exposure – even without treatment – is very low. As a result, top priority should be given to minimizing the risks of exposure through strict observance of universal precautions.

Illustration  
of  
health centre



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All drugs in italics are not on the WHO Model List of Essential Drugs.

## WHO recommended dosage schedules/treatment for STDs

### Sexually transmitted diseases

DISEASE	DRUG	DOSAGE
<b>Syphilis</b>		
Congenital syphilis	benzylpenicillin OR procaine benzylpenicillin	
<i>Primary</i>	benzathine penicillin G 2.4 million IU  OR procaine penicillin G 1.2 million IU OR <b>if allergic to penicillin</b> tetracycline 500mg OR doxycycline 100mg OR <b>if pregnant</b> erythromycin 500mg	i.m. injection at a single session (often split into 2 doses at separate sites) daily by i.m. injection for 10 consecutive days  orally 4x for 15 days orally 2x daily for 15 days  orally 4x for 15 days
<i>Late</i>	procaine penicillin G 1.2 million IU OR benzathine penicillin G 2.4 million IU	daily by i.m. injection for 3 weeks weekly i.m. injection at a single session (often split into 2 doses at separate sites) for 3 weeks
<i>Neuro</i>	benzathine penicillin G 4 million IU OR procaine penicillin G 1.2 IU PLUS probenecid 500mg	4 hourly i.v. for 2 weeks daily by i.m. injection for 2 weeks orally 4x daily for 2 weeks
<b>Gonorrhoea</b>		
	ceftriaxone 250mg OR spectinomycin 2g OR ciprofloxacin 500mg OR <i>cefixime</i> 400mg OR kanamycin 2g OR thiamphenical 2.5g OR (TMP/SMX) trimethoprim (80mg) /sulfamethoxazole (400mg) OR gentamicin 240mg by i.m.	single i.m. injection single i.m. injection single oral dose single oral dose i.m. injection as a single dose orally daily for 2 days 10 tablets daily for 3 days  injection as a single dose (TB/HIV)
Ophthalmia neonatorum <i>Prophylaxis</i>	tetracycline ointment 1% (1st choice) OR erythromycin ointment 1% OR silver nitrate solution 1%	apply once apply once apply once
<b>Chlamydial infections</b>		
Lymphogranuloma venereum	doxycycline 100mg OR tetracycline 500mg OR <b>in pregnancy</b> erythromycin 500mg OR sulfadiazine 1g	orally 2x daily for 14 days orally 4x daily for 14 days  orally 4x daily for 14 days orally 4x daily for 14 days
Other chlamydial infections	doxycycline 100mg OR tetracycline 500mg OR <b>in pregnancy</b> erythromycin 500mg OR sulfadiazine 1g	orally 2x daily for 7 days orally 4x daily for 7 days  orally 4x daily for 7 days orally 4x daily for 7 days



## Sexually transmitted diseases (continued)

DISEASE	DRUG	DOSAGE
<b>Chancroid</b>	erythromycin 500mg OR ciprofloxacin 500mg OR ceftriaxone 250mg OR spectinomycin 2g OR TMP/SMX 2 tablets <b>when syphilis cannot be excluded</b> PLUS benzathine penicillin G 2.4 million IU	orally 3x for 7 days orally as a single dose i.m. injection as a single dose by i.m. injection as a single dose orally 2x daily for 7 days  i.m. injection at a single session (often split into 2 doses at separate sites)
<b>Genital Herpes</b>	<i>aciclovir</i> 200mg tabs	orally 5x daily for 7 days or until healed
<b>Genital warts</b>	podophyllum resin 20% <i>trichloroacetic acid</i> until cleared	topical application 1-2 times per week
<b>Vaginitis</b>		
Trichomonas	metronidazole 2g OR metronidazole 400-500mg	orally as a single dose orally 2x daily for 7 days
Bacterial vaginosis	metronidazole 2g OR metronidazole 400-500mg	orally as a single dose orally 2x daily for 7 days
Candidosis	nystatin 100 000 IU OR micronazole OR <i>clotrimazole</i> 200mg OR clotrimazole 500mg	2 pessaries intravaginally daily for 14 days intravaginally once daily for 3 days intravaginally once as single dose
<b>Pelvic inflammatory disease</b>		
Ambulatory patients	ceftriaxone 250 mg PLUS doxycycline 100mg OR tetracycline 500mg PLUS metronidazole 400-500mg, FOLLOWED BY doxycycline 100mg	by i.m. injection 2x daily orally 2x daily orally 4x daily orally 2x daily for 4 days orally twice daily for 10 days
Hospitalized patients	ceftriaxone 250mg PLUS doxycycline 100mg OR ciprofloxacin 500mg PLUS doxycycline 100mg PLUS metronidazole 400-500mg FOLLOWED BY doxycycline 100mg	by i.m injection twice daily orally 2x daily orally 2x daily orally 2x daily orally 2x daily for 4 days orally twice daily for 10 days
Severely ill patients	gentamicin 1.5mg/kg PLUS clindamycin 900mg FOLLOWED BY doxycycline 100mg OR tetracycline 500mg	i.v. injection 3x daily i.v. 3x daily for a minimum of 4 days orally 2x daily for 10 days orally 4x for 10 days
<b>Treatment of the newborn</b>		
<b>Syphilis</b>		
infant born to a treated/ seropositive mother	benzathine benzylpenicillin 50 000 IU/kg	single i.m. dose
Early congenital syphilis <i>infant with abnormal CSF</i>	benzylpenicillin 50 000 IU/kg OR procaine benzylpenicillin 50 000 IU/kg	i.v. (or i.m. in 2 divided doses) for 10 days  i.m. daily for 10 days
<i>infant with normal CSF</i>	benzathine benzylpenicillin 50 000 IU/kg	single i.m. dose
<b>Ophthalmia neonatorum</b>		
<i>Prophylaxis</i>	as for Congenital syphilis (page 15)	
due to gonorrhoea	ceftriaxone 50mg/kg (max 125mg) OR kanamycin 25mg/kg (max 75mg) OR spectinomycin 25mg/kg (max 75mg)	i.m. single dose i.m. single dose i.m. single dose



## Treatment of the newborn (continued)

DISEASE	DRUG	DOSAGE
<b>Ophthalmia neonatorum (continued)</b> due to chlamydia	<b>if above treatment fails to result in improvement and pus continues to drain change to erythromycin syrup 50mg/kg OR cotrimoxazole (trimethoprim 40mg/sulfamethoxazole 200mg) oral suspension</b>	4x daily for 14 days 2x daily for 14 days

## STD Syndromes

SYNDROME	SYMPTOMS	SIGNS	MOST COMMON ETIOLOGIES
Vaginal discharge	Vaginal discharge Vaginal itching Dysuria (pain on urination) Pain during sexual relations	Vaginal discharge	Vaginitis Trichomoniasis Candidiasis Cervicitis Gonorrhoea Chlamydia
Urethral discharge	Urethral discharge Dysuria Frequent urination	Urethral discharge (if necessary ask patient to milk urethra)	Gonorrhoea Chlamydia
Genital ulcer	Genital sore	Genital ulcer Enlarged inguinal lymph nodes	Syphilis Chancroid Genital herpes
Lower abdominal pain	Lower abdominal pain and pain during sexual relations	Vaginal discharge Lower abdominal tenderness on palpation Temperature >38°C	Gonorrhoea Chlamydia Mixed anaerobes
Scrotal swelling	Scrotal pain and swelling	Scrotal swelling	Gonorrhoea Chlamydia
Inguinal bubo	Painful enlarged inguinal lymph nodes	Swollen lymph nodes Fluctuation Abscesses or fistulae	LGV Chancroid
Neonatal conjunctivitis	Swollen eyelids Discharge Baby cannot open eyes	Oedema of the eyelids Purulent discharge	Gonorrhoea Chlamydia

## WHO recommended dosage schedules/treatment for HIV-related diseases

### HIV-related diseases

DISEASE	DRUG	DOSAGE
<b>Mycobacterium tuberculosis</b> Pulmonary	isoniazid tablet 100-300mg (H) rifampicin capsule or tablet 150mg, 300mg (R) pyrazinamide tablet 400mg (Z) streptomycin powder for injection 1g (as sulfate) in vial (S) ethambutol tablet 100-400mg (hydrochloride) (E)	5mg/kg 3 times weekly for 10 weeks 10mg/kg 3 times weekly for 10 weeks 25mg/kg 3 times weekly for 35 weeks 15mg/kg 3 times weekly for 15 weeks 15mg/kg 3 times weekly for 30 weeks
<i>Prophylaxis</i>	isoniazid tablet 100-300mg(H)	



## HIV-related diseases (continued)

### Standard code for TB treatment regimens

There is a standard code for TB treatment regimens. Each anti-TB drug has an abbreviation (shown on previous table). A regimen consists of 2 phases. The number before a phase is the duration of that phase in months. A number in subscript (e.g. <sub>3</sub>) after a letter is the number of doses of that drug per week. If there is no number in subscript after a letter, then treatment with that drug is daily. An alternative drug (or drugs) appears as a letter (or letters) in brackets.

### Possible alternative treatment regimens for each treatment category

TB TREATMENT CATEGORY	TB PATIENTS	ALTERNATIVE TB TREATMENT REGIMENS	
		INITIAL PHASE (DAILY OR 3 TIMES PER WEEK)	CONTINUATION PHASE
I	New smear-positive PTB; new smear-negative PTB with extensive parenchymal involvement; new cases of severe forms of extra-pulmonary TB.	2 EHRZ (SHRZ) 2 EHRZ (SHRZ) 2 EHRZ (SHRZ)	6 HE 4 HR 4 H <sub>3</sub> R <sub>3</sub>
II	Previously treated smear-positive PTB: relapse; treatment failure; treatment after interruption.	2 SHRZE/1 HRZE 2 SHRZE/1 HRZE	5 H <sub>3</sub> R <sub>3</sub> E <sub>3</sub> 5 HRE
III	New smear-negative PTB (other than in Category I); new less severe forms of extra-pulmonary TB.	2 HRZ 2 HRZ 2 HRZ	6 HE 4 HR 4 H <sub>3</sub> R <sub>3</sub>
IV	Chronic case (still sputum-positive after supervised re-treatment)	NOT APPLICABLE (Refer to WHO guidelines for use of second-line drugs in specialized centres)	

**N.B.** Some authorities recommend a 7 month continuation phase with daily isoniazid and rifampicin (7 HR) for Category I patients with the following forms of TB: TB meningitis, miliary TB, spinal TB with neurological signs.

### Other bacterial infections

DISEASE	DRUG	DOSAGE
<b>Salmonella</b> (enteric)	TMP-SMX sulfamethoxazole +trimethoprim tablet, 100mg + 20mg, 400mg + 80mg OR chloramphenicol capsule 250mg	2 tablets (400mg + 80mg) daily for 5 days 500mg 4x daily for 7 days
<b>Shigella</b>	TMP-SMX OR naladixic acid tablet 250mg, 500mg	2 tablets (400mg + 80mg) daily for 5 days 1g 4x daily for 5 days
<b>Clostridium difficile</b> Legionella species	metronidazole tablet 200-500mg	400mg 3x daily for 7 days
<b>Salmonella</b> (septicemia)	chloramphenicol OR ampicillin powder for injection 500mg (sodium salt) in vial PLUS gentamicin injection 10mg, 40mg (as sulfate) in 2ml vial	
<b>Haemophilus influenzae</b>	amoxicillin capsule or tablet 250mg, 500mg (anhydrous) TMP-SMX	



## Viral infections

DISEASE	DRUG	DOSAGE
<b>Herpes virus</b> (systemic)	<i>aciclovir</i> powder for injection, 500mg in vial	10mg/kg i.v. 3x daily for 10 days
Herpes genitalis	<i>aciclovir</i> OR for less severe cases tablet 200mg	5mg/kg i.v. 3x daily for 5 days 5x daily for 7 days
<i>Phrophylaxis</i>	<i>aciclovir</i> tablet 200mg	2 tablets 2x daily
<b>Herpes zoster</b> (systemic) influenza	<i>aciclovir</i>	10mg/kg i.v. 3x daily for 7 days

## Fungal infections

### Candidiasis

#### Oral candidiasis

##### Treatment

gentian violet application  
polyvidone iodine mouth wash  
chlorhexidine mouth wash  
nystatin tablet 500 000 IU  
*miconazole* tablet 250mg  
amphotericin B lozenge  
ketoconazole tablet, 200mg

4x daily until symptom free for 2 days  
4x daily for 10 days  
10mg 4x daily  
200-400mg 1x daily until remission

#### Oesophageal candidiasis

ketoconazole tablet, 200mg  
amphotericin B powder for injection, 50mg in vial  
fluconazole solution for injection 2mg/ml in ampoule

200-400mg 1x daily until remission  
1mg/kg by i.v. infusion for 10-14 days  
200mg i.v. as initial loading dose followed by 100mg daily for 21 days

fluconazole tablet, 400mg followed by 200mg daily for 4 weeks

orally or i.v. as initial loading dose

#### Prophylaxis

nystatin 500 000 IU tablet  
ketoconazole 200mg tablet  
fluconazole

2x daily  
1x daily

#### Vaginal candidiasis

see STD section

## Protozoan infections

### Pneumocystis carinii pneumonia

#### First line treatment

TMP-SMX tablet

100mg/kg sulfamethoxazole + trimethoprim 20mg/kg orally in 2 to 4 divided doses for at least 3 weeks

TMP-SMX concentrate for i.v. infusion 80mg + 400mg in 5ml ampoule

75mg/kg sulfamethoxazole + trimethoprim 15mg/kg in 4 divided doses administered in 5% glucose solution over 60 minutes. Dosage form should be substituted as soon as tablets can be ingested.

#### Second line

pentamidine isetionate 200mg powder for injection in vial  
**TMP-SMX and pentamidine Rx require steroid cover**  
prednisolone tablets 40mg

4mg/kg by i.v. infusion over 60 minutes daily for at least 3 weeks

methylprednisolone

40mg 2x daily for 5 days followed by 40mg daily for 5 days then 20mg daily for 10 days if  $pO_2 < 70\text{mmHg}$

#### Third line

dapsone tablet, 50mg, 100mg  
PLUS TMP trimethoprim 400mg, 200mg  
OR primaquine  
PLUS clindamycin

tablet 7.5mg, 15mg (as diphosphate)  
injection 150mg (as phosphate) /ml



## Protozoan infections (continued)

DISEASE	DRUG	DOSAGE
<b>Pneumocystis carinii pneumonia (continued)</b> <i>Prophylaxis</i>	TMP-SMX	sulfamethoxazole 25mg/kg + trimethoprim 5mg/kg in divided doses daily on 3 consecutive days each week for life
	pyrimethamine/sulfoxine	25mg pyrimethamine + 500mg sulfoxine 1 tablet 3x daily
	pentamidine (aerosol) powder for inhalation	single dose of 300mg monthly
	300mg of pentamidine isetionate in vial	

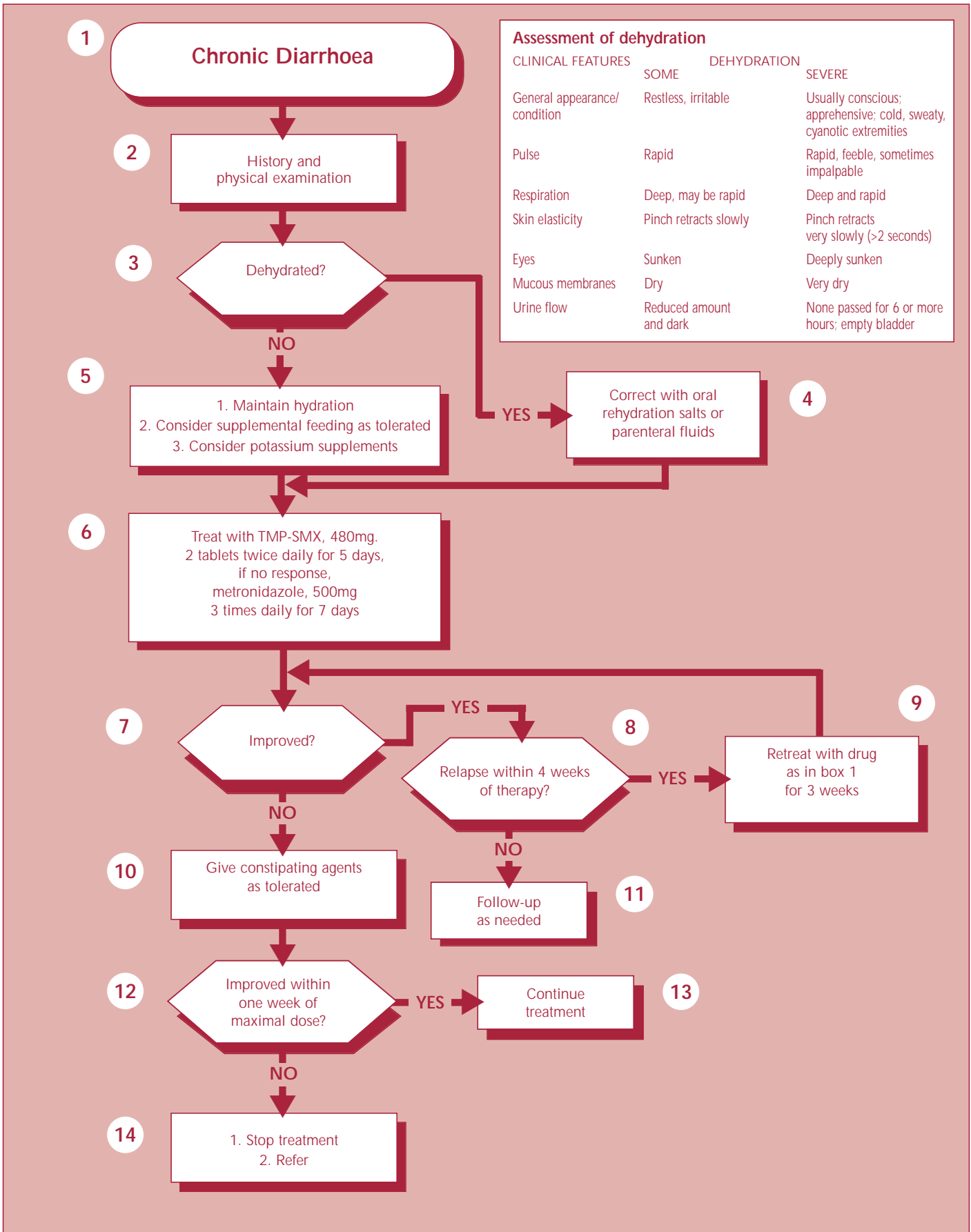
## Other infectious and parasitic diseases

<b>Entamoeba histolytica</b>	metronidazole tablet	500mg 3x daily for 7 days
<b>Giardia intestinalis</b>	metronidazole tablet	250mg 3x daily for 5 days
<b>Isospora belli</b> <i>Prophylaxis and Treatment</i>	TMP-SMX tablet (160mg+800mg) TMP-SMX	4x daily for 10 days
<b>Nocardiosis</b> <i>Treatment</i>	sulfadoxine tablet 500mg PLUS pyrimethamine tablet 25mg	2 tablets 2x daily for 6 weeks 2 tablets 2x daily for 6 weeks
<i>Prophylaxis</i>	sulfadoxine tablet 500mg PLUS pyrimethamine tablet 25mg	one tablet weekly one tablet weekly
<b>Cryptococcosis</b> Cryptococcal meningitis		
<i>Treatment</i>	amphotericin B PLUS flucytosine OR fluconazole tablet 200mg	i.v. 0.5-1.0mg/kg daily for at least 6 weeks 100-150mg/day orally for 6 weeks 400mg/day orally (or i.v.) for 12 weeks
<i>Prophylaxis</i>	amphotericin B fluconazole tablet 200mg itraconazole	i.v. 0.5-1.0mg/kg weekly one tablet daily 200-400mg/day orally
<b>Toxoplasma gondii</b> First line treatment	pyrimethamine tablet 25mg  PLUS sulfadiazine tablet 500mg  OR sulfadoxine tablet 500mg PLUS calcium folinate leucovorin (calcium folinate)	total of 200mg in divided doses on the first day, followed by 75-100mg daily for 6 weeks total of 6-8g orally or i.v. in 4 divided doses daily for 6 weeks 2 tablets 2x daily for 6 weeks 5-10mg/day orally
Second line	pyrimethamine PLUS clindamycin OR dapsone <i>atovaqone</i>	25-100mg/day orally 600-1200mg/day i.v. or orally 100mg/day orally 25-100mg/day orally
<i>Prophylaxis</i>	pyrimethamine tablet 25mg sulfadiazine tablet 500mg sulfadoxine tablet 500mg clindamycin	25-50mg daily orally 2-4g daily orally
<b>Microsporidia</b>	metronidazole tablet 400mg	3x daily for 7 days



# Chronic Diarrhoea case management

Diagnosis is based on history and physical examination only



Assessment of dehydration	DEHYDRATION	
	SOME	SEVERE
CLINICAL FEATURES		
General appearance/condition	Restless, irritable	Usually conscious; apprehensive; cold, sweaty, cyanotic extremities
Pulse	Rapid	Rapid, feeble, sometimes impalpable
Respiration	Deep, may be rapid	Deep and rapid
Skin elasticity	Pinch retracts slowly	Pinch retracts very slowly (>2 seconds)
Eyes	Sunken	Deeply sunken
Mucous membranes	Dry	Very dry
Urine flow	Reduced amount and dark	None passed for 6 or more hours; empty bladder



## Limitations and precautions for drugs

### ■ aciclovir

**Contraindications** — Hypersensitivity; use in pregnancy must be determined by the physical state of the mother.

**Drug interactions** — Nephrotoxic medications; probenecid.

**Side effects** — Lightheadedness; gastrointestinal disturbances.

### ■ amphotericin B

**Contraindications** — Hypersensitivity.

**Precautions** — Close medical supervision during treatment. Renal function impairment. Maintain high fluid intake.

**Drug interactions** — Adrenocorticoids; corticotrophin (ACTH); digitalis; bone marrow depressants; radiation therapy; nephrotoxic medications.

**Side effects** — Normocytic, normochromic anemia; hypokalemia; renal function impairment; thrombophlebitis; infusion-related reaction; blurred or double vision; cardiac arrhythmias, usually with rapid infusion; hypersensitivity reactions; leukopenia; polyneuropathy; seizures; thrombocytopenia; gastrointestinal disturbances; headache.

### ■ benzylpenicillin / procaine benzylpenicillin G / procaine penicillin G

**Contraindications** — Allergy to penicillins or cephalosporins.

**Precautions** — Question patients carefully about previous allergic reactions. If skin rash develops, transfer to different class of antibiotic.

**Drug interactions** — Nonsteroidal antiinflammatory drugs; platelet aggregation inhibitors; sulfapyrazone; angiotensin-converting enzyme inhibitors; potassium-sparing diuretics; potassium supplements.

**Side effects** — Allergic reactions; neutropenia; interstitial nephritis; pseudomembranous colitis; seizures; gastrointestinal disturbances; oral candidiasis.

### ■ ceftriaxone

**Contraindications** — Known hypersensitivity to other  $\beta$ -lactam antibiotics.

**Side effects** — Hypersensitivity reactions; skin rashes; urticaria; bronchospasm; anaphylaxis; antibiotic-related pseudo-membranous colitis.

### ■ chloramphenicol

**Contraindications** — Do not use for trivial indications. The potential for life-threatening toxic effects limits the use of this drug. Potential fetal risk during final stage of pregnancy.

**Side effects** — Gray baby syndrome, reversible and irreversible bone marrow depression.

### ■ chlorhexidine

**Precautions** — Avoid mucous membrane.

**Side effects** — Mucosal irritation; reversible brown staining of teeth.

### ■ ciprofloxacin

**Contraindications** — Hypersensitivity; pregnancy, adolescence and childhood.

**Precautions** — Epilepsy, hepatic or renal impairment.

**Drug interactions** — Aluminum, calcium, and magnesium-containing antacids; ferrous sulfate; sucralfate; theophylline; warfarin.

**Side effects** — Generally well tolerated. Hallucinations; rash; photosensitivity; dizziness or lightheadedness; headache; nervousness; drowsiness; insomnia; gastrointestinal disturbances sometimes reported.

### ■ clindamycin

**Contraindications** — Diarrhoeal states.

**Side effects** — Has serious side effects, such as pseudomembranous colitis. Patients should immediately discontinue use if diarrhoea develops. Abdominal discomfort; rash; jaundice and altered liver function tests.

### ■ dapsone

**Precautions** — Cardiac or pulmonary disease; G6PD deficiency. Recommended that breastfeeding is discontinued.

**Side effects** — Allergic dermatitis, nausea, headache, tachycardia; blood dyscrasias, hypersensitivity reactions.

### ■ dapsone PLUS trimethoprim

**Contraindications** — Hypersensitivity; megaloblastic anemia due to folic acid deficiency; severe anemia; G6PD deficiency; methemoglobin reductase deficiency; renal or hepatic function impairment.

**Drug interactions** — Folate antagonists; didanosine; hemolytics.

**Side effects** — Aseptic meningitis; blood dyscrasias; hypersensitivity reactions; methemoglobinemia; Stevens-Johnson syndrome; gastrointestinal disturbances; headache; hemolytic anemia; hepatic damage; mood or mental changes; peripheral neuritis; CNS toxicity; 'sulfone syndrome'.

### ■ doxycycline

**Contraindications** — Hypersensitivity. Generally contraindicated in pregnancy and early childhood.

**Drug interactions** — Antacids; phenytoin; barbiturates; carbamazepine; calcium supplements; choline and magnesium salicylates; iron supplements; magnesium-containing laxatives; cholestyramine; colestipol; estrogen-containing oral contraceptives.

**Side effects** — See tetracycline entry.

### ■ erythromycin

**Contraindications** — Hypersensitivity.

**Precautions** — Hepatic function impairment.

**Drug interactions** — Alfentanil; carbamazepine; chloramphenicol; clindamycin; lincomycin; ciclosporin; hepatotoxic medications; warfarin; aminophylline, caffeine, oxtriphylline, or theophylline.

**Side effects** — Hypersensitivity reactions; cholestatic jaundice (less frequent with erythromycin estolate, rare with other erythromycins); gastrointestinal disturbances; oral candidiasis.

### ■ ethambutol

**Contraindications** — Optic neuritis; children too young to report visual changes.

**Precautions** — Renal function impairment; pregnancy; ocular defects.

**Drug interactions** — Neurotoxic medications.

**Side effects** — Acute gout; hyperuricemia; hypersensitivity reactions; peripheral neuritis; retrobulbar neuritis or optic neuritis; gastrointestinal disturbances; headache; mental confusion and disorientation.

### ■ fluconazole

**Contraindications** — Hypersensitivity. Safety in pregnancy not yet demonstrated.

**Precautions** — Renal function impairment.

**Drug interactions** — Oral antidiabetic agents; ciclosporin; phenytoin; rifampicin; warfarin.

**Side effects** — Generally well tolerated. Exfoliative skin disorders; hepatotoxicity; thrombocytopenia; gastrointestinal disturbances; headache.

### ■ gentian violet

**Relative contraindications** — Hypersensitivity.

**Side effects** — Oral irritation.

### ■ isoniazid

**Relative contraindications** — Hypersensitivity; alcoholism; hepatic function impairment; pregnancy.

**Drug interactions** — Alcohol; alfentanil; carbamazepine; disulfiram; other hepatotoxic medications; ketoconazole; rifampicin; phenytoin.

**Side effects** — Hepatitis; hepatitis prodromal symptoms (anorexia, nausea or vomiting, unusual tiredness or weakness); peripheral neuritis; blood dyscrasias; hypersensitivity reactions; neurotoxicity (seizures, mental depression, psychosis); optic neuritis; gastrointestinal disturbances.



## Limitations and precautions for drugs

### ■ itraconazole

**Contraindications** — Pregnancy. Avoid if history of liver disease.

**Side effects** — Nausea; abdominal pain; dyspepsia; constipation; headache; dizziness; raised liver enzymes; menstrual disorders; allergic reactions; hepatitis and cholestatic jaundice; peripheral neuropathy (discontinue treatment); Stevens-Johnson syndrome; on prolonged use hypokalaemia, oedema and hair loss.

### ■ kanamycin OR gentamycin

**Contraindications** — Pregnancy; myasthenia gravis.

**Cautions** — Renal impairment, infants and elderly.

**Side effects** — Vestibular and auditory damage; nephrotoxicity.

### ■ ketoconazole

**Contraindications** — Hypersensitivity; alcoholism; hepatic function impairment; age less than 2 years.

**Precautions** — Liver function should be assessed before and at monthly intervals during treatment.

**Drug interactions** — Alcohol; hepatotoxic medications; antacids; anticholinergics/antispasmodics; histamine H<sub>2</sub>receptor antagonists; omeprazole; ciclosporin; didanosine; isoniazid; rifampicin.

**Side effects** — Hepatitis; hypersensitivity reactions; gastrointestinal disturbances; dizziness; drowsiness; headache; gynecomastia; impotence/menstrual irregularities; photophobia.

### ■ methylprednisolone

**Side effects** — See prednisolone

### ■ metronidazole

**Contraindications** — Known hypersensitivity; early pregnancy; chronic alcohol dependence.

**Drug interactions** — Should be administered with or immediately after meals. Patients should be warned not to take any alcohol during treatment.

**Side effects** — Generally well tolerated. Mild symptoms of headache and gastrointestinal irritation. Less frequent are drowsiness, rashes and darkening of urine.

### ■ nystatin

**Relative contraindications** — Irritation or sensitization. Safe use in pregnancy has not been determined.

**Side effects** — Gastrointestinal disturbances. In vaginal use, vaginal irritation.

### ■ pentamidine

**Contraindications** — Known hypersensitivity. Use in pregnancy can induce abortion. However, PCP must always be treated without delay.

**Drug interactions** — Bone marrow depressants; didanosine; foscarnet; nephrotoxic medications.

**Side effects** — Diabetes mellitus, hyperglycemia, and hypoglycemia; anemia; leukopenia; neutropenia; thrombocytopenia; hypotension; nephrotoxicity; cardiac arrhythmias, primarily ventricular tachycardia; hypersensitivity reactions; gastrointestinal disturbances; pancreatitis; unpleasant metallic taste; phlebitis with intravenous injection; sterile abscess with intramuscular injection.

### ■ podophyllum resin

**Contraindications** — Pregnancy. Should not be applied to large areas of skin. Should not be used in the treatment of cervical, urethral, anorectal or oral warts. Should be used only under close medical supervision.

**Side effects** — Nausea, vomiting, abdominal pain, diarrhoea. Gross over-application can result in serious neurotoxicity.

### ■ polyvidone iodine

**Precautions** — Pregnancy.

**Side effects** — Hypersensitivity reactions.

### ■ prednisolone

**Side effects** — Exaggeration of the normal physiological actions of corticosteroids if overdosage or prolonged use occurs; diabetes; osteoporosis; mental disturbances; euphoria; muscle wasting; suppression of growth in children; in pregnancy, adrenal development of the child may be affected.

### ■ primaquine PLUS clindamycin

**Contraindications** — Hypersensitivity; G6PD deficiency; gastrointestinal disease, especially ulcerative colitis, regional enteritis, or antibiotic-associated colitis; severe hepatic function impairment.

**Drug interactions** — Hemolytics; mepacrine; neuromuscular blocking agents; kaolin or attapulgitel-containing antidiarrheals; chloramphenicol; erythromycin.

**Side effects** — Hemolytic anemia; methemoglobinemia; leukopenia; gastrointestinal disturbances; pseudomembranous colitis; hypersensitivity reactions; thrombocytopenia; fungal overgrowth.

### ■ probenecid

**Contraindications** — Children under 2 years, acute gout attack, concurrent salicylate therapy, uric acid kidney stones, blood dyscrasias. Potential fetal risk.

**Precautions** — Renal impairment, peptic ulcer. Ensure adequate fluid intake during therapy.

**Drug interactions** — Salicylates.

### ■ pyrazinamide

**Contraindications** — Hypersensitivity; severe hepatic function impairment.

**Side effects** — Arthralgia; gouty arthritis; hepatotoxicity; skin rash or itching.

### ■ pyrimethamine PLUS clindamycin

**Contraindications** — Hypersensitivity; hepatic or renal dysfunction; pregnancy during the first trimester, except when the mother's health is severely endangered.

**Drug interactions** — Bone marrow depressants, folic acid antagonists; hydrocarbon inhalation anesthetics; neuromuscular blocking agents; kaolin or attapulgitel-containing antidiarrheals; chloramphenicol; erythromycin.

**Side effects** — Atrophic glossitis due to folic acid deficiency; blood dyscrasias; hypersensitivity reactions; gastrointestinal disturbances; pseudomembranous colitis; neutropenia; thrombocytopenia; fungal overgrowth.

### ■ pyrimethamine PLUS sulfadiazine

**Contraindications** — Hypersensitivity, severe hepatic or renal dysfunction. Normally contraindicated during first trimester, but should not be delayed when mother's health is seriously at risk.

**Drug interactions** — Various other drugs, including all sulfonamides, trimethoprim and methotrexate, act synergistically. Coadministration - other than planned use of sulfadiazine - should be avoided.

**Side effects** — Atrophic glossitis due to folic acid deficiency; blood dyscrasias; hypersensitivity reactions; Stevens-Johnson syndrome; toxic epidermal necrolysis; hepatic necrosis; photosensitivity; crystalluria or hematuria; goiter or thyroid function disturbance; interstitial nephritis or tubular necrosis; dizziness; headache; lethargy; gastrointestinal disturbances; rash.

### ■ pyrimethamine PLUS sulfoxime

**Contraindications** — See other pyrimethamine entries.

**Precautions** — All patients should receive calcium folinate concurrently.

**Drug interactions** — All sulfonamides, trimethoprim and methotrexate.

**Side effects** — Anorexia, abdominal cramps, vomiting, tremors. At high doses, may induce thrombocytopenia, granulocytopenia and megaloblastic anemia.



## Limitations and precautions for drugs

### ■ rifampicin

**Precautions** — Hypersensitivity; alcoholism, active or in remission; hepatic function impairment.

**Drug interactions** — Adrenocorticoids; alcohol; theophylline, oxtriphylline, and aminophylline; coumarin or indandionederivative anticoagulants; oral antidiabetic agents; chloramphenicol; estrogen-containing oral contraceptives, estramustine or estrogens; digoxin or digitoxin; disopyramide, mexiletine, quinidine, or tocainide; fluconazole; itraconazole; isoniazid; hepatotoxic medications; ketoconazole; methadone; phenytoin; oral verapamil.

**Side effects** — ‘Flulike’ syndrome; hypersensitivity reactions; blood dyscrasias; hepatitis; hepatitis prodromal symptoms (anorexia, nausea or vomiting, unusual tiredness or weakness); interstitial nephritis; gastrointestinal disturbances; reddish orange to reddish brown discoloration of urine, feces, saliva, sputum, sweat, and tears.

### ■ silver nitrate

**Side effects** – May be dangerous if poorly prepared or stored. Concentrated solution will cause corneal scars.

### ■ spectinomycin

**Relative contraindications** — Hypersensitivity; in pregnant women only where need outweighs risk; in patients with renal impairment, only where alternative therapies are inappropriate.

**Side effects** — Hypersensitivity; dizziness; gastrointestinal disturbances; pain at site of injection.

### ■ streptomycin

**Contraindications** — High risk to fetus; hypersensitivity; infant botulism, myasthenia gravis, or parkinsonism; renal function impairment.

**Drug interactions** — Other aminoglycosides; capreomycin; neuromuscular blocking medications; methoxyflurane; parenteral polymyxins; nephrotoxic medications, ototoxic medications.

**Side effects** — Nephrotoxicity; neurotoxicity; auditory ototoxicity; vestibular

ototoxicity; peripheral neuritis; optic neuritis; hypersensitivity; neuromuscular blockade; pain and sterile abscess.

### ■ sulfadiazine

**Contraindications** — Known hypersensitivity to sulfonamides; pregnancy during the first trimester, except when the mother's health is seriously endangered; severe hepatic or renal dysfunction.

**Side effects** — Nausea, vomiting, diarrhoea and headache. Hypersensitivity reactions can be severe, including Stevens-Johnson syndrome and toxic epidermal necrolysis.

### ■ tetracycline

**Contraindications** — Hypersensitivity, severe renal impairment, pregnancy and early childhood (except for topical use to prevent or treat ophthalmia neonatorum).

**Drug interactions** — Antacids; calcium supplements; choline and magnesium salicylates; iron supplements; magnesium-containing laxatives; cholestyramine; colestipol; estrogen-containing oral contraceptives.

**Side effects** — Discoloration of infant's/children's teeth; fungal overgrowth; gastrointestinal disturbances; darkened or discolored tongue; photosensitivity.

### ■ trimethoprim PLUS sulfamethoxazole (TMP-SMX)

**Contraindications** — Hypersensitivity; severe hepatic or renal function impairment. Use is best avoided in pregnancy, but use for PCP should not be delayed. Treatment should be suspended immediately should a rash or any other manifestation of sulfonamide hypersensitivity occur.

**Drug interactions** — Coumarin or indandionederivative anticoagulants; hydantoin anticonvulsants; methotrexate; oral antidiabetic agents; hemolytics; hepatotoxic medications; methenamine.

**Side effects** — Hypersensitivity; photosensitivity; blood dyscrasias; hepatitis; Stevens-Johnson syndrome; toxic epidermal necrolysis; crystalluria or hematuria; thyroid function disturbances; interstitial nephritis or tubular necrosis; methemoglobinemia; dizziness; headache; gastrointestinal disturbances.

## Six key points

1. Health workers should try to raise discussion of HIV/AIDS with every patient. If this is not possible, HIV/AIDS should be discussed at least whenever the following services are provided: youth, antenatal, maternal and child health, family planning and treatment of STDs.
2. Prevention works. The best prevention campaigns raise knowledge of HIV and of how to avoid it; create an environment where safer sexual or drug-taking behaviours can be discussed and acted upon; provide services such as cheap condoms and clean injection equipment, treatment for STDs, and voluntary and confidential HIV testing and counselling.
3. Preventive care and treatment of HIV-related infections can prolong and improve the quality of life of a person with HIV.
4. A short course AZT treatment of pregnant women who are HIV-infected can halve mother-to-child transmission.
5. In developing countries, between one-third and a half of all HIV infections in young children are acquired through breastfeeding. All women who are HIV-positive should have full information about the risks associated with breastfeeding and about alternative infant-feeding methods.
6. The more protection countries can ensure for the rights of young people – including their right to life-saving information and youth-friendly services – the less vulnerable young people will be to HIV.

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