

Poverty and human development

Poverty and chronic diseases in Asia: challenges and opportunities

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The economic rise of China and India is likely nothing less than a fundamental realignment of the global order.¹ Current income growth in these countries is paired with a rapid demographic and epidemiologic transition. The aging population and the increasing prevalence of chronic noncommunicable diseases (such as heart attack, stroke, diabetes mellitus, respiratory diseases and cancer) pose considerable challenges to the weak health care systems in these countries. The emerging threats from chronic diseases have not just major health implications, but also economic and financial costs.² Here, we argue that much of the chronic disease occurring in Asia is avoidable, that chronic-disease control reduces poverty and finally that creation of epidemiologic and clinical evidence that enables such control is a global, not only an Asian, challenge.

Avoidable adult mortality in Asia

Currently, about 27 million deaths occur each year in South and East Asia: 7 million among those under 30 years of age, 10 million in middle-aged people (Table 1 and Table 2)^{3,4} and another 10 million among those 70 years and older. The individual years of life lost are greatest for death at young ages, but even among middle-aged people, a premature death means 20 to 25 years of productive life lost, often years that would have been spent as the head of a household. Trends in mortality over the past 200 years in some areas of the world have indicated that reductions in death before old age could be achieved more widely. Specifically, death at young ages (below 30 years of age) could become a rare occurrence, and death in middle age (30 to 69 years) need no longer be common.^{5,6}

Marked reductions in child mortality in China and India over the past few decades have meant that the vast majority of those born in these countries now can expect to reach middle age. Today, there are an estimated 1.3 billion adults 30–69 years of age (Table 1) in South and East Asia, and at these ages nearly 70% of deaths are from noncommunicable diseases, with communicable, maternal and nutritional conditions accounting for 20% of deaths, and injuries accounting for another 10%.

The Disease Control Priorities Project⁷ reviewed over 300 health interventions and found proven, feasible, affordable and cost-effective interventions that can reduce the risk of premature death from chronic diseases in middle age (Table 2). A substantial number of adult deaths still result from tuberculosis and AIDS, such that effective tuberculosis treatment and avoidance of HIV-1 infection are also important.

Key points of the article

- The rise of chronic diseases in South and East Asia (most importantly in China and India) has major health and poverty implications and presents a substantial challenge for governments
- Of the 8 million deaths from chronic disease that occur each year in Asia among those 30–69 years of age, many are avoidable
- A handful of highly cost-effective interventions exist for the control of chronic disease. Among these, cessation of tobacco use by the region's 500 million smokers is key to reducing burdens from vascular, respiratory and neoplastic diseases and from tuberculosis
- An Asian partnership with Western governments and institutions to create better interventions and to monitor the evolution of the great epidemic of chronic disease could have global scientific benefits

Avoiding the poverty traps from chronic disease

Rapid economic growth in Asia does not, per se, guarantee rapid improvements in health outcomes. Indeed, the health gaps between urban and rural areas and between poor and rich people are widening. It is easy for households to spend too well and not wisely on chronic disease care. Historical lessons from countries in the Organisation for Economic Co-operation and Development are clear: public financing of clinical services is essential to maintain costs and to ensure quality and equitable access.⁸ Historically, China and India have spent far too little on health, partly because health has not been seen as a “productive” part of the economy⁸ and also because of low national income. Income growth in China and India means that they are now able to spend more from the public purse. Recent economic growth has led to both countries announcing plans to expand public funding of health care: India to address its historically low spending (less than 1% of gross domestic product for public spending on health) and China to reverse its disastrous withdrawal of rural cooperative health insurance in the 1990s, when, almost overnight, more than 100 million rural Chinese lost health care coverage.

Both countries have adopted the United Nations goals for

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reducing child and maternal mortality by 2015. The case for encompassing chronic diseases in efforts to expand health care is 4-fold. First, these are major killers that can rob households of a lot of years of good health. Second, there are highly cost-effective interventions, as noted above and detailed in the Disease Control Priorities Project).⁷ Third, despite the notion that these are “diseases of affluence,” much of the burden of chronic disease and its risk factors are concentrated among the poor. For example, smoking prevalence among illiterate Chinese and Indian males is nearly 50% higher than among their literate counterparts.⁹ Household tobacco use in India is associated with low birth weight and premature birth, as well as with economic hardship arising from increased hospital admissions.¹⁰ Adult ill health is a major reason for households sliding into poverty.¹¹ Fourth, there is evidence that productive adult health has been central to economic growth in the region, partly through increases in savings rates, along with better productivity.⁸

Four cost-effective approaches to control chronic disease in Asia

As examples of highly practicable interventions that reach the poor and that reduce premature mortality, we consider 4 approaches, drawing on information gathered by the Disease Control Priorities Project.⁷

Tobacco control

In China and India, as in most low-income countries, death in middle age increases in relative importance as the effects of smoking increase. However, tobacco kills differently in different parts of South and East Asia. In China, the leading causes of death from smoking are chronic lung disease and lung cancer, with a noted excess also of tuberculosis deaths but much lower heart disease.¹² In India, the leading causes of death from smoking are tuberculosis and heart disease, with relatively less lung cancer.¹³ Unless there is widespread cessation of smoking, some 100 million of China's 300 mil-

lion male smokers and about 40 million of India's 100 million male smokers will eventually die from tobacco-related causes.

Many countries in the Organisation for Economic Co-operation and Development have seen substantial declines in smoking deaths over the past 2 decades; for example, lung cancer deaths among men 30–44 years of age have fallen by nearly 80% in the United Kingdom,^{14,15} a change attributable chiefly to marked increases in cessation. Also, in the countries of the Organisation for Economic Co-operation and Development, more than 30% of the adult population are ex-smokers, in contrast to only 2% in India, 9% in China and 15% in Thailand.¹⁶ Thailand is far ahead of China and India, as it has had a much more comprehensive tobacco-control strategy. In China, smoking cessation has increased only since about 1998, when the first scientific reports that smoking was killing large numbers of Chinese people appeared in the popular press.¹² A considerable number of tobacco deaths over the next half century could be prevented by encouraging current smokers to quit smoking. Reducing the uptake of smoking by children will yield benefits chiefly in the second half of the 21st century.^{14,15} Cost-effective measures to encourage cessation and reduce uptake include higher taxes, which are vastly underused in Asia. For example, bidis, the most commonly smoked form of tobacco in India, have historically had low taxation rates. Other effective measures include restrictions on public smoking, government support for quit-smoking clinics, better public information about

Table 2: Mortality* (in millions) in South and East Asia from selected causes, among people 30–69 years of age, for 2001†

| Cause of death | Men | Women | All |
|---|-----|-------|-----|
| Cancer | 1.1 | 0.8 | 1.9 |
| Ischemic heart disease | 1.0 | 0.6 | 1.6 |
| Stroke | 1.0 | 0.4 | 1.4 |
| Respiratory diseases | 0.5 | 0.4 | 0.9 |
| Tuberculosis | 0.6 | 0.3 | 0.9 |
| AIDS‡ | 0.2 | 0.05 | 0.3 |
| All noncommunicable diseases plus tuberculosis and AIDS | 4.9 | 3.3 | 8.2 |

*Avoidance of disability is also important. Mortality does not capture all illnesses, specifically missing neuropsychiatric and musculoskeletal diseases. However, the correlation of mortality with morbidity for most major diseases is quite strong. Moreover, it is important to note that measurement error in disability estimates is much greater than in mortality estimates and often exceeds the desired change in health outcomes. For example, a health policy planner may desire a 10% improvement in diabetes outcomes, but if measurement error exceeds 10% in the health outcome measure, the planner will not know if the intervention has worked. Since death is a clear and usually measurable event, restricting analyses to mortality should reduce measurement error in health policy-making. For more details, including estimates of disability-adjusted life years in the region, see reference 3.

†Adapted, with permission of the World Bank Group, from Jha and Anderson.³ Original data source: Lopez and associates.⁴

‡Newer data from direct epidemiologic studies suggest that deaths from AIDS may be a magnitude lower than the indirect estimates from the Global Burden of Disease study.

Table 1: Population and deaths (in millions) in South and East Asia* by cause among people 30–69 years of age, for 2001†

| Variable | Men | Women | All |
|---|-----|-------|------|
| Total population | 661 | 636 | 1297 |
| Deaths | | | |
| All causes | 6.1 | 4.2 | 10.3 |
| Communicable, maternal and nutritional conditions | 1.2 | 0.8 | 2.0 |
| Noncommunicable diseases | 4.1 | 2.9 | 7.0 |
| Injuries | 0.8 | 0.5 | 1.3 |

*China and India account for more than 70% of the total population in these geographic regions.

†Adapted, with permission of the World Bank Group, from Jha and Anderson.³ Original data source: Lopez and associates.⁴

smoking hazards, and prominent warning labels on cigarette and bidi packs and packaging.¹²

Hepatitis B vaccination

An estimated 0.4 million deaths from liver cancer occur each year in South and East Asia, many of these due to chronic infection from hepatitis B. Universal immunization with hepatitis B vaccine, which was implemented in China in 2002 but has not yet been undertaken in India, is highly cost-effective and could avert up to 90% of the estimated 1.5 million deaths from liver cancer that will otherwise occur among those born in the region in the year 2000.¹⁷ For those who are already infected, however, vaccination will not help. Strategies are needed to reduce cofactors, such as exposure to aflatoxins (toxic compounds produced by certain strains of fungi, which can damage the liver) and alcohol.

Screening for and vaccination against cervical cancer

Nearly 150 000 women die from cervical cancer each year in South and East Asia,⁴ and almost all of these deaths are caused by human papillomavirus. Vaccines for this viral infection have now been introduced in Western countries. Making these widely accessible at reasonable cost to adolescent girls would avert a very large proportion of future deaths from cervical cancer among young adult women. Ensuring that all adult women undergo at least one Papanicolaou test or human papillomavirus screening for early cervical cancer — with referral if the result is positive — would be an effective way to reach older women who will not benefit from the new vaccines.¹⁷

Low-cost combination drug therapy for vascular disease

There is considerable evidence that simple combinations of cheap drugs can be highly effective in reducing mortality among the millions of adults in South and East Asia who already have some form of vascular disease or diabetes.¹⁸ For example, among patients with a history of occlusive vascular disease such as stroke or heart attack, use of acetylsalicylic acid, a statin and an antihypertensive drug could reduce the annual risk of major recurrence by about two-thirds; the 10-year risk of death or readmission to hospital is about 50% if people go untreated but only 16% if they receive daily treatment with 3 or 4 drugs. All of these drugs are inexpensive and could easily be packaged into “polypills” or “generic risk pills” for widespread use.¹⁹ Indeed, China’s success in ensuring widely accessible tuberculosis therapy with several drugs serves as a model of how simple drug therapy for vascular disease could be introduced in the region.

The globalization of evidence

Rapid globalization of goods and services also means that unique opportunities are arising to enhance global knowledge about the control of chronic disease. Already, large-scale “mega” trials conducted in China have had major impact on clinical practice in the West,²⁰ and India’s biotechnology sector and its generic drug manufacturers are booming. However,

Western academic institutions and industry still enjoy a comparative advantage in research. If this advantage could be appropriately levered, global knowledge would surely advance.

Consider a practical example. High blood cholesterol is a major risk factor for heart disease worldwide. A previous prospective study in China showed that the positive relation between risk of heart disease and total cholesterol levels in the blood continues down to at least 3 mmol/L (i.e., well below the range generally studied in Western populations²¹). These findings (suggested earlier by Rose in his classic paper of 1985²²) have only recently widened our perspective on what might be regarded as “normal” in Western populations. Indeed, they have also affected the way in which lipid-lowering therapy is managed in high-risk patients.²³ Similarly, much of what we know about chronic disease will be greatly enhanced by better scientific research in epidemiological studies currently under way in China and India.^{24,25} Moreover, we can learn much from a better understanding of how information about risks is created and then communicated to and used by the public. A reasonable analogy for chronic disease research today would be the status of diarrhea research about 40 years ago, when such research was fragmented and of low impact. Led by the efforts of Bangladeshi institutions and support from the World Health Organization and others, oral rehydration therapy and related efforts initiated worldwide have markedly reduced childhood deaths from diarrhea.²⁶

Priority research will involve developing a better understanding of the relationships among “known” risk factors, such as smoking, blood pressure and blood lipids, but also a better understanding of the complex interactions of obesity, diabetes, urbanization and vascular disease. Large-scale studies might well lead to better therapeutics with global relevance. There is every reason to believe that a major Asian-led effort to improve health research and development for the control of chronic disease, with support from global research and development partners, could be similarly effective in saving lives and reducing poverty in the 21st century.

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