

*Tuberculosis* &  
SUSTAINABLE  
DEVELOPMENT

the  
*Stop TB  
Initiative*  
2000 Report

*the Stop TB Initiative*  
is a partnership hosted by  
the World Health Organization



WHO/CDS/STB/2000.4  
Original: English  
Distr.: Limited

A Partnership  
for Global  
Action

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*This report was developed  
by the Stop TB Initiative  
coordinating team and  
has benefited from review  
and comments from Stop TB  
partners around the world.*

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# Foreword

*The following pages are testimony to the inextricable relationship between TB and sustainable development. Where TB flourishes, social and economic development progress is compromised, and, where the development of health and education systems, national economies and national security are weak or failing, TB thrives.*

*Given the unique nature of tuberculosis, to remain latent for years after infection, and in many cases for entire lives, TB is a unique barometer of social development. It waits for the opportunity to convert into full-blown contagious disease when immune systems weaken due to causes such as HIV/AIDS, malnourishment, or poverty. In short, TB affects most severely those who are already the most vulnerable.*

*Communicable diseases, in general, take their biggest toll on the poor. While rich and poor can become sick with a communicable disease, the poor are the most likely to die and their livelihoods most compromised when they contract a communicable disease. Nearly 60 percent of deaths among the poor are due to communicable disease, whereas only 34 percent of global deaths and just under 8 percent of deaths among the global rich are due to communicable diseases.*

*TB is a poignant example of a communicable disease taking its greatest toll on the poor. Ninety-eight percent of the two million annual deaths from tuberculosis and 95 percent of the eight million new cases every year are in developing countries, making the poor poorer.*

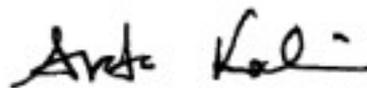
*This picture is unacceptable in an era where a highly cost-effective cure exists. The drugs needed to cure one TB patient cost as little as US\$ 11. People can go back to work, children do not need to be taken out of school to attend to sick parents and earn money to help feed their families, and, even more significantly, children do not have to become orphaned by a disease that is totally curable.*

*TB is not just a matter of social development.  
It is a matter of social justice.*

*While the current impacts of TB are felt most in developing countries, the picture is changing. In the face of rapid globalization, TB, too, is crossing continents. No country is immune to TB. Inadequate global action to stop TB not only allows two million needless deaths and eight million new cases to occur every year, it is allowing drug-resistant TB to emerge in "hot spots" around the world. And, if we do not accelerate and expand our response to TB now, and halt the emergence of drug-resistant TB, even the richest countries who might afford treatment, may no longer be able to find a cure that works.*

*The evidence is clear.  
A world free of TB is a global public good.*

*I hope this document catalyzes increasing dialogue and action among development partners to take on this challenge. We must act now, in partnership, to stop TB.*



*Dr Arata Kochi, Director*

*The Stop TB Initiative  
on behalf of the Stop TB partners*

# Executive summary

**E**very year eight million people become sick and over two million people die from tuberculosis (TB). The vast majority of these people live in developing countries, with profound implications for the economies of families, communities and nations.

**On average, a TB patient loses three to four months of work time, equivalent to 20–30% of annual household income.** TB not only exacts a heavy cost on health and social services, the whole economy suffers because 75% of TB patients are men and women in the most economically active age group—between 15 and 54 years. The workforce is reduced, productivity falls, revenues drop and markets are lost.

TB is a serious obstacle to sustainable development. It robs people of opportunities, limits their choices, and, ultimately, slows national development. TB traps people in a vicious cycle of poverty and disease. It exacts serious psychological and social costs, particularly in societies where people and families with TB face discrimination, including loss of jobs, education opportunities and marriage prospects.

**The tragedy is that the overwhelming amount of illness and death due to TB persists, along with all its debilitating social and economic consequences, despite the fact that a cost-effective strategy—DOTS (Directly Observed Treatment, Short-course)—has been available for many years.**

Curing people is the best way of preventing the spread of TB. Delays in treatment (often because of financial constraints or lack of information) and ineffective treatment promote the spread of TB; a person with infectious TB will infect, on average, between 10 and 15 people every year. DOTS is cheap and effective—around US\$ 10–20 per course of treatment—with high cure rates. Together with EPI (Expanded Programme of Immunisation), DOTS is one of the most tangible health interventions available, a valuable catalyst to strengthening health systems, and an effective strategy for poverty alleviation. Successfully treated,

people return to work, providing for themselves and their families, and contributing to their country's economic growth. Children complete their education, and as TB is shown to be curable, the stigma surrounding it is reduced. **DOTS is one of the soundest strategies for economic and social development.**

Despite clear evidence of these benefits, only 21% of TB patients globally were treated in DOTS programmes in 1998. Seven years after the World Health Organization (WHO) declared TB a global emergency and several million preventable deaths later, investment in this cost-effective cure has been totally inadequate. **And this situation is exacerbated by two further factors—the dual epidemic of TB–HIV (Human Immunodeficiency Virus) and the threat of multi-drug-resistant TB (MDR–TB).**

The deadly synergy between TB and HIV has led to a quadrupling of TB cases in several African countries over the past ten years. The burden of this dual epidemic on a country's economy is enormous. In Kenya, one-third of the total government drug budget is allocated to anti-TB drugs largely because of the increase in TB cases due to HIV.

Another frightening prospect is the spread of multidrug-resistant TB which threatens to make TB incurable. MDR–TB develops because of human failure, the result of inadequate supplies of drugs, ineffective treatment and poor management. It is hugely more expensive and more difficult to treat than drug-susceptible TB, and is more likely to be fatal.

**Time is running out.** There is a tangible, cost-effective intervention available, which, if adopted more widely, will prevent further unnecessary illness and death, and alleviate the socioeconomic consequences of TB. An effective expanded response to TB is crucial to preventing drug resistance. **If urgent action is not taken globally—engaging governmental and nongovernmental organizations as well as civil society—the present epidemic will spiral out of control. An effective response must move beyond the health sector and engage all relevant sectors. TB is an issue that affects us all.**

***We have a choice.  
We need to act now to stop TB.***

# Chapter One

## Tuberculosis in the world today: the extent of the problem

*Tuberculosis is a disease that never went away, despite the creation of powerful anti-TB drugs in the early 1950s, which many believed would consign it to the history books.*

*That was not to be. By the mid-1980s, it was clear that TB had not disappeared. In fact, it was on the increase in many places—most alarmingly in developing countries. In 1990, one expert proclaimed: “Africa is lost.” Others wrote that the world was now facing the greatest public health disaster since the bubonic plague. TB was back on the map with a vengeance, and remains so.*

### 1 The challenge of TB today

TB is a major killer in the world today. Nearly two million people die from tuberculosis every year, including over 250 000 children. It is the leading infectious cause of female deaths, killing more women every year than all causes of maternal mortality combined<sup>1</sup>. TB takes its greatest toll on developing countries which account for 98% of deaths from the disease. More than one quarter of all preventable adult deaths in developing countries are due to TB<sup>2</sup>. Sadly, every second, someone in the world is newly infected.

There are about 8 million new cases of TB each year, and overall, between 16 and 20 million existing cases globally. Only 22 countries account for 80% of the world's active TB cases. Of these cases, 75% are men and women who should be at their most economically active, between the ages of 15 and 54. They are the people on whom the future of their families and their communities depend. In many developing countries, increasing numbers of younger people are becoming sick with TB. In 1990, 20% of TB patients in the industrialized world were under the age of 50 compared with about 75% of TB patients in developing countries who can ill afford to cope with the human and economic cost of this epidemic.

**TB is highly contagious**

**Roughly half of the existing cases at any given time are contagious. If these patients are not cured, they will each infect, on average, between 10 and 15 people every year. Curing TB patients, and so rendering them non-infectious, is the only viable means of preventing its spread.**

## 2 The resurgence of tuberculosis

Globally, poverty has increased. Over the last decade, the number of less developed countries has doubled, and in some middle-income countries the national income (GNP) has decreased. More than 80 countries have per capita incomes lower than they were ten or more years ago<sup>3</sup>. This has not only created populations more vulnerable to TB, it has also led to a reduction in the resources available to tackle TB at a time when they are critically needed.

Poverty is a major reason for the resurgence of this ancient disease. Overcrowded, impoverished dwellings are its breeding ground, and TB thrives on immune systems weakened by other chronic infections and by malnutrition. Even before the cause of TB was discovered by Robert Koch in 1882, thus paving the way to effective drug treatments, the rates of disease were falling in many developed countries because of an improvement in peoples' standard of living.

While living conditions were improving in industrialized countries, more and more people in developing countries were moving to large cities where conditions were not unlike those of TB-ridden London or New York in the 1800s. By the mid-1980s, urban populations in developing countries had tripled in just over 30 years—TB rates in these urban populations are generally higher than in rural areas, as people living in densely crowded conditions in cities are at higher risk of becoming infected with TB.

## 3 TB and HIV/AIDS

A significant cause of the dramatic rise in TB cases from the mid-1980s onwards is the Human Immunodeficiency Virus. Today, tuberculosis is the single biggest killer of people infected with HIV.

HIV infection considerably weakens a person's immune system and makes them vulnerable to other illnesses. *M. tuberculosis* has a particularly synergistic dynamic with HIV, as HIV accelerates the progression of TB infection to active TB disease. People who are infected with TB and HIV are at least 30 times more likely to progress to active TB disease than people with TB infection alone. The burden of TB greatly reduces the quality of life of people who are

### Definition of TB

**Tuberculosis is an infectious disease caused by the bacillus *M. tuberculosis* which, like the common cold, spreads through the air via coughs, sneezes and spitting. Tuberculosis can attack a number of organs but pulmonary TB is the most common form of the disease, and the only transmissible type among humans.**

**One-third of the world's population is currently infected with TB; of those, one in ten will develop active tuberculosis disease at some point in their lives. For TB infection to develop into TB disease, the infected person's immune system must be weakened by malnutrition, substance abuse, overall poor health, or most recently, HIV.**

**The percentage of people with active TB is likely to increase where there is a large population of people infected with HIV. New-born babies and infants are also more likely to progress from infection to active disease.**

HIV-positive. If their TB remains untreated, they have a high likelihood of dying within a few months. An estimated 15% of all new cases of TB are also HIV-infected; HIV is the major cause for the rise of TB cases in southern and south-east Africa. In many African countries, the HIV epidemic has led to a tripling or even quadrupling of TB cases over the past ten years.

**TB treatment for HIV-positive patients is as effective as for those who are HIV-negative, increasing the length and quality of life of individuals, and benefiting their families and communities.**

### **FACTS ABOUT THE DUAL TB–HIV EPIDEMIC**

There are nearly 34 million men, women and children living with HIV in the world today; more than 95% in the developing world where the highest rates of TB infection are found. Today, about eleven million people are dually infected with TB and HIV<sup>4</sup>.

**In many African countries, more than half of TB patients are also HIV-positive. There, TB is perceived as synonymous with AIDS.**

In Zambia, one in five adults is infected with HIV, and the number of TB cases has risen from 7 000 new cases in 1984 to over 40 000 in 1998<sup>5</sup>, amounting to a six-fold increase in just over ten years. It is estimated that 30 000 of these new cases are due to HIV.

**The TB–HIV dual epidemic is of growing concern in Asia**, where two-thirds of all the people in the world who are infected with tuberculosis live. In Cambodia, it is estimated that 20% of TB patients could be HIV-positive in 2000. In India, 60% of AIDS patients are estimated to have tuberculosis. In Thailand, where TB is now the most common opportunistic infection among AIDS patients, the HIV epidemic is seen as one of the biggest threats to effective TB control.

#### **Grace's story—She is HIV-infected but her TB has been cured**

*Grace is 27, the mother of three children, living in Zimbabwe. She is living proof that TB treatment is remarkably effective in people living with HIV.*

*“I was married at the age of 16, but I left my husband after my second child because he was a heavy drinker. I was afraid of him so I came to stay with my mum. Life was hard and I had no other way of making money than by selling sex.”*

*When her second child was only four months old, Grace started to become ill with a cough, headache, fever and chest pains. She was taken to hospital where they diagnosed TB. She returned home and was treated as part of the home care treatment in Zambia's copperbelt. The homecare scheme involves health workers and many volunteers, offering a comprehensive service for people with HIV/AIDS and TB.*

*The nurses from the home care scheme counselled Grace about having an HIV test. She was found positive but says she wasn't shocked—"I knew my background very well." People told her there was no point her having TB treatment because she would die of AIDS anyway, but Grace did complete her treatment and made a full recovery. "I even put on weight." It is more than four years since she was diagnosed HIV-positive and she is still leading a full life.*

Sadly, too many people who are dually infected do not receive any treatment for TB. Patients may not be aware that their TB can be cured, may not have access to drugs, and may fear a dual stigma if their TB-HIV status becomes known. When they do seek help, it is too often inadequate and ineffective, leaving them chronically sick and infectious.

## 4 TB can be cured

The majority of deaths from TB are preventable. A highly effective treatment strategy called DOTS (Directly Observed Treatment, Short-course) has demonstrated high cure rates of about 80% (compared with 45% in areas which do not implement DOTS). Each year of life saved through DOTS costs as little as US\$ 3 to US\$ 5.

The cost of anti-TB drugs has fallen considerably so that short-course chemotherapy now costs as little as US\$ 11 per person cured. Under DOTS, most patients can avoid costly hospital-based treatment and can be treated whilst staying at home. A key principle is that every dose of treatment is observed and recorded by a health worker or trained person from the community for at least the first two months of treatment. This is a way of supporting patients and their families, and of ensuring that they become cured. When patients take their drugs irregularly or stop altogether before the end of the regime, they are not cured and remain infectious to others, and—of biggest concern—they may develop drug-resistant tuberculosis.

### DOTS

*There are five key elements of DOTS:*

- **Government commitment to sustained TB control;**
- **Detection of infectious cases using sputum-smear microscopy;**
- **A standardized, short-course chemotherapy of six to eight months, with direct observation of treatment;**
- **A reliable supply of high quality drugs;**
- **Information systems for monitoring and reporting of treatment outcomes.**

Most countries have adopted and are implementing DOTS—an increase from 10 countries in 1991 to 119 in 1998, including the 22 with the highest burden of disease. But in many of these countries, there is not countrywide coverage and more than three-quarters of the world's TB patients still do not have access to this highly effective treatment.

By 1996, nearly all of the public health services in Peru were diagnosing and treating TB free of charge. The Ministry of Health uses Public Treasury funds to guarantee adequate financing to control TB through its Basic Health for All Programme. It has reduced notifications by 33% between 1993 and 1996. Between 1991 and 1996, the cure rate increased from 50% to 91% and defaulter rates dropped from 50% to 4%. An estimated 2.5 million additional infections were prevented.

People living in areas without effective TB control are not just more vulnerable to the many consequences of TB—sickness and death as well as the devastating social and economic costs due to the disease. In some of these countries, men and women are increasingly at risk of contracting strains of TB which are resistant to anti-TB drugs and therefore potentially incurable.

Though many national TB programmes have been established or strengthened over the past decade in several other countries, inadequate or uneven supplies of drugs, poor management, and unsupportive social and political environments have contributed to the development of multi-drug-resistant TB. The message is clear—TB programmes must be carried out effectively or they risk creating an epidemic that is incurable.

## 5 The threat of multidrug-resistant tuberculosis (MDR-TB)

MDR-TB is a major challenge to the medical world and a frightening prospect for the future. It is hugely more expensive, more likely to be fatal, and is more difficult to treat than drug-susceptible TB, especially in developing countries which are struggling to provide even basic health services.

MDR-TB renders short-course chemotherapy, as used in DOTS, useless because the two best drugs are rendered ineffective. It demands much lengthier treatment (usually 18 to 24 months) and there are few drugs to treat drug-resistant strains of TB. In the United States of America, standard TB treatment costs about US\$ 2 000 per patient, while there is over a hundred-fold increase to US\$ 250 000 for MDR-TB.

### **MDR-TB**

**MDR-TB is defined as resistance to the two most important anti-TB drugs, Isoniazid and Rifampicin, and it occurs when:**

- **The wrong treatment regimens (dosages or combination of drugs) are prescribed;**
- **The right drugs are taken irregularly or not for long enough.**

MDR-TB has been found on every continent. The 2000 report of the WHO/IUATLD Global Project on Anti-tuberculosis Drug Resistance Surveillance has identified several countries where more than 4% of new TB cases are multidrug-resistant. The report also shows that **countries with poor TB control programmes have a higher prevalence of MDR-TB than countries with good TB control programmes.**

Other factors contribute to the development of MDR-TB. The availability of poor quality anti-TB drugs over the counter in some countries is a problem. Furthermore, when patients are not adequately supported or supervised during treatment, treatment is often interrupted or ends prematurely. Very few countries regulate the sales of such drugs, nor have regulations ensuring quality.

If we do not accelerate and expand our response to TB now and halt the emergence of drug-resistance, we could soon be thrust back into the pre-antibiotic era.

## Chapter Two

# Tuberculosis: a barrier to development

*Shehab Ali never went to school, so he was determined that his sons and daughter should receive an education. Shehab, a rickshaw puller, struggled to earn enough so that his children could go to school, but when he discovered he had TB and became too ill to work, his 15-year old son was forced to leave school and take up his father's trade. "But he is new and does not know many places," explained his concerned father. "He cannot get many passengers." Shehab has also taken his ten-year old daughter out of school and she is working in a factory. Shehab and his family are hungry; they are having to subsist on half the rice they need everyday, so his two other sons will also leave school and go out to work.*

Shehab Ali is typical of parents the world over; he wanted his children to have a better life than him, and he recognized that education opens doors to opportunities. But TB has cast its shadow across their path and blocked their potential to progress. This is a story which is repeated daily across the developing world.

Because more than three-quarters of people with active TB are in the economically active age group (15 to 54), the economic and social costs to them and society are huge. They are the income providers for their families. They are the parents of young children who need their economic and emotional support in order to thrive. They have elderly parents and relatives who depend on them. They are the citizens whose productivity and talents are essential to their countries' development. The result of TB is that access to opportunities and choices—a key principle of human development—is blocked.

### **Economic toll of TB**

**TB imposes a considerable economic toll on patients and their families. These are often larger than the direct costs to the health ministry and, if ignored, lead to an under-estimation of the total cost of TB to a country's development.<sup>6</sup>**

### **1 Economic costs to patients**

The direct costs to the patients who receive TB treatment vary, depending on whether patients use private practitioners or, if they use public health services, whether these are fee-paying or free. Other, again variable, direct costs include travel to health centres and food when they stay in hospital.

It is inevitably the poorest families which are hit hardest. A survey of TB patients in Thailand<sup>7</sup> found that for households which already existed below the poverty line, out-of-pocket expenditure for the diagnosis and treatment of the disease amounted to more than 15% of annual income.

The largest indirect cost to TB patients is loss of income, and this can be devastating. Research suggests that, on average, about three to four months of work time are lost, resulting in a reduction in annual household incomes of between 20% to 30%<sup>8</sup>.

Income loss is much higher when people have delayed seeking treatment and so remain ill and unable to work for a longer period of time. But that delay usually occurs because people cannot afford any extra expense—the costs of travel to a clinic can be considerable, as well as the time off work whilst making the journey. People with low incomes, especially those in rural areas, frequently have to travel further or longer than those who are better off to reach the first level of care. For example, patients in Bombay spent nearly 10% of their income travelling twice a month to a clinic to collect their drugs<sup>9</sup>.

### FACTS ABOUT COUNTRIES

**In Bangladesh,** some locals call TB the “King’s disease”—because only kings can afford to contract it. By the time patients presented for treatment at the public TB clinic in Bangladesh, some had already spent US\$ 130 for private sector treatment and lost an average of 14 months of work time.

**In India,** the estimated economic cost of TB is US\$ 3 billion per year. The costs to the patient for diagnosis and successful treatment average US\$ 100 to US\$ 150, more than half of the annual income of a daily wage labourer.

**In Uganda,** a study showed that 80% of wage earners had to stop work because of their illness and 95% of subsistence farmers reported lower productivity for the same reason. The average time lost was over nine months and average income lost US\$ 161 or 89% of Gross Domestic Product (GDP) per capita.

## 2 Costs of private health care

In many developing countries, people with symptoms first seek advice and treatment from a private practitioner or a traditional healer.

The direct cost of private health care varies. In Malawi, for example, cash payments were relatively low, while in four northern districts of Bangladesh, researchers<sup>10</sup> found that patients spent on average US\$ 130 on private treatment before they visited the public TB clinic. That sum is almost 20% of the annual income of a Bangladeshi household.

Patients seeking a diagnosis often shop around among private practitioners, which adds to the cost. They may have to pay for X-rays (extensively used as a diagnostic tool in the private sector) and expensive nutritional supplements.

There is also an indirect cost: as people shop around they often remain sick, work at a less efficient/ profitable pace, or are unable to work at all. As a result of shopping around, diagnosis and treatment are delayed, people remain infectious and risk transmitting infection to their families or to other people in their community. And of greatest concern is the risk of ineffective or incomplete treatment which can lead to drug-resistant TB.

**Premature death from TB is the most significant loss.**

### 3 In debt for the future

Poor families have no buffer against loss of income—no savings and very limited access to borrowing. The way they cope with this economic adversity may provide short-term benefits—that is, cash—but in the longer term makes them and their children destitute. The sale of assets, such as land, is a common response to large medical expenses. In northern Bangladesh, almost 40% of households affected by TB sold assets—livestock or land.

Already hard-stretched budgets must be cut, often by reducing the family's food intake. This is clearly detrimental to health: poor nutrition affects a child's capacity to learn, and childhood malnutrition can have a lifelong impact, resulting in premature illness and mortality. Many families go into debt. Research in India<sup>11</sup> showed that 20% of rural patients and 40% of urban patients borrowed money to pay for expenses due to TB. Another Indian study (in Tamil Nadu) found the percentage of indebted households to be much higher; 75% of urban patients and 67% of rural. The average amount borrowed was US\$ 59, or 12% of annual household income.

One common coping strategy has major repercussions for development. Families often take children (especially girls) out of school in order to help at home or to find paid work outside the home. In Tamil Nadu, India, for example, 11% of children whose parents became ill were withdrawn from school and 8% took paid work. Children may never return to school in these circumstances, reducing their opportunities to lead a better life.

### 4 Costs to countries

The costs of this disease to individual countries are overwhelming—the loss of 50 million potentially healthy and productive years annually, loss of potential tax revenue, rising costs of health services. These costs will rise even more if there is a failure to tackle the problems of the HIV co-infection and of drug-resistant tuberculosis.

## 5 Emotional and social costs

It hardly needs stating that there is an emotional cost to illness. Family members suffer when they see a loved one in pain. Parents feel guilt when they cannot provide for their families, and children suffer from emotional neglect when their parents are very ill.

Bereaved adults and children are more likely themselves to fall ill and possibly die, especially if they are poor. There is a strong correlation between parental and infant mortality. A study of children under the age of ten in Bangladesh<sup>12</sup> found that over a period of two years following the death of a mother, mortality rates of bereaved children were twice as high for boys and three times as high for girls, compared to children whose mothers were alive.

Children bear the brunt of the indirect costs of the disease experienced by their family when one or both parents becomes sick. Children experience even greater poverty as income falls and assets are sold. They risk malnutrition (and its lifelong deleterious effects) as household budgets are cut. They are taken out of school to help at home, or sent out to work to supplement a non-existent income.

## 6 Discrimination

A further cause of acute psychological suffering is the stigma which surrounds TB in many societies. This stigma may derive from traditional beliefs held about the disease. In some cultures, TB is thought to be the result of either previous wrongdoings, unhygienic habits and lifestyles, witchcraft or poisoning<sup>13</sup>. In the Philippines, some TB patients have preferred to say they were ill with cancer because that is more socially acceptable.

This cruel stigmatization can have major and long-lasting effects; patients and their family are rejected by the wider family and friends. They may lose their jobs or receive insufficient social support during treatment, support which can be critical to a patient's adhering to treatment. Without it, relapse and death are more likely.

**“One day my cousin who lives in my village told me that I cannot sleep in the house and I have to sleep outside. This made me very sad, I even wept.”**

*TB patient, India*

## 7 TB and women

Worldwide, some 900 million women of reproductive age are infected with tuberculosis, and at least 2.5 million develop active TB every year. TB kills more women every year than all the causes of maternal mortality combined.

The social costs to women are huge. Although the stigma of TB attaches itself to both men and women in many societies, its impact on women is stronger. Men are less likely to be

rejected, whereas married women with TB are often cast aside by their husband and his family. Single women with TB are frequently deemed unmarriageable.

In-depth interviews with sixteen TB patients who attended a clinic in Bombay<sup>14</sup> revealed that men's worries about being sick were different from those of women. Men were concerned about loss of wages, financial difficulties, reduced capacity for work, poor job performance and the consequence of long absences from work. Married women were anxious about rejection by husbands and harassment by in-laws. In Pakistan<sup>15</sup>, married women often plead to their physicians not to reveal the diagnosis of TB to their husbands. Some women hide their drugs from their husbands and try, usually unsuccessfully, to conceal their illness.

**Every year in India more than 300 000 children leave school because of their parents' TB. More than 100 000 women are rejected every year by their families because of TB.**

### **Bushra's story—She was rejected by her husband and his family**

*Bushra died of TB aged 26. She weighed barely 28 kg by then, having continued to steadily lose weight for a couple of years. "Her coffin weighed no more than a sparrow's", said her grieving mother, Hameeda. Visitors to her parents' two-roomed house in Lahore, where she lay listlessly since being brought back from the hospital in July, barely recognized the vivacious bride of just two and a half years earlier when she was wedded to her first cousin in Sargodha town, six hours drive from Lahore. Hameeda believes that her daughter died due to neglect and psychological abuse stemming from her TB disease.*

*"She came to visit us one year after her marriage and we were shocked at her appearance. We took her to see a doctor who took X-rays and various tests. She tested negative for TB but the doctor warned that she was very weak and would be susceptible to TB. He prescribed a three-month treatment to prevent this. We got the medicines he prescribed but the very next day her in-laws came and took her back. We protested—but they didn't listen."*

*Bushra's in-laws are a family of "hakeems", traditional healers. They said they did not believe in allopathic medicine (though when their son, Bushra's husband, had been ill with meningitis, he had been treated by allopathic doctors). Her health steadily deteriorated and her mother was finally allowed to take her back home to Lahore. They had to shoulder the expense.*

*Bushra saw more than one doctor and was prescribed different regimens of drugs. In the 11 months she was with her family, her treatment cost them US\$ 4 000 which they scraped together by borrowing, selling her mother's jewellery and using up their entire savings.*

Women who are rejected and receive no support are likely to suffer from anxiety or depression. Their choices in life are even more constrained, even when they are no longer sick, because of their social isolation. Without a husband and close family, they end up on the margins of society, alone and often poor.

Women are less likely to seek advice for their symptoms because they often cannot travel to a health centre; their husbands may not allow them to go, they may not have the money for travel or any costs of treatment, or they may feel they cannot give up the time from their household or child-caring duties. The fear of stigma also explains, in part, why many women do not seek treatment early for their symptoms and why many may remain undiagnosed.

Women have long since learned to stifle their problems and to live with the “culture of silence”. In many countries, they accept the lowly status that the family and society confer on them and continue to bear the burden of homekeeping, childbearing and rearing. When necessary, they employ themselves into the labour force and contribute to the family income. “This multiplicity of roles leaves the woman little luxury to fall sick and require attention.”<sup>16</sup>

## Chapter Three

# Effective TB control can break the cycle

*Improved health contributes to economic growth in four ways: it reduces production losses caused by worker illness; it permits the use of natural resources that had been totally or nearly inaccessible because of disease; it increases the enrolment of children in school and makes them better able to learn; and it frees for alternative uses resources that would otherwise have to be spent on treating illness.*

*"Investing in Health", World Bank Report, 1993*

Effective TB control can help break the cycle of poverty and disease. It cures people and returns them to an active, productive life, which in turn benefits their children and contributes to the economic and social development of their country. As more people are cured, the cycle of transmission is broken and fewer people are infected. Ultimately, this leads to fewer cases of active TB.

TB control is rated by the World Bank as one of the most cost-effective health interventions because of its potential to avert a large percentage of the global disease burden; its low cost for each year of healthy life saved; the low annual cost per capita; and the potential impact on socially excluded and poor people.

The most cost-effective TB treatment strategy is DOTS. The strategy was adopted by WHO in the 1990s, based on available and well-researched treatment programmes worldwide. It costs between US\$ 3 and US\$ 7 for each year of healthy life saved, it has high cure rates and it has been proved successful in countries throughout the world.

### 1 High cure rates

In DOTS programmes, almost twice as many patients successfully complete their treatment compared with those in non-DOTS programmes. The cure rates for DOTS programmes are consistently high, even in countries which vary considerably in terms of culture, geography and socioeconomic conditions. There are successful projects in parts of Mongolia, for example, where a widely scattered population faces major barriers to health care. DOTS has shown high cure rates across the world from New York City to Peru, South Africa to Viet Nam. In China, the DOTS strategy covers more than 560 million people. Since DOTS programmes started there, cure rates have doubled to over 95%.

Flexibility is essential for the success of DOTS. In the four provinces of Sulawesi, Indonesia, four pilot projects were initiated in 1993. The project staff considered daily

attendance at a health centre not feasible for all patients, because of the distance they would have to travel, the costs of the transport, and because they would not wish to lose working hours.

Patients were instructed to identify a household member or other person in the community to supervise their treatment daily, in addition to their weekly supervised dose at the health centre. After three years<sup>17</sup>, the treatment was seen to be highly effective; 93% of new smear-positive patients were successfully treated.

## 2 DOTS is cost-effective

There are two sets of costs—those to the provider, that is, health services, and those to the user—the patient and his or her family. Both have to be taken into account in order to measure the cost-effectiveness of a treatment strategy.

A review of the literature on the cost-effectiveness of TB control programmes (only those of relevance to low and middle income countries were included)<sup>18</sup> concludes that there is “consistent evidence” that DOTS type programmes of treatment are more cost-effective for both the provider and the household. As might be expected, outpatient care is much less expensive than hospital-based care.

A study in Uganda<sup>19</sup> compared the costs of the programme combining hospital care with outpatient follow-up to a DOTS programme that replaced hospital with ambulatory care and expanded education and supervision. The cost per cure for the conventional treatment was US\$ 646 and for DOTS, US\$ 280. Almost all of the difference is due to lower costs to the patient; by avoiding a stay in hospital, he or she loses less income.

In the beginning of a DOTS programme, the costs to the health service are likely to be higher because more efficient case-finding will initially result in a higher number of patients to be treated. But as more cases are detected and successfully treated, there will be eventual cost decreases as people are cured and less infection is spread throughout the community. An additional saving from the success of DOTS programmes is preventing the development of drug-resistant strains of TB. As discussed in *Chapter One*, the costs of drug-resistant TB—especially if the resistance is to more than one drug—are very high, 100 times the cost of treating drug susceptible TB.

### *Effective TB control*

**If we are to break the cycle of poverty and TB, and reverse its impacts on development, we need:**

- **The political will to implement and resource effective TB control. Governments must show their commitment at the highest level and recognize that TB is a problem for the whole of their society. All sectors must be involved in combating this barrier to development;**
- **Partnerships— with UN agencies, NGOs, donors, and the private sector;**
- **Research into new drugs, diagnostic techniques and vaccines.**

### 3 Conclusion

#### *The evidence is clear*

If countries act quickly to implement effective anti-TB programmes, obstacles to development can be removed, and losses due to TB—deaths, lowered productivity rates, overburdened health services—gradually reversed.

When people are successfully treated, they can return to work, providing for themselves and their families, and contributing to their countries' economic growth. Health services benefit in many ways; as the number of TB cases drop, services can be allocated to other groups of patients and to other diseases, people have more faith in services as they see people cured of TB, and the technical aspects of DOTS—training, careful record-keeping and monitoring, for example—are valuable catalysts to strengthen the overall capacity of the health system to respond to other health needs.

#### *We must act now to Stop TB*

Despite the overwhelming evidence of the effectiveness of DOTS throughout the world, only 21% of people sick with TB receive DOTS treatment. Many countries have implemented pilot projects in several districts but few have implemented the strategy countrywide.

Seven years since WHO declared TB a global emergency and several million preventable deaths later, countries are failing to invest in a cost-effective cure that not only save lives, but also opens the door to opportunities. This is one of the soundest development policies for countries struggling to pull themselves out of poverty.

TB affects peoples' choices at many levels. The economic costs of the disease throw families into poverty and for many others perpetuate poverty. Children lose out on the possibility of a healthy diet, education and the emotional nourishment which is essential for their future well-being. Women's opportunities for empowerment and social change fade away in the face of prejudice and discrimination.

**Of the US\$ 60 billion spent worldwide annually on health research by both public and private sectors, only about 10% is spent on 90% of the world's health problems — those which affect the poorest people.<sup>20</sup>**

**The saddest part of this tale is that the epidemic did not have to arise. The four-drug treatment for curing the disease at its source—in the person infected—has been available since the 1970s, and has been proved effective in a number of countries.**

**The world community could thus ask why it allowed this problem to reach epidemic proportions.<sup>21</sup>**

If development is indeed the process of expanding the real freedoms that people should enjoy—the freedom to enjoy a long, healthy and creative life, to access decent education and health care facilities—TB is a major obstacle to development for individuals and their families, communities and countries.

Given the evidence of an effective strategy to cure and prevent TB, against the threat of emerging drug-resistance and the accelerated spread of TB due to HIV, **governments, NGOs, civil society and international organizations cannot afford to be complacent in their collective response to TB.**

***Would any successful business ignore such evidence in deciding what strategies to pursue?***

## References

1. *World Development Report*. Washington, The World Bank, 1993.
2. Diagnosing challenges. Health and the new millennium. Panos briefing No. 36, September 1999.
3. Human Development Report 1999. United Nations Development Programme (UNDP).
4. Dye C *et al.* Global Burden of Tuberculosis. *Journal of the American Medical Association*, 1999, Vol. 282, No. 7.
5. Blinkhoff P, Bukanga E *et al.* *Under the mupundu tree. Volunteers in home care for people with HIV/AIDS and TB in Zambia's Copperbelt*. ActionAid, 1999.
6. Ahlburg D. *The economic impacts of tuberculosis*. Geneva, World Health Organization (WHO), unpublished document.
7. Kamolratanakul P, Sawert H *et al.* Economic impact of tuberculosis at the household level *International Journal of Tuberculosis and Lung Disease*, 1999, **3(7)**:1–7.
8. Ahlburg DA. *ibid.*
9. Chakraborty AK, Rangan S and Uplekar M. *Urban tuberculosis control: problems and prospects*. Bombay, the Foundation for Research in Community Health, 1995.
10. Croft RA and Croft RP. Expenditure and loss of income incurred by tuberculosis patients before reaching effective treatment in Bangladesh. *International Journal of Tuberculosis and Lung Disease*, 1998, **2**:252-254.
11. Uplekar M, Juvekar S and Morankar S. *Tuberculosis patients and practitioners in private clinics*. Bombay: the Foundation for Research in Community Health, 1996.
12. *Investing in health*. The World Bank, 1993.
13. Ustianowski A, Mwaba P, and Zumla A. *Tuberculosis—An interdisciplinary perspective*. Eds Porter & Grange, Imperial College Press, 1999.
14. Hudelson P. *Tuberculosis—An interdisciplinary perspective*. Eds Porter & Grange, Imperial College Press, 1999.
15. Liefoghe R. *Gender and tuberculosis*. Eds Diwan, Thorson & Winkvist, Nordic School of Public Health, 1998.
16. Rangan S, Uplekar M. *ibid.*
17. Becx-Bleumink M, Djameluddin S *et al.* High cure rates in smear-positive tuberculosis patients using ambulatory treatment with once-weekly supervision during the intensive phase in Sulawesi, Republic of Indonesia. *International Journal of Tuberculosis and Lung Disease*, 1999, **3(12)**:1066-1-72.
18. Fryatt RJ. Review of published cost-effectiveness studies on tuberculosis treatment programmes. *International Journal of Tuberculosis and Lung Disease*, 1997, **1(2)**:101–109.
19. Saunderson PR. An economic evaluation of alternative programme designs for tuberculosis control in rural Uganda. *Social Science and Medicine*, 1995, **40**:1203-1212.
20. Gwatkin D and Guillot M. *The burden of Disease Among the Global Poor*. Washington, The World Bank 2000.
21. *The world Economic and Social Survey*, United Nations, 1997.



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