

 **Chronic Diseases 5**

Prevention of chronic diseases: a call to action

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This is the fifth in a [Series](#) of five papers about chronic diseases

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Chronic (non-communicable) diseases—principally cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes—are leading causes of death and disability but are surprisingly neglected elements of the global-health agenda. They are underappreciated as development issues and underestimated as diseases with profound economic effects. Achievement of the global goal for prevention and control of chronic diseases would avert 36 million deaths by 2015 and would have major economic benefits. The main challenge for achievement of the global goal is to show that it can be reached in a cost-effective manner with existing interventions. This series of papers in *The Lancet* provides evidence that this goal is not only possible but also realistic with a small set of interventions directed towards whole populations and individuals who are at high risk. The total yearly cost of the interventions in 23 low-income and middle-income countries is about US\$5.8 billion (as of 2005). In this final paper in the Series we call for a serious and sustained worldwide effort to prevent and control chronic diseases in the context of a general strengthening of health systems. Urgent action is needed by WHO, the World Bank, regional banks and development agencies, foundations, national governments, civil society, non-governmental organisations, the private sector including the pharmaceutical industry, and academics. We have established the Chronic Disease Action Group to encourage, support, and monitor action on the implementation of evidence-based efforts to promote global, regional, and national action to prevent and control chronic diseases.

Introduction

Chronic (non-communicable) diseases—including cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes—are leading causes of death and disability but are surprisingly neglected elements of the global-health agenda.¹ Because they are underappreciated as development issues and underestimated as diseases with profound economic effects, many governments take little interest in their prevention and leave this responsibility primarily to individuals. Mental-health issues are similarly ignored, although they have been discussed in another *Lancet* series.²

This indifference is unjustified. WHO has proposed a global goal for the prevention and control of chronic

diseases to complement the Millennium Development Goals.³ This goal is for an additional 2% reduction per year in age-specific rates of death attributable to these diseases. Achievement of the global goal would avert 36 million deaths by 2015. Furthermore, because most of the averted deaths would be in low-income and middle-income countries and about half would be in people younger than 70 years, it would have major economic benefits, including extension of productive life and reduction in the need for expensive care. The goal was based on the experience of many high-income and a few middle-income countries in prevention and treatment of cardiovascular disease. These successes have led to increases in life expectancy in high-income countries; chronic disease death rates in middle-aged people (36–64 years) are now higher in low-income and middle-income countries than in high-income countries.¹ Further progress is threatened by the obesity pandemic⁴ and persisting high amounts of tobacco consumption.⁵

The major challenge for achievement of the global goal for chronic disease is to show that it can be reached in a cost-effective manner with existing interventions. The preceding papers of this *Lancet* series provide evidence that this goal is not only possible but also realistic. This final paper in the Series calls for a serious and sustained global effort to prevent and control chronic diseases.

Health and economic burden of chronic diseases

Of all global deaths in 2005, 60% were because of chronic diseases, principally cardiovascular diseases and diabetes (32%), cancers (13%), and chronic respiratory diseases (7%).⁶ Deaths from chronic disease in 23 selected countries accounted for 40% of worldwide deaths from all causes and 80% of deaths from chronic disease in

Key messages

- Chronic diseases, principally cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes, are leading causes of death and disability but are grossly neglected on the global-health agenda
- Achievement of the global goal for chronic disease prevention and control would avert 36 million deaths by 2015, and would have major economic benefits
- This series of papers in *The Lancet* provides evidence that the global goal is achievable with a small set of interventions directed towards whole populations and high-risk individuals, and in the context of health systems strengthening
- The total yearly cost of these interventions in 23 low-income and middle-income countries is roughly US\$5.8 billion
- Urgent action is needed by WHO, the World Bank, regional banks and development agencies, foundations, national governments, civil society, non-governmental organisations, the private sector including the pharmaceutical industry, and academics
- The Chronic Disease Action Group has been established to encourage, support, and monitor action to prevent and control chronic diseases

low-income and middle-income countries. In terms of the burden of disease (measured in disability-adjusted life-years [DALYs]), chronic diseases were responsible for an estimated 49% of the total worldwide burden of disease in 2005, and 46% of the disease burden in low-income and middle-income countries. If nothing is done to reduce risk of chronic diseases, an estimated US\$84 billion of economic production will be lost because of heart disease, stroke, and diabetes in the 23 selected low-income and middle-income countries between 2006 and 2015. Achievement of a global goal for chronic disease prevention and control—an additional 2% annual reduction in chronic disease death rates over the next 10 years—would avert 24 million deaths in these countries, and would save an estimated \$8 billion, which is almost 10% of the projected loss in national income over the 10 years. Almost 80% of the years of life gained would be from deaths averted in people younger than 70 years, and 57% from deaths averted in those younger than 60 years.

Health effects of selected interventions for chronic disease

Many nations that are economically advanced have achieved major reductions in the toll of chronic diseases, especially of cardiovascular diseases. Most studies of these achievements suggest that prevention and health services bring about these reductions more or less equally.^{7,8} From this experience, several evidence-based interventions for populations and individuals have emerged for the prevention and control of chronic diseases, many of which are good value for money.⁹ The global emphasis has been on a few key modifiable risk factors for chronic diseases—eg, unhealthy diets, physical inactivity (panel 1),^{10,11} and tobacco use (panel 2).^{12,13}

The health effects of the two population-wide interventions—tobacco controls and dietary salt reduction—which were chosen for investigation in the 23 countries, is impressive in terms of magnitude and low cost. Implementation of just four population-level measures of the Framework Convention on Tobacco Control (FCTC) and reducing population levels of salt consumption by a modest 15% could avert 13·8 million deaths at an estimated total financial cost of roughly US\$1 billion (as of 2005); less than \$0·40 per person per year in low-income and lower-middle-income countries and between \$0·50–1·00 per person per year in upper-middle-income countries. Most of the cost, about 75%, arises from implementation of the four FCTC interventions; reduction in the consumption of salt can be implemented at a very low cost.¹⁴

The use of an individual high-risk approach in 23 developing countries on the basis of opportunistic screening and treatment with a multidrug regimen in people with cardiovascular disease or a 15% or greater probability of dying from it, could avert 17·9 million deaths between 2006 and 2015.¹⁵ Achievement of these health gains would need an average yearly investment of

\$4·7 billion or \$1·10 per head, ranging from \$0·43 to \$0·90 in low-income countries and from \$0·54 to \$2·93 in middle-income countries, with drugs accounting for around two-thirds of this cost. Together, interventions for populations and individuals at high risk would almost meet the global goal for prevention and control of chronic diseases.

Stepwise approach to prevention and control

WHO has proposed an integrated stepwise approach to chronic disease prevention and control which builds on

Panel 1: The Global Strategy on Diet, Physical Activity, and Health¹⁰

In May 2004, the World Health Assembly endorsed the Global Strategy on Diet, Physical Activity, and Health, with the overall goal to prevent chronic diseases by focusing on two of the main risk factors. The strategy specifies roles for governments, WHO, other UN agencies, civil society, and the private sector. Comprehensive efforts by all these stakeholders, on the basis of the recommendations of the strategy, will lead to sustainable actions at individual, community, national, and global levels that will reduce disease and death rates that are related to unhealthy dietary behaviour and physical inactivity.

The strategy emphasises the need for countries to develop multisectoral policies with long-term, sustainable action plans which are aimed at creating environments that empower individuals, families, and communities and encourage changes in their behaviour. Several countries have improved their capacity for prevention and control of chronic diseases and some have developed or undertaken plans to implement the strategy. However, much more action is needed at national and subnational levels if sustained progress is to be made. To help with this national action, WHO should devote much more of its resources—both financial and human—to chronic disease prevention and control.

Although some changes have been implemented by parts of the private sector—eg, in product reformulation, consumer information, and labelling—these actions are limited in scope and are rarely comprehensive.¹¹ Serious and sustained global industry-wide actions are now urgently needed; WHO has to step up its pressure on the worldwide food and drinks industry.

Panel 2: WHO Framework Convention on Tobacco Control (FCTC)¹²

The WHO FCTC is the first global health treaty to be negotiated under the auspices of the WHO. It was developed in response to the globalisation of the tobacco epidemic and asserts the importance of strategies for demand and supply reduction. The treaty came into force on Feb 27, 2005, and with almost 150 parties it is one of the most widely embraced treaties in UN history. Notably absent from the list of signatory countries are Russia and Indonesia; the USA has signed but not ratified the treaty. The Bloomberg Global Initiative⁵ is supporting implementation of central elements of the WHO FCTC in 15 high-burden countries, and WHO continues to produce guidelines and materials to support countries. By raising tobacco taxes, countries will not only be able to curb consumption but also mobilise financial resources for funding activities for tobacco control and other measures for health promotion.

The challenge of implementation of the WHO FCTC involves putting in place the needed technical foundation, translating the treaty into national laws, creating strong mechanisms for enforcement, and then monitoring their implementation. With about 25% of adults smoking, achievement of full implementation of the treaty and reduction of the prevalence of smoking both have a long way to go. Implementation of the full range of effective policies for tobacco control needs sustained unwavering commitment from governments; however, the potential health gains are huge.¹³

the experience in the Western Pacific Region.¹⁶ The main principle of this approach is a phased implementation of interventions—core, expanded, and optimum interventions—on the basis of the availability of resources as well as political and community support and the configuration of national health systems. Ideally, the interventions are comprehensive and balanced at every step, covering programmes directed at the whole population and individuals at high risk. As additional resources become available and community and political support deepens, an expanded set and ultimately an optimum set of interventions are implemented.

We could not make quantitative estimations of the effect of the full range of available interventions in this Series.¹⁷ Instead, the focus was on specific interventions for which there is sufficient information and evidence to estimate and justify scaled-up coverage. This strategy should not be regarded as excluding a variety of other interventions, but rather to show an approach that welds the present state of science to immediate practice in the development of policy. Importantly, a comprehensive policy response should include a broad range of population-wide and personal interventions.

Implementation issues

Global leadership

WHO member states have repeatedly called for increased action from national authorities and WHO to address the growing burden of chronic diseases. These calls are still to be heeded in most countries, and by WHO. Progress will be faster if WHO increases its technical support to countries in response to the various chronic disease resolutions that were endorsed at recent World Health Assemblies, including in 2007.¹⁸ This support will need an increase in resources within the organisation and an increased capacity both regionally and nationally. International lending agencies (World Bank and regional development banks) and other international development agencies should broaden their health concerns to include chronic diseases. The World Bank has finally issued a report on chronic diseases, in which it stresses the need for public policies to prevent chronic diseases and prepare countries for the health service effects of the epidemics as populations age.¹⁹ The World Bank now has to use its many resources to support prevention and control efforts within countries. That both the UK's Department for International Development²⁰ and AusAID (the Australian Government's overseas aid programme)²¹ now refer to the importance of chronic diseases in their recently revised strategic documents is encouraging; however, this concern should now be translated into financial support for countries. International agencies, ranging from WHO and the Food and Agriculture Organization to the World Bank and World Trade Organization, should collectively help with global policies that will favourably affect the determinants of chronic

diseases—especially at the crucial but neglected interface of trade and public health.

National leadership of the many stakeholders

Despite global lethargy, several low-income and middle-income countries are developing and implementing plans of action for prevention and control of chronic diseases. India has provided small-scale funds for a national programme for the prevention and control of cardiovascular disease, stroke, and diabetes;²² China is slowly preparing a national plan of action;²³ and Vietnam, with support from outside donors, has invested in the stepwise approach to the surveillance, prevention, and control of chronic diseases.²⁴ Pakistan launched a National Action Plan on Non-communicable Diseases in 2003, which is now being scaled up as a major public-health programme.²⁵

Sustained national leadership is, however, still missing in most low-income and middle-income countries, despite efforts to dispel the common myths that have contributed to the neglect of chronic diseases.¹ A prerequisite for the effective implementation of the stepwise approach is strong political will to confront chronic diseases and subsequent coordination of the planning and implementation of priority policies and programmes. Strong government leadership—national, state, or regional—can bring together many stakeholders, including the private sector, non-governmental organisations, and civil society. Policy at macro levels and intersectoral initiatives can confront the underlying determinants of chronic diseases which are deeply embedded in urban society in particular.²⁶ Investment in civil society and non-governmental capacity can spur national action, which is one aim of the Bloomberg initiative for tobacco control.⁵

Health systems

Another prerequisite for effective implementation is a functioning and equitable primary health-care system. Strategies for the recognition and long-term treatment of patients at high risk are applied at the primary health-care level. As former President Obasanjo of Nigeria has made clear, awaiting the control of infectious diseases before responding to chronic diseases is not an option;¹ through effective primary care it is quite possible to respond to both infectious and chronic diseases—ie, treating children with diarrhoea, adults with HIV, and other adults with raised blood pressure. This approach need not be restricted to the medical profession; non-physician health workers can reliably assess and manage risks of chronic disease in settings without attending physicians.²⁷ WHO needs to encourage countries to invest in primary care and to incorporate prevention and control of chronic diseases into this primary care. This strategy is not easy. It will involve increased national investments and difficult restructuring of health-care systems, including rolling back of many structural changes implemented during the 1980–90s that obstruct easy access to primary care, especially user fees.

The provision of affordable and reliable drugs for chronic disease is a major challenge, with many patients missing out on effective and cheap treatments.

Resources

Health expenditure in most developing countries is nowhere near the amounts that are consistent with good health, and indeed, the costs of the care that is provided are usually paid for by individuals. This reality guided the choice of the interventions examined in this Series, which are fairly cheap to implement, especially those directed to whole populations. Yearly investment costs of around US\$1.50 per person for both the population-wide and individual interventions were regarded as acceptable and compare well with interventions for other disorders.^{28–30} The total amount of money needed every year to implement the two population-wide and the one individual-level interventions in the 23 countries studied in this Series is roughly \$5.8 billion (as of 2005)—\$1.1 billion for the population-wide interventions and \$4.7 billion for the intervention directed at high-risk individuals.

In theory, in the mostly middle-income countries in which the government contributes public money to health care, service managers could draw the necessary funds from less cost-effective interventions, especially high cost or high technology interventions for individuals. But health-care spending is associated with heavy political implications, and the theory does not necessarily work in practice. Furthermore, increased total government funds for health systems are needed to cover prevention and control of chronic diseases and other priority needs. Government funds can be supported by innovative funding models to further assist prevention and control of chronic diseases. For example, a portion of additional tobacco taxation, as pioneered in health-promotion foundations in Australia, Thailand, and now Tonga,³¹ could be used to fund effective programmes for the prevention and control of chronic diseases. Careful consideration should also be given to the creation of a global fund for chronic disease prevention and control or some other public–private partnership to initiate and support national action.

Present amounts of support by development agencies and foundations for chronic disease prevention and control are small. For example, in 2002, bilateral development agencies, WHO, and the World Bank allocated \$69 million to chronic diseases, which represents just under 0.1% of total Official Development Assistance provided by governments in countries of the Organisation for Economic Cooperation and Development to the health sector.³² The Gates Foundation has so far been remarkably uninterested in chronic disease prevention and control despite its stated concern to support efforts to prevent and treat diseases and disorders that cause widespread illness and death in developing countries and which receive inadequate attention and funding.³³ However, now that the health and economic effects of chronic diseases in low-income and middle-income countries are so well

described, the foundations are expected to broaden their concerns. Although the recent movement of the Gates Foundation towards providing support for tobacco control signals that such a welcome change could be imminent, the speed and scale of such assistance for chronic disease prevention and control need to be substantially enhanced.

Ultimately the prevention and control programmes have to be self-sustaining. Local political will is therefore essential. As with infectious disease, programmes for chronic diseases in low-income and many middle-income countries will need external aid to kickstart them. However, unless the country is prepared to take responsibility for these problems, no amount of external aid will be enough or effective. Once the local commitment is gained, external contributions could have a substantial and positive effect, especially in building capacity in the health workforce and in mobilising an increased level of community participation. However, this vision is not yet in sight.

Surveillance and research needs

Proper planning and implementation of prevention and control strategies depend on the availability of reliable and comparable information for monitoring the burden of chronic diseases and their risk factors; information needs are greatest in the poorest countries. A simple stepwise approach to risk factor surveillance³⁴ is in operation in 16 of the 23 countries studied in this Series. Inadequate health information contributes to the non-recognition of the burden of chronic diseases, inadequate resource allocation, improper planning of control strategies, and little means of monitoring the effect of health policies.³⁵

The stepwise approach provides adequate evidence of the national significance of risk factors, which is often essential for achieving policies for chronic diseases. In terms of research priorities, support from funding agencies is crucial for implementation research—ie, for research that explores the most practical and efficient methods of applying existing knowledge for the available interventions. How best, for example, to ensure the availability of low-cost generic drugs for people at high risk of cardiovascular disease and to ensure their uptake and long-term use without impoverishment to the users? How can people at high risk be easily identified in primary health-care settings? What are the actual effects of tobacco control policies in restricting tobacco use in low-income and middle-income countries? How can these policies be implemented in high-burden countries? A further research priority is the development of a simple set of indicators for monitoring progress in national implementation.

Call to action

The Chronic Disease Action Group is a partnership of independent experts brought together for the initial purpose of preparing and reviewing this Series of papers. However, on the basis of the success of the Bellagio Study Group on Child Survival,³⁶ and building on the recent *Lancet* mental health series,² we now embrace a broader

agenda, moving from the evidence-base to capacity building; advocacy, policy, and programmatic development; and monitoring and assessment in support of the global goal for prevention and control of chronic diseases.

We call for urgent and intensified action from all stakeholders to respond to the chronic disease epidemics

on the basis of all the available evidence, including that presented in this Series. The evidence is unequivocal: major and rapid health and economic gains are possible with only modest investments in prevention and control of chronic diseases. Panel 3 shows our global call for action.

For more information about GLOBALink see <http://www.globalink.org/>

Panel 3: Global call for action

We urge WHO to:

- Provide stronger global leadership and coordination for the prevention and control of chronic diseases
- Increase its support to national prevention and control efforts especially for the development, implementation, and assessment of national action plans
- Progressively increase its financial support for the surveillance, prevention, and control of chronic diseases to bring it to a level that is more commensurate with their burden
- Strengthen its support for the development of integrated health-service approaches to the prevention and management of chronic diseases with an emphasis on primary health care
- Increase research into the components of the stepwise approach to prevention and control of chronic diseases including their health effects
- Support the development of indicators for monitoring progress in chronic disease prevention and control and towards the global chronic disease goal

We urge the World Bank and regional banks, other development agencies, and foundations to:

- Formally recognise chronic diseases as a major impediment to development
- Increase their financial support for programmes for chronic disease prevention and control to a level that is more commensurate with their burden

Nationally, we urge countries to:

- Give high priority to policies and funded programmes for the prevention and control of chronic diseases, involving all relevant stakeholders
- Adopt the stepwise approach to the prevention and control of chronic diseases, beginning with interventions described in this Series and moving rapidly to more comprehensive interventions as appropriate
- Integrate the prevention and control of chronic diseases with programmes for infectious diseases as part of an essential reinvention of primary health care
- Ratify and implement the provisions of the Framework Convention on Tobacco Control and implement the Global Strategy on Diet, Physical, Activity, and Health, and monitor their effects
- Strengthen data collection and monitoring mechanisms for chronic diseases, with an initial focus on surveillance of major risk factors
- Ensure the availability of suitably trained people for the development, implementation, and assessment of programmes for the prevention and control of chronic diseases, including appropriate attention to professional education

We urge both national and international non-governmental organisations to:

- Work much more closely together to promote the integrated prevention and control of chronic diseases
- Promote evidence-based advocacy to support national authorities in their planning, implementation, and assessment of national prevention and control efforts
- Establish an international information infrastructure to support the needs of the expert physical activity and nutrition community in parallel with the successful GLOBALink for tobacco control

We urge the food and drinks industry to:

- Rapidly work towards the reformulation of foods high in fat, salt, and sugar to produce healthier and less energy-dense products
- Bring the full power of their advertising, marketing, and promotional forces to support healthy habits
- Ensure that positive initiatives to promote healthy habits in high-income countries become the norm in low-income and middle-income countries

We urge the pharmaceutical industry to:

- Ensure the availability, affordability, and accessibility of low-cost generic drugs for the management of people at high risk of chronic diseases, especially cardiovascular diseases

We urge civil society to:

- Engage more seriously with the national and local responses to the epidemics of chronic diseases
- Ensure that the chronic disease prevention and control needs of disadvantaged populations are met as a priority through participation in appropriate partnerships

We urge academics to:

- Participate fully in the development, implementation, and assessment of programmes for chronic disease prevention and control
- Focus their research efforts on implementation research questions that are relevant to low-income and middle-income countries
- Develop and test indicators for assessment of progress in the prevention and control of chronic diseases, especially in low-income and middle-income countries

Conclusions

This Series of papers in *The Lancet* provides evidence that achievement of the global goal for the prevention and control of chronic diseases is both possible and realistic through available interventions. These papers lend support to the rapid scaling-up of efforts to prevent and control chronic disease in low-income and middle-income countries, on the basis of an analysis of 23 WHO member states which between them are responsible for 80% of the total burden of chronic disease in developing regions of the world. These papers also suggest that the global goal might not in fact be sufficiently ambitious since the potential effects of the full array of available interventions has not been analysed.

We appreciate the complex nature of the health problems of national authorities in low-income and middle-income countries because of competing priorities. We are also aware that the evidence for the actual effects of interventions on reducing the burden of disease within countries is more limited than is the broader evidence base for action. However, the totality of the evidence suggests that large economic and health gains can be achieved in low-income and middle-income countries through increased efforts to prevent and control chronic diseases.

We have established the Chronic Disease Action Group to encourage, support, and monitor action for the implementation of evidence-based efforts to promote global, regional, and national action to prevent and control chronic diseases. In the meantime, the findings presented in this Series represent great hope for the prevention and control of chronic diseases.

Conflict of interest statement

We declare that we have no conflict of interest.

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