A Deadly Partnership
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On the wide stretch of windswept sand between Cape Town’s majestic Table Mountain and the sea, thousands of very poor people have set up home in makeshift shelters. Young and old live crowded together in a crazy, sprawling jigsaw of plastic, cardboard and corrugated iron that gives little protection from the scorching summer sun or the icy, drenching rains of winter. These are the kind of grim conditions without privacy, space or fresh air in which tuberculosis thrives, and the people of the Cape Flats, as they are known, suffer one of the highest rates of the disease in the world.
But today, given fresh strength by the AIDS epidemic, TB is breaking out of the ghettoes where it has continued to fester long after the discovery of antibiotics checked it in the rich world. The dual epidemics of TB and AIDS form a deadly partnership, each reinforcing the other. Together they have become the most serious threat to public health in this century. Last year TB killed some 3 million people - more than at any other time in history, and more than were killed by tropical diseases, malaria and AIDS combined. TB is the leading killer of people with AIDS. It is the biggest single infectious cause of adult deaths worldwide. Together with AIDS it orphans more children than any other disease. And reports from rich and poor countries alike show that it is on the increase.

Yet the world has lived so long with this ancient scourge that it has lost its power to shock. A mixture of complacency among the rich countries, who thought they had beaten TB with antibiotics, and fatalism among those whose poverty put effective treatment out of reach has blocked our ability to respond to the crisis. In 1993 the World Health Organization (WHO) declared TB a global emergency, but little notice was taken: only modest amounts of extra money were forthcoming, while the numbers of people succumbing to TB have continued to climb.

This collective blindness is potentially disastrous. TB is spreading faster than ever before. And the bacteria that threaten us today are becoming ever more deadly as they develop resistance to the drugs used to treat them. WHO believes as many as 50 million people may already be infected with drug-resistant TB bacteria, which are spreading in all
corners of the world. If this wholly man-made problem gets worse, rich and poor will be equally powerless, for there is virtually no treatment for multi-drug resistant TB.

The Problem

TB: Facts and Figures

TB is one of the oldest diseases known to mankind. The germ that causes it, Mycobacterium tuberculosis, is carried in the air and breathed in. It is spread through casual contact as a person with active disease expels the germs by coughing, spitting or even talking. TB bacteria remain suspended in the air for several hours, and can survive in a closed environment for years. At least a third of the world’s population, or 1.9 billion people, are already infected with Mycobacterium tuberculosis, and an additional 300 million will become infected in the next decade.

Rates of TB infection are highest where people are poor and overcrowded: in some cities of the developing world, up to 80% of adults carry the germ. In most people the bacteria remain dormant, kept in check by a healthy immune system. The chance of an infected person ever developing active disease is 5-10% normally, but this rises to between 30-50% in someone who is co-infected with HIV. Worldwide, 8-10 million people become sick with TB each year and almost 3 million die. Currently, some 20 million people – 95% of them in the developing world – have the disease.
TB can affect the bones, joints, lymph nodes, kidneys, liver and brain. But the most common form is pulmonary TB in which the bacteria attack the lungs, eating ragged holes in the tissue and rupturing tiny, and sometimes even large, blood vessels. As the immune system struggles to overcome the infection, the pitted lungs gather pus. Without treatment, half of all such patients die within five years in a slow agony, their wasted bodies racked with coughing and night fevers. If the TB patient is HIV-positive, death will come much more swiftly, typically within months.

Only a person with active pulmonary TB is contagious. Left without effective treatment, that person will typically spread the infection to between ten and fifteen other people in a year.

An extremely serious new trend is the emergence of drug-resistant TB bacteria. This is a wholly man-made phenomenon. Drug-resistant TB is caused by inappropriate treatment - patients being given the wrong combination or dosage of drugs for their disease - and by patients breaking off drug treatment before they are fully cured. Under these circumstances, the toughest bacteria that have not been killed by the drugs are given the opportunity to perfect their resistance and to multiply. Thereafter, the drug or drugs to which they have developed resistance are ineffective in treating anyone with that particular TB bacteria.

Drug resistance is a devastating occurrence, making TB ever more difficult, and sometimes impossible, to cure. It also pushes the cost of treatment up
100-fold, which makes multi-drug resistant TB (MDR-TB) tantamount to a death sentence in poor countries. Even in rich countries the prospect of survival is poor. Only two or three out of every four MDR-TB patients can be saved; among those who are also HIV infected, only one out of four may survive. Anyone in even indirect contact with such patients – especially medical staff caring for them – is at risk of contracting the drug resistant infection.

The irony is that it is the health services themselves which have incubated these new killer bacteria. In poor countries, many hospitals and clinics are hopelessly overburdened, underfunded and often lacking in the most basic equipment for reliable diagnosis and treatment. Under these conditions, staff may cut corners, treating a person for TB on the basis of symptoms alone and waiting to see if they show improvement. Often, too, they will have little choice in what they prescribe because the drug cupboard is poorly stocked, if not bare. Health staff in all countries are sometimes guilty of failing to make patients aware of the paramount importance of finishing their course of drugs and not giving up simply when they feel better. A 1991 report from New York’s Harlem Hospital, for instance, showed that only 11% of TB patients were completing their treatment. When government clinics are not providing free TB services, patients are obliged to buy the drugs prescribed for them from the pharmacy, and if they find them hard to pay for they tend to withdraw from treatment as soon as symptoms ease. Sometimes patients will sell to, or share with, other TB sufferers the medicines they have been given.
No one knows the extent of drug resistant TB, nor how fast it is spreading. A global surveillance system has been put in place by WHO to try to answer these questions, but it will be a year or two before a clear picture begins to emerge. Meanwhile the evidence from scattered studies gives good reason to be alarmed. In 1995 researchers in Pakistan, for example, found 75% of TB patients in their study area had resistance to one drug, and 40% had resistance to more than one drug. A study of TB patients in New York City in 1991 revealed that one in three had resistance to one drug, one in five had resistance to the two most effective drugs used to treat TB, and one in twenty had resistance to more than 6 drugs. Recent outbreaks of multi-drug resistant TB have been reported from the UK, Italy, Denmark, India, Thailand, South Africa, and Estonia.

A number of other factors are also contributing to the size and seriousness of the current TB epidemic. In developing countries, the pool of infection is growing steadily as more people who may have been infected in childhood are surviving into adulthood and old age because of better health care. Furthermore, we live in an age of unprecedented travel and migration, and countries are powerless to protect themselves from most of the germs that travel with people. A snapshot of the USA in 1995 gives some idea of the sheer scale of international travel today. That year, the country received 20 million foreign visitors, and its own citizens made 60 million trips abroad. In the US, as in much of Europe and in Australia, one third or more of new TB cases are occurring among foreign immigrants. Today, with the Iron Curtain gone and Europeans moving freely between East and West,
there is every likelihood that the TB epidemic gathering steam in Russia, Romania, Latvia, the Ukraine and other parts of eastern Europe will travel west.

Among the saddest of modern travellers are those forced from their homes onto the open road and into teeming camps and emergency settlements by war, tyranny and natural disasters. Worldwide, there are currently 23 million refugees and another 26 million displaced people - fully one in 115 of the world population and more than at any other time in history. Overcrowded, stressed, and powerless, such people are particularly vulnerable to TB. In some refugee camps tuberculosis is rife, affecting well over half the people. Sustaining treatment among people on the move is especially difficult, and infectious individuals carry the disease with them back to their homes or to the next refuge along the road.

Relaxed vigilance is also contributing to the current crisis. The discovery in the early 1950s of antibiotics that could cure TB raised hopes in the rich world that the disease could be beaten. When the powerful drug rifampicin was added to their armoury in the early 1970s, the industrialized countries were so confident that tuberculosis bacilli were beaten that they began dismantling the infrastructure that had underpinned TB control for so long. They closed the sanatoriums in which “consumptives” had been isolated from the community; redeployed the doctors, nurses and research scientists who had devoted themselves to TB work; and slashed the budget. In New York City, for example, funds to fight TB went down from $40 million in 1968 to just
$4 million in 1988. Over the last twenty years precious little research has been done on TB, and today in the rich world, medical students learn little about this “scourge of the past.” Thus, as the disease began to resurface as a serious problem in developed countries in recent years, they have been caught unawares and unprepared.

AIDS: Facts and Figures

Though AIDS was not recognised as a new disease until the early 1980s, the human immunodeficiency virus, HIV, that causes it started spreading widely in the 1970s. It has now reached every country. Worldwide, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that more than 21 million people are currently living with HIV/AIDS. The developing world bears the brunt of the epidemic, accounting for over 90% of global infections so far. The highest prevalence of HIV infection is found in Africa, where one in three adults in some cities are HIV positive. However, the virus is now spreading explosively in Asia, which already holds over 4 million adults living with HIV even though the virus gained a foothold in the region as recently as the mid-1980’s.

Worldwide, 2.7 million people are expected to become newly infected with HIV in 1996 alone and 1.1 million adults will die of AIDS. Approximately 60% of HIV-positive adults develop AIDS within 12-13 years of infection. Once they do, their average survival time is approximately 6 months in developing countries and around three years in developed countries.
Unlike TB, HIV is spread not through casual contact but through sexual intercourse, through blood, and from an infected mother to her baby before or during birth, or through breast feeding. The virus gradually destroys the immune system of the affected person who falls prey to a range of “opportunistic” infections - infection with viruses, bacteria, parasites and fungi that pose little threat to someone with a healthy immune system. The most common opportunistic infection in the developing world is TB.

At present there is still wide variation between countries in levels of tuberculosis and HIV/AIDS, and in how badly individual communities are affected by each. But this picture is changing. The areas of overlap between the two diseases are growing, especially in Asia, thereby fanning the flames of an already serious fire.

TB and HIV: A Deadly Partnership

When HIV and TB come together in the same population the effect is explosive. Because HIV suppresses the immune system, people who are carrying the TB germ and who become infected with HIV are up to 30 times more likely to develop active TB in a given year than those who are infected with TB alone. The time-scale is telescoped too: a person infected with HIV who is exposed to infectious TB will develop active TB far more rapidly than normal. Both of these effects mean much higher rates of
active TB, which in turn means a bigger pool of infectious TB patients and increased risk to the population at large of contracting the infection.

TB is the only AIDS-related opportunistic infection that significantly impacts upon people who are not infected with HIV. Worldwide, over the years to the millennium, the spread of the AIDS virus will result in more than 3 million new TB cases among both HIV-positive and HIV-negative individuals.

TB shortens the life expectancy of HIV-positive people because it takes hold at an earlier stage of immune deficiency than most other opportunistic infections. TB also tends to be a more aggressive disease in HIV-positive people: it is more often fatal and, if left untreated, can kill them in a matter of weeks or months rather than the years it typically takes to kill someone who is HIV-negative.

Currently, over 6 million people are thought to be co-infected with HIV and TB. Though TB not associated with HIV is still a bigger problem worldwide than HIV-associated TB, the latter is rising faster. TB in people living with HIV/AIDS is expected to increase from about 300,000 cases worldwide at the beginning of this decade, or 4% of total TB cases, to 1.4 million by the year 2000, or 14% of the total.

Global averages disguise what is happening at the local level. While still insignificant in some parts of the world, the dual epidemic is causing enormous suffering in others. In sub-Saharan Africa, for example, TB is now the leading cause of AIDS deaths, and nearly half the 13 million HIV-positive Africans alive today are expected eventually to
develop TB, which will kill many of them. And in Asia a disaster looms that could dwarf even the figures from Africa unless urgent steps are taken to avert it. This most densely populated region is already home to two-thirds of the world’s TB carriers. This decade, the proportion of TB cases attributable to HIV is expected to multiply seven-fold.

Though less dramatic, the influence of HIV on TB is already making itself apparent in industrialized countries too. In the USA, TB cases had been declining year by year for a long time, but this ended abruptly in 1985, at the peak of HIV spread. By 1990, one in three TB cases in New York City were in HIV-positive people.

Globally, a quarter of a million people with HIV will die from tuberculosis in 1996 alone. Every one of these dry statistics will have a human face. Many will be people dying slowly in front of their loved ones who will watch them as they grow thin and hollow eyed. Others will be far from home and family, slipping painfully from life in crowded hospital wards where staff are too busy to offer comfort or reassurance as the end approaches. And some will be children who live their last moments in a storm of pain from TB meningitis.

**Impact on Health Services**

Universally, TB is a badly neglected health problem. Few countries have effective control programmes in place. Now the AIDS epidemic is exposing
programme weaknesses as millions of TB carriers who would otherwise have escaped active tuberculosis are developing the disease because their immune systems are under attack from HIV.

Some African countries have seen the TB case-load multiply three- to five-fold since the arrival of HIV in the 1980s and their health services are breaking under the strain. Today, over half of all beds in hospitals serving the fishing and farming communities that live along the western shores of Lake Victoria - an early focus for the spread of HIV - are filled with AIDS patients, many of them suffering from TB. Across the continent it is common to find patients two to a bed or sleeping on floors in hospital wards, and passageways choked with sick people waiting to see a doctor at outpatient clinics. Drug supplies and diagnostic services in most places cannot keep up with demand, and doctors are treating suspected cases of TB that have not been confirmed or properly classified with whatever is at their disposal. Some are sending TB patients back into the community prematurely, with no way of ensuring that they take their medicines, or ascertaining that they are cured at the end of treatment.

Besides wasting staff time and scarce drugs, this "hit and miss" approach to treatment makes the TB problem infinitely worse and increases rather than diminishes the burden on the health services. With inadequate treatment a patient’s life may be prolonged by a number of years. But without a cure they will be sickly years - and years during which the patient will continue to spread the disease to others. In places with services where all but a small
proportion of treated patients are cured, the prevalence of the disease in the population remains about equal to the number of new infections in a year. But where TB services are poor and most treatment fails, prevalence soars and may be as much as four times higher than the annual incidence. Furthermore, poor treatment encourages the development of drug-resistant TB strains. Ultimately the population may lose faith in modern medicine. When hospitals are seen as places people go to die or to get medicines that do little good, many who are sick simply avoid contact with the health services.

For some people with TB, declining modern treatment is not a matter of choice: they cannot afford the time or money, or are simply too weakened by disease, to make the journey to a clinic or hospital where treatment is available. Unless there are effective outreach services into the community, such patients will never be known to, or assisted by, the health system.

Where services have broken down under the burden of illness, health staff are unusually vulnerable to contracting TB themselves. The risk is highest for those staff who are HIV-positive, whether they are aware of their infection or not. It is very important for morale and the allaying of fears that this problem be confronted and health workers made aware of the risks they run and the possibilities for protecting themselves. Quite apart from the personal imperative of minimizing the risks to health workers, communities can ill afford to lose people with such valuable skills, and the issue of their safety needs to be discussed openly and concrete
steps taken. Health workers could be encouraged to ascertain their HIV status through voluntary counselling and testing. Those who are HIV-positive could be offered preventive therapy and given duties that protect them as much as is possible from contact with TB patients.

The Solution

Close collaboration and cooperation between TB and AIDS programmes is vital since the two epidemics are so intimately linked. However, TB and HIV/AIDS are distinct health problems and different strategies are needed to address them, although both are dealing with people who need care and support. As a general rule, prevention of new infections remains the cornerstone of efforts to slow the spread of HIV/AIDS, while cure of active disease is the highest priority for TB programmes, to stop the disease at its source.

Stopping HIV/AIDS in its Tracks

Apart from ensuring the safety of the blood supply and transfusion practices, the promotion of safer sexual and drug-use behaviours to prevent the transmission of HIV is the main focus of HIV/AIDS control programmes, and a decade of solid experience has shown what works and what does
not work. What patently does not work is any attempt to alter behaviour through fear or coercion. But communities and countries have had remarkable success in slowing HIV in its tracks with a number of approaches that complement and reinforce one another. The prevention measures need to be applied in a sustained manner over a long period of time, and the best results tend to be achieved where the target group or audience is involved in their design.

In combination, the following approaches have proven effective:

- frank information about how to prevent transmission through sex and injecting drugs. Many people have resisted giving sex and AIDS information to school children fearing that it would encourage early sexual experimentation. But the exact opposite has proved to be the case: everywhere, informed youngsters tend to initiate sexual relationships later than their peers, and to practice safe sex more readily when they do. There can be no argument, therefore, for depriving even young people of information that may save their lives;

- building of skills (eg. in condom use and sexual negotiation), self-worth and personal capacity for taking life decisions;

- ensuring the availability of prevention tools such as condoms and sterile needles;
• effective case management of other sexually transmitted diseases, such as genital ulcer disease, reduces HIV transmission enormously, and can be carried out through the primary health care services.

It has become apparent, however, that adopting safer lifestyles is not just a matter of knowledge and access to services, but of opportunity also. AIDS programmes need to address the poverty and inequality that often push people into risky behaviour and make safer behaviours almost impossible. Inner-city teenagers in the USA addicted to crack cocaine have difficulty accessing drug treatment services – but little difficulty finding people willing to exchange sex for the drug that feeds their addiction. A young Thai girl sold into prostitution and virtual imprisonment by the brothel owner cannot insist that her clients use condoms. A laboratory worker handling blood routinely at work can do little to protect herself or himself from HIV if the hospital has run out of rubber gloves. And a woman who is totally dependant on her man for material support may be unable to raise the issue of safe sex – even if she knows he is unfaithful – for fear of violence or abandonment.

In order to address these issues and create an “enabling environment” for safer behaviour, a range of legal, economic and other structural measures may need to be taken. For example, to make condoms more affordable, a government can subsidize them or at least reduce import duties on them. In order to decrease opportunities for risk, employers can allow staff to be accompanied by
their spouses when posted to other cities or countries. 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.

**Tackling TB**

The measures required to address TB associated with HIV are much the same as those required to tackle TB under any other circumstances. Whether infected with HIV or not, an individual has excellent prospects of being cured of TB provided he or she gets proper diagnosis and treatment.

Conversely, erratic and ineffectual TB services are worse than no services at all and are unquestionably the reason why TB is today spreading across the world with new and deadly purpose.

**Knowing the enemy**

Accurate diagnosis of TB cases is vital, and WHO recommends using sputum smear microscopy for the purpose. This involves taking samples of sputum from patients who turn up at a clinic or hospital with symptoms suggestive of TB and investigating the samples under a microscope for signs of the
bacillus. This is the only way of detecting cases of infectious TB. Where funds and facilities permit, microscopy may be backed up by chest X ray, which will reveal “shadows” on the lungs that could be old or new TB lesions. This can help because sometimes a sputum smear is negative even when the patient does have TB, and an X ray is especially valuable in these cases in addition to the required three sputum examinations. But it requires an experienced medical officer to make an accurate diagnosis.

It is important to find out whether the patient with TB is a new case or a case that was not fully treated and cured before. The latter is likely to be drug-resistant and will need more specialized treatment. The information can be gathered through careful questioning of the patient, but well-maintained registers of TB cases are invaluable and should be part and parcel of all control programmes.

In developing countries, HIV sharply increases the number of infectious pulmonary cases, as well as other forms of TB, because HIV-positive people are so much more likely than usual to develop active disease when exposed to infection. The larger pool of infectious TB cases further accelerates the epidemic, and, as always, the overriding public health priority must be to protect the whole community by treating effectively those HIV-positive cases with smear positive (ie.infectious) TB.

However, microscopy is not effective in diagnosing smear negative and extra-pulmonary TB because bacilli will not be present in the sputum. Such cases are more common in HIV-positive people than in those who are HIV-negative. Because of the extra
complications in diagnosing TB associated with HIV, health staff may sometimes be tempted to forego the crucial search for infectious TB cases and treat patients on the basis of symptoms alone. The temptation is likely to be especially strong in places where staff are already under heavy pressure from the rising burden of HIV/AIDS, and where there are problems of quality with the laboratories. Such loose practices, however, lead to tragedy on the personal as well as the public health level.

If sputum smear microscopy is not used as the first best step in diagnosis, infectious cases will go undetected. Even if they do receive treatment for their symptoms, there will be no follow-up to ensure that they are cured. And ascertaining the cure of infectious cases is absolutely crucial in stopping the spread of TB and avoiding the development of drug resistant bacilli. Secondly, patients whose TB is not infectious may receive inappropriate treatment; and thirdly, there is a risk that some gravely ill patients who do not even have the disease will be given anti-TB drugs, thus wasting precious resources and effort on inappropriate care.

A strategy called DOTS

A number of different TB control strategies are being used around the world, but the most effective - and the one WHO now recommends everywhere - is known as the DOTS strategy. DOTS stands for Directly Observed Treatment, Short-Course. The same procedures are followed whether TB is associated with HIV or not, and the prospects of cure are excellent in both cases.
Essential elements in a DOTS strategy are:

- top level political commitment behind a well-designed and managed programme;
- adequate and regular funding;
- uninterrupted supplies of drugs and diagnostic equipment even to the remotest reaches of the health system;
- staff training and education at all levels down to the front-line health worker;
- a health system which maintains a rigorous system of recording and reporting on a patient’s progress in order to ensure that the powerful anti-TB drugs are used properly.

A health worker needs to observe a patient swallowing his or her pills in the appropriate combination and dosage and according to the appropriate schedule. It is the health worker’s duty to see that treatment is not interrupted when a person feels better and motivation wanes, nor for any other reason, and to monitor the success of each patient’s treatment and take corrective action if progress is not satisfactory. With infectious cases, the patient’s sputum is examined under a microscope after two months and at the end of treatment to ensure that the disease is fully cured.

Treatment consists of a combination of drugs taken over a six to eight month period. In the first two months (the “initial phase”), four drugs are taken
together while for subsequent months (the "continuation phase") just two drugs are taken. If the treatment is carefully followed, a patient with infectious pulmonary TB will stop being infectious within two to six weeks, which means that wherever a sound TB control programme is established, prevalence of the disease, and thus transmission of the infection, in the local population quickly plummets.

With the DOTS strategy, the health workers are supported by a central management unit whose duty is to ensure that drugs and laboratory supplies are always available, and to maintain patient registers and records of treatment. The unit constantly monitors the effectiveness of the programme, and makes adjustments where necessary.

In its turn, the TB programme works best when it is supported by a functioning health infrastructure. Where the health system has broken down, TB control will not work. But where the health system is working even moderately well, the DOTS strategy is extraordinarily effective, typically achieving cure rates of over 90%. It is equally appropriate in rich and poor places, North and South, and is currently being applied to good effect in over forty countries. The following brief examples give an idea of what is being achieved in widely different settings.

Tanzania, a very poor, largely rural country suffering one of the world’s worst dual epidemics of TB and AIDS, was a pioneer of the system first conceived by a Dutch physician, Karel Styblo, in the late 1970s. Between 1983 and 1990, the country increased the cure rate amongst TB patients in a pilot area from
43% to nearly 80%. Thereafter, a DOTS strategy was adopted widely in Tanzania. However, AIDS has put enormous strain on the country’s programme. By 1990, over 30% of TB cases were associated with HIV, and the demand for TB drugs had doubled.

In the days before anti-TB drugs, the disease regularly killed people in New York City at a faster rate than in any African or Asian country today. With the spectacular success of the new drugs in the 1950s and 1960s, the City gradually diminished its public health services for TB. So when HIV arrived, New York was not prepared for the resurgence of TB that followed. In 1986, only half the patients treated for TB were cured. In the early 1990s DOTS-like programmes were adopted in a number of centres. By the end of 1995 new TB cases had been cut by over one-third from their peak in 1992, when nearly 4000 cases were recorded. Multi-drug resistant cases of TB were slashed by 75% from their 1992 levels with a good DOTS-based approach. The City estimated the strategy had saved more than $110 million since 1992.

But the DOTS strategy has had its most spectacular success in China, which is home to around one fifth of the world’s TB cases. Efforts to control the disease through China’s primary health care system began to fail in the 1980s. Without supervision of their treatment, patients rarely finished a course of drugs. Besides, they were required to pay for their medicines, and few could afford the full treatment. So nearly half of all patients remained uncured and continued to spread the infection. With assistance from the World Bank and WHO in identifying the problems and finding
solutions, China launched a DOTS programme in 1991 in a pilot area of 2 million people. The success has been staggering: just five years later, the project covers almost 500 million people and a cure rate of over 90% has been maintained.

Cure is the best prevention

People have adopted a variety of prevention strategies to try to control the spread of TB. These include investing in air filters and ventilation systems, installing ultraviolet lights which kill the bacteria in confined spaces, and screening selected groups for infection and treating them with drugs to prevent it becoming active. Most such strategies are a waste of scarce resources because they are of limited value and encourage a false sense of security.

Money spent on special ventilation or ultraviolet light, for example, will give some protection to people in the buildings in which it is installed. However, it will do nothing to protect them at home, on the bus or plane, in the marketplace, nightclub, cinema or bar. Screening and preventive therapy before disease emerges are rarely cost-effective. With half a billion foreign trips made by tourists and business people each year, a policy of screening travellers at border posts is clearly impractical. And even in more limited settings like schools, factories or prisons it is less cost-effective than removing the source of infection - that is, curing TB in people with active disease.

Nevertheless, screening (using the tuberculin skin test) and preventive therapy (PT) can be useful as a
Is There a Place for Thiacetazone?

Thiacetazone, introduced in the late 1950s, has long been a mainstay of TB control in combination with isoniazid and streptomycin. It is low cost, can safely be used without intensive supervision where health services are weak and, if taken properly in combination with other anti-TB drugs, is effective against TB. However, the advent of HIV is complicating its use.

Thiacetazone, like many other drugs, can cause side effects. The most important risk is a skin reaction that starts with itching and a rash and occurs in up to twelve percent of HIV-negative patients being treated for TB. If the patient stops using the drug right away, the reaction will most often disappear by itself. However, if the patient is unaware that the rash may herald a far more serious reaction and continues taking the drug, there is the risk that the skin may blister and slough off. One in three of the patients who experience this most extreme form of reaction dies as a result. Thus, any patient given the drug should be advised of its possible side effects, and told to stop taking it and seek medical help immediately if any skin rash occurs.

The severest form of reaction to thiacetazone is up to twenty times more likely to occur in a person being treated for TB who is also infected with HIV than in someone with TB who is HIV-negative. This is why WHO advises against the use of thiacetazone in patients known to have the AIDS virus. Ideally, the drug should not be used at all in populations with a high prevalence of HIV because of the risk of severe side effects occurring in many people being treated for TB who may, unknowingly, be infected with HIV also.

However, the replacement of thiacetazone by other, safer anti-TB drugs creates serious dilemmas for some countries – notably the poorest – who may feel they cannot afford to use the somewhat more expensive anti-TB drugs which WHO recommends for the DOTS strategy. These countries fear that the result of phasing out thiacetazone might well be that fewer TB patients receive treatment and tuberculosis continues its spread within the community.

Much of this fear is misplaced as health systems which do not employ a DOTS approach seldom succeed in curing many TB patients. WHO advises that all countries should move to employ the DOTS strategy within their health services as soon as possible. As this occurs, the issues surrounding the use of thiacetazone will disappear. For the poorest communities, financial and technical assistance with adopting a DOTS strategy are among the best things that aid agencies, non-governmental organizations and relief agencies can help to do. Not only will such assistance reverse the TB epidemic, but it will protect people living with the AIDS virus, who might need to be treated for TB, from the tragic and often fatal consequences of thiacetazone.
second line of defence in places which can afford it and which have effective TB programmes with high cure rates. PT is probably most appropriate in dual-epidemic areas, where people with co-infection are at unusually high risk of developing active TB. The Joint UN Programme on HIV/AIDS (UNAIDS) and WHO are currently supporting studies in Uganda, Malawi, South Africa, Thailand and Zambia to assess the feasibility, efficacy and cost-effectiveness of such a strategy. If it proves to be worthwhile, health workers should be high priority beneficiaries because of the special risks they run in the line of duty. However, this should never be seen as justification for compulsory HIV testing. Instead, where health resources permit, voluntary counselling and HIV testing should be offered to help individuals at risk of co-infection understand their situation.

Under the WHO and UNICEF-supported Expanded Programme of Immunization, 80% of the world’s children receive the anti-tuberculosis BCG vaccination. This has some effect in protecting small children from serious, though uninfected, types of TB such as TB meningitis, and should continue to be part of regular child immunization programmes. But, vaccination does nothing to help the huge numbers of people already carrying TB, and cannot affect the course of the epidemic.

The highest priority of TB control programmes must be to stop TB at the source. Curing people with active TB is not only the most humane course of action, it is also the simplest, most efficient and most cost-effective way of preventing its spread.
Working together

The most practical way of dealing with the dual epidemic in most countries is to adopt a dual strategy in which there is equal commitment to preventing both TB and HIV and close cooperation and collaboration between the two programmes. This calls for top level political commitment, strong leadership and good communication at all levels of operation.

For several important reasons, TB and HIV/AIDS programmes should place a high priority on curing TB. Tuberculosis is the only major opportunistic infection that can be readily transmitted from a person with AIDS to someone who is HIV-negative. It therefore threatens the entire community and curing the source of infection is in everyone’s interest. Using the DOTS strategy, treatment is simple and effective and affords excellent prospects for improving the quality and duration of life for people with HIV. Treating TB successfully so that the spread of infection is checked will also relieve the burden on overstretched health services.

The experience of Tanzania, where the presence of HIV has put enormous strain on TB control, underlines the pressing need for countries to strengthen their TB programmes - if possible, before HIV has got a firm foothold in their societies. Thailand and other Asian countries where the virus is spreading fastest have no time to waste. But others, too, should take heed.
At the front-line in the laboratories, hospitals and homes of countries where the two diseases run parallel, staff from both programmes are already working closely together: patients with AIDS and patients with TB are often the same people and staff are simply doing what needs to be done for the sake of the sick person. But in very many places they are coping with the situation they find before them without clear direction or support from above, and without adequate supervision. Where this is the case it should be addressed urgently. Apart from other considerations, it is in situations like this, where TB patients are given well-meaning but bad treatment, that drug resistant bacteria develop and flourish.

To work effectively, health staff of both the TB and AIDS programmes need to know the basic characteristics of both diseases and recommended actions for their prevention, cure, and care. This rarely happens at present, and education and training programmes for staff at all levels should be established to fill the knowledge gaps. Besides being important for efficiency, sound understanding of the situation is also essential for the confidence and morale of people coping with the dual epidemics. Health workers, especially those who are HIV-positive, need information about the risks they run of contracting TB in the workplace and of how best to protect themselves. The health services should enable them to do so.

Other important activities in which TB and AIDS programmes can collaborate include:
• Counselling and testing: Where a DOTS strategy is working efficiently and where taking on extra duties will not overburden the system, TB services could consider offering voluntary counselling and testing for HIV. This is especially valuable in areas facing a serious AIDS epidemic, and when such services were offered in Côte d’Ivoire and Zaire, 90% of TB patients took them up. Because of such strong demand, in many places it may be possible to recover much of the cost of the voluntary counselling and testing (VCT) services from the programme’s clients. Likewise, existing VCT services run by AIDS programmes could offer clients educational materials and advice on the risks of TB, and provide testing for TB in those persons who are symptomatic.

• Home based care: Health staff working in home- and community-based care programmes for people living with AIDS could be trained to recognise and refer TB cases, and to supervise the treatment of TB patients according to the DOTS strategy. (Failing to treat TB effectively can do more harm than good, and the feasibility of incorporating the whole DOTS strategy into home-based care programmes is shortly to be tested in several African countries.) Hospital-based physicians could be informed of existing home- and community-based care services and encouraged to refer patients to them when they are released from hospital. Such
services benefit enormously from the moral and practical support of physicians, and both sides therefore have much to gain by establishing strong links between institutional and community health services.

• Research: Collaborative research is already underway in several areas mentioned earlier. In addition, global and national TB and HIV/AIDS programmes have common interests in:

  • finding improved methods for diagnosing HIV-associated TB;

  • developing new, more effective and affordable anti-TB drugs and drugs to treat other HIV-associated illnesses, and ever simpler ways of delivering treatment;

  • developing preventive treatments to stop TB in HIV-positive people from becoming active;

  • developing clear and effective education messages and materials about the dual epidemic; and

  • finding the best ways to protect health workers from TB infection in the course of duty.
A New Call for Action

In the few remaining years to the millennium, tuberculosis will kill 12 million people and AIDS 10 million, and many will be casualties of both diseases. As the two epidemics feed on each other, there is an urgent need to identify weaknesses in the current control strategies, and to plug the gaps and do away with inefficient practices.

Much can be done by using existing resources more wisely - and donors as well as recipients should be looking critically and intelligently at how funds are being spent. But new money is also needed to mend the tattered fabric of the global campaign against TB and to strengthen HIV/AIDS prevention, care and support in poor countries.

Antiquated and dangerously inefficient TB services must be replaced by programmes using the DOTS strategy. Currently this most effective form of treatment reaches fewer than one in five TB patients. Near-universal coverage could be achieved if the donor community together agreed to put another $100 million a year into the global fight against the disease, and if national governments would restructure their current patterns of spending on TB to adopt fully the DOTS strategy. But despite urgent appeals from the World Health Organization, external aid for TB control and revision of ineffective policies in TB endemic countries are slow in coming and still far too limited.
The rich world’s complacency towards this ancient disease is wholly misplaced, especially now, in the era of HIV. As TB grows increasingly impervious to our best weapons and spreads out of control in the air we all breathe, no one anywhere will be safe. Halting the advance of TB and HIV now is in everyone’s interest as the cost of containing them will only get steeper. Hopefully the world will recognize this truth before it’s too late, for we still have the means to beat the dual epidemic. What we need now is the will.
Tuberculosis

- At least one third of the world’s population — 1.9 billion people — are infected with TB. Currently 20 million people are sick with TB. 95% of them are in the developing world.

- Rates of TB infection are highest where people are poor and overcrowded. Up to 80% of adults in some cities in the developing world carry the TB bacillus.

- 8-10 million people become sick with TB each year, and 3 million die of the disease.

- The lifetime chance of someone infected with TB developing active disease is 5-10% unless they are co-infected with HIV, in which case it rises to 30-50%.

- Without treatment about half of all TB patients die within 5 years. If they have AIDS/TB, however, and are not properly treated they are likely to die within weeks or months rather than years.

- TB can affect the bones, joints, lymph nodes, kidneys, liver and brain. But the most common form of the disease attacks the lungs. Pulmonary TB accounts for approximately 85% of all cases of TB.

- Someone with infectious TB will typically spread the infection to fifteen to twenty other people in a year.

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HIV/AIDS

- Around 21 million people are currently living with HIV/AIDS, over 90% of them in developing countries.

- The highest prevalence of HIV/AIDS is in Africa where 30% of adults in some cities are HIV positive.

- In 1996 alone, 2.7 million people are expected to become newly infected with HIV, and 1.12 million adults will die of AIDS.

- Approximately 50% of HIV positive people develop AIDS within 3-10 years of infection. The average survival time for a person with AIDS is 6 months in developing countries and 1-3 years in developed countries.

- A person has AIDS when their immune system is weakened to such an extent that they fall prey to “opportunistic” infections caused by bacteria, viruses, and fungi. TB is one such infection.

- Approximately 5.6 million people are co-infected with HIV and TB.

This brochure is available for sale from the World Health Organization (WHO) Publications Division. The cost is CHF 10.– (Swiss francs) for developed countries, CHF 7.– for developing countries. Please send orders to the WHO address on the back cover.

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Tuberculosis in the Era of HIV

This brochure gives the essential facts and figures of the two epidemics, explains their deadly partnership, and discusses what needs to be done to meet this dual challenge.