



## Chapter Six

# Neglected Global Epidemics: three growing threats

Today, the burden of deaths and disability in developing countries caused by noncommunicable diseases, particularly cardiovascular conditions, outweighs that imposed by long-standing communicable diseases. To tackle this well-recognized "double burden", this chapter proposes a "double response" which integrates prevention and control of both communicable diseases and noncommunicable diseases within a comprehensive health care system.

The chapter also examines the stealthy but rapid evolution of two other epidemics, and ways to respond to them. The globalization of tobacco-related diseases can be countered through the WHO Framework Convention on Tobacco Control. Simultaneously, the "hidden epidemic" of road traffic casualties and traffic-related environmental hazards can be reduced if developing countries adapt successful road safety and other improvements from elsewhere to meet their own needs.



# 6

## Neglected Global Epidemics: three growing threats

### Cardiovascular diseases: the need to act

Twenty-five years ago, when the delegates at the international Alma-Ata conference drew up a list of eight essential elements for primary health care, there was no mention of the treatment or prevention of conditions such as heart disease and stroke. The priority was to deliver adequate nutrition, safe water and basic sanitation, maternal and child health care, immunization against the major infectious diseases, the prevention and control of local endemic diseases, and the provision of essential drugs to the poorer countries of the world.

Cardiovascular diseases (CVDs) – heart disease and stroke – and other noncommunicable diseases were considered diseases of the industrialized countries – so-called “Western diseases” – brought about by ways of life utterly different from those in most of Africa, Asia and many other parts of the developing world. It is noteworthy, however, that as early as 1954 the delegate of India to the World Health Assembly called for steps to be taken towards the prevention of CVDs in developing countries.

The global health agenda is still dominated by the notion that communicable diseases need to be prevented and treated before CVDs receive attention. There is a lingering view that CVDs are mostly confined to wealthy people and are caused by natural ageing and degenerative processes. There persists a widespread belief that they are “lifestyle diseases”, fully under the control of individual decisions.

The reality is quite different. CVDs have not only emerged in all but the very poorest countries, but are already well advanced; this growing burden has real potential to hinder social and economic development. Risk factors are indicators of future health status, and five of the top 10 risks worldwide are specific to noncommunicable diseases (1). These include raised blood pressure, tobacco use, alcohol consumption, cholesterol, and obesity or overweight. This is part of the well-documented epidemiological transition called the “double burden” that sees the arrival of the whole group of noncommunicable diseases with their shared risk factors on top of the persisting threat of communicable diseases. As a consequence, health systems are now required that can deal comprehensively with all common diseases, irrespective of their origin.

As highlighted in Chapter 1, in today’s world most deaths are attributable to noncommunicable diseases (32 million) and just over half of these (16.7 million) are the result of CVD; more than one-third of these deaths occur in middle-aged adults. In developed countries, heart disease and stroke are the first and second leading causes of death for adult men and women.

These facts are familiar and hardly surprising. What is surprising, however, is that in some developing countries, CVDs have also become the first and second leading causes, responsible for one-third of all deaths (see Figure 6.1).

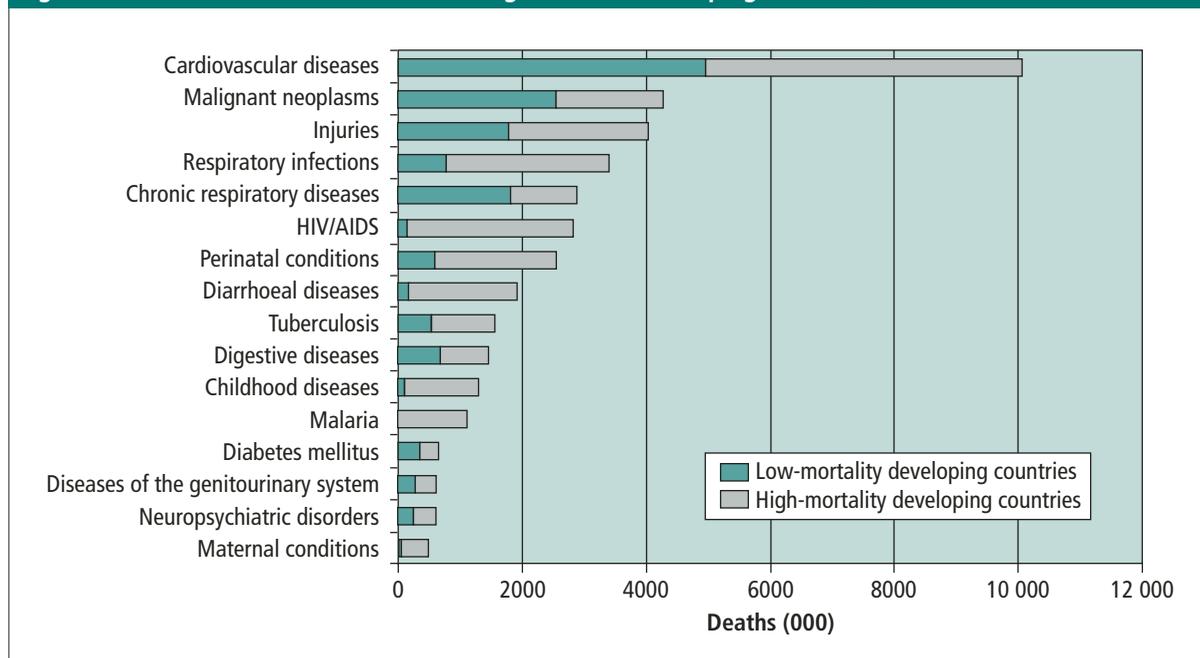
In fact, twice as many deaths from CVD now occur in developing countries as in developed countries. Overall, in developing countries, CVD ranks third in disease burden (after injuries and neuropsychiatric disorders). Even in high-mortality developing countries, CVD is ranked very high.

A particular cause of concern is the relatively early age of CVD deaths in developing countries compared with those in the developed regions (2). One in two of the CVD-related deaths in India occur below the age of 70 years, compared with one in five in economically well-developed nations. In both rural and urban areas of the United Republic of Tanzania, stroke mortality rates are three times higher than those in England and Wales. What is not often recognized is that, globally, CVDs account for as many deaths in young and middle-aged adults as HIV/AIDS.

This does not mean that communicable diseases have quietly gone away, require less funding, or are now safely under control. The advent of HIV/AIDS shattered that hope (see Chapter 3). Malaria and tuberculosis are among other enormous threats that remain and are growing. In addition, as pointed out in Chapter 5, new infectious diseases have been emerging at the rate of one a year for the last 20 years or more: SARS is the latest. So it is legitimate that public health communities remain vigilant towards infectious diseases, and that this vigilance begins with primary health care, in accordance with the Declaration of Alma-Ata. However, the world cannot afford to lose sight of the growing social and economic threats posed by CVD and other noncommunicable diseases.

Ironically, CVDs are now in decline in the industrialized countries first associated with them. But from that irony stems hope: the decline is largely a result of the successes of primary prevention and, to a lesser extent, treatment. What has worked in the richer nations – and

**Figure 6.1 Deaths attributable to 16 leading causes in developing countries, 2001**



especially for the most advantaged members of these societies – can be just as effective in their poorer counterparts.

There is now abundant evidence to initiate effective actions at national and global levels to promote and protect cardiovascular health through population-based measures that focus on the main risk factors shared by all noncommunicable diseases. The population-wide application of existing knowledge has the potential to make a major, rapid and cost-effective contribution to their prevention and control and to benefit all segments of the population (3).

The main issue for policy-makers, at all levels of public health in developing countries, is how to deal with the growing burden of epidemics of noncommunicable diseases in the presence of persisting communicable disease epidemics. Furthermore, this challenge must be faced even where health system resources are already inadequate. Although considerable policy gains can be made very cheaply, especially intersectorally, extra provision must be found. This requires a greater share of national resources for health care, better use of existing resources, and new sources of funding. A special tax on tobacco products for disease prevention programmes is a readily available source of new funds for most countries.

### The causes are known

The good news is that an impressive body of research has identified the causes of the CVD epidemics within populations (1). Global trade and marketing developments continue to drive the nutrition transition towards diets with a high proportion of saturated fat, sugar and salt. At the same time, protective elements like fibre and phytochemicals in fresh fruit and vegetables are being progressively depleted in diets. When combined with tobacco use and low levels of physical activity, this diet leads to population-wide atherosclerosis and the widespread distribution of CVDs. Variations in these same major risk factors explain much of the major difference in rates of CVDs between countries.

In summary, the major CVD risk factors of tobacco use, inappropriate diet and physical inactivity (primarily expressed through unfavourable lipid concentrations, high body-mass index, and raised blood pressure) explain at least 75–85% of new cases of coronary heart disease (4). In the absence of elevations of these risk factors, coronary heart disease is a rare cause of death. Unfortunately, the vast majority of the populations in almost all countries are at risk of developing CVD because of higher than optimal levels of the main risk factors. Only about 5% of adult men and women in wealthy countries are at low risk with optimal risk factor levels. There are only a few very poor countries in which these factors have not yet emerged as major public health problems.

### Policies are available

One of the most exciting possibilities to emerge in public health in recent years is the integration of communicable disease and CVD prevention and control into comprehensive health systems led by primary care. Bringing this to fruition will mean reshaping the future of primary health care in response to a changing world. It would see all patients being offered – across their lifespan – prevention, treatment and long-term management of both sides of the double burden.

Achieving such integration will not be easy. Apart from other considerations, it will require cooperation between professional rivals, who each regard their side of the double burden to be more important than the other, and who compete for their share of limited resources. Such competitiveness has long been entrenched across the battlefields of public health. And

yet, as the chapter of this report on SARS has shown, cross-disciplinary collaboration is not only possible but can be enormously rewarding to all concerned. In the case of this new epidemic, the world's best scientists, clinicians and public health experts were willing to set aside academic competition and work together for the public good – because the circumstances so clearly required it. Paradoxically, a matching policy response to tackle public health challenges of even greater magnitude is lacking: the mounting menace of the global CVD epidemic is evolving rapidly.

Another critical policy issue, especially for poor countries, concerns the appropriate balance between primary and secondary prevention and between the population and high-risk approaches to primary prevention. If the goal is to increase the proportion of the population at low risk and to ensure that all groups benefit, the strategy with the greatest potential is the one directed at the whole population, not just people with high levels of risk factors or established disease (5). All other strategies will, at best, only blunt the epidemics and likely increase inequalities; they will not prevent the epidemics. Even so, with ageing populations, health systems will continue to face the unrelenting demands of costly care, both acute and chronic (see Box 1.3 in Chapter 1).

The ultimate public health policy goal is the reduction of population risk, and since most of the population in most countries is not at the optimal risk level, it follows that the majority of prevention and control resources should be directed towards this goal in the entire population. Evidence is available in support of the cost-effective policies required for the task of making the small – but powerful and surprisingly rapid – shifts in risk distributions in entire populations in a favourable direction (1). Similarly, management decisions based on measures of overall risk are more cost-effective than those based on single risk factors.

Untold lives lost are lost unnecessarily because of inadequate acute and long-term management of CVD. Relatively cheap interventions for CVD are available (6), and single combination pills including aspirin and drugs for blood pressure and cholesterol lowering for possible use in chronic care are under development. Even in wealthy countries, however, the potential of these and other interventions for secondary prevention is far from fully utilized. The situation in poorer countries is even less satisfactory. There are many opportunities for coordinated CVD risk reduction, care and long-term management. Smoking cessation and the identification and management of diabetes, for example, are just two priorities. Cost-effective interventions, such as the use of aspirin in people with symptoms of chest pain, would prevent a quarter of the deaths associated with heart attacks and are much more cost-effective than more radical interventions such as revascularization procedures, which are inevitably restricted to a minority of patients with CVD.

### Acting now and measuring progress

There have been striking and rapid reductions in CVD death rates in wealthy countries – especially benefiting the wealthiest and most educated – because of comprehensive approaches including both improved prevention and the management of high-risk people. Policy interventions in developed and developing countries can lead to a surprisingly rapid response. In Mauritius, government action to encourage consumption of healthy oils resulted in a rapid decrease in population levels of blood cholesterol. In Finland, government agricultural subsidies were used to reduce dairy farming and increase berry production. And in Poland, increased consumption of fresh fruit and vegetables, consequent to changes in the policy environment, were associated with a sharp decline in CVD death rates. A WHO/FAO expert consultation report on diet, nutrition and the prevention of chronic diseases reviewed the

evidence and provided recommendations for nutrient intake goals for the prevention of CVD and other noncommunicable diseases (7).

A coherent policy framework, encompassing legislation, regulation and mass education is critical for CVD prevention and control, since individual behaviour change is difficult in the absence of conducive environmental alterations. A suggested stepwise framework for a comprehensive response to CVD prevention and control is outlined in Table 6.1 and can be modified according to national needs, goals and targets.

**Table 6.1 A stepwise approach for prevention and control of noncommunicable diseases**

Resource level	Population approaches		Individual high-risk approach
	National level	Community level	
<b>Step 1: Core</b>	<p>WHO Framework Convention on Tobacco Control (FCTC) is ratified in the country.</p> <p>Tobacco control legislation consistent with the elements of the FCTC is enacted and enforced.</p> <p>A national nutrition and physical activity policy consistent with the Global Strategy is developed and endorsed at Cabinet level; sustained multisectoral action is evident to reduce fat intake, reduce salt (with attention to iodized salt where appropriate), and promote fruit and vegetable consumption.</p> <p>Health impact assessment of public policy is carried out (for example: transport, urban planning, taxation, and pollution).</p>	<p>Local infrastructure plans include the provision and maintenance of accessible and safe sites for physical activity (such as parks and pedestrian-only areas).</p> <p>Health-promoting community projects include participatory actions to cope with the environmental factors that predispose to risk of noncommunicable diseases: inactivity, unhealthy diet, tobacco use, alcohol use, etc.</p> <p>Active health promotion programmes focusing on noncommunicable diseases are implemented in different settings: villages, schools and workplaces.</p>	<p>Context-specific management guidelines for noncommunicable diseases have been adopted and are used at all health care levels.</p> <p>A sustainable, accessible and affordable supply of appropriate medication is assured for priority noncommunicable diseases.</p> <p>A system exists for the consistent, high-quality application of clinical guidelines and for the clinical audit of services offered.</p> <p>A system for recall of patients with diabetes and hypertension is in operation.</p>
<b>Step 2: Expanded</b>	<p>Tobacco legislation provides for incremental increases in tax on tobacco, and a proportion of the revenue is earmarked for health promotion.</p> <p>Food standards legislation is enacted and enforced; it includes nutrition labelling.</p> <p>Sustained, well-designed, national programmes (counter-advertising) are in place to promote non-smoking lifestyles.</p>	<p>Sustained, well-designed programmes are in place to promote:</p> <ul style="list-style-type: none"> <li>• tobacco-free lifestyles, e.g. smoke-free public places, smoke-free sports;</li> <li>• healthy diets, e.g. low-cost, low-fat foods, fresh fruit and vegetables;</li> <li>• physical activity, e.g. "movement" in different domains (occupational and leisure).</li> </ul>	<p>Systems are in place for selective and targeted prevention aimed at high-risk populations, based on absolute levels of risk.</p>
<b>Step 3: Optimal</b>	<p>Country standards are established that regulate marketing of unhealthy food to children.</p> <p>Capacity for health research is built within countries by encouraging studies on noncommunicable diseases.</p>	<p>Recreational and fitness centres are available for community use.</p>	<p>Opportunistic screening, case-finding and management programmes are implemented.</p> <p>Support groups are fostered for tobacco cessation and overweight reduction.</p> <p>Appropriate diagnostic and therapeutic interventions are implemented.</p>

Adapted from: (8).

Unfortunately, in most countries the response to CVD prevention and control is still based on the infectious disease paradigm. Consequently, the global and national capacity to respond to CVD epidemics is woefully inadequate. Few countries have implemented comprehensive prevention and control policies (9) and development of capacity, especially for policy research, has not kept pace with the epidemiological transition. The gaps between the needs for CVD prevention and control and the capacity to meet them will grow even wider unless urgent steps are taken.

Global norms are needed to balance the otherwise unrestrained influences of powerful actors. To promulgate such norms, public health professionals need to learn how to influence the deliberations of bodies such as the World Trade Organization – where health issues are increasingly considered – and to develop stronger ways of dealing with products with health impacts. A combination of multistakeholder and intergovernmental codes and other non-binding measures may be required. The Framework Convention on Tobacco Control, described in the following section, is one example of a legally binding global norm.

WHO and governments cannot confront the challenges of CVD prevention and control alone. As with tobacco control, partnerships and interactions with international consumer groups and global commercial multinationals are essential. WHO is developing a Global Strategy on Diet, Physical Activity and Health as a strategic framework within which WHO and Member States can work together across sectors in preventing CVD and other noncommunicable diseases. This population-wide prevention strategy is based on extensive consultations with stakeholders: Member States, the United Nations and intergovernmental organizations, civil society and the private sector.

Globally, there is still only limited advocacy for the CVD prevention and control agenda. What there is tends to be fragmented. The lack of unified advocacy for health promotion

### Box 6.1 Measuring progress: integrated surveillance of noncommunicable disease risk factors

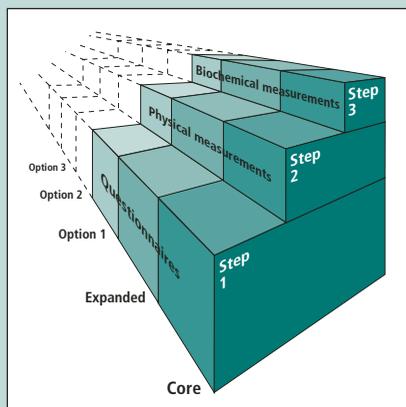
The goal of surveillance is to monitor emerging patterns and trends in major cardiovascular disease (CVD) and other noncommunicable disease (NCD) risk factors and to measure the effectiveness of prevention interventions in countries. Two tools have been developed for this purpose: the WHO STEPwise approach to Surveillance (STEPS) of noncommunicable disease risk factors (10) and the WHO Global NCD InfoBase (11).

STEPS is a sequential process, starting with gathering information on key health behaviours by the use of questionnaires (Step 1), then moving to simple physical measurements (Step 2), and only then recommending the collection of blood samples for biochemical assessment (Step 3). This framework builds a common approach to defining core variables for surveys, surveillance and monitoring systems. The goal is to achieve data comparability over time and between countries. The methodology has been developed in close collaboration with WHO regional offices and is easily adaptable to the needs of Member States. It offers an entry point for low-income and middle-income countries to

get started in surveillance and prevention activities for noncommunicable diseases. By increasing local capacity, STEPS aims to achieve data comparability over time and between countries. Many Member States have

now been trained in the STEPS methodology. The approach is designed to build on existing surveillance activities, but can also be introduced as a new methodology to countries where there are no surveillance systems currently in place. Data collected using the STEPwise approach is fed into the WHO Global NCD InfoBase.

The WHO Global NCD InfoBase is a database designed to hold existing country-level data on risk factors of noncommunicable diseases. Its strength is that the data can be displayed and used to derive a single best prevalence estimate for any given country. This approach allows transparency in the use of country data sources. It is a major improvement on previous WHO estimates, which, in the absence of such a relational database, relied on selected studies which may have excluded many available sources and lacked transparency.



compares poorly with the growing dominance of commercial and consumer groups who have placed treatment at the centre of health policy debates and funding priorities. Broader alliances of major health professional bodies, consumer groups and others are needed to promote the prevention of major risk factors for CVD and to track progress to agreed national and global goals – perhaps modelled on the Millennium Development Goals (see Box 6.1). Since the determinants of CVD are multisectoral, advocacy and action, too, must extend well beyond the health sector. The involvement of nongovernmental organizations in articulating the demand for speedy implementation of policies and programmes relevant to CVD control is critical for catalysing policy change and for mobilizing communities to ensure that the benefits flow to the entire population.

While the pace of globalization of the major risks for CVDs is increasing, progress towards CVD prevention and control is slow. Sustained progress will occur only when governments, international agencies, nongovernmental organizations and civil society acknowledge that the scope of public health activities must be rapidly broadened to include CVDs and their risk factors.

The challenge is to work towards the integration of prevention and control of both communicable diseases and CVDs, while acknowledging the different time scales of these epidemics and the competition for limited resources. A place must be found for the prevention and control of CVD on the agenda of health systems led by primary care. At Alma-Ata 25 years ago it was deemed unnecessary. Today, it is indispensable.

## Tobacco control: strengthening national efforts

The consumption of cigarettes and other tobacco products and exposure to tobacco smoke are the world's leading preventable cause of death, responsible for about 5 million deaths a year, mostly in poor countries and poor populations. Latest estimates reveal that, of the nearly 4 million men and 1 million women who died, over 2 million men and 380 000 women were in developing countries (12). The toll will double in 20 years unless available and effective interventions are urgently and widely adopted.

Globalization of the tobacco epidemic can undermine even the best national control programme. The epidemic is being spread and reinforced worldwide by a complex mix of factors with cross-border effects, including trade liberalization, foreign direct investment, and other factors such as global marketing, transnational tobacco advertising, promotion and sponsorship, and the international movement of contraband and counterfeit cigarettes. Recognition of this situation led to the adoption by 192 Member States at the World Health Assembly in May 2003 of the WHO Framework Convention on Tobacco Control (WHO FCTC). This, the first treaty negotiated under the auspices of WHO, constitutes a major turning point in tackling a major global killer: it signals a new era in global and national tobacco control activities. The FCTC is an evidence-based treaty that reaffirms the right of all people to the highest standard of health. It represents a paradigm shift in developing a regulatory strategy for addictive substances: in contrast to previous drug control treaties, the FCTC asserts the importance of demand reduction strategies as well as supply issues.

Major challenges lie ahead as WHO works with Member States to implement the agreement in countries. The process of the FCTC's creation also reveals the price paid for delay between vision and action. It has taken almost 10 years to bring the idea of such an instrument to fruition. During that time, more than 30 million people have died of tobacco-related illnesses, 70% of them in low-income and middle-income countries and half before the age of 70.

Those who died before 70 years of age lost, on average, 28 years of life (13). As entry into force of the Convention draws nearer, strengthening national capacity in tobacco control becomes an important public health priority in all countries.

This section looks forward to the timely ratification, entry into force, and implementation of the FCTC and the opportunities thus presented for further progress in national tobacco control. It also examines the challenges of building and strengthening national political, managerial and technical tobacco control capacity.

## Guiding tobacco control

Total tobacco consumption is on the rise. The number of smokers in the world, estimated at 1.3 billion today, is expected to rise to 1.7 billion by 2025 if the global prevalence of tobacco use remains unchanged (14). Every second smoker will die of a tobacco-caused disease. Until recently, the global response to this major public health challenge had been inadequate.

In May 2003 the World Health Assembly adopted by consensus the WHO Framework Convention on Tobacco Control (FCTC). Negotiated among WHO Member States over four years, this international legal instrument is designed to limit the harm to health caused by tobacco products. It comprises many diverse aspects of tobacco control, including: advertising, promotion and sponsorship; packaging and labelling; price and tax measures; sales to and by young persons; passive smoking and smoke-free environments; and treatment of tobacco dependence. The Convention represents a global minimum standard, and the future Parties to the Convention are encouraged by provisions in the treaty to go further and implement stricter measures. Furthermore, the negotiation of future protocols to the Convention by the Conference of the Parties will result in a treaty regime that will continue to evolve and to provide for more specific obligations on certain topics. The FCTC is a delicately balanced instrument adopted after vigorous negotiations, which took into account relevant scientific, economic, social and political considerations.

The FCTC's adoption by the World Health Assembly opens the treaty for signature and ratification by individual Member States. The Convention is available for signature from 16 June 2003 until 29 June 2004, and from 30 June 2004 for ratification.

The signing of the Convention indicates a Member State's intention to ratify the treaty but does not carry substantial obligations other than agreeing not to undermine the objective of the Convention; it provides, however, an important political commitment by a country to move towards ratification. Ratification provides the consent of a country to become legally bound by the treaty and commits it to implement the provisions of the treaty in good faith once the treaty enters into force. The Convention will come into force of law 90 days after the treaty has been ratified by 40 Member States. At that time, countries that have ratified it will be legally bound by its provisions. Countries that do not ratify the treaty are not obliged to implement its provisions.

Not all treaties provide for funding and technical assistance for the implementation of the instrument. The FCTC, however, belongs to the unique family of international agreements that undertakes to provide for such resources. The Convention commits Parties to provide funding for their national tobacco control measures, encourages the use of innovative national, regional and international funding mechanisms to provide additional resources for tobacco control, and leaves the question of the possible establishment of a voluntary global fund or other appropriate financial mechanisms to be determined in the future by the Conference of the Parties. As evidence of the power of the FCTC process, the issue of tobacco control has been placed firmly on the agenda of development funding as a priority.

As in the negotiation of the FCTC, tobacco control activists in health professions, concerned nongovernmental organizations and grass-roots groups have an important role on the international stage during the ratification process. They can continue to promote the ratification and implementation of the FCTC and the introduction of effective national legislation in support of the Convention.

## National policies and programmes

A comprehensive public health approach to tobacco control effectively prevents the beginning of tobacco use and promotes its cessation, through a range of measures including tax and price policy, restrictions on tobacco advertising, promotion and sponsorship, packaging and labelling requirements, educational campaigns, restrictions on smoking in public places and cessation support services. A comprehensive approach must include young people and women and reach the entire population.

National policies must also confront fresh challenges such as regulatory frameworks for new tobacco products that are just beginning to appear on the market. Moreover, with the adoption of the FCTC, the definition of a comprehensive tobacco control strategy has now been redefined to include the transnational components of tobacco control, as a complement to national and local measures.

Few countries have implemented the comprehensive measures needed to create a significant decline in tobacco use. The policy measures known to have the biggest impact on individual levels of consumption, cessation rates and initiation rates require sustained political will and engagement, and above all effective and well-enforced legislation.

The capacity for effective tobacco control is lacking in most countries. Most do not have the necessary infrastructure or human resources to sustain a basic tobacco control programme. As an example, few national governments have people working full-time on tobacco control. In many countries, civil society has not yet been mobilized around the issue, so even when governments have adequate political will to propose tobacco control measures, tobacco companies can easily oppose and weaken policies. Even where the ministry of health is supportive of action it may be unable to make its case successfully above the voices of other more influential ministries.

## Building national capacity

The success of the Convention largely depends on countries ratifying the treaty and implementing effective tobacco control measures. Building and strengthening national capacity in political, managerial and technical aspects of tobacco control is the key to a systematic multisectoral approach. Only this approach will ensure sustainable community and governmental action for comprehensive tobacco control efforts at the local, national and global levels.

Many countries have not yet developed national plans of action for tobacco control, largely because of lack of consensus and political commitment. Where such plans exist, policy instruments may remain ineffective because of weak enforcement. Governments and civil society need to be convinced that investing resources to prepare for tobacco control will reap benefits in the medium and longer term. Continuous monitoring of tobacco industry activities and strategies will be required to counteract the industry's manoeuvres to undermine tobacco control efforts. Strong political commitment and engagement are essential.

While the health sector is in large measure supportive of tobacco control, it cannot on its own bring the resources, expertise and political will needed to advance change. This requires support and commitment from all the relevant sectors in the national government. Tobacco control efforts are more likely to be sustained when incorporated into existing national, state and district-level health structures.

The expected outcome of building national capacity is a comprehensive, effective and sustainable strategy for multisectoral national tobacco control programmes and policies. Here, the role of WHO is to coordinate global expertise, enhance leadership, facilitate assistance to front-line efforts, and promote partnerships with governments and civil society to foster the implementation of more effective tobacco control strategies. Many success stories are available to guide countries; two are summarized in Box 6.2.

### Integrating tobacco control into health systems

Treatment of tobacco dependence is another possible policy measure in low-income and middle-income countries (17). As the projections in Figure 6.2 demonstrate, a mix of effective prevention and treatment measures will avert significantly more tobacco-caused deaths within the coming decades compared with prevention alone (18). Cessation programmes for adult smokers are essential for rapid population health improvements over the next 20–30 years, since the benefits of preventing young people from taking up smoking will become apparent only after several decades. The Global Youth Tobacco Survey showed that most young smokers in the Western Pacific Region wished to stop smoking (see Box 6.3).

The delivery of cost-effective treatment of tobacco dependence in most countries is hampered by many factors, including: the lack of integration of tobacco dependence treatment into health care systems; lack of skills of health care providers; high price of nicotine replacement therapy products and cessation services; and the strict regulation of such products. Support and greater access to treatment provided through the health care systems will help the poor populations who are most likely to smoke (19). All health providers must be involved, including oral health professionals who, in many countries, reach a large proportion of the healthy population. A supportive environment is essential to support smoking cessation programmes and this requires strong government action, for example, in the promotion of smoke-free environments and communication and awareness measures to reduce the social acceptability of tobacco use (20).

#### Box 6.2 Examples of successful tobacco control strategies

##### Tobacco excise taxation in South Africa

The past 10 years have witnessed a major shift in government policy on tobacco control in South Africa, which rests on two important pillars: legislation and excise tax increases. The government elected in 1994 announced an increase in tax on tobacco products to 50% of the retail price (at that point, excise taxes amounted to 21% of the retail price and the total tax burden was 32% of the retail price). In 1997, the Minister of Finance announced that the 50% target had been achieved. Subsequent tax increases were aimed at keeping the tax percentage at the same level. Over the past decade the real retail price has more than doubled: cigarettes, compared with a basket of other goods and services, have become very expensive. Along with other tobacco control interventions, tax increases have contributed to a 33% reduction in tobacco consumption. In addition, real government revenue from tobacco taxes has more than doubled (15).

##### Health warnings in Thailand

The first health warnings on cigarette packets in Thailand were introduced in 1974. Since 1989, many changes have been made to the messages, as an important component of a comprehensive control policy. The health warnings were improved in stages, with a greater variety of texts and stronger language. The number of rotating warnings has increased from one to twelve. The size of the warning area on cigarette packages and cartons has increased to one-third of the principal surfaces. A new set of pictorial health messages, occupying half of the front and back display areas, was prepared and submitted to the Ministry of Health in 2003 and is currently awaiting the approval of the Government of Thailand. Per capita cigarette consumption has been decreasing since the mid-1990s as a result of Thailand's comprehensive control policies (16).

One of the most advanced mixes of population-level smoking cessation initiatives is in New Zealand, where 50% of the indigenous population are smokers (21). Services include a national Quitline, subsidized nicotine replacement therapy, Maori-focused services including quitting support and therapy for Maori women and their families, and a hospital-based quitting service. Key factors in establishing programmes including cessation activities are media campaigns, an active tobacco control lobby, proactive policy analysts and a supportive government; tax increases also create incentives to help people to stop smoking.

The FCTC is a global response to the pandemic of tobacco-induced death and disease. The opening of the Convention for signature and ratification provides an unprecedented opportunity for countries to strengthen national tobacco control capacity. Success in controlling the tobacco epidemic requires continuing political engagement and additional resources at both global and national levels. The resulting improvement in health, especially of poor populations, will be a major public health achievement.

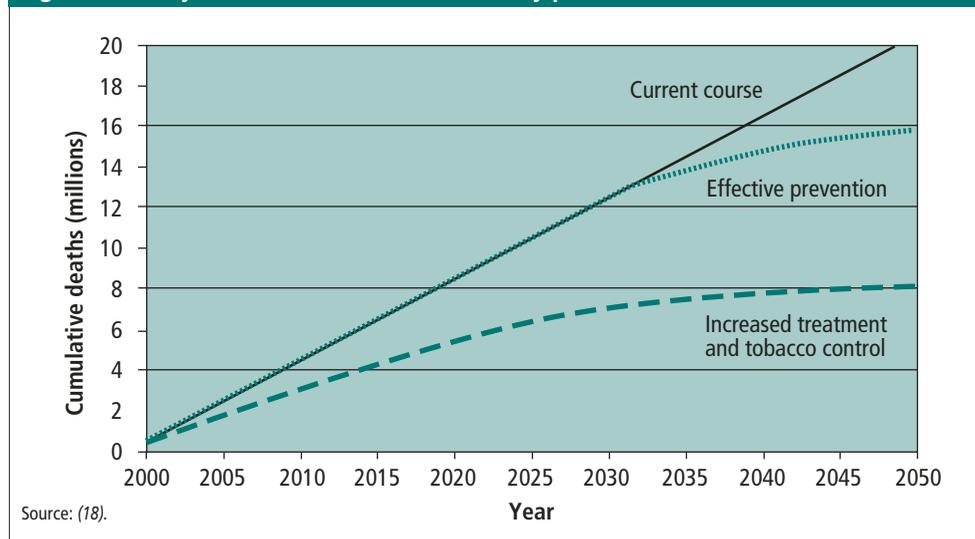
## Road traffic hazards: hidden epidemics

More than 20 million people are severely injured or killed on the world's roads each year. The burden falls most heavily on developing countries, where it will grow heavier still because of the rapid increase in the number of vehicles.

In addition to the direct costs of road injuries and deaths, the increase in the number of vehicles and reliance on certain transport policies have other serious health implications as well as wider social, economic and environmental impacts (22). In some countries, air pollution from road transport causes even more deaths than those resulting from traffic accidents (23). Besides the direct impacts on respiratory and heart disease, motorized transport produces around a quarter of the anthropogenic emissions of gases leading to climate change (24). These "hidden epidemics" receive relatively little national or international attention compared with the focus on major communicable and noncommunicable diseases.

To a large extent, road injuries are preventable. There are many available and affordable interventions that can prevent injuries and save lives: to date, most of the evaluation of these

**Figure 6.2 Projected tobacco-related mortality patterns**



interventions has been carried out in developed countries, and more research is needed on their effectiveness in developing countries. Renewed efforts are under way to increase worldwide awareness of the problem and its solutions and to encourage the introduction of road safety policies and practices. Several countries are using integrated strategies to deal with traffic risks and enhance the benefits of transport and land use policies to promote physical activity and cohesive projects for community development (25).

The epidemic of road traffic injuries in developing countries is still in its early stages, but it threatens to grow exponentially unless there is swift action to counter it (26). Low-income and middle-income countries already bear the brunt of 90% of the disability-adjusted life years (DALYs) lost to road traffic injuries and deaths. While fatality rates in high-income countries are declining, they are rapidly accelerating in the developing world, especially in Asia (27). The problem is so severe that, by 2020, road crash injuries are likely to represent the third leading cause worldwide of DALYs lost (28). By then, road traffic deaths are expected to increase by 92% in China and 147% in India, with an average increase of 80% in many other developing countries (29).

In addition to the unacceptable human toll, the global economic cost of road crashes has been estimated at about US\$ 518 billion annually, of which the developing country share is about US\$ 65 billion (27). Countries struggling for economic development clearly cannot afford such losses, which have a significant impact on national health care systems. Injuries account for approximately one-third of the acute patient load in many hospitals in low-income and middle-income countries, and between 30% and 86% of all trauma admissions (30); road traffic injuries constitute the majority of such admissions.

Although more than 3000 people are killed each day, full recognition of the scale of the problem is obscured because road crashes usually cause only a few deaths at a time and generate little press coverage, contributing to the hidden nature of the epidemic of road traffic injuries.

In contrast to some other epidemics, road traffic injuries are largely influenced by decisions and choices at both policy and individual levels, which means that the problem is amenable to control. Vehicles in developing countries are known to have a far more lethal impact than those in highly motorized countries – by as much as 200-fold in some cases (27). As the number of cars increases rapidly in developing countries, the roads are becoming significantly more dangerous; in the same way that the increased vehicle usage can be forecast, so can the expected deaths and injuries for vulnerable road users. A global commitment to bring

### Box 6.3 Tobacco and schoolchildren in the Western Pacific Region

Alarming high rates of tobacco use and exposure to second-hand smoke among schoolchildren aged 13–15 years in the Western Pacific Region are revealed by data from the first group of countries within the Region to complete the Global Youth Tobacco Survey. Many of these children started smoking before the age of 10, and an overwhelming majority want to quit but are unable to do so because of nicotine addiction.

The survey involved China, Fiji, the Northern Mariana Islands, Palau, the Philippines and Singapore. It found that in some parts of China, between 20% and 40% of children started smoking before they were 10 years old, compared with 14% in the Philippines, about 22% in Fiji and Singapore, and 31–32% in Northern Mariana Islands and Palau. Overall, between 35% and 65% had been exposed to others' smoke at home.

The desire to stop smoking was expressed by up to 87% of child smokers in China and 85% in the Philippines, and not less than 62% of all the children in the survey. These figures indicate an urgent need for interventions that target children and adolescents, to empower them to reject tobacco. For those already addicted, cessation strategies appropriate to this age group are imperative. In addition, there is a clear and pressing need for effective measures to ensure that children and young people are protected from the effects of second-hand smoke exposure. To protect children properly, WHO urges governments to establish comprehensive tobacco control programmes that adhere to the principles outlined in the Framework Convention on Tobacco Control.

this epidemic under control can succeed, but it will need intersectoral collaboration, targeted policies and national action plans. With an estimated 1.3 million fatalities each year from road traffic injuries, the opportunity of saving so many lives must be grasped.

### Sharing responsibility for safety

Evidence from developed countries shows that crashes are preventable and interventions have already saved hundreds of thousands of lives. The existing data highlight the need for an approach to road safety which recognizes that the driver, the vehicle, and the built environment make up three components of a dynamic system within which safety is a shared responsibility. This approach seeks to identify all sources of error or design weakness that contribute to road traffic injuries and then tries to mitigate the consequences (31).

In many developed countries, the past few decades have witnessed many improvements in safety measures for vehicles, roadways and drivers. Innovations in cars include impact-absorbing front ends, collapsible steering columns, seat belts, integral head-rests, airbags and child seats. Roadway designs have been improved to place barriers between traffic moving in opposite directions and to eliminate highway intersections. Pedestrians have been separated from vehicles by roadside barriers, street lighting has been improved, and speed bumps have been created to slow the traffic. The wearing of seat belts for drivers and passengers and helmets for motorcyclists has been made obligatory, and strict laws for speeding and drink-driving have been introduced and enforced. Hundreds of thousands of lives have been saved as a result of these measures. For example, death rates related to motor vehicles dropped in the United States by more than 40% between 1966 and 1997.

Proven cost-effective interventions in developed countries can be effective for low-income countries too. For maximum impact, all prevention strategies should be used in conjunction with effective law enforcement (32).

While the data on safety interventions are compelling, existing knowledge needs to be adapted so as to underpin successful interventions in developing countries. The unique road safety circumstances of each country and region are important subjects for research. Lifestyle and other factors behind the contrasting patterns in road casualties between poor and rich countries also need to be better understood. For example, in wealthier countries, most people injured in a crash are inside the vehicle. In poorer countries, however, the majority of victims are the most vulnerable road users: pedestrians, cyclists, and passengers on public transport (33).

In many countries, bicycles and motorcycles are the cheapest and most dangerous form of transport (34), sharing the road with cars, buses and trucks. Cyclists, motorcyclists and their passengers are very vulnerable to speed and poor visibility, and those without safety helmets or other protection are particularly at risk. Brain injuries are a common cause of death in road crashes involving two-wheeled vehicles. The use of lights during the daytime shows promising results, as they make the cyclists and motorcyclists more conspicuous.

### Mobilizing action

Many political leaders are not fully aware of the magnitude and severity of road traffic injuries. Long-term awareness and advocacy campaigns are required to generate immediate and sustained action to promote global and national road safety. WHO has been increasingly involved in road traffic injury prevention in recent years. In 2001 it developed a five-year strategy for road traffic injury prevention to provide guidance to researchers, practitioners and policy-makers and to raise public awareness of road traffic injury prevention (35). This

strategy, which emphasizes epidemiology, prevention and advocacy, is currently being implemented with active WHO participation in a number of countries, including Cambodia, Ethiopia, Mexico, Poland and Viet Nam.

World Health Day, which is celebrated around the world on 7 April each year, will focus in 2004 on road safety and will be marked by the launch of the *World Report on Road Traffic Injury Prevention*, to be published by WHO in collaboration with the World Bank. This report will document comprehensively the determinants and magnitude of road traffic injuries and will propose science-based evidence and solutions. In May 2003, the United Nations General Assembly recognized road injuries as a global epidemic, and a special session of the United Nations General Assembly in April 2004 is planned in conjunction with World Health Day to promote road safety and encourage countries to develop national plans. UNICEF, the United Nations Development Programme, the United Nations Department for Economic and Social Affairs, and other organizations, are also helping to raise awareness.

Country leaders and civil society should be encouraged to recognize the burden of deaths and injuries on their roads and to commit themselves to reducing it. National programmes to improve road safety will require not just participation of the public health and transport sectors, but also support from decision-makers in justice, law enforcement, health care, education and urban design sectors. In addition, governmental efforts will need support from nongovernmental organizations and professional societies.

A comprehensive assessment of each country's road safety system will identify the details of the current burden (who is injured or killed; where, when, and how the incident took place), the options for reducing that burden, the spectrum of players from different sectors that can be involved and trained, and the unique challenges within the country. The types of trained people needed to prevent and treat road traffic injuries will depend on the country's current capacity and its success in attracting additional resources.

Public health has traditionally been strong in disease surveillance: gathering and using information about the patterns, risk factors and effectiveness of interventions to prevent and mitigate a disease. Surveillance and research skills can be applied to road traffic injuries, and traditional public health assessments can be expanded to include other critical parts of the country's systems. After completing and analysing the assessment, all sectors can collaborate to develop and implement a plan to change roads, laws, vehicle designs and behaviour that will save lives. Poor countries will need outside support to build the capacity to implement road safety measures.

### **Injury prevention, safety and treatment**

Prevention, safety and treatment are the three primary aspects of a national plan to reduce road injuries. All three components need both short-term and long-term planning and surveillance to track progress and successes. Legislation and enforcement will be essential.

The first and most important objective is to prevent a crash from happening. Some countries have already made progress in prevention by separating pedestrians from cars and trucks, creating barriers and fences, building guard-rails, widening shoulders, and eliminating "black spots" where road crashes are most likely to happen. Additional successful efforts include speed control measures such as installing rumble strips and speed bumps (see Box 6.4), enforcing speed limits and severe laws on drinking and driving (32).

Second, in the event of a crash, injuries can be minimized if drivers have taken safety precautions such as wearing helmets and seat belts. Crash-resistant vehicles can be built or

imported with improved safety features such as rollover protection. Third, countries need effective trauma response systems in order to transport and treat victims without delay and to rehabilitate them. Rapid, efficient, emergency response systems can reduce morbidity and mortality. Quality rehabilitation care should be incorporated as part of a comprehensive plan to care for the injured (36).

Improving road safety requires strong commitment by governments to establish, finance and sustain road safety programmes. Collaboration with other stakeholders – global, national and local – will accelerate progress and contribute to the development of more sustainable forms of public and private transport. Countries can begin with a commitment to gather more assessment data and build a comprehensive database to monitor and evaluate national plans. As the knowledge base on road traffic injuries expands, there is greater scope for collaboration between countries and across disciplines and agencies. This collaboration will be a key element in shaping a rapid response to the epidemic, especially in poorer countries, and in ensuring a reduced impact on the global environment.

Because the burden of such injuries and deaths falls disproportionately on poor countries, it is important to pursue the goal of global safety equity, in which all persons have equal access to the means of assuring safety. To achieve this, these countries will need to build infrastructure and human resource capacity, and will look to developed countries for assistance. Governments can be encouraged to view road safety and protection from injury as an important contributor to sustainable economic, social and environmental development and to mobilize the necessary forces for effective prevention of an epidemic that, while largely hidden today, will become increasingly visible unless action is taken to control it.

## Integrating road safety with broader policies

In most countries, the most insidious impact of road transport is air pollution, which causes public concern in both rich and poor countries. Estimates of the impact of air pollution on health indicate that this concern is justified. In Austria, France and Switzerland the number of deaths related to air pollution from traffic is twice the number of deaths from traffic accidents (23). In addition, gases that cause climate change – a quarter of which come from transport (24) – are expected to contribute to extreme weather events including floods and droughts, and changes in the habitat of disease vectors such as mosquitoes, with major health consequences (37).

Current transport patterns have many other consequences to health (22), including pervasive annoyance induced by traffic noise; adverse effects on rates of cardiovascular disease, diabetes, obesity and some cancers by discouraging the use of safe cycling and walking for transport (38); and constraints on the development of neighbourhood support networks.

### Box 6.4 A low-cost road safety strategy: speed bumps in Ghana

Road traffic crashes are a serious problem in Ghana, where the fatality rate per 10 000 vehicles is about 30–40 times higher than that in high-income countries. As excessive speed on interurban highways and in built-up areas has been identified as one of the key factors contributing to crashes, speed bumps have been installed at some crash-prone locations on the highways, in order to lower the speed of vehicles and improve the traffic environment for other road users such as pedestrians and cyclists. Low-cost rumble strips have been installed on the main Accra-Kumasi highway at a collision hot spot. Lower vehicle speeds

reduce kinetic energy (which causes injuries and deaths on impact) as well as increasing the time to collision, thereby preventing crashes.

The use of speed bumps and rumble strips has been effective on Ghanaian roads. During the 16-month period between January 2000 and April 2001, traffic crashes were reduced by 35%, fatalities by 55% and serious injuries by 76%. These speed-reducing measures also succeeded in eliminating certain kinds of crashes and improving pedestrian safety.

These consequences have a disproportionately adverse effect on the urban poor, because urban areas have higher levels of pollution and often provide fewer options for physical activity (39).

Traffic injuries are also higher among the urban poor, as they tend to live in areas of higher traffic volume – with a greater proportion of vehicles exceeding speed limits (40, 41). In addition, there is a clear relationship between degree of social and economic deprivation and risk of injury in children (42, 43). Reasons for these differences include the need for children of families without a car to cross a greater number of roads than children whose families own a car (44). These intra-urban inequalities provide a focus for policy action: reducing health risks among the poor is a powerful tool for poverty reduction (45).

Policies adopted to reduce traffic-related air pollution do not usually consider the other health impacts of traffic such as traffic crashes and injuries, and vice versa (46). Health systems have an important role to play in the development of integrated transport strategies that take account of all relevant health impacts (25). Health impact assessment tools<sup>1</sup> can be used to help visualize the expected health implications of transport policies and make suggestions on how they can be modified to maximize overall health benefits and minimize health inequalities (47).

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All of the subjects of the previous chapters in this report have one point in common: they represent major issues that cannot be successfully resolved without the benefit of a strong health system. The fate of the child with malaria in Africa, the middle-aged man with diabetes in Latin America, and the mother infected with HIV in Asia may all depend on the strength of their national health system. Chapter 7 finds that many such systems are sadly inadequate to cope with the challenges they face, and suggests initiatives to make them fit for the future.

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<sup>1</sup> See web site <http://www.who.int/hia>.

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