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Challenges for public health in the global context — prevention and surveillance

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Public health is the organized efforts made by society to prevent and control disease and promote health at the population level. Unfortunately, the practice of public health has yet to fulfil its potential to improve the health of poor and disadvantaged populations (1, 2). Worldwide, there is a tremendous burden of preventable premature death and disability that is way beyond the ability of individualized health services, in even the wealthiest countries, to deal with. Many countries are overwhelmed by indebtedness, and one long-term effect of structural readjustment processes has been the restriction of publicly supported health services. In the long term, the only effective and equitable response to the global disease burden is to emphasize and strengthen preventive programmes. For this to occur a strong public health capacity is required in all countries, especially the poorest; a priority is the establishment of the surveillance mechanisms that underpin all public health efforts.

The challenges facing public health practitioners have always been great. Today, they are even more daunting (3). Globalization, one of the key challenges facing public health practitioners and health policy makers, refers to the increasing interconnectedness of countries through cross-border flows of ideas, commerce and people; the increasing openness of countries to such flows; and the development of international rules and institutions dealing with these flows. The current phase of globalization, dating from the late 1970s, is marked by a more rapid increase in interconnectedness and more radical changes in the international institutional framework than previous phases. A priority for public health is to strengthen national

action to protect and promote health in this era of globalization.

Globalization interacts with other important and inter-related determinants of population health status: demographic changes, especially population growth and the ageing of populations; global environmental changes; the new and old epidemics of infectious diseases; and the emerging epidemics of non-communicable diseases. Although there were impressive and unrivalled gains in health status worldwide in the twentieth century, many populations in both poor and wealthy countries still have life expectancies and disease burdens typical of European countries a century ago. The relative disparity between countries in life expectancy has improved only a little over the last half-century and health inequalities within countries are increasing (4). The fragility of recent health gains has become apparent in the face of social disruption as a result of economic and political disarray, as in the former Soviet Union (5), civil war, as in the former Yugoslavia, or in the face of the ravages of HIV/AIDS. A major item on the unfinished population health agenda is the more than one billion people whose life experiences have improved only slowly over the last half-century. Infectious disease epidemics, most of which are, in theory, preventable with existing knowledge, are of special relevance to the poorest 20% of the world's population that lives in Sub-Saharan Africa and Asia. HIV/AIDS, for example, has the potential to reduce life expectancy at birth by 30 years in Sub-Saharan Africa (4) and has already substantially eroded life expectancy in several eastern African countries.

A widespread feature of the current global health status picture is the "double burden" of disease. Countries that are still struggling with both old and new infectious disease epidemics must now also deal with the emerging, but preventable, epidemics of non-communicable disease such as heart disease, stroke, diabetes, and cancer (4). There is a tendency to blame individual behaviours or "life-styles" for the emergence of these new epidemics. In fact, they too can be considered "transmissible" across borders as modern culture, technology, and consumption patterns spread globally under the influence of trans-national corporations (6). On a larger scale, the ongoing restructuring of global trade and investment activities has escalated the intensity of environmental exploitation. The great increase in population size and intensification of consumption patterns have also contributed to adverse and unprecedented global environmental changes (7).

Modern public health faces two major practical tasks. On the one hand it must enhance its capacity to respond to these overarching global health determinants that present new and complex scientific problems and which will ultimately require political solutions. At the same time, the practice of public health must maintain and strengthen its ability to deal with more immediate problems; this in turn requires improved surveillance systems and stronger prevention programmes.

The prevention and control of cardiovascular disease (CVD), largely coronary heart disease (CHD) and stroke, remains one of the world's great public health challenges and illustrates the importance of global surveillance systems. CVD is the leading cause of premature death and disability in developed countries. Despite impressive declines in CHD death rates among many of these countries over the last three decades, it is projected to become the leading cause of death among developing nations by 2020 (8). Many modifiable risk factors have been identified over the past 50 years, several of which are common to the major non-communicable diseases. However, only a small number have been consistently found to meet the accepted public health criteria of causation and to be of major importance from a population perspective: high blood cholesterol, high blood pressure, and cigarette smoking. In theory and practice, each of these major risk factors can be controlled at both the personal and population level.

The major risk factors are prevalent in developed and developing countries, among all social classes, and are of similar public health significance regardless of the level of development (9, 10). A reasonable estimate is that they explain approximately 75% of the occurrence of CHD within populations (11). This indicates that there is much scope for further reducing coronary

death rates in developed countries and for preventing the emerging CHD epidemic in poorer nations. Efforts to reduce the main CVD risk factors are already strong and effective in many developed countries. However, these efforts need to be more focused on reaching their preventive potential and this priority should not be weakened by unjustified doubts about the vast size of this potential. The main question is how best to reduce the established risk factors, especially in poorer countries already experiencing the growing burden of CVD. This does not imply a focus on individuals but requires a broad and sustained public health approach that takes into account the many social and economic factors that affect populations and influence the established major risk factors.

Prevention is the only long-term rational approach to reducing the global disease burden since even the wealthiest countries do not have the resources to manage the burden of established disease. It is usually stated that the high risk and the population strategies of primary prevention are complementary. However, in reality, the high-risk approach distracts attention from the population approaches. The high-risk approach is readily understandable and without doubt can be effective. Unfortunately, this strategy is often misused and valuable resources are devoted to people at relatively low absolute risk of an event instead of being concentrated on people at serious risk who stand to benefit from the intervention. Under no circumstance will the high-risk approach deal with the emerging burden of non-communicable disease because of the origins of non-communicable disease risk in early life. Thus, the population approach must become the main strategy for the prevention of non-communicable disease. An additional attraction of the population approach to prevention is that it encourages the next essential step in public health programmes: the control of the underlying, multi-sectoral determinants of population health status.

Surveillance is the tool that underpins health promotion and disease prevention efforts and it is a fundamental, but often neglected, component of public health practice. Surveillance systems provide the systematic information relating to the mission of public health to promote health and prevent premature death. Global surveillance systems are in place for infectious diseases but there has been far less attention directed at non-communicable diseases that do not justify the same immediate alert and control mechanisms. Although global non-communicable disease surveillance ranks low in public health priorities, surveillance systems for both diseases and the major risk factors that predict them are required in all countries to monitor the evolution of the disease burden and to evaluate the effects of prevention and control policy.

Currently, basic epidemiological data such as mortality rates are reported for less than one-third of the world's population and are almost exclusively from developed countries. However, it is the developing countries, particularly those in rapid economic and demographic transition, which will experience a major rise in non-communicable disease burden. The goal is to improve the coverage and quality of mortality data as well as the development and implementation of simple, sustainable surveillance systems that can be used in many different settings around the world. Sentinel surveillance sites have been used effectively in China and rural areas of India to improve the quality of data (12).

The key information required for planning primary preventive programmes and for predicting the future caseload of non-communicable diseases, relates to the known causes of these diseases. Knowledge about the prevalence of major risk factors requires country-specific data so that priorities can be appropriately set, targeted programmes developed, and interventions monitored. However, while data on these risk factors are available in many developed countries, data are scarce for most developing countries. Its lack in these developing countries is seriously handicapping efforts to combat the emerging non-communicable disease epidemics. To most effectively inform this process, data must be collected, analysed, and used in a regular and systematic way. The interval between the episodes of data collection may vary depending on the different measurements involved and the infrastructure available to undertake sustainable population based surveillance.

Experience from developed countries has clearly demonstrated the value of obtaining data on trends in the major common risk factors for building the public health evidence base and informing the policy-making process. At the same time, this experience indicates that even in wealthy countries, ongoing disease surveillance systems or even periodic disease registers documenting the occurrence of major conditions, such as heart disease and stroke, are difficult and costly undertakings (13). A focus on the small number of major risk factors for non-communicable diseases will provide important scientific evidence for both predicting the future disease burden and at the same time assisting the evaluation of disease prevention and control, and health promotion programmes. A focus on risk factors can also be justified on the basis that, to an extent,

risk factors are transferable from one population to another (6). A first task is to develop and encourage the use of standardized approaches to data collection and the use of the data for better decision-making by policy-makers.

Despite the enormity of the challenges facing public health practitioners, it is important to remember the numerous public health successes that have contributed to the dramatic improvements in health status over the last 50 years. It is also important to remember the critical importance of evidence-based preventive efforts and the role of surveillance data to these achievements. With greater attention to surveillance and prevention we may yet see a "golden age" of public health.

REFERENCES

1. McKinlay JB, Marceau LD. US public health and the 21st century: diabetes mellitus. *Lancet* 2000; 356: 757–61.
2. Macfarlane S, Racelis M, Muli-Musiime F. Public health in developing countries. *Lancet* 2000; 356: 841–6.
3. McMichael AJ, Beaglehole R. The changing global context of public health. *Lancet* 2000; 356: 495–9.
4. WHO. World Health Report, 1999. Geneva: World Health Organization, 1999.
5. McKee M, Jacobson B. Public health in Europe. *Lancet* 2000; 356: 757–61.
6. McQueen DV. A world behaving badly. *Am J Public Health* 1999; 89: 1312–14.
7. McMichael AJ. Planetary overload. Cambridge: Cambridge University Press, 1993.
8. Murray CJ, Lopez AD, editors. The global burden of disease. Cambridge, Mass: Harvard University Press, 1996.
9. Jee SH, Suh I, Soon Kim I, Appel LJ. Smoking and atherosclerotic cardiovascular disease in men with low levels of serum cholesterol. *JAMA* 1999; 282: 2149–55.
10. Janus ED, Postiglione A, Singh RB, Lewis B. The modernisation of Asia. Implications for coronary heart disease. *Circulation* 1996; 94: 2671–3.
11. Stamler J, Stamler R, Neaton JD, Wentworth D, Daviglius ML, Garside D, et al. Low risk-factor profile and long-term cardiovascular and non-cardiovascular mortality and life expectancy. Findings for 5 large cohorts of young adult and middle-aged men and women. *JAMA* 1999; 282: 2012–18.
12. Lopez AD. Counting the dead in China. *Br Med J* 1998; 317: 1399–400.
13. Tunstall-Pedoe H, Kuulasmaa K, Mähönen M, Tolonen H, Ruokoski E, Amoyel P. Contributions of trends in survival and coronary-event rates to changes in coronary heart disease mortality: 10-year results from 37 WHO MONICA Project populations. *Lancet* 1999; 353: 1547–57.