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HIV in South America

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By the end of 2000, an estimated 1.4 million individuals in South America and the Caribbean had HIV/AIDS, and 150,000 in Latin America acquired new infection during the year.

Routes of transmission

In most of South America, HIV seems to have spread slowly initially; three patterns of transmission have emerged.

• In Brazil and Argentina, transmission was initially principally between intravenous drug-users. In Argentina, HIV seroprevalence is 19% in injecting drug-users, 11% in urban males presenting with sexually transmitted infections and 3% in female sex-workers, but only 0.4% in pregnant women.

• In the Andean region (Chile, Peru, Venezuela, Colombia), the epidemic was initially largely restricted to men who have sex with men. Subsequent transmission to the heterosexual population may be increased by anal sex between adolescent males who subsequently have sex with women. Anal sex between heterosexuals also increases the risk of transmission.

• In much of the Caribbean, Central America, Haiti and the Dominican Republic, heterosexual and associated perinatal transmission predominated early, as in sub-Saharan Africa. HIV infection is common in commercial sex-workers; 4% of pregnant women in urban Guyana and 44% of female sex-workers in the capital are HIV positive. In some countries, this is related to trade in drugs such as cocaine.

In Argentina, Bolivia, Colombia, Costa Rica, Mexico and Peru, HIV infection is still largely confined to men who have sex with men or, in some areas, intravenous drug-users. However, the prevalence in the heterosexual population is increasing, particularly on the Caribbean coast and in Central America; 1–4% of adults in Belize, Honduras and Guatemala are HIV seropositive.

‘Urbanization’ involves transmission of HIV from urban areas (where high-risk activities and international travel are common) to more isolated rural populations. It is illustrated by data from regions that differ greatly in seroprevalence; for example, in Haiti and Peru, where 8% and 0.3% of adults in urban areas are HIV seropositive, but only 4% and 0.04% in rural

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areas, respectively. In Brazil and Guatemala, associated ‘interiorization‘ occurs – high prevalence spreads inland from developed and densely populated coastal regions.

Opportunistic infections

Tuberculosis is the most important opportunistic infection in AIDS in the developing world. Directly-observed therapy short-course (DOTS) is the mainstay of effective treatment. Despite model DOTS programmes in some countries (e.g. Peru), HIV and TB co-infection is associated with a poor prognosis (typically 10–50% mortality within 6 months of commencing therapy). In addition, multidrug-resistant (MDR) TB is found in as many as 40% of isolates in hospitals in some areas. TB culture and sensitivity testing are of limited availability and second-line TB chemotherapy is expensive, so MDR TB is often unrecognized and inadequately treated. These factors, and the scarcity of isolation facilities to reduce nosocomial transmission, make it likely that the incidence of MDR TB will increase.

Chagas’ disease, caused by *Trypanosoma cruzi*, occurs throughout South and Central America, except for southern parts of Argentina and Chile. It is an important opportunistic infection in Argentina and Brazil. Acute infection usually causes nonspecific symptoms. Chronic infection or reactivation in HIV co-infected individuals most commonly causes acute meningoencephalitis with one or more mass lesions in the brain. The clinical features are similar to those of toxoplasmic encephalitis, but trypomastigotes may be seen on CSF smear. The typical features of Chagas’ disease in immunocompetent individuals may also be seen in those with HIV; namely, cardiac involvement (acute heart failure and dysrhythmias) or, less commonly, mega-oesophagus or megacolon.

Treatment with benznidazole or nifurtimox is unsatisfactory because peripheral neuropathy and neutropenia may be dose-limiting. About 50% of patients die within 3 weeks despite therapy. Life-long secondary prophylaxis is required in those who respond. Environmental measures to reduce exposure to the insects that transmit Chagas’ disease are reducing the incidence of new infections, and screening of blood products in endemic areas reduces iatrogenic transmission.

Histoplasmosis and coccidioidomycosis are common causes of self-limiting pneumonia in immunocompetent individuals. Co-infection with HIV may lead to severe pneumonia and disseminated systemic infection that is usually fatal without specific antifungal therapy. Diarrhoea caused by *Cryptosporidium parvum* is common in both immunocompetent and HIV-infected individuals. The coccidian parasite *Cyclospora cayetanensis* was first identified as a common cause of diarrhoea in children and in adults with HIV infection in Peru, and is now recognized as an important opportunistic pathogen worldwide. Infections with organisms of the genus *Bartonella* were initially identified only in parts of South America, but are now recognized worldwide as the cause of cat-scratch disease and HIV-associated bacillary angiomatosis.

Other infections common in South America (e.g. HTLV-1, cutaneous leishmaniasis, nourocysticercosis) appear to have no strong associations with HIV. HTLV-1 and HIV co-infection appears to worsen the prognosis of AIDS and of associated TB.

Most other opportunistic infections in South America are similar to those elsewhere. Patients with HIV are more susceptible to common bacterial pathogens (e.g. *Pneumococcus, Salmonella* spp.). *Pneumocystis carinii* pneumonia is less common than in industrialized nations, but sufficiently common that use of co-trimoxazole primary prophylaxis is widespread. This has been associated with a reduced incidence of *Toxoplasma gondii* encephalitis and retinitis. Cryptococcal meningitis is an important cause of morbidity and

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mortality. Kaposi's sarcoma, *Mycobacterium avium–intracellulare* and local/disseminated cytomegalovirus infection are diagnosed less commonly than in industrialized countries, but may be under-diagnosed because laboratory facilities are limited.

Management

In striking contrast to other less developed countries, Brazil has achieved widespread, froe provision of combination antiretroviral drugs to almost all of its 85,000 individuals with AIDS. This policy almost halved the annual number of AIDS deaths between 1996 and 1999, and reduced the incidence of opportunistic infections by 60–80% over the same period. It is partly achieved by local, relatively inexpensive production of drugs outside the patent restrictions that are enforced in most countries. This has been expensive, but is an important model for the provision of effective AIDS care in the developing world, disproving the often-cited opinion that highly-active antiretroviral therapy is practicable only in industrialized countries. In other South American countries, economic and patent issues prevent widespread use of antiretroviral drugs.

Control strategies

Priorities for reducing transmission of HIV infection in South America are similar to those elsewhere; namely, encouraging condom use, voluntary counselling and HIV testing, diagnosis and treatment of sexually transmitted infections, and reducing sharing of needles between intravenous drug-users. Transmission of HIV by blood products has become rare in South America because of widespread screening for HIV antibodies. As the epidemic spreads to heterosexual populations, there is increasing emphasis on voluntary testing of pregnant women, to enable perinatal therapy to prevent infection of neonates. Education is vital, and has achieved high rates of condom use in several areas. However, four surveys in Latin America in 1994–1998 showed that about 25% of 15–19-year-olds did not know how to protect themselves against HIV.

REFERENCES AND FURTHER READING

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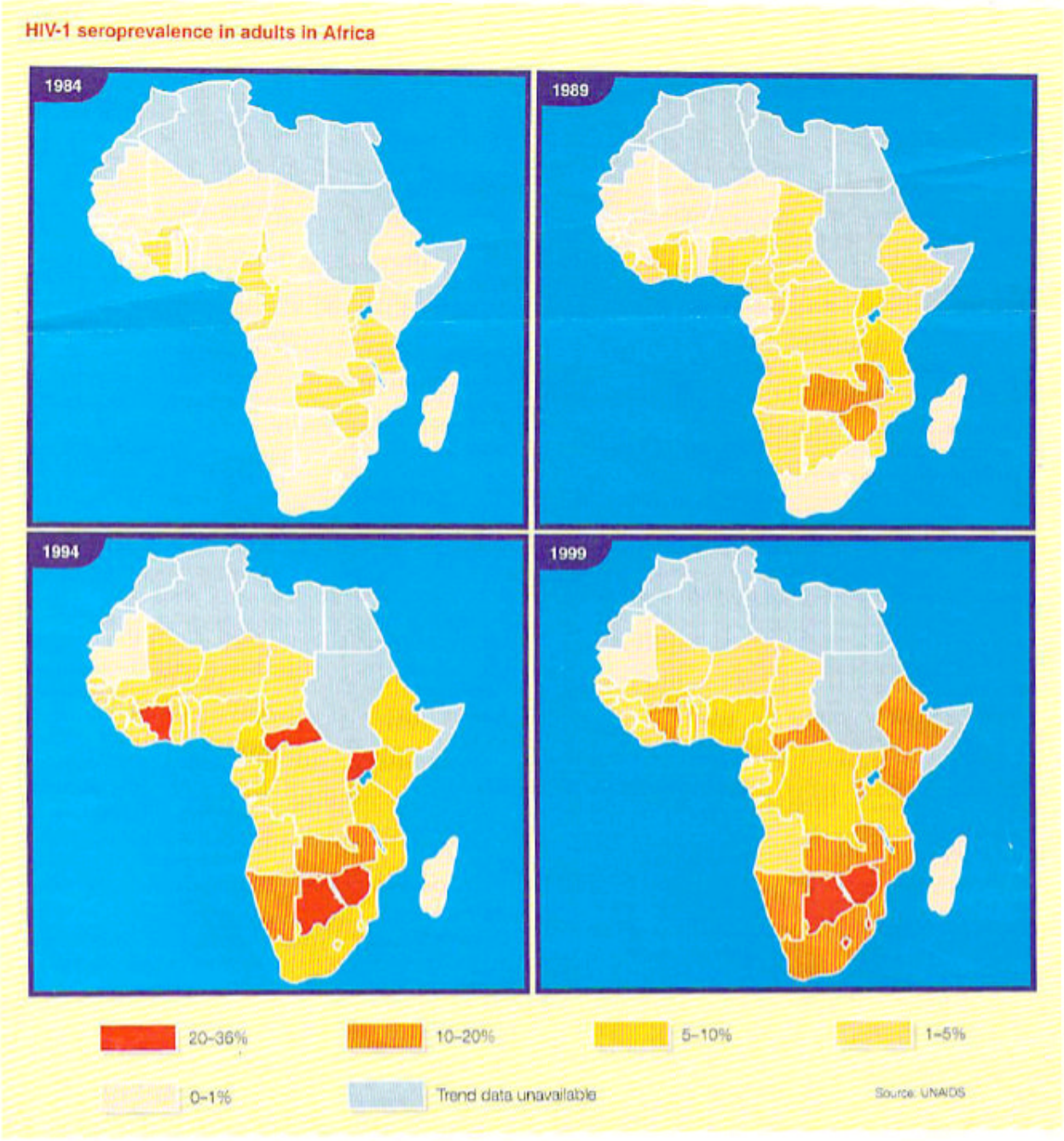

Figure 1.

Treatment of STIs - prompt and proper treatment of STIs has been shown to reduce the incidence of HIV by 38%.

Condom use is effective in preventing HIV transmission.

Education - in Zimbabwe, a factory-based peer education programme reduced the incidence of HIV in workers by 34%. Voluntary counselling and testing leads to safer sexual behaviour, independent of the test results. Research into the efficacy of sexual health education in schools (Tanzania), of participatory community-based reproductive health

programmes (Gambia), and of rural information, education and communication programmes (Uganda) is ongoing.

Circumcision - various studies have indicated that male circumcision may confer some protection against HIV infection, but no randomized controlled trials have been performed, and these would be difficult to undertake.

Mother-to-child transmission occurs in 25-40% of pregnancies in HIV-1-infected women in Africa. SImple zidovudine or nevirapine regimes can reduce transmisison around birth by 50%, but many children are infected by breast milk. Breaast-feeding is the norm in Africa and is responsible for 44% of all mother-to-child transmissions, but in most areas there is no safe, affordable and accessible alternative.