

WHO-Facts Sheet

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1. HEADACHE DISORDERS

Various forms of headache, properly called headache disorders, are among the most common disorders of the nervous system. They are pandemic and, in many cases, life-long conditions.

Headache itself is a painful and often disabling feature of a relatively small number of primary headache disorders. It also occurs secondarily to a considerable number of other conditions. A wide range of headache types have been classified in detail by the International Headache Society (table I). The most common among them - tension-type headache (TTH), migraine, cluster headache and the so-called chronic daily headache syndromes - cause substantial levels of disability. Headache has been and continues to be underestimated in scope and scale, and headache disorders remain unrecognized and under-treated throughout the world.

A worldwide problem

Although the epidemiology of headache disorders is only partly documented, taken together, headache disorders are extraordinarily common. Population-based studies have mostly focused on migraine which, although the most frequently studied, is not the most common headache disorder. Other types of headache, such as the more prevalent TTH and sub-types of the more disabling chronic daily headache, have received less attention. Few population-based studies exist for developing countries where limited funding and large and often rural populations, coupled with the low profile of headache disorders compared with other diseases, prevent the systematic collection of information.

In developed countries, TTH alone affects two-thirds of adult males and over 80% of females. Extrapolation from figures for migraine prevalence

and attack incidence suggests that 3000 migraine attacks occur every day for each million of the general population. Less well recognized is the toll of chronic daily headache: up to one adult in 20 has headache every, or nearly every, day.

Not only is headache painful, but headache disorders are also disabling. Worldwide, according to the World Health Organization (WHO), migraine alone is 19th among all causes of years lived with disability (YLDs). Headache disorders impose recognizable burden on sufferers including sometimes substantial personal suffering, impaired quality of life and financial cost. Repeated headache attacks, and often the constant fear of the next one, damage family life, social life and employment. For example, social activity and work capacity are reduced in almost all migraine sufferers and in 60% of TTH sufferers.

The long-term effort of coping with a chronic headache disorder may also predispose the individual to other illnesses. For example, depression is three times more common in people with migraine or severe headaches than in healthy individuals.

Table 1.
International classification of headache disorders

Primary

1. Migraine, including:
 - 1.1 Migraine without aura
 - 1.2 Migraine with aura
2. Tension-type headache, including:
 - 2.1 Frequent episodic tension-type headache
 - 2.2 Chronic tension-type headache
3. Cluster headache and other trigeminal autonomic cephalalgias, including:
 - 3.1 Cluster headache
4. Other primary headaches

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Secondary

5. Headache attributed to head and/or neck trauma, including:
 - 5.2 Chronic post-traumatic headache
6. Headache attributed to cranial or cervical vascular disorder, including:
 - 6.2.2 Headache attributed to subarachnoid haemorrhage
 - 6.4.1 Headache attributed to giant cell arteritis
7. Headache attributed to non-vascular intracranial disorder, including:
 - 7.1.1 Headache attributed to idiopathic intracranial hypertension
 - 7.4 Headache attributed to intracranial neoplasm
8. Headache attributed to a substance or its withdrawal, including:
 - 8.1.3 Carbon monoxide-induced headache
 - 8.1.4 Alcohol-induced headache
 - 8.2 Medication-overuse headache
 - 8.2.1 Ergotamine-overuse headache
 - 8.2.2 Triptan-overuse headache
 - 8.2.3 Analgesic-overuse headache
9. Headache attributed to infection, including:
 - 9.1 Headache attributed to intracranial infection
10. Headache attributed to disorder of homeostasis
11. Headache or facial pain attributed to disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth or other facial or cranial structures, including:
 - 11.2.1 Cervicogenic headache
 - 11.3.1 Headache attributed to acute glaucoma
12. Headache attributed to psychiatric disorder

Neuralgias and other headaches

13. Cranial neuralgias, central and primary facial pain and other headaches, including:
 - 13.1 Trigeminal neuralgia
14. Other headache, cranial neuralgia, central or primary facial pain

Migraine

Migraine is a primary headache disorder with, almost certainly, a genetic basis. Activation of a mechanism deep in the brain causes release of pain-producing inflammatory substances around the nerves and blood vessels of the head. Why this happens periodically, and what brings the process to an end in spontaneous resolution of attacks, are to a large extent uncertain. Adults with migraine describe episodic attacks with specific features (Table 2), of which nausea is the most characteristic. Attack frequency is anywhere between once a year and once a week (most commonly once a month). In children, attacks tend to be of shorter duration and abdominal symptoms more prominent.

Table 2:
Specific features of Migraine

Headache	Moderate or severe in intensity; One-sided and/or pulsating
Aggravated by	Routine physical activity
Duration	Hours to 2-3 days
Accompanying symptoms	Nausea and sometimes vomiting and/or dislike or intolerance of normal levels of light and sound

Commonly starting at puberty, migraine most affects those aged between 35 and 45 years but can trouble much younger people, including children. European and American studies have shown that 6-8% of men and 15-18% of women experience migraine each year. A similar pattern is seen in Central and South America. Researchers in Puerto Rico, for example, have found 6% of men and 17% of women suffering from migraine. A survey conducted in Turkey revealed even greater prevalence in that country: 10% in men and 22% in women. The higher rates in women everywhere (2-3 times those in men) are hormonally-driven.

Migraine appears somewhat less prevalent, but still common, in Asia (3% of men and 10% of women) and in Africa (3-7% in community-based studies). Major studies have yet to be conducted. But for example in India, anecdotal evidence suggests similar levels. "High temperatures and light levels for more than eight months of the year, the heavy noise pollution, the Indian habit of not having breakfast, frequent fasting and eating rich, spicy and fermented food, are common triggers," says Dr K. Ravishankar from Mumbai, a leading specialist.

Tension-type headache (TTH)

The mechanism of TTH is poorly understood, although it has long been regarded as a headache with muscular origins. It may be stress-related or associated with musculoskeletal problems in the neck. TTH has distinct sub-types. As experienced by very large numbers of people, episodic TTH occurs, like migraine, in attack-like episodes. These usually last no more than a few hours, but can persist for several days. Chronic TTH, one of the chronic daily headache syndromes, is less common than episodic TTH but present most of the time: it can be unremitting over long periods. This variant of TTH is much more disabling. Headache in either case is usually mild or moderate and generalized, though it can be one-sided. It is described as pressure or tightness, like a band around the head, sometimes spreading into or from the neck. It lacks

the specific features and associated symptoms of migraine.

TTH often begins during the teenage years, affecting three women to every two men, and reaches peak levels in the 30s. Episodic TTH is the most common headache disorder, reported by over 70% of some populations. Its prevalence varies greatly. African community-based studies, for example, have found only 1.7% of the population affected, but cultural attitudes to reporting a relatively minor complaint may largely explain this finding. Chronic TTH affects 1-3% of adults.

Cluster headache (CH)

CH is one of a group of primary headache disorders (trigeminal autonomic cephalalgias) of uncertain mechanism that are characterized by frequently recurring, short-lasting but extremely severe headache. CH also has episodic and chronic forms. Episodic CH occurs in bouts (clusters), typically of 6-12 weeks' duration once a year or two years and at the same time of year. Strictly one-sided intense pain develops around the eye once or more daily, mostly at night, until the pain diminishes after 30-60 minutes. The eye is red and waters, the nose runs or is blocked on the affected side and the eyelid may droop. In the less common chronic CH there are no remissions between clusters. The episodic form can become chronic, and vice versa, but once CH has struck it may recur over 30 years or more.

Though relatively uncommon (affecting fewer than 1 in 1000 adults), CH is clearly highly recognizable. It is unusual among primary headache disorders in affecting six men to each woman. Most people developing CH are in their 20s or older.

Medication-overuse headache (MOH)

Chronic and excessive use of medication to treat headache is the cause of MOH, another of the chronic daily headache syndromes. A typical history of MOH begins with episodic headache - migraine or TTH. The condition is treated with an analgesic or other medication. Over time, headache episodes become more frequent, as does medication intake, until both are daily. A common and probably key factor in the development of MOH is a switch to pre-emptive use of medication. MOH is oppressive, persistent and often at its worst on awakening. What constitutes overuse is not clear. Suggested limits are the regular intake of simple analgesics on 15 or more days per month or of codeine- or barbiturate-containing combination analgesics, ergotamine or triptans on more than 10 days a month. In prevalence, MOH far outweighs all other secondary headaches. It affects up to 5% of some populations, women more than men.

Headache disorders and public health

While those suffering from headache disorders bear much of the burden, they do not carry it all. Because headache disorders are most troublesome in the productive years (late teens to 50s), estimates of their financial cost to society - principally from lost working hours and reduced productivity - are massive. In the United Kingdom, for example, some 25 million working- or school-days are lost every year because of migraine alone. TTH, less disabling but more common, and chronic daily headache, less common but more disabling, together cause losses which are almost certainly of at least similar magnitude. Headache rarely signals serious underlying illness; its public-health importance lies in its causal association with these personal and societal burdens of pain, disability, damaged quality of life and financial cost. Headache is high among causes of consulting medical practitioners. A survey of neurologists found that up to one-third of all their patients consulted because of headache - more than for any other complaint.

Headache ought to be a public health concern. Yet there is good evidence that very large numbers of people troubled by headache do not receive effective care. For example, in representative samples of the general populations of the United States of America and the United Kingdom, only half of those identified with migraine had seen a doctor for headache-related reasons in the previous 12 months, and only two-thirds had been correctly diagnosed. Most were solely reliant on over-the-counter medications.

Barriers to effective care

The common headache disorders require no special investigation and they are diagnosed and managed with skills that should be generally available to physicians. In theory, therefore, most headache can be optimally managed in primary care. The barriers vary throughout the world, but may be classified as clinical, social or political/economic.

Clinical barriers

Lack of knowledge among health-care providers is the principal clinical barrier. This problem begins in medical schools where there is limited teaching on the subject, the consequence of low priority accorded to it. It is likely to be even more pronounced in countries with fewer resources generally and, as a result, more limited access to doctors and effective treatments.

Social barriers

Poor awareness extends to the general public. Headache disorders are not perceived by the public as serious since they are mostly episodic, do not

cause death and are not contagious. In fact, headaches are often trivialized. These important social barriers inhibit people who might otherwise seek help from doctors. Surprisingly poor awareness exists even among people directly affected. A Japanese study found, for example, that many patients were unaware that their headaches were migraine, or that this required proper medical care. The low consultation rates in developed countries may indicate that many sufferers are unaware that effective treatments exist.

Political/economic barriers

Many governments, seeking to constrain health-care costs, do not acknowledge the substantial burden of headache on society. They might not recognize that the direct costs of treating headache are small in comparison with the huge indirect-cost savings that might be made (eg, by reducing lost working days), if resources were allocated to treat headache disorders appropriately.

Management and prevention of headache disorders

The great majority of headache disorders can be successfully managed. However:

- the sufferer must seek medical treatment;
- a correct diagnosis should be made;
- the treatment offered must be appropriate to the diagnosis;
- the treatment should be taken as directed;
- the patient should be followed up to assess the outcome of treatment, which should be changed if necessary.

The key in most areas of the world is education, which first should create awareness that headache disorders are a medical problem requiring treatment. Education of health-care providers should encompass correct recognition, diagnosis and treatment of common headache disorders.

What needs to be done?

The evident burden of headache disorders on individuals and on society is sufficient to justify a strategic change in the approach to headache management. In order to implement beneficial change, the following must be achieved globally:

- The prevalence of all common headache disorders in all regions of the world needs to be known, through further research where necessary. The disability burden of all headache, not just migraine, must be quantified. This can be achieved using WHO's disability-adjusted life years (DALYs) methodology, which measures years of healthy life lost both to premature mortality (YLLs) and to disability (YLDs).
- This information, as it is accumulated, should be employed to persuade health-care

providers in all regions of the world of the powerful humanitarian and socioeconomic arguments for change leading to better care for headache. To combat stigma, it should be used to increase public awareness of headache as a real and substantial health problem.

- Education, as the key to effective headache management, needs improving at all levels. In the case of the medical profession, this should begin in medical schools by giving headache disorders a place in the undergraduate curriculum that matches their clinical importance as one of the most common causes of consultation.
- Region-based demonstrational projects need to be set up in collaboration with WHO Regional Offices, bringing together country policy-makers and other key stakeholders to plan and set up headache-related health-care services appropriate to local systems and local needs. These projects will evaluate outcomes in terms of measurable reductions in population burden attributable to headache disorders.

These steps form the framework of the 'Global Campaign to Reduce the Burden of Headache World-wide', a joint action between WHO and the World Headache Alliance, International Headache Society and European Headache Federation.

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2. NEW REPORT ON GLOBAL PROBLEM OF ORAL DISEASES

Oral diseases such as dental caries (tooth decay), periodontitis (gum disease) and oral and pharyngeal cancers are a global health problem in both industrialized and increasingly in developing countries, especially amongst poorer communities. Announcing the findings of the *World Oral Health Report*, WHO said that an estimated five billion people worldwide had experienced dental caries.

"Worldwide, losing teeth is seen as a natural consequence of ageing, but it is in fact preventable," said Dr Catherine Le Gales-Camus, WHO's Assistant-Director General, Noncommunicable Diseases and Mental Health. "There is a perception that dental caries is no longer a problem in the developed world, but it affects 60-90% of schoolchildren and the vast majority of adults. Dental caries is also the most prevalent oral disease in several Asian and Latin American countries."

The impact of oral diseases in pain, suffering, impaired function and reduced quality of life, is

both extensive and expensive. Treatment is estimated to account for between 5-10% of health costs in industrialized countries, and is beyond the resources of many developing countries.

While it appears to be less severe in most African countries, the report states that with changing living conditions, dental caries is expected to increase in many developing countries in Africa, particularly as a result of the growing consumption of sugars and inadequate exposure to fluorides.

"In many developing countries, access to oral health care is limited and teeth are often left untreated, or extracted," said Dr Poul Erik Petersen, coordinator of WHO's Global Oral Health Programme. "In Africa, the dentist-to-population ratio is approximately 1:150,000, against about 1:2,000 in most industrialized countries. And while we have made limited progress in reducing tooth decay amongst younger people in the developed world, for many older people it remains a major source of pain and ill-health."

Globally, most children shows signs of gingivitis (bleeding gums) and among adults, the initial stages of periodontal disease are prevalent. Severe periodontitis, which may result in tooth loss, is found in 5-15% of most populations. In industrialized countries, studies show that smoking is a key risk factor for periodontal disease.

The prevalence of oral cancer is the eighth most common cancer of men worldwide. In south central Asia, cancer of the oral cavity ranks amongst the three most common types of cancer. However, sharp increases of oral/pharyngeal cancers have also been reported for several countries and regions such as Denmark, Germany, Scotland, central and Eastern Europe, and to a lesser extent, Australia, New Zealand, Japan and the USA. Smoking, smokeless tobacco, chewing betel, and alcohol use, are all risk factors.

In addition to addressing modifiable risks such as oral hygiene practices, sugar consumption, lack of calcium and micronutrients, and tobacco use, key elements include, addressing the major sociocultural determinants. These include: poor living conditions, low education level, as well as lack of traditions supporting oral health. Countries should ensure appropriate use of fluorides for prevention of dental caries, while unsafe water and poor hygiene are environmental risk factors for oral as well as general health.

Oral health systems need to be oriented to primary health care and prevention. WHO's Global School Health Initiative, which seeks to mobilize health promotion and education levels at local national, regional and global levels, has recently been strengthened by an oral health technical

document. Increasing emphasis has also been placed on targeting the elderly; by 2050, there will be two billion people over the age of 60, 80% of them living in the developing world. The Oral Health Programme will also make an important contribution to the early diagnosis, prevention and treatment of HIV/AIDS, which often shows up first in oral fungal, bacterial or viral infections and lesions.

"Poor oral health can have a profound effect on general health and the quality of life," said Dr Petersen. "The experience of pain, endurance of dental abscesses, problems with eating, chewing, and missing, discoloured or damaged teeth, has a major impact on people's daily lives and wellbeing."

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3. SUBSTANCE DEPENDENCE TREATABLE, SAYS NEUROSCIENCE EXPERT REPORT

Psychosocial, environmental, biological and genetic factors all play significant roles in dependence, says new report published by WHO

The World Health Organization (WHO) launched in March 2004, Neuroscience of Psychoactive Substance Use and Dependence, an authoritative report summarizing the latest scientific knowledge on the role of the brain in substance dependence. The report* is the first of its kind produced by WHO, and cites an explosion of advances in neuroscience to conclude that substance dependence is as much a disorder of the brain as any other neurological or psychiatric disorder.

Substance dependence is multifactorial, determined by biological and genetic factors, in which heritable traits can play a strong part, as well as psychosocial, cultural and environmental factors, says the report. It has been known for a long time that the brain contains dozens of different types of receptors and chemical messengers or neurotransmitters. The report summarizes new knowledge on how psychoactive substances are able to mimic the effects of the naturally occurring or endogenous neurotransmitters, and interfere with normal brain functioning by altering the storage, release and removal of neurotransmitters.

The report discusses new developments in neuroscience research with respect to craving, compulsive use, tolerance and the concept of

dependence. The report shows that psychoactive substances have different ways of acting on the brain, though they share similarities in the way they affect important regions of the brain involved in motivation and emotions. The report discusses how genes interact with environmental factors to sustain psychoactive substance-using behaviours. This knowledge is the basis of novel diagnostic tools and behavioural and pharmacological treatments.

The report urges increasing awareness of the complex nature of these problems and the biological processes underlying drug dependence. It also supports effective policies, prevention and treatment approaches and the development of interventions that do not stigmatize patients, are community based and cost-effective.

“The health and social problems associated with use of and dependence on tobacco, alcohol and illicit substances require greater attention by the public health community and appropriate policy responses are needed to address these problems in different societies,” says WHO Director-General Dr LEE Jong-wook. “Many gaps remain to be filled, but this important report shows that we already know a great deal about the nature of these problems.”

United Nations Office on Drugs and Crime (UNODC) data estimates about 205 million people make use of one type of illicit substance or another. The most common is cannabis, followed by amphetamines, cocaine and the opioids. Illicit substance use is more prevalent among males than females, much more so than cigarette smoking and alcohol consumption. Substance use is also more prevalent among young people than in older age groups. UNODC data shows that 2.5% of the total global population and 3.5% of people 15 years and above had used cannabis at least once in one year between 1998 and 2001.

“Substance dependence is a chronic and often relapsing disorder, often co-occurring with other physical and mental conditions,” said Dr Catherine Le Gal s-Camus, WHO’s Assistant-Director General, Noncommunicable Diseases and Mental Health. “While we still do not know to what extent it is curable - given the long-term alterations in brain functioning that result from substance abuse - we do know that recovery from dependence is possible through a number of effective interventions.”

The Global Burden of Disease (GBD) from the use of all psychoactive substances, including alcohol and tobacco, is substantial: 8.9% in terms of DALYs (Disability Adjusted Life Years). However, GBD findings re-emphasize that the main global health burden is due to licit rather than illicit substances.

Among the 10 leading risk factors in terms of avoidable disease burden cited in The World Health Report 2002, tobacco was fourth and alcohol fifth for 2000, and remains high on the list in the 2010 and 2020 projections. Tobacco and alcohol contributed 4.1% and 4.0%, respectively, to the burden of ill health in 2000, while illicit substances contributed 0.8%. The burdens attributable to tobacco and alcohol are particularly acute among males in the developed countries (mainly Europe and North America). Measures to reduce the harm from tobacco, alcohol and other psychoactive substances are thus an important part of the public health response, says WHO.

“The explosive growth in knowledge in neuroscience in recent decades has contributed new insights into why many people use psychoactive substances even though it causes them harm,” says Dr Benedetto Saraceno, Director of WHO’s Department of Mental Health and Substance Abuse. “The need for this report comes from these advances, which have shown that psychoactive substances, regardless of their legal status, share similar mechanisms of action in the brain, can be harmful to health and can lead to dependence. The public health impact is enormous and requires a comprehensive approach to policy and programme development.”

* The Neuroscience of psychoactive substance use and dependence report is a product of three years work involving the contributions of many experts from around the world. The project began in 2000 with a consultation in New Orleans, USA, during the Congress on Neuroscience. A meeting convened by WHO was attended by representatives of international societies and selected experts in the field. Twenty-five reviews were commissioned, completed and submitted and these formed the basis of the final report. Meetings were held in Geneva and Mexico to discuss the outline of the report and the background papers.

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4. TUBERCULOSIS

Infection and Transmission

Tuberculosis (TB) is a contagious disease. Like the common cold, it spreads through the air. Only people who are sick with TB in their lungs are infectious. When infectious people cough, sneeze, talk or spit, they propel TB germs, known as bacilli, into the air. A person needs only to inhale a small number of these to be infected.

Left untreated, each person with active TB disease will infect on average between 10 and 15 people every year. But people infected with TB bacilli will not necessarily become sick with the disease. The immune system "walls off" the TB bacilli which, protected by a thick waxy coat, can lie dormant for years. When someone's immune system is weakened, the chances of becoming sick are greater.

- Someone in the world is newly infected with TB bacilli every second.
- Overall, one-third of the world's population is currently infected with the TB bacillus.
- 5-10% of people who are infected with TB bacilli (but who are not infected with HIV) become sick or infectious at some time during their life.

Global and regional incidence

The following table shows the estimated TB incidence (the number of new cases arising each year) and mortality in each of the WHO Regions. The incidence of all forms of TB, the incidence of infectious (smear-positive) cases, and mortality are shown both as the total number of cases and as the rate per 100,000 population.

The largest number of cases occurs in the South-East Asia Region, which accounts for 33% of incident cases globally. However, the estimated incidence per capita in sub-saharan Africa is nearly twice that of the South-East Asia, at 350 cases per 100 000 population.

It is estimated that two million deaths resulted from TB in 2002 (Table). As with cases of disease, the highest number of estimated deaths is in the South-East Asia Region, but the highest mortality per capita is in the Africa Region, where HIV has led to rapid increases in the incidence of TB and increases the likelihood of dying from TB.

HIV and TB

HIV and TB form a lethal combination, each speeding the other's progress. HIV weakens the immune system. Someone who is HIV-positive and infected with TB is many times more likely to become sick with TB than someone infected with TB who is HIV-negative. TB is a leading cause of death among people who are HIV-positive. It accounts for about 13% of AIDS deaths worldwide. In Africa, HIV is the single most important factor determining the increased incidence of TB in the past 10 years.

WHO and its international partners have formed the TB/HIV Working Group, which develops global policy on the control of HIV-related TB and advises on how those fighting against TB and HIV can work together to tackle this lethal combination.

Table:

Estimated Tb Incidence and Mortality, 2002

WHO region	Number of Cases (Thousands)		Cases Per 100,000 Population		Deaths from TB (including TB deaths in people infected with HIV)	
	All forms (%)	Smear-positive	All forms	Smear-positive	Number (1000s)	Per 100,000 Population
Africa	2354 (26)	1000	350	149	556	83
The Americas	370 (4)	165	43	19	53	6
Eastern Mediterranean	622 (7)	279	124	55	143	28
Europe	472 (5)	211	54	24	73	8
South-East Asia	2890 (33)	1294	182	81	625	39
Western Pacific	2090 (24)	939	122	55	373	22
Global	8797 (100)	3887	141	63	1823	29

Drug-resistant TB

Until 50 years ago, there were no medicines to cure TB. Now, strains that are resistant to a single drug have been documented in every country surveyed; what is more, strains of TB resistant to all major anti-TB drugs have emerged. Drug-resistant TB is caused by inconsistent or partial treatment, when patients do not take all their medicines regularly for the required period because they start to feel better, because doctors and health workers prescribe the wrong treatment regimens, or because the drug supply is unreliable. A particularly dangerous form of drug-resistant TB is multidrug-resistant TB (MDR-TB), which is defined as the disease caused by TB bacilli resistant to at least isoniazid and rifampicin, the two most powerful anti-TB drugs. Rates of MDR-TB are high in some countries, especially in the former Soviet Union, and threaten TB control efforts.

From a public health perspective, poorly supervised or incomplete treatment of TB is worse than no treatment at all. When people fail to complete standard treatment regimens, or are given the wrong treatment regimen, they may remain infectious. The bacilli in their lungs may develop resistance to anti-TB medicines. People they infect will have the same drug-resistant strain. While drug-resistant TB is generally treatable, it requires extensive chemotherapy (up to two years of treatment) that is often prohibitively expensive (often more than 100 times more expensive than treatment of drug-susceptible TB), and is also more toxic to patients.

WHO and its international partners have formed the DOTS-Plus Working Group, which develops global policy on the management of MDR-TB, and facilitates access to second-line anti-TB drugs for approved projects.

TB in refugees and migrants

According to UNHCR, there were an estimated 20 million refugees and displaced and needy people in 2003. Many refugees originate from countries with high TB incidence rates. Poor nutrition and health mean that refugees are at particularly high risk of developing TB. Untreated TB spreads quickly in crowded refugee camps and shelters. It is difficult to treat mobile populations, as treatment takes at least six months and should ideally be supervised.

In many western European countries, and in the USA, over 50% of TB cases notified in 2001 were among people who were not born in the country and/or were not citizens of the country.

Effective TB control - DOTS

The internationally recommended approach to TB control is DOTS, an inexpensive strategy that could prevent millions of TB cases and deaths over the coming decade. The DOTS strategy for TB control consists of five key elements:

- government commitment to sustained TB control;
- detection of TB cases through sputum smear microscopy among people with symptoms;
- regular and uninterrupted supply of high-quality anti-TB drugs;
- 6-8 months of regularly supervised treatment (including direct observation of drug-taking for at least the first two months);
- reporting systems to monitor treatment progress and programme performance;

Once patients with infectious TB (bacilli visible in a sputum smear) have been identified using microscopy services, health and community workers or trained volunteers observe patients swallowing the full course of the correct dosage of anti-TB medicines. The most common anti-TB medicines are isoniazid, rifampicin, pyrazinamide, streptomycin and ethambutol.

Sputum smear testing is repeated after two months, to check progress, and again at the end of treatment. The recording and reporting system ensures that the patient's progress can be followed throughout treatment. It also allows assessment of the proportion of patients who are successfully treated, giving an indication of the quality of the program.

- The DOTS strategy produces cure rates of up to 95% even in the poorest countries.
- The DOTS strategy prevents new infections by curing infectious patients.
- The DOTS strategy prevents the development of drug resistance by ensuring that the full course of treatment is followed.
- A six-month supply of drugs for treatment

under the DOTS strategy costs as little as US\$ 10 per patient in some parts of the world. The World Bank has ranked the DOTS strategy as one of the "most cost-effective of all health interventions".

Implementation of DOTS worldwide

Since its introduction in 1991, more than 13 million patients have received treatment under the DOTS strategy.

By the end of 2002, all 22 of the countries with the highest number of TB cases, which together have 80% of the world's estimated incident cases, had adopted the DOTS strategy. In total, 180 countries were implementing the DOTS strategy, and 69% of the global population was living in parts of countries where the DOTS strategy was in place. In India alone, 740 million people (almost 70% of the total population) were living in parts of the country where the strategy had been implemented by August 2003.

In 2001, the Global DOTS Expansion Plan was published. The two pillars of the plan are the development of medium-term (at least 5-year) plans for TB control in all countries, and the establishment of national interagency coordination committees (NICCs). All 22 countries with the highest number of cases had formulated plans by the end of 2003, and all but two had NICCs that met regularly.

Global targets

WHO targets, ratified by the World Health Assembly in 1991, are to detect 70% of new infectious TB cases and to cure 85% of those detected by 2005. Eighteen countries had already achieved these targets in 2002. Globally, 37% of the estimated number of TB patients received treatment under the DOTS strategy in 2002, two and a half times the fraction reported in 1995. The average success rate for treatment under the DOTS strategy was 82%.

Halving TB prevalence and death rates by 2015 are included among the United Nations Millennium Development Goals. These indicators have been estimated for all countries, but to date there are few countries where the impact of TB control has been studied in detail. Among these are Peru, where widespread implementation of the DOTS strategy for more than a decade, with a treatment success rate of 90%, has led to a decline in incidence and the prevention of an estimated 70% of deaths among infectious cases over the period 1991 to 2000. In half of China, where the DOTS strategy has been implemented progressively since 1991, prevalence fell 30% more than in the rest of the country.

The 2004 WHO report Global TB Control concluded that, in order to improve progress towards global targets, governments and national TB control programmes must take a more strategic approach to planning, match budget more closely with plans, and match fundraising activities to realistic budgets.

Related links

WHO Tuberculosis web site (www.who.int/gtb); Stop TB Partnership web site (www.stoptb.org)

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5. ROAD SAFETY IS NO ACCIDENT!

World Health Organization Calls for Action to Lower Death and Injury Toll on the World's Roads

Road crashes are the second leading cause of death globally among young people aged five to 29 and the third leading cause of death among people aged 30 to 44 years. Road crashes kill 1.2 million people every year and injure or disable as many as 50 million more. Without immediate action to improve road safety, it is estimated that road traffic deaths will increase by 80% in low- and middle-income countries by 2020. A joint report launched by the World Health Organization (WHO) and the World Bank today demonstrates that much can be done to reduce the toll of deaths and injuries and that "Road Safety is no Accident".

Thousands of people die on the world's roads everyday. We are not talking about random events or accidents. We are talking about road crashes. The risks can be understood and therefore can be prevented," said Dr LEE Jong-wook, Director-General, World Health Organization. "Road safety is no accident. We have the knowledge to act now. It is a question of political will," he added.

The magnitude of this growing global public health crisis, the risk factors that lead to road traffic deaths and injuries and effective ways to prevent them are detailed in the World report on road traffic injury prevention. The report provides governments and other policy-makers, industry, nongovernmental organizations, international agencies and individuals with concrete recommendations to improve road safety.

Unlike in high-income countries where those most at risk of injury or death are drivers and

passengers in cars, the people who are most at risk of being involved in a road traffic crash in low- and middle-income countries are pedestrians, cyclists, motorcyclists and users of informal modes of public transport.

Human and Economic cost

The human suffering caused by road crashes is huge. For every victim of a crash, there are family members, friends, and communities who must cope with the physical, psychological and economic consequences of the death, injury or disability of a loved one. Crash survivors and their families must cope with the painful and often long-term consequences of injury, disability and rehabilitation. In many cases, the cost of care, the loss of the primary breadwinner, funeral expenses, or the loss of income due to disability can drive a family into poverty.

The human suffering is in itself a reason to act now, but the economic impact is also significant. In low- and middle-income countries, the cost of road traffic injuries is estimated at US\$ 65 billion, exceeding the total amount these countries receive in development assistance. Road traffic injuries cost countries between 1% and 2% of gross national product, amounting to US\$ 518 billion every year.

Taking action makes a difference

However, many countries have already demonstrated that actions to improve road safety will protect people. Recent gains have been achieved in nations such as Colombia, Costa Rica, Ghana and Thailand. In past decades, tens of thousands of lives have been saved in Australia, Canada, New Zealand, the United States of America and others countries in Western Europe. This success is attributed to improving the design of vehicles and roads and focusing on legislation, enforcement and sharing of information about the use of seat-belts, helmets, and child restraints and about the dangers of speed and drink-driving.

Among the report's recommendations are the appointment of a lead agency in every country to coordinate multisectoral efforts, the preparation of national road safety strategies and plans of action with clear roles and objectives for each sector, and the implementation of proven interventions to prevent crashes and minimize injuries and their consequences. The report notes that road safety is a shared responsibility, and calls on the expertise of people across many sectors and disciplines, including public health professionals, health care providers, road and motor vehicle engineers, law enforcement officials and educators.

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