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MESSAGE FROM THE DIRECTOR-GENERAL

These are dangerous times for the well-being of the world. In many regions, some of the most formidable enemies of health are joining forces with the allies of poverty to impose a double burden of disease, disability and premature death on many millions of people. It is time for us to close ranks against this growing threat.

Reducing risks to health, the subject of this year's *World health report*, has been a preoccupation of people and their physicians and politicians throughout history. It can be traced back at least 5000 years to some of the world's earliest civilizations. But it has never been more relevant than it is today.

Virtually every major advance in public health has involved the reduction or the elimination of risk. Improvements in drinking-water supplies and sanitation during the 19th and 20th centuries were directly related to the control of the organisms that cause cholera and other diarrhoeal diseases.

Mass immunization programmes eradicated the scourge of small-pox from the planet and have reduced the risk to individuals and whole populations of infectious diseases such as poliomyelitis, yellow fever, measles and diphtheria by providing protection against the causative agents. Countless millions of premature deaths have been avoided as a result.

Legislation enables risks to health to be reduced in the workplace and on the roads, whether through the wearing of a safety helmet in a factory or a seat belt in a car. Sometimes laws, education and persuasion combine to diminish risks, as with health warnings on cigarette packets, bans on tobacco advertising, and restrictions on the sale of alcohol.

The result is that, in many ways, the world is a safer place today. Safer from what were once deadly or incurable diseases. Safer from daily hazards of waterborne and food-related illnesses. Safer from dangerous consumer goods, from accidents at home, at work or in hospital.

But in many other ways the world is becoming more dangerous. Too many of us are living dangerously – whether we are aware of that or not. I believe that this *World health report* is a wake-up call to the global community. In one of the largest research projects WHO has ever undertaken, it tries to quantify some of the most important risks to health and to assess the cost-effectiveness of some of the measures to reduce them. The ultimate goal is to help governments of all countries lower these risks and raise the healthy life expectancy of their populations.

The picture that is taking shape from our research gives an intriguing – and alarming – insight into current causes of disease and death and the factors underlying them. It shows how the lifestyles of whole populations are changing around the world, and the impact of



Dr Gro Harlem Brundtland

these changes on the health of individuals, families, communities and whole populations.

These are issues that deeply concern us all. This was reflected in the in-depth discussions involving ministers of health from almost all of WHO's Member States during the World Health Assembly in Geneva in May of this year. These discussions helped shape this report, and are summarized in the opening chapter. They provided invaluable assessments of the risks to health that countries around the world today regard as most important.

These risks, and some additional ones, are systematically investigated in this report. They include some familiar enemies of health and allies of poverty, such as underweight, unsafe water, poor sanitation and hygiene, unsafe sex (particularly related to HIV/AIDS), iron deficiency, and indoor smoke from solid fuels.

The list also includes risks that are more commonly associated with wealthy societies, such as high blood pressure and high blood cholesterol, tobacco and excessive alcohol consumption, obesity and physical inactivity. These risks, and the diseases linked to them, are now dominant in all middle and high income countries. The real drama now being played out is that they are becoming more prevalent in the developing world, where they create a double burden on top of the infectious diseases that still afflict poorer countries.

In my address to the World Health Assembly in May of this year, I warned that the world is living dangerously, either because it has little choice or because it is making the wrong choices about consumption and activity.

I repeat that warning now. Unhealthy choices are not the exclusive preserve of industrialized nations. We all need to confront them.

Many of the risks discussed in this report concern consumption – either too little, in the case of the poor, or too much, in the case of the better-off.

Two of the most striking findings in this report are to be found almost side by side. One is that in poor countries today there are 170 million underweight children, over three million of whom will die this year as a result. The other is that there are more than one billion adults worldwide who are overweight and at least 300 million who are clinically obese. Among these, about half a million people in North America and Western Europe combined will have died this year from obesity-related diseases.

Could the contrast between the haves and the have-nots ever be more starkly illustrated?

WHO is determined to tackle specific nutrient deficiencies in vulnerable populations and to promote good health through optimal diets, particularly in countries undergoing rapid nutritional transition.

At the same time, we are developing new guidelines for healthy eating. When these are complete, key players in the food industry will be invited to work with us in combating the rising incidence of obesity, diabetes and vascular diseases in developing countries.

Our actions will be vital. The rapidly growing epidemic of noncommunicable diseases, already responsible for some 60% of world deaths, is clearly related to changes in global dietary patterns and increased consumption of industrially processed fatty, salty and sugary foods. In the slums of today's megacities, we are seeing noncommunicable diseases caused by unhealthy diets and habits, side by side with undernutrition.

As I said at the World Food Summit in Rome in June of this year, economic development and globalization need not be associated with negative health consequences. On the contrary, we can harness the forces of globalization to reduce inequity, to diminish hunger and to improve health in a more just and inclusive global society.

Whatever the particular risks to health, whether they are related to consumption or not, every country needs to be able to adapt risk reduction policies to its own needs.

The best health policies are those based on scientific evidence. The World Health Organization's mandate is to get the evidence right and ensure that it is properly used to make the world a healthier place.

This report contains that evidence. It shows the way forward. It helps every country in the world to see what are the most appropriate, most cost-effective measures it can take to reduce at least some risks and promote healthy life for its own population. I urge each and every one of these countries to consider urgently what actions are necessary and to commit themselves to carrying them out.

This report also explains the importance of communicating risks clearly and openly to the public, and of creating an atmosphere of trust and shared responsibility between the government, the public at large and the media.

This is essential. We know that most people will choose to adopt healthier behaviours – especially when they receive accurate information from authorities they trust, and when they are supported through sensible laws, good health promotion programmes and vigorous public debate.

Reducing risks to health is the responsibility of governments – but not only of governments. It rightly remains a vital preoccupation of all people, in all populations, and of all those who serve them. In this *World health report* there is a message for everybody.



Gro Harlem Brundtland
Geneva
October 2002

OVERVIEW

INTRODUCTION

The World Health Report 2002 represents one of the largest research projects ever undertaken by the World Health Organization. In collaborating with experts worldwide, WHO has collected and analyzed evidence that will have implications for global health for many years to come. Although the report carries some ominous warnings, it also opens the door to a healthier future for all countries – if they are prepared to act boldly now.

The report describes the amount of disease, disability and death in the world today that can be attributed to a selected number of the most important risks to human health. This is of great interest in itself but, more importantly, the report also calculates how much of this present burden could be avoided in the next couple of decades if the same risk factors were reduced from now onwards.

Furthermore, it shows how some of those possible reductions can be achieved in a range of cost-effective ways. The ultimate goal is to help governments of all countries to raise the healthy life expectancy of their populations. The report says that very substantial health gains can be made for relatively modest expenditures. It suggests that at least an extra decade of healthy life could be within the grasp of the populations of many of the world's poorest countries. Even the people of the most industrialized countries, such as the United States of America, the Western European nations and those of the Asian Pacific, stand to gain another five years or so of healthy life.

Although there are many possible definitions of the word “risk”, it is defined in this report as “*a probability of an adverse outcome, or a factor that raises this probability*”. The number of such factors is countless and the report does not attempt to be comprehensive. For example, some important risk factors associated with infectious diseases, such as viruses, bacteria, and antimicrobial resistance, are not included. Instead the report concentrates on a selection of risk factors – real risks to health, and often the actual causes of major diseases – for which the means to reduce them are known, and produces some startling findings about their true impact.

From this selected group, the report identifies the top ten risks, globally and regionally, in terms of the burden of disease they cause. The ten leading risk factors globally are: *underweight; unsafe sex; high blood pressure; tobacco consumption; alcohol consumption; unsafe water, sanitation and hygiene; iron deficiency; indoor smoke from solid fuels; high cholesterol; and obesity*. Together, these account for more than one-third of all deaths worldwide.

The report shows that a relatively small number of risks cause a huge number of premature deaths and account for a very large share of the global burden of disease.

For example, at least 30% of all disease burden occurring in many developing countries, such as those in sub-Saharan Africa and South-East Asia, results from fewer than five of the ten risks listed above. Underweight alone accounts for over three million childhood deaths a year in developing countries.

In other, more developed, countries such as China and most countries in Central and South America, five risk factors cause at least one-sixth of their total disease burden. At the same time in the most industrialized countries of North America, Europe and the Asian Pacific, at least one-third of all disease burden is caused by tobacco, alcohol, blood pressure, cholesterol and obesity. Furthermore, more than three-quarters of cardiovascular disease – the world's leading cause of death – results from tobacco use, high blood pressure or cholesterol, or their combination. Overall, cholesterol causes more than 4 million premature deaths a year, tobacco causes almost 5 million, and blood pressure causes 7 million.

The report identifies a number of cost-effective interventions to counter some of the risk factors. In the report, an intervention is defined broadly as “*any health action – any promotive, preventive, curative or rehabilitative activity where the primary intent is to improve health*”. According to the report, the impact of many of the risk factors can be reversed quickly, and most benefits will accrue within a decade. Even modest changes in risk factor levels could bring about large benefits.

In order to know which interventions and strategies to use, governments must first be able to assess and compare the magnitude of risks accurately. The subject of risk assessment is thus a major component of this report. Risk assessment is defined as “*a systematic approach to estimating the burden of disease and injury due to different risks*”.

The report makes key recommendations to help countries develop risk reduction policies which, if implemented, will result in substantially more years of healthy life for many millions of people. At the same time, governments will need to strengthen the scientific and empirical bases for their policies. They will have to improve public dialogue and communications, and develop greater levels of trust for risk prevention among all interested parties. They will also have to develop sound strategies to manage risk uncertainties, and consider carefully a range of ethical and other issues.

Apart from the obvious health benefits, the report says that, overall, reducing major risks to health will promote sustainable development and reduce inequities in society.

ENEMIES OF HEALTH, ALLIES OF POVERTY

The findings of the report give an intriguing – and alarming – insight into not just the current causes of disease and death and the factors underlying them, but also into human behaviour and how it may be changing around the world. Most of all they emphasize the global gap between the haves and the have-nots by showing just how much of the world's burden is the result of undernutrition among the poor and of overnutrition among those who are better-off, wherever they live.

The contrast is shocking. According to the report, at the same time that there are 170 million children in poor countries who are underweight – and over three million of them die each year as a result – there are more than one billion adults worldwide who are overweight and at least 300 million who are clinically obese. Among these, about half a million people in North America and Western Europe die from obesity-related diseases every year.

So it is clear that at one end of the risk factor scale lies poverty, where underweight remains the leading cause of disease burden among hundreds of millions of the world's poorest people and a major cause of death, especially among young children. The report shows that underweight remains a massive and pervasive problem in developing countries, where poverty is a strong underlying determinant.

All ages are at risk, but underweight is most prevalent among children under five years of age, and WHO estimates that approximately 27% of children in this age group are

underweight. This caused an estimated 3.4 million deaths in 2000, including about 1.8 million in Africa and 1.2 million in countries in Asia. It was a contributing factor in 60% of all child deaths in developing countries. In other words, the report says, deaths from underweight every year rob the world's poorest children of an estimated total of 130 million years of healthy life.

In terms of global risk factors, underweight is closely followed by unsafe sex, the main factor in the spread of HIV/AIDS, with a major impact in the poor countries of Africa and Asia. The report says HIV/AIDS is now the world's fourth biggest cause of death. Currently 28 million (70%) of the 40 million people with HIV infection are concentrated in Africa, but epidemics elsewhere in the world are growing rapidly. The rate of development of new cases is highest in Eastern Europe and central Asia. Life expectancy at birth in sub-Saharan Africa is currently estimated at 47 years; without AIDS it is estimated that it would be around 62 years.

Current estimates suggest that more than 99% of the HIV infections prevalent in Africa in 2001 are attributable to unsafe sex. In the rest of the world, the 2001 estimates for the proportion of HIV/AIDS deaths attributable to unsafe sex range from 13% in East Asia and the Pacific to 94% in Central America. Globally, about 2.9 million deaths are attributable to unsafe sex, most of these deaths occurring in Africa.

In both Africa and Asia, unsafe water, sanitation and hygiene, iron deficiency, and indoor smoke from solid fuels are among the ten leading risks for disease. All are much more common in poor countries and communities than elsewhere. As with underweight, these risks continue to be some of the most formidable enemies of health and allies of poverty.

About 1.7 million deaths a year worldwide are attributed to unsafe water, sanitation and hygiene, mainly through infectious diarrhoea. Nine out of ten such deaths are in children, and virtually all of the deaths are in developing countries.

Iron deficiency is one of the most prevalent nutrient deficiencies in the world, affecting an estimated two billion people, and causing almost a million deaths a year. Young children and their mothers are the most commonly and severely affected because of the high iron demands of infant growth and pregnancy. The report also considers the disease burdens associated with deficiencies in Vitamin A, iodine, and zinc. Vitamin A deficiency is the leading cause of acquired blindness in children. Iodine deficiency is probably the single most preventable cause of mental retardation and brain damage. Severe zinc deficiency causes short stature, impaired immune function and other disorders and is a significant cause of respiratory infections, malaria and diarrhoeal disease.

Half the world's population is exposed to indoor air pollution, mainly the result of burning solid fuels for cooking and heating. Globally, it is estimated to cause 36% of all lower respiratory infections and 22% of chronic obstructive pulmonary disease.

Most of the risk factors discussed in this report are strongly related to patterns of living, and particularly to consumption – where it can be a case of either too much or too little. At the other end of the scale from poverty lies “overnutrition” or, perhaps more accurately, “overconsumption”.

Overweight and obesity are important determinants of health and lead to adverse metabolic changes, including increases in blood pressure, unfavourable cholesterol levels and increased resistance to insulin. They raise the risks of coronary heart disease, stroke, diabetes mellitus, and many forms of cancer. The report shows that obesity is killing about 220 000 men and women a year in the United States of America and Canada alone, and about 320 000 men and women in 20 countries of Western Europe.

High blood pressure and high blood cholesterol are closely related to excessive consumption of fatty, sugary and salty foods. They become even more lethal when combined with the deadly forces of tobacco and excessive alcohol consumption, which also cause a range of cancers as well as heart disease, stroke and other serious illnesses.

The report traces the rapid evolution of the tobacco epidemic by showing that the estimated number of attributable deaths in the year 2000 – 4.9 million – is over one million more than it was in 1990, with the increase being most marked in developing countries. However, most of the smoking-related disease burden is still found in industrialized countries.

Global alcohol consumption has increased in recent decades, with most or all of this increase occurring in developing countries, according to the report. Worldwide, alcohol caused 1.8 million deaths, equal to 4% of the global disease burden; the proportion was greatest in the Americas and Europe. Alcohol was estimated to cause, worldwide, 20–30% of oesophageal cancer, liver disease, epilepsy, motor vehicle accidents, and homicide and other intentional injuries.

Until recently, all of these factors – blood pressure, cholesterol, tobacco, alcohol and obesity, and the diseases linked to them – had been thought to be most common in industrialized countries. Unfortunately, as this report demonstrates, they are now becoming more prevalent in developing nations, where they create a double burden in addition to the remaining, unconquered infectious diseases that have always afflicted poorer countries.

In a number of ways, then, this report shows that the world is living dangerously – either because it has little choice, which is often the case among the poor, or because it is making the wrong choices in terms of its consumption and its activities.

Indeed, there is evidence that these risk factors are part of a “risk transition” showing marked changes in patterns of living in many parts of the world. In many developing countries, rapid increases in body weight are being recorded, particularly among children, adolescents and young adults. Obesity rates have risen threefold or even more in some parts of North America, Eastern Europe, the Middle East, the Pacific Islands, Australasia and China since 1980. Changes in food processing and production and in agricultural and trade policies have affected the daily diet of hundreds of millions of people.

The report says that while eating fruit and vegetables can help prevent cardiovascular diseases and some cancers, low intake of them as part of diet is responsible for almost three million deaths a year from those diseases. At the same time, changes in living and working patterns have led to less physical activity and less physical labour. The report finds that physical inactivity causes about 15% of some cancers, diabetes and heart disease.

Meanwhile, tobacco and alcohol are being marketed increasingly in low and middle income countries. Today, more people than ever before are exposed to such products and patterns, imported or adopted from other countries, which pose serious long-term risks to their health. For example, smokers of all ages have death rates two or three times higher than non-smokers.

The report warns that if global health is to be further improved and burdens of disease lowered, countries need to adopt control policies now. It says that risks such as unsafe sex and tobacco consumption could increase global deaths substantially in the next few decades and could decrease life expectancy in some countries by as much as 20 years unless they are brought under better control very soon.

RECOMMENDED ACTIONS

In general, the report suggests that priority should be given to controlling those risks that are well known, common, substantial and widespread, and for which effective and acceptable risk reduction strategies are available. These criteria apply to many of the risks in the report. The increasing level of tobacco consumption, particularly in Asia, is one clear example. The report says a substantial increase in government tobacco taxes would produce significant health benefits at very low cost.

Government action, in partnership with multiple stakeholders, to reduce the salt content of processed foods would also achieve substantial health benefits in all settings. The report suggests that this should be one component of a comprehensive strategy for the control of cardiovascular disease risks. The overall strategy would be based on a mix of community-wide interventions, such as salt reduction, and treatment-based interventions focusing on individuals whose risk of a cardiovascular event in the next ten years is assessed to be high.

For many of the main risk factors there is likely to be good agreement between the general public and public health experts on what needs to be done. In some countries, risk understanding may need to be strengthened among the general public, politicians and public health practitioners.

Recommended actions that governments can take in risk reduction have been tailored to suit high, middle and low income countries. More generally, the report makes the following recommendations.

- Governments, especially health ministries, should play a stronger role in formulating risk prevention policies, including more support for scientific research, improved surveillance systems and better access to global information.
- Countries should give top priority to developing effective, committed policies for the prevention of globally increasing high risks to health, such as tobacco consumption, unsafe sex in connection with HIV/AIDS, and, in some populations, unhealthy diet and obesity.
- Cost-effectiveness analyses should be used to identify high, medium and low priority interventions to prevent or reduce risks, with highest priority given to those interventions that are cost-effective and affordable.
- Intersectoral and international collaboration to reduce major extraneous risk to health, such as unsafe water and sanitation or a lack of education, is likely to have large health benefits and should be increased, especially in poorer countries.
- Similarly, international and intersectoral collaboration should be strengthened to improve risk management and increase public awareness and understanding of risks to health.
- A balance between government, community and individual action is necessary. For example, community action should be supported by nongovernmental organizations, local groups, the media and others. At the same time, individuals should be empowered and encouraged to make positive, life-enhancing health decisions for themselves on matters such as tobacco use, excessive alcohol consumption, unhealthy diet and unsafe sex.

SUMMARY OF CHAPTERS

Chapter One: Protecting the people sets the scene with a general introduction to the subject of measuring, communicating and reducing risks to health – people’s exposure to them and the role of government in protecting the population from them. It shows how governments, particularly in the 20th century, have been instrumental in reducing some major risks to health. But it also explains how the current demographic transition is being accompanied by a “risk transition” and a double burden of disease on developing countries – the combination of long-established infectious diseases and the greater relative importance of chronic, noncommunicable diseases.

Chapter Two: Defining and assessing risks to health offers a detailed explanation of this report’s approach to health risks. It points out that much scientific effort and most health resources today are directed towards treating disease, rather than preventing it. It argues that focusing on risks to health is the key to prevention. Population-based strategies aim to make healthy behaviour a social norm, thus lowering risk in the entire population. Small shifts in some risks in the population can translate into major public health benefits.

Thus, the chapter strongly advocates the assessment of population-wide risks as well as high-risk individuals in strategies for risk reduction. The key challenge, it says, is to find the right balance between the two approaches.

This chapter also describes how risk assessment has emerged in recent years from its roots in the study of environmental problems. It shows how the steps generally involved in environmental risk assessment can be adapted to apply more specifically to the analysis of health risks, and it explains the benefits of comparing different risks to health.

Chapter Three: Perceiving risks explains that both risks and benefits have to be considered when seeking to understand what drives some behaviours and why some interventions are more acceptable and successful than others. Perceptions of risk are often polarized between expert understanding and public views; between quantitative and qualitative assessments; and between analytical and emotive responses.

This chapter examines the roles of social, cultural and economic factors in shaping individuals’ understanding of health risks. The structural factors which influence the adoption of risk control policies by government, and the impact of interventions, are considered. The importance of understanding and managing the risk perceptions of different groups in society, when seeking to reduce risks, is also discussed. The chapter concludes that reducing risk exposure has to be planned within the context of local society, and that prevention through interventions is only partly a matter of individual circumstances and education. It suggests a need for a concerted international research agenda to raise population awareness of major risks in developing countries, such as the tobacco epidemic.

The chapter says that information about risks and their consequences, presented in scientific terms and based on a risk assessment, has to be communicated with particular emphasis and care. It concludes by stressing that an atmosphere of trust and shared responsibility between the government and all interested parties, especially the media, is essential if interventions are to be adopted and successfully implemented.

Chapter Four: Quantifying selected major risks to health provides the main results of a major WHO-initiated project quantifying the health effects of selected major health risks, on a global scale and in a comparable fashion. Most of these results have been briefly referred to in this overview.

An introduction to the generic approach is provided, followed by a description of the major health risks in terms of their extent and the types of threat they pose. The key results of the analysis are summarized and discussed in terms of their potential to improve healthy

life expectancy by focusing on causes of disease and injury. The overall aim of the analyses reported in this chapter has been to obtain reliable and comparable estimates of attributable burden of disease and injury on which to build the basis of a variety of policy-relevant measures.

The chapter points out that, very often, the greatest burden of health risks is borne by the poor countries, and by the disadvantaged in all societies. The vast majority of threats to health are more commonly found in the poor, in those with little education, and with low-status occupations. Studying exposure to risk factors among poor households and individuals, and the disease burden they cause, enables the design of policies most likely to reduce them.

Chapter Five: Some strategies to reduce risk puts forward the best available evidence on the cost and effectiveness of selected interventions to reduce some of the major risk factors discussed in Chapter 4. It looks at the extent to which these interventions are likely to improve population health, both singly and in combination. The analysis in this chapter is used to identify both actions that are very cost-effective and those that do not seem to be cost-effective in different settings. It illustrates how decision-makers can begin the policy debate about priorities with information about which interventions would yield the greatest possible improvements in population health for the available resources. It says this evidence will be a key input, but not the only one, to the final decision about the best combination of interventions.

The chapter examines a range of strategies to reduce different types of risk, and the possible impact of those strategies on costs and effectiveness. It considers individual behaviours related to risk, such as food intake, smoking and sexual behaviour. It also discusses individual factors, such as genetics, and environmental factors including water and sanitation. The chapter says that many risk reduction strategies involve a component of behaviour change. However, some types of behaviour change might require active government intervention to succeed. Different ways of attaining the same goal are discussed, for example, the population-wide versus the individual-based approach and prevention versus treatment. Combinations of these two approaches are likely to be the best ways of improving health.

With regard to policy implications, the chapter says that very substantial health gains can be made for relatively modest expenditures on interventions. However, the maximum possible gains for the resources that are available will be attained only through careful consideration of the costs and effects of interventions. A strategy to protect the environment of the child is cost-effective in all settings. The components include micronutrient supplementation, treatment of diarrhoea and pneumonia, and disinfection of water at the point of use as a way of reducing the incidence of diarrhoea. This last measure is particularly cost-effective in regions of high child mortality. A policy shift towards household water management appears to be the most attractive short-term water-related health intervention in developing countries.

Preventive interventions to reduce the incidence of HIV infections, including measures to encourage safer injection practices, are very cost-effective. The use of antiretroviral therapy in conjunction with preventive activities is cost-effective in most settings.

In all settings, at least one type of intervention to reduce the risks associated with cardiovascular disease was found to be cost-effective. Population-wide strategies to lower cholesterol by reducing salt intake are always very cost-effective both singly and in combination. In addition, governments would be well advised to consider taking steps to reduce the salt content of processed foods on a population-wide basis, either through regulation or self-regulation.

The chapter highlights the important role for government in encouraging risk reduction strategies. Taxes on cigarette products are very cost-effective globally, and higher tax rates result in larger improvements in population health. Even greater improvements would arise if higher taxes were combined with comprehensive tobacco advertising bans.

Chapter Six: Strengthening risk prevention policies argues that governments, in their stewardship role for better health, need to invest heavily in risk prevention, in order to contribute substantially to future avoidable mortality.

Substantial agreement on what needs to be done exists between the international scientific community and those charged with improving public health. Strategies to achieve these potential gains, particularly in developing countries, ought to involve a question of balance. It is a balance between the priority of sharply reducing the burden from exposures such as underweight and poor water and sanitation, which are largely confined to poorer populations, and the priority of reducing or preventing further population exposure to factors such as tobacco, elevated blood pressure and cholesterol.

Much is already known about how to reduce risks to health effectively. That reduction will require sustained policy action and commitment by governments and other partners. Key elements will be the creation or strengthening of national institutions to implement and evaluate risk reduction programmes, and more effective engagement of sectors such as transport, education and finance to capitalize on the potential for greatly reducing population exposures.

The chapter also highlights important considerations to be kept in mind when deciding on risk reduction measures. These include the criteria for choosing which key risks to tackle; the right balance between efforts targeted on primary, secondary or subsequent prevention; the management of uncertain risks; and the related issue of strengthening the evidence base for policy action. The ethical implications of various programme strategies, including their impact on inequities in population health, must also be taken into account.

Chapter Seven: Preventing risks and taking action contains the report's conclusions. It says that in order to protect and improve health globally, much more emphasis is needed on preventing the actual causes of important diseases as well as treating the diseases themselves. Prevention can best be achieved through concerted efforts to identify and reduce common, major risks and by taking advantage of the prevention opportunities they present. Tackling major risks could improve global health much more than is generally realized.

This chapter says the report offers a unique opportunity for governments. They can use it to take bold and determined actions against only a relatively few major risks to health, in the knowledge that the likely result within the next ten years will be large gains in healthy life expectancy for their citizens. The potential benefits apply equally to poor countries and rich countries, even if some of the risk factors are different.

Bold policies will be required. Governments can decide to aim for increased taxes on tobacco; legislation to reduce the proportion of salt and other unhealthy components in foods; stricter environmental controls and ambitious energy policies; and stronger health promotion and health safety campaigns.

This is undoubtedly a radical approach. It requires governments to see the value of shifting the main focus from the minority of high-risk individuals to include preventive measures that can be applied to the whole population.

There are compelling reasons for governments to play a greater role in tackling these major risks. Governments are the stewards of health resources and have a responsibility to protect their citizens. In addition, reducing risks will promote sustainable development and can also reduce inequities in society.