Societal hierarchy and the health Olympics

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What makes a population healthy? Advising individuals about the avoidance of risk factors is certainly important, but that is probably not the most efficient way to improve the overall health of a population.[1] The effects of the usual do's and don'ts that we all preach pale in comparison with the effect of society's structural factors on population health, especially the amount of hierarchy as measured by income distribution.

With its life expectancies of 77.6 years for men and 84.3 years for women, Japan is the current leader in what might be called the health Olympics (the ranking of countries by life expectancy), a position it has held since 1977. Canada also ranks among the top countries, with life expectancies of 76.2 years for men and 81.9 years for women. Although Japan has twice as many male smokers per capita as Canada does, Japan's smoking-related mortality rate is half that of Canada.[2] Thus, although smoking is bad for health, it may not be that bad. Asking what makes a population healthy could lead us to discover other factors that affect health.

It has long been known that the health of a population is directly related to its average income, at least for populations with a per capita gross domestic product below a threshold of $5000 to $10 000; above that threshold there is no consistent relation.[3] It is also becoming clearer that at any given level of overall economic development for a country or a region within a country, the populations of countries and regions with smaller gaps between rich and poor are, in general, healthier than the populations of countries and regions in which the gap is larger.[3–7] These observations imply that the economic structure of a nation may be the most important determinant of the health of its people.

Why would income equity — the width of the gap between the very rich and the very poor — have such a profound effect on the health of the population? And why does this influence on health affect the wealthiest countries as well as the poorest? Several reasons have been advanced, including stress and its biologic effects on the distribution of risk factors, the level of support for positive early childhood development, the availability of acute health care and emergency services, and finally the organization of health services, particularly primary health care and services for children.[8]

Stress may be an important mechanism. Many studies demonstrate such effects, and some suggest biologic explanations, for example, processes affecting feedback inhibition of cortisol.[3,5,9] The human body adjusts to chronic societal stress by altering its physiologic characteristics and processes, which leads to what are known medically as risk factors.[9] These include, among others, hypertension, lipid alterations and insulin resistance, which clinicians recognize and treat so as to improve individuals' health. These proximate risk factors may be the cost of repeatedly turning on and off various physiologic mechanisms in response to the stress caused by inequitable social structure.[10,11]

Medical care tries to limit the effects of the risk factors or to modify behaviours so as to change the risk factors. However, known behavioural and other individual risk factors do not explain most of the socioeconomic gradient in medical conditions such as heart disease.[12] Evidence from Japan, particularly that concerning smoking rates, suggests that *individual* behaviours may not be that important. Other mechanisms may exist to explain the strong relation between hierarchy and health that would link work environments, social support, early childhood development and personal attributes with disease.[3,8,10]

Most people probably consider health care services in developed countries such as Japan and the United States important in prolonging life and improving the population's life expectancy. But there are few, if any, studies demonstrating the impact of medical services on the health of populations, a situation lamented in the *Oxford Textbook of Public Health*.[13] Some maintain that acute health care services can be thought of as the ambulance waiting at the bottom of the cliff to retrieve the victims cast off by the violent aftermath of societal structure.[14] Indeed some studies, particularly from the United States, suggest that acute health care can itself inflict significant harm.[15] People everywhere ascribe great powers to the health care system and seek its services. A major benefit of this phenomenon may be a placebo effect on the population at large, an effect comparable to the strong placebo response observed at the individual level. In spite of long waiting lists, increasing demands for health care and budget limitations, most Canadians feel satisfied with their equitable system, although they fear for the future.[16]

We might ask if there is a "best part" of the health care system that is responsible for the gold medals in the health Olympics. Shi and associates[17] have shown that in those US states where income equity is greater (smaller gaps between the rich and poor), primary care services are favoured over specialty services, and better health obtains. Primary care may mitigate the adverse effects of income inequality or it may indicate that a society with a strong focus on such services is relatively egalitarian.

An understanding of the social and economic determinants of health helps us to understand how Japan has done so well in terms of life expectancy. After World War II, the Japanese restructured their society, a change that resulted in a much more egalitarian distribution of income.[18] The concept of income equity is now firmly entrenched, and in spite of pressures to reform during the recent economic crisis in Japan, executives and managers took cuts in pay rather than lay off workers.[19] Other aspects of Japanese life may also be shared more equitably by the population. For example, even though Japanese society is reputed to be very stressful, with crowded cities, tiny apartments, long commutes and workers who push people into subway cars in order to shut the doors, *everyone* shares that stress. Social obligations and support systems produce a very cohesive society, one that happens to enjoy excellent health despite some harmful personal behaviours such as smoking.[20]

Canada has finished in the top 5 countries in the health Olympics for the past decade, just behind the leader, Japan, whereas the United States has typically come in at about 25th place.[21] Among wealthy countries, the United States has the largest gap between rich and poor, which may partly explain its dismal health standing. According to Ross and associates,[22] Canadian provinces and cities are clustered with the best of the US states and cities in terms of health outcomes and income distribution (Fig. 1). These authors found that the relation between income distribution and mortality rates (for infants, children, youth, working-age men and women, and elderly men and women) was highly statistically significant ($p < 0.01$), for the US states and Canadian provinces combined. However, only 4 US states had income distributions similar to those of Canadian provinces. The strongest relations ($r = -0.81$) were for working-age men and women. Even the weakest relations ($r = -0.44$), for elderly men and women, were notable. When the Canadian provinces were considered as a separate group, the slope of the regression line was in the expected direction, but it was not statistically significant, which suggests an important effect of federal policies on the relation between income distribution and health, as described below.

The policies that Canada has developed to improve population health reflect its more egalitarian structure. Examples include various tax and economic transfer policies that help to limit income differences across the country, as well as provision of important social services. But with the World Trade Organization's policies to extend the North American Free Trade Act, as well as other global changes, Canada is under increasing pressure from transnational corporations to join other countries in changing its equity-enhancing programs so as to "globalize" the economy, by shifting production to low-wage countries.[24]

What does all this mean for the typical Canadian family practitioner? In addition to providing excellent clinical services, primary care providers offer understanding and moral support to their patients through many medical and

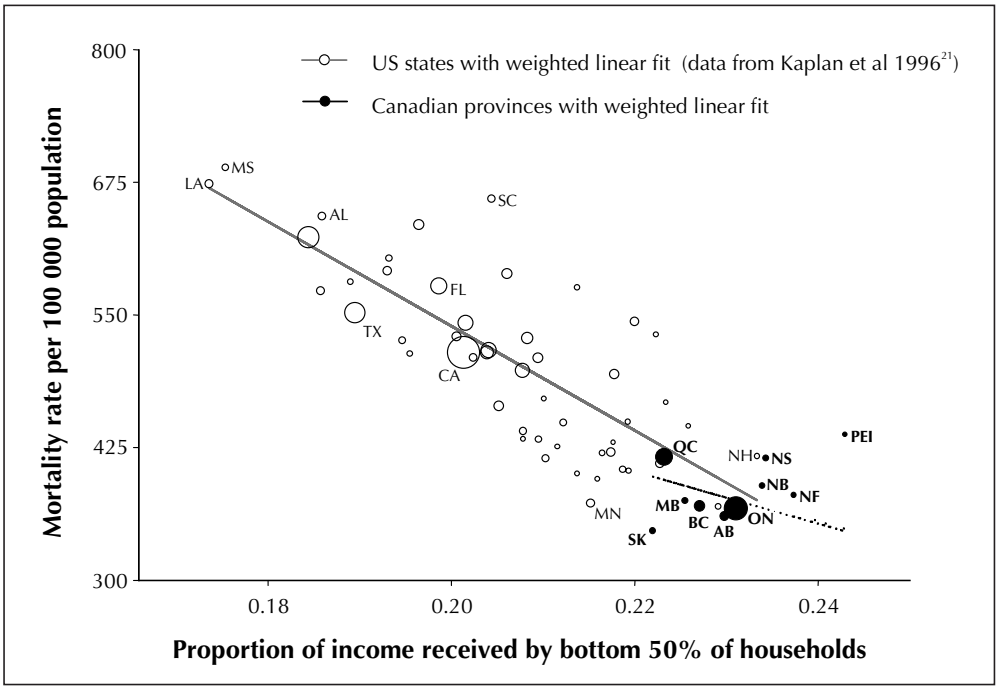

Fig. 1: Relation between mortality rates and income distribution for working-age men (25–64 years of age), for US states and Canadian provinces (indicated by 2-letter postal symbols, with Canadian provinces in boldface). The size of each circle indicates relative population size. Mortality rates were standardized to the Canadian population in 1991. [Adapted, with permission of the *BMJ* Publishing Group, from Ross and associates,[22] *BMJ* 2000;320(7239):898-902.]

nonmedical crises. Both of these aspects of care are important. Yet the effects of these clinical and nonclinical services, while certainly critical to some patients, may be less important overall to the general population than the structure of the society in which the patients live. If a healthy population is the goal, clinicians must enter the political arena and fight to maintain the social contract that has sustained Canada as one of the world leaders in health.

Canadian physicians should not be seduced by the sophisticated (but, on a population basis, haphazard) "non-system" of medical care south of the border, nor should they be discouraged by cutbacks in funding. Caring for less than 5% of the world's population in a for-profit system costs the United States an amount that accounts for 42% of all health care spending worldwide, yet this country ranks behind all other rich countries in the health Olympics.[25] Canada should avoid this form of "damaged care" at all costs. Much more important for health is the need to control the forces of globalization that aim to turn health care into a commodity that is for sale to the lowest bidder.[16]

Geoffrey Rose concluded his seminal book *The Strategy of Preventive Health Care* by stating, "The primary determinants of disease are mainly economic and social, and therefore its remedies must also be economic and social. Medicine and politics cannot and should not be kept apart."[26] Working to change the structure of society so that population health is optimized (and so that all countries tie for gold in the health Olympics) should be our goal.

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