



Tuberculosis and AIDS



UNAIDS
point of view

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Facts and Figures

■ Around 1 out of 3 people on earth is infected with the germ that can lead to tuberculosis.* Prevalence is highest in conditions of poverty and overcrowding. In some of the developing world's poorest and most overcrowded cities, up to 80% of the adults carry the TB germ.

■ Cities are also the epicentres of the epidemic of HIV, the virus that causes AIDS. In some cities in East Africa, as many as 25-35% of all adults are infected with HIV.

■ The interaction between the TB epidemic and the HIV epidemic is lethal. TB adds to the burden of illness of HIV-infected people and shortens their life expectancy, while the HIV epidemic spurs the spread of TB.

■ Millions of TB carriers who would otherwise have escaped active tuberculosis are now developing the disease because their immune system is under attack from HIV. Studies in Italy, Rwanda, Spain, the USA and Zaire found that TB carriers who were also infected with HIV were 30-50 times more likely to develop active tuberculosis than those without HIV.

■ Unlike HIV, the TB germ can spread through the air. So individuals with active tuberculosis are contagious to those with whom they come into close contact. If left untreated for a year, one individual can typically infect 10 to 15 other people.

■ For these reasons, once HIV is introduced into a community where TB carriers live, the population faces parallel epidemics of AIDS and TB. Worldwide, over the next four years, the spread of HIV will result in more than 3 million new TB cases among both HIV-positive and HIV-negative individuals.

■ The industrialized world, where TB control had successfully brought new cases down to a low level, will not escape the potentiating influence of HIV/AIDS. In the USA, a longstanding annual decline in TB cases ended abruptly in 1985, at the peak of HIV spread.

■ In Asia, where the HIV epidemic arrived less than 10 years ago and is expanding dramatically, 14% of all TB cases will be attributable to HIV by the end of the 1990s. This figure was only 2% at the start of the decade.

■ Africa, where HIV has spread widely since the late 1970s, already faces a disastrous dual epidemic. In some countries, TB cases have doubled or even tripled since 1985. These caseloads are overwhelming health care systems that are stretched to breaking point.

■ Tuberculosis is the leading killer of HIV-positive Africans. More than 5 million of the 13 million Africans now alive with HIV are expected to develop TB, and over 4 million will die unnecessarily early deaths because of TB.

■ Worldwide, tuberculosis deaths among HIV-positive people are expected to exceed a quarter of a million in 1996. Almost all these individuals could live longer with proper treatment. Curative treatment with antituberculosis drugs is just as effective in HIV-infected individuals as in those who are not infected with HIV.

■ Controlling the dual epidemic requires a dual strategy – treating TB and preventing new infections with HIV.

■ The experience of the past decade demonstrates that HIV prevention works. Communities from around the world have managed to slow the spread of the virus with sound prevention policies and strategies.

■ In the developing world, TB control and HIV prevention are woefully underfunded. Yet according to the World Bank's *World Development Report*, these are among the top ten public health interventions in terms of cost-effectiveness. For each life-year gained, adjusted for disability, TB control with short-course chemotherapy and HIV prevention programmes would each cost just US\$ 3-5 annually in low-income countries.

* The bacterium *Mycobacterium tuberculosis*.

Lethal interaction

The growing epidemic of human immunodeficiency virus (HIV) has breathed new life into an old enemy – tuberculosis. The HIV epidemic spurs the spread of TB and increases the tuberculosis risk for the whole population. For those who are HIV-positive, the TB risk is especially great and the outcome often fatal.

HIV increases the spread of TB...

The TB germ, a bacterium called *Mycobacterium tuberculosis*, is highly prevalent in much of the developing world and in poor urban “pockets” of industrialized countries.

In these communities, people typically become infected in childhood. But a healthy immune system usually keeps the infection in check. People can remain infected for life with dormant, uninfected TB. Such people are called TB carriers.

In the past, most TB-infected people remained healthy carriers. Only 5-10% ever developed active tuberculosis. Those few kept the TB epidemic alive by transmitting the TB germ to their close contacts. TB germs can be spread through the air from patients with active pulmonary (lung) tuberculosis.

Today, as TB carriers increasingly become infected with HIV, many more are developing active tuberculosis because the virus is destroying their immune system. For these dually infected people, the risk of developing active tuberculosis is 30-50-fold higher than for people infected with TB alone.

And, because *Mycobacterium tuberculosis* can spread through the air, the increase in active tuberculosis cases among dually infected people means:

- more transmission of the TB germ,
- more TB and carriers,
- more TB disease in the whole population.

As a consequence, the HIV/AIDS epidemic is reviving an old problem in developed countries and exacerbating an existing one in the developing world. Altogether, TB may

claim as many as 30 million lives during the 1990s from among the HIV-positive and HIV-negative populations.

... and TB makes the outlook bleaker for people with HIV

As HIV slowly weakens the immune system, the individual gradually becomes unable to fight off “opportunistic infections” – infection with viruses, bacteria, parasites and fungi that would normally pose little threat. Common opportunistic infections include fungal infections of the mouth and throat, intestinal infections, and pneumonia.

Tuberculosis, a major opportunistic infection, poses a particular threat to the well-being and survival of HIV-positive people:

- Tuberculosis is harder to diagnose than in people uninfected with HIV. Only

TB prevention in dually infected individuals

People who discover they have HIV, and who carry the TB germ, are unusually prone to developing active tuberculosis. There is evidence that with a preventive regimen of isoniazid, this risk can be reduced. UNAIDS is supporting studies on the efficacy and cost-effectiveness of this approach in Malawi, South Africa, Thailand and Zambia.



Lethal interaction

35-50% of HIV-positive people have pulmonary tuberculosis, detectable from just a sputum sample. The remainder develop "disseminated" tuberculosis, which can be diagnosed only with special laboratory facilities.

- Tuberculosis progresses faster in HIV-infected people.

- Tuberculosis in HIV-positive individuals is more likely to be fatal if undiagnosed or left untreated.

- And tuberculosis occurs earlier in the course of HIV infection than other opportunistic infections. Studies of HIV-positive patients with pulmonary tuberculosis

showed that the disease developed in conjunction with a mean CD4+ cell count of 350. (Normal counts are around 1000 per microlitre of blood. The final stage of HIV infection known as AIDS generally corresponds to a count of 200 or less/ μ l.)

A risk for all

The growing wave of TB is not only a menace for those infected with HIV. Tuberculosis can spread through the air to HIV-negative people. It is the only major AIDS-related opportunistic infection to pose this kind of risk.



A dual strategy for a dual epidemic

Real progress in controlling TB and HIV can only be made with a dual strategy targeting both epidemics. This will require overcoming myths and misconceptions – and garnering the resources needed for action. UNAIDS and its partners are committed to advocacy, fund-raising and technical support to implement this dual strategy.

“The AIDS epidemic and the TB epidemic are locked in a vicious circle of mutual reinforcement. We can unlock them with a dual strategy of TB control and HIV prevention.”

Peter Piot, Executive Director of UNAIDS

TB control

One arm of the dual strategy is to control tuberculosis by detecting cases and ensuring that the person gets thorough antibiotic treatment.

The discovery of antibiotic drugs which kill bacteria was a turning point in TB control. In the richer countries, the disease formerly known as consumption used to be “treated” with a special diet and bed rest, usually in a sanatorium. In the late 1950s, it was established that neither was necessary. TB

could be cured with well-supervised antibiotic treatment at home.

A proper combination of anti-tuberculosis drugs achieves both prevention and cure:

- Effective treatment quickly makes the individual non-contagious. This prevents further spread of the TB germ.
- Achieving a cure takes six months of daily treatment with a combination of antibiotics. To ensure thorough treatment, it is important for the individual to take his or her pills in the presence of someone who can supervise the therapy. This approach – called DOTS (directly observed treatment, short course) – cures the disease in 95% of cases.

TB is important to treat in people with HIV. With DOTS, they can be relieved of suffering, cured of their active tuberculosis – and enabled to avoid transmission to others.

Even in settings where anti-retroviral drugs such as zidovudine (AZT) are unavailable or inaccessible, it is vital that the health system be able to offer HIV-infected individuals the simple antibiotics needed for DOTS. Treatment can essentially be carried out for patients at home, most appropriately in conjunction with the other care required for people with HIV or AIDS. (See box, p.6.)

In addition to treating TB when it occurs, health workers should consider offering preventive therapy with isoniazid to known HIV-infected patients at high risk of developing TB, such as TB carriers or those living in communities with a very high incidence of TB. This can lower their risk of developing active tuberculosis and increase their life expectancy.

However, while treating and preventing TB in HIV-infected patients extends their survival, it cannot prevent them dying from other infections. Hence, TB control is not the sole answer to the TB and HIV epidemic. Vigorous action to prevent HIV/AIDS is the other arm of the dual strategy.

HIV/AIDS prevention

There are over 20 million people alive today with HIV infection, and the HIV epidemic is growing at a rate of over 7500 infections a day. Because HIV is primarily transmitted through sexual intercourse, most of those infected are young adults and people in early middle age – the parents, workers and leaders of society. To make matters worse, 9 out of 10 people with HIV live in a developing country. As a result, the epidemic is threatening the very process of development.

A dual strategy for a dual epidemic

Fortunately, a decade of solid experience shows that HIV transmission can be reduced through a mix of prevention approaches that reinforce one another, designed with the help of the target audience and delivered over a long time period. In combination, the following approaches have helped communities to achieve a downturn in HIV incidence:

- measures to ensure the safety of blood transfusions and other procedures in health care settings
- frank information about how to prevent transmission through sex and drug injecting

- prompt, user-friendly treatment for gonorrhoea and other sexually transmitted diseases, which significantly increase the HIV transmission risk

- initiatives to encourage safer behaviour through support by friends and families.

In some settings, decision-makers have chosen not to apply these approaches. A typical misconception is that AIDS education at school will merely lead to more student sex. (Studies show it does the reverse.) This is the kind of myth that UNAIDS is trying to dispel as it documents the

are problems that UNAIDS aims to alleviate through technical support and help with fund-raising.

While AIDS prevention must encourage safe behaviour, an exclusive focus on individual behaviour ignores the fact that many people live in a setting where the safe choice is not an easy choice for them. In general, wherever people's legal or socioeconomic environment makes the avoidance of HIV difficult, UNAIDS recommends:

- legal, economic or other structural measures that increase people's options for safer behaviour, reduce options

TB control as part of AIDS home care

In parts of Africa where the TB epidemic is being fanned by high HIV prevalence, TB wards not uncommonly contain twice as many beds as they were designed for, and at times two patients per bed. Hospitalization of mothers and fathers also disrupts family care and results in lost earnings.

To overcome these problems, UNAIDS and its partners are exploring novel approaches to TB care delivery for people with HIV/AIDS. One would be to have DOTS supervised by home- or community-based carers. (Ambulatory DOTS is just as effective as TB treatment in hospital.) Community carers might also be able to help with early diagnosis of TB. Projects to test these approaches are currently being planned in several African countries.

- building of skills for condom use, sexual negotiation and the making of critical decisions
- readily available prevention tools (condoms, sterile needles, etc.)

effectiveness of sound approaches to prevention.

In many settings, prevention has been stymied by inadequate financing and poor technical management. These

for risk behaviour, and diminish stigma and discrimination.

For example, the government can subsidize condoms or lower import duties on them so that they are more affordable.



A dual strategy for a dual epidemic

Special rules on mandatory condom use in brothels can reduce unprotected sex and the risk to prostitutes and clients alike. In order to decrease the risk associated with overnight stays away from home, trucking companies can schedule deliveries in such a way that

two drivers exchange their loads midway between two delivery points, each one then returning home for the night. To discourage recourse to commercial sex, large-scale campaigns to promote respect for women can be coupled with greater educational and

employment opportunities for young rural women. People with HIV infection can be helped to acknowledge their status and protect their partners by a legal and cultural environment that shields them from discrimination and safeguards their human rights.

No need for compulsory HIV testing

DOTS has universal efficacy. TB patients can be cured with DOTS regardless of where they live and whether they are also infected with HIV. Hence, there is no need to insist on testing them for HIV.

However, it makes sense to offer TB patients voluntary counselling and HIV testing which they might benefit from in planning their future. In studies in the Côte d'Ivoire and Zaire, over 90% of TB patients took up the offer of voluntary counselling and testing.



UNAIDS *Best Practice* materials

The Joint United Nations Programme on HIV/AIDS (UNAIDS) is preparing materials on subjects of relevance to HIV infection and AIDS, the causes and consequences of the epidemic, and best practices in AIDS prevention, care and support. A *Best Practice* Collection on any one subject typically includes a short publication for journalists and community leaders (*Point of View*); a technical summary of the issues, challenges and solutions (*Technical Update*); case studies from around the world (*Best Practice Case Studies*); a set of presentation graphics; and a listing of key materials (reports, articles, books, audiovisuals, etc.) on the subject. These documents are updated as necessary.

Technical Updates and Points of View are being published in English, French, Russian and Spanish. Single copies of *Best Practice* publications are available free from UNAIDS Information Centres. To find the closest one, visit UNAIDS on the Internet (<http://www.unaids.org>), contact UNAIDS by email (unaids@unaids.org) or telephone (+41 22 791 4651), or write to the UNAIDS Information Centre, 20 Avenue Appia, 1211 Geneva 27, Switzerland.

Journalists seeking more information about a UNAIDS Point of View are invited to contact the UNAIDS Geneva Press Information Office (+41 22 791 4577 or 791 3387).

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1. Acquired immunodeficiency syndrome – transmission
2. Tuberculosis
3. Disease outbreaks
4. Acquired immunodeficiency syndrome – prevention and control

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