Chronic diseases: global action must match global evidence

Published Online
November 11, 2010
DOI:10.1016/S0140-6736(10)61929-0

See Series pages 1689 and 1699

See Online/Series
DOI:10.1016/S0140-6736(10)61514-0,
DOI:10.1016/S0140-6736(10)61353-0, and
DOI:10.1016/S0140-6736(10)61853-3

In September, 2011, the UN will hold its first High-level Meeting of the General Assembly on chronic non-communicable diseases in New York. Billed as a once in a generation opportunity to put chronic diseases on global and national agendas, the UN meeting could achieve what this year's Millennium Development Goal Summit achieved—the launch of coherent strategies for action, securing broad political commitment, winning pledges of financing, and providing a stage for powerful international advocacy.[1] The Series of papers we launch today is our contribution to preparations for the September meeting. We see the next 12 months as an unprecedented opportunity to change the conversation of global health, to rewrite the political manifesto for health to include one of the most neglected—and yet most important—categories of death and disability.

The compelling science base for the prevention of chronic disease contrasts starkly with the limited action in countries where the burden is greatest. Chronic diseases—mainly cardiovascular diseases, diabetes, cancer, and chronic respiratory disease—have a large but unappreciated negative economic impact on individuals, families, and countries, and as such are a major barrier to human development. *The Lancet*, in collaboration with WHO and other partners, has convened some of the world's best scientists working in chronic diseases to strengthen the evidence for prevention through three Series over the past 5 years.

The first Series, *The neglected epidemic of chronic disease*,[2] summarised work done by WHO and was published in 2005 in association with the report *Chronic disease prevention: a vital investment*.[3] The Series highlighted the huge burden of chronic diseases,[4] most of which is felt in low-income and middle-income countries such as India[5] and China.[6] The Series called for urgent and coordinated political and stepwise health-system action to reduce the impact of chronic diseases. It proposed a target to reduce chronic disease death rates by an additional 2% annually which, if achieved, would have averted about 35 million deaths over 10 years with most of the gains being in low-income and middle-income settings. The Series refuted common misunderstandings that act as barriers to action.[7] Unfortunately, some of these opinions are still voiced in development circles, especially the notion that priority must only be given to infectious diseases and maternal, newborn, and child health before the much more common chronic diseases are addressed. In fact, a cooperative and collaborative approach to all diseases, irrespective of aetiology, is required.

The second Series in 2007, *The case for urgent global action*,[8] was produced by a global team of scientists under the independent umbrella of the Chronic Disease Action Group, established to monitor progress arising from the first Series. The second Series focused on 23 countries that are responsible for 80% of the chronic disease burden in all low-income and middle-income countries.[9] The Series identified three highly cost-effective interventions for the prevention of chronic diseases: tobacco control and salt reduction,[10] together with combined drug treatment for people at high absolute risk of cardiovascular disease.[11] Salt reduction and tobacco control could avert almost 14 million deaths over 10 years at a cost of less than US$0·40 per person per year in these countries. Scaling up treatment with aspirin and low-cost off-patent drugs to lower blood pressure and cholesterol would avert a further 18 million deaths over 10 years at an average cost of about $1·10 per person per year, with most of these costs being due to the drugs. The annual costs of the three interventions would be approximately $6 billion; about half of what is required for the annual cost of drugs for HIV/AIDS. Although other interventions are available, such as reducing dietary saturated and *trans* fats, gaps in the evidence precluded estimates of their cost-effectiveness and the likely impact at a national

Photolibrary

level.[12] The Series ended with a call to action from all stakeholders, especially development agencies, donor countries, and private foundations which continue to neglect the prevention of chronic disease despite the robust scientific basis for action.[13]

The third Series, *Chronic disease as a development issue*, beginning today in *The Lancet*, was also produced under the independent umbrella of the Chronic Disease Action Group. This new Series starts from the premise that our collective failure to address the chronic disease pandemic is a political failure rather than a technical failure, given that proven cost-effective interventions are available.[14] Advancing the prevention of chronic disease requires re-framing development discussions to emphasise the underlying societal determinants of disease and the inter-relationships between chronic disease, poverty, and development. Resources must be mobilised through a cooperative and inclusive approach and distributed more equitably on the basis of avoidable mortality, rather than primarily on fashionable diseases.

The second paper estimates the impact of healthier diet recommendations on population health, agricultural production, trade, the wider economy, and livelihoods, highlighting the importance of connecting all elements of the agri-system.[15] Based on case-studies of the UK and Brazil, analyses suggest that the benefits of a healthy diet policy will vary considerably between different populations, not only due to population dietary intake but also due to agricultural production, trade, and other economic factors.

The third paper in the Series addresses the costs of preventive interventions not previously studied and the likely health gains from their implementation in six high-burden countries: Brazil, China, India, Mexico, Russia, and South Africa (with England included for comparative purposes). A package of measures to tackle unhealthy diets, physical inactivity, and obesity would deliver substantial health gains at a cost ranging from $1·3 to $4·5 per person, with very favourable cost-effectiveness ratios.[16]

Health-system strengthening is receiving increasing attention, especially for infectious diseases and maternal, newborn, and child health issues. It is equally important for the identification and management of patients at risk of chronic diseases.[17] A strong case is made to those driving the emerging health-systems agenda not to treat chronic diseases as an after-thought. Effective chronic disease programmes, especially those directed at individuals rather than the population as a whole, are highly dependent on well-functioning country health systems. Chronic diseases represent a litmus test for evaluating progress in strengthening health systems.

The final paper is from WHO.[18] This paper presents the latest estimates of the burden of chronic disease and selected risk factors in the 23 high-burden countries investigated in the earlier Series, together with their capacity to respond to the chronic disease challenge. Despite the plethora of WHO resolutions on the topic—the first over 50 years ago—action at the national level in most low-income and middle-income countries is far from adequate. The good news is that the UN High-level Meeting next September has the potential to stimulate action globally as well as nationally. Our measure of success for this Series will be a central place for chronic disease prevention in the global development agenda during the coming year and beyond.

*Robert Beaglehole, Richard Horton
Devonport, Auckland, New Zealand 0624 (RB); and *The Lancet*, London, UK (RH)
r.beaglehole@auckland.ac.nz

1 Alleyne G, Stuckler D, Alwan A. The hope and promise of the UN Resolution on noncommunicable disease. *Global Health* 2010; **6:** 15.
2 Horton R. The neglected epidemic of chronic disease. *Lancet* 2005; **366:** 1514.
3 WHO. Preventing chronic disease: a vital investment. 2005. http://www.who.int/chp/chronic_disease_report/en (accessed Oct 13, 2010).
4 Strong K, Mathers C, Leeder S, Beaglehole R. Preventing chronic diseases: how many lives can we save? *Lancet* 2005; **366:** 1578–82.
5 Reddy KS, Shah B, Varghese C, Ramadoss A. Responding to the threat of chronic diseases in India. *Lancet* 2005; **366:** 1744–49.
6 Wang L, Kong L, Wu F, et al. Preventing chronic diseases in China. *Lancet* 2005; **366:** 1821–24.
7 Epping-Jordan JE, Galea G, Tukuitonga C, Beaglehole R. Preventing chronic diseases: taking step wise action. *Lancet* 2005; **366:** 1667–71.
8 Horton R. Chronic diseases: the case for urgent global action. *Lancet* 2007; **370:** 1881–82.
9 Abegunde DO, Mathers CD, Adam T, et al. The burden and costs of chronic diseases in low-income and middle-income countries. *Lancet* 2007; **370:** 1929–38.
10 Asaria P, Chisholm D, Mathers C, et al. Chronic disease prevention: health effects and financial costs of strategies to reduce salt intake and control tobacco use. *Lancet* 2007; **370:** 2044–53.
11 Lim SS, Gaziano TA, Gakidou E, et al. Prevention of cardiovascular disease in high-risk individuals in low-income and middle-income countries: health effects and costs. *Lancet* 2007; **370:** 2054–62.
12 Gaziano TA, Galea G, Reddy KS. Scaling up interventions for chronic disease prevention: the evidence. *Lancet* 2007; **370:** 1939–46.
13 Beaglehole R, Ebrahim S, Reddy S, et al. Prevention of chronic diseases: a call to action. *Lancet* 2007; **370:** 2152–57.
14 Geneau R, Stuckler D, Stachenko S, et al. Raising the priority of preventing chronic diseases: a political process. *Lancet* 2010; published online Nov 11. DOI:10.1016/S0140-6736(10)61414-6.
15 Lock K, Smith RD, Dangour AD, et al. Health, agricultural and economic effects of adoption of healthy diet recommendations. *Lancet* 2010; published online Nov 11. DOI:10.1016/S0140-6736(10)61352-9.

16 Cecchini M, Sassi F, Lauer JA, et al. Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. *Lancet* 2010; published online Nov 11. DOI:10.1016/S0140-6736(10)61514-0.

17 Samb B, Desai N, Nishtar S, et al. Prevention and management of chronic disease: a litmus test for health-systems strengthening in low-income and middle-income countries. *Lancet* 2010; published online Nov 11. DOI:10.1016/S0140-6736(10)61353-0.

18 Alwan A, MacLean DR, Riley LM, et al. Monitoring and surveillance of chronic non-communicable diseases: progress and capacity in high-burden countries. *Lancet* 2010; published online Nov 11. DOI:10.1016/S0140-6736(10)61853-3.

For severe malaria, artesunate is the answer

Published Online
November 8, 2010
DOI:10.1016/S0140-6736(10)61928-9

See Articles page 1647

Severe falciparum malaria is one of the few infections that can kill within hours. It requires swift and effective therapy, which is best delivered intravenously; unlike other causes of coma, most survivors of cerebral malaria do not have serious sequelae. Mortality depends largely on how soon the patient is treated, but even in expert centres, one in five patients might die. Choosing the best antimalarial drug for severe malaria has been an important and difficult question. In *The Lancet*, this question has been answered definitively: artesunate is superior to quinine when both are given intravenously. Arjen Dondorp and colleagues,[1] of the truly international AQUAMAT group, tested artesunate versus quinine in children who were likely to die from falciparum malaria at 11 centres in sub-Saharan Africa. A robustly designed, open-label, randomised trial enrolling 5425 children over 5 years was needed to show a 22·5% relative reduction in mortality. Previous studies have either not shown a mortality difference between artemether and quinine, due to pharmacodynamic issues with intramuscular administration,[2] or have found artesunate to be superior to quinine for adults in Asia and Africa (as in the SEAQUAMAT trial[3]), therefore leaving room for some doubt for African children. AQUAMAT answers these final doubts as well as can be expected in a clinical trial done in developing countries. Cardiologists have long since stopped using quinidine for dysrhythmias; we should now end the 400-year use of quinine for severe malaria.

Intravenous artesunate as standard therapy for severe malaria raises several practical issues that need to be faced if the AQUAMAT's results are to be translated into improved survival for severely ill patients with falciparum malaria. Simply changing treatment recommendations is not enough—the drug has to be made available. This availability will not be easy, as shown by the extraordinary efforts of the Affordable Medicines Facility–malaria of the Global Fund to Fight AIDS, Tuberculosis and Malaria[4] to make oral artemisinin combination therapy available for non-severe malaria in developing countries. Guards against the criminal activity of manufacturing and distributing counterfeit drugs will need to be reinforced.[5] Paradoxically, artesunate is more easily available in developing countries than in countries with more modern drug industries, largely because in non-endemic developed countries there are few patients with severe malaria. As yet, no Good Manufacturing Process (GMP) formulation of artesunate is commercially available, despite the Medicines for Malaria Venture[6] requesting WHO prequalification for a Chinese product, and the US Public Health Service distributing GMP artesunate for an investigational new drug protocol from the Walter Reed Army Institute of Research.[7] In most developed countries, when a physician has a patient with severe malaria, they must apply for named-patient release of non-GMP artesunate or have the drug urgently couriered to the bedside. Because most malaria deaths in non-endemic countries are due to delays in diagnosis and treatment, clumsy administration matters. Bureaucratic inertia should not need publicised malaria deaths to make GMP

AFP/Getty Images

South Sudanese infants and their mothers in a malaria ward at the main hospital in Juba