

Noncommunicable diseases: tomorrow's pandemics

George Alberti¹

For centuries infectious diseases were the main causes of death worldwide. Life expectancy was short and epidemics raged. In the 19th century public health measures, basic hygiene and antiseptics marked the beginning of a way to counter the scourge, but infection continued to be the main cause of death until the Second World War. The second revolution in disease control came with the introduction of penicillin and other antibiotics after 1945. Effective treatment for tuberculosis soon followed. But then came the inexorable rise of non-infectious diseases. Ischaemic heart disease and cancers became the scourges of the West together with chronic pulmonary diseases and cerebrovascular disease. As life expectancy increased so did the prevalence of these disorders. Chronic mental diseases and the diseases of ageing such as dementias and “structural” diseases also became more evident.

During the past three decades, great efforts have been made to deal with these chronic diseases. Many of the risk factors for heart disease, cancers, stroke and chest disease have been identified. Smoking, known to be a major health problem for the past four decades, is finally being attacked in the developed world, and lifestyle factors (particularly nutrition and physical activity) are slowly being tackled although much remains to be done. Scientific developments, including the new genetics, are being used to pinpoint causes of chronic diseases and to develop more sophisticated organ replacement treatment. Life expectancy in the developed world is slowly but surely increasing, but at a cost. Economically, the cost per head of health care is mushrooming at the rate of hundreds of dollars per head, in some countries thousands. Socially, the cost is an increasing divide in health care and health between the richest and poorest nations.

In the developing world infectious diseases remain a major cause of death. Malaria and gastroenteritis continue to take their toll. Over the past two decades any advances against infection have been re-

versed by the rise of HIV-related disorders. Life expectancy in many countries, particularly in sub-Saharan Africa, has fallen dramatically — to make a near 30 year gap between the North and South in some cases. Tuberculosis has surged with resistant forms appearing. In our work in the United Republic of Tanzania with the Adult Mortality and Morbidity Project we have shown consistently over the past decade that HIV, with or without tuberculosis and “acute febrile illness” (presumably malaria), is the main causes of death in adults, with gastroenteritis killing both children and adults.

Against this gloomy background non-communicable diseases are emerging as major problems as well. This is particularly the case where economic conditions have improved with rapid industrialization, such as Singapore (see Cutter et al., pp. 908–915).

Diabetes and cardiovascular disease are the main chronic diseases to have reached alarming proportions. As the work of Murray and Lopez on the burden of diseases shows, the whole NCD cluster is a major problem in the middle income countries, with ischaemic heart disease taking the lead. As a percentage of deaths, NCDs accounted for 87% in the established market economies, 84% in the former Soviet economies, 73% in China, 40% in India and 23% in sub-Saharan Africa. These figures were derived from 1990 data but there have probably not been major changes in them since then. Despite this percentage emphasis on infection in the developing world, in absolute numbers many more people died from NCDs in the developing than in the developed world: 18.7 million versus 9.4 million.

The picture now in many countries is one of epidemiological transition (from infectious to noncommunicable diseases) but in an increasing number of countries infectious diseases are not falling, so there is a “double whammy”. Even in sub-Saharan Africa where infections are such a major cause of death, we are seeing the rise of NCDs. Thus in Tanzania stroke is an increasingly important cause of death, with age-standardized death rates several times higher than in the UK.

Diabetes (Type 2) is now emerging as the new pandemic of the 21st century. It is

estimated that there are 150 million people with diabetes worldwide, with that number expected to double by 2025. This is a conservative estimate. Alarming increases are occurring everywhere. In Mauritius the adult prevalence has reached almost 20%, rapid increases are occurring in India and China and even in the poorest countries in sub-Saharan Africa there has been a major increase in prevalence in urban areas in the last decade (see Unwin et al. in this issue, pp. 947–953). Ischaemic heart disease is also increasing, as are chronic respiratory diseases and cancers.

So why the increases and how can they be prevented? Many of the risk factors for heart disease, diabetes and pulmonary diseases are due to lifestyle and can be prevented. Physical inactivity, Western diets and smoking are prominent causes, and strategies for prevention are described in this issue (e.g. by Nissinen et al. pp. 963–970). However, it has taken decades for such approaches to begin to work in developed countries and prospects in the developing world are gloomy — but must be tried. Not only tobacco companies but fast food chains are now targeting the poorest countries. Reverting to traditional diets in urban settings is difficult — but must be tried. Where primary prevention fails, risk factors should be treated. We have attributed the high stroke mortality in East Africa to untreated hypertension. Drug treatments can be inexpensive but still remain out of reach for many people. Even when affordable, care is often not organized to deal with NCDs and their risk factors.

The NCDs are the new pandemics of the 21st century. They threaten to swamp the meagre health care resources of many countries. Primary prevention is needed at the national and population level. It should be driven and supported by WHO on a global basis. Action on AIDS, malaria and tuberculosis are of course essential today, but the fight against noncommunicable diseases needs to start today and be the prime focus tomorrow. The current work on smoking is a start but much more is needed. This issue of the *Bulletin* highlights the need — and some of the possible directions. ■

¹ President, Royal College of Physicians, 11 St Andrews Place, Regent's Park, London NW1 4LE, England.