(Transnational) Affairs of the Heart: Political Economy and the Globalization of Cardiovascular Disease

Sandra J MacLean and David R MacLean

Although population health issues were often considered to be within the exclusive purview of public health, scholars of political economy (IPE) are showing increasing interest in issues of the specific terrain of "global health". This paper argues to expand the areas of global health that are considered to be within the scope of IPE by demonstrating that political economy is a major factor in the emerging global epidemic in cardiovascular disease (CVD). As a major cause of mortality CVD (along with other chronic diseases) deserves more attention as a social, as opposed to mainly biological, phenomenon. To situate CVD as a socially-determined disease provides an interesting case study in global governance with insights for IPE and public health theory and practice.

INTRODUCTION

> "At the core, chronic disease prevention and health promotion require a shift in thinking and action by governments and diverse stakeholders. … The gains for global health and economy could be profound."[1]

Within the field of public health, there is growing awareness that recent changes in political economy are responsible for contemporary global health problems.[2] Likewise, scholars of international political economy (IPE) have become increasingly concerned with global health, both with regard to global processes that affect health[3] and strategies to deal with certain global health problems.[4] Nevertheless, to date, it has been rare in IPE to address more than a small set of global health issues – usually bio-terrorism, infectious disease epidemics and certain health-related trade issues. Meanwhile, public health specialists, even those who accept that political economy is a contributing factor in global health problems, tend to leave the subject at the explanatory stage while neglecting the obvious need to seek solutions in the exploration and confrontation of the underlying structures of political economy.

This paper investigates ways to begin to bridge these analytical and policy gaps. It begins by situating global health changes within the context of contemporary global political economy. It then proceeds to trace current trends in chronic disease; focusing specifically on cardiovascular disease (CVD), it asserts that, although not yet well recognized in either the IPE or the public health communities, CVD is not strictly a biological problem, but also - unmistakably - an issue of political economy. The paper argues, therefore, for a holistic, interdisciplinary approach that combines research particularly from the fields of public health and IPE to help understand the multiple factors contributing to a global "epidemic" in CVD and other chronic diseases. Finally, it

draws on network analysis developed by IPE scholars to explore new forms of global governance that are slowly emerging to address the globalization of CVD.

THE POLITICAL ECONOMY OF GLOBAL HEALTH

Political economy is not a homogenous field. As Ronen Palan asserts, "Global Political Economy (GPE) is a broad and varied field of study, drawing from a number of disciplines and approaches."[5] Yet, there have been recent advancements. As Palan notes, although most IPE texts still tend to categorize the field according to the traditional paradigmatic divisions of realism, liberalism and structuralism, "modern IPE has moved on." Globalization[6] has been mainly responsible for the transition, and is now one of the central "themes" of IPE/GPE, joining traditional themes of "state, firm, capital, power [and] labour."[7] Myriad scholars are now "moving on" and exploring these transitions; from them we can begin to understand the trajectories and dimensions of global health trends.[8]

Such explorations are exposing the remarkable complexity of contemporary international/global political economy, which is characterized by growing interdependence, multilevel inter-relatedness among state and non-state actors, and dialectical realignments of the interface between structure and agency.[9] Various documentations and analyses of these changes highlight several main points:

- the transnationalization of production and finance fosters economic and political relations that are increasingly deterritorialized and interdependent;[10]
- technology is a driver as well as a product of the transnationalization of the economy;[11]
- a shift in power globally in favor of business vis-à-vis the state has produced a "crisis of the state,"[12] characterized by a changing role (or roles, given the diversity of state forms) and challenges to the traditional normative assumptions of statehood and sovereignty;[13]
- the associated trend in public policy is toward market-oriented initiatives to the detriment of programming to promote social welfare and equity, and reallocations of wealth and power are establishing new sets of winners and losers across geo-political[14] and social[15] lines; and
- threats to human welfare and security associated with such processes as the decline of welfarism, downward pressures on labour and encroaching environmental crisis are producing various forms of citizen "backlash"[16] with the growth and invigoration of civil societies.[17]

These forces and effects of economic globalization have important implications for health—directly with regard to certain health conditions, and indirectly in social changes that determine health outcomes. As Woodward, *et al.* argue, "There are multiple direct and indirect linkages between *globalization* and the proximal determinants of *health*."[18]

The WTO General Agreement on Trade in Services (GATS) has "impacts [that are frequently negative] on *health* systems and policies,"[19] as do financial flows that influence "the availability of resources for public expenditure on

health."[20] The health of individuals is impacted by pharmaceutical costs controlled by the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs),[21] as well as by the international marketing of tobacco[22] and food products.[23] Changes in the global division of labor contribute to "population risks" such as "effects on nutrition and living conditions resulting from impacts on household income"[24] as well as worker health and safety.[25] Environmental degradation related to globalized production is implicated in a variety of health problems, from malnutrition to respiratory problems, cancer and infectious diseases.[26]

The decidedly negative effects of economic globalization on the health of groups of people, especially poorer members of societies in the South (higher costs and reduced availability of drugs; user fees for health services; unhealthy working conditions, *et cetera*) underscore the direct connection between public health and political economy.[27] Recognition of this connection is not new; indeed, it has been made clearly evident by compelling public health research, conducted over the past two and one-half decades, on the social determinants of health. This research was stimulated initially by the Black Report,[28] the published results from a comprehensive analysis of population data that demonstrated an inverse association between all-cause mortality and social class. Several subsequent research projects have supported the Black Report's findings. Rose and Marmot,[29] in particular, provided convincing evidence that there is a direct association between social class and health and that, after a baseline of basic needs is met, socioeconomic gradient is an even greater determinant of health than is social placement. This association has been found consistently for virtually every cause of ill health that has been studied to date, including CVD-related deaths.[30] The association is complex, given that poor health contributes to poverty at both the individual and societal levels through reduced productivity. Moreover, the cost of health services, particularly for the management of chronic disease, undermines wealth and places a significant burden on both individuals and society.[31]

Since chronic diseases such as CVDs are socially-acquired and transmitted as much as, and perhaps more than, they are biologically/genetically-induced, treatment at a population level can be as/perhaps more effective at reducing overall rates of disease as/than treatments directed at individuals who have already acquired the disease or who have biological/genetic predispositions for acquiring it.[32] Hence, effective treatment for CVDs at a population level involves preventative strategies: educating the population on the necessary dietary and behavioural changes for good heart health; changing public policy to create heart-healthy environments; encouraging heart-healthy partnerships between governments and civil societies; and persuading industries to reduce the sale and/or use of unhealthy products (tobacco, salt, saturated fats). However, public policy is strongly influenced, and often compromised, by globalized power relations in which production and distribution are globally arranged and oriented, business interests predominate, and calls for social reform are disregarded or denigrated. Moreover, the majority of health professionals are strongly biased toward technological solution as opposed to prevention; that is, toward treating illness, once established, instead of maintaining healthy

individuals and populations. This has particularly ominous implications for low and middle-income countries (LMIC) that are struggling to deal with a global epidemic of CVDs and other chronic diseases.

THE GLOBALIZATION OF CARDIOVASCULAR DISEASE

> The last decade of the twentieth century greatly enhanced our awareness of the hitherto unrecognized global dimensions of the cardiovascular disease (CVD) epidemic. The global Burden of Disease Study made it clear that accompanying the gratifying gains in cardiovascular health that occurred in the industrially developed nations towards the end of that century was an alarming escalation of CVD epidemic in other and more populous regions of the world.[33]

The report from which the above quotation is drawn estimates that, worldwide, CVD (mainly heart disease and stroke) is responsible for 30.9% of deaths (17 million deaths) per year and 10.3% of the total disease burden (that is, 200 million people suffer from some form of CVD). While CVDs remain the leading cause of death in industrialized countries[34] they are now a significant, and growing, health problem in poor countries as well; indeed, they represent 10% of the disease burden in low and mid-income countries (LMICs). In actual numbers, this means that three-quarters of the world's deaths from CVD now occur in LMICs, and it is anticipated that CVDs will be the leading cause of death in developing countries by 2010.[35]

Several factors are contributing to the globalization of CVD.[36] Somewhat ironically, the spread of CVD disease to LMICs is due in part to successes of 20th century public health strategies and interventions. Worldwide extension of vaccination programmes, advances in maternal-child care, better sanitation and improved water quality and supply have contributed to increased life expectancies in regions where HIV/AIDS has not reversed this trend. Hence, more people in several developing countries have been living long enough to acquire diseases associated with advancing age (that is, chronic diseases, including CVD).[37] However, while CVDs are now predominantly diseases of old and very old age in Northern industrialized countries, middle-aged people are more likely to die from CVDs in LMICs.[38] The increase of CVD due to ageing populations is therefore only part of the story involving the trends appearing in LMICs. Several other factors are now considered to be significant contributors to the globalization of CVD. Two of the most important of these appear to be rapid urbanization and the spread of tobacco use.

Urbanization has increased sigificantly in recent years. The UNDP (2003) reports that 40.87% of the total population of developing countries was living in urban settings in 2001, compared with 26.3% in 1975; the corresponding percentages in least developed countries was 25.7.9% in 2001 compared with 14.7% in 1975, while in industrialized countries, 77.1% was living in cities in 2001, compared with 70.4% in 1975. Projections in the Report were that, by 2015, 48.6%, 34.5% and 80.4% of developing, least developed, and industrialized populations would be urban. Globalization has been implicated as a major

contributing factor in advancing urbanization, given that the transationalization of production has created employment opportunities in urban centres around the world while, at the same time, large agri-businesses are displacing small farming operations and replacing laborers with technology.[39]

There are country and regional, as well as class, variations in the effects of urbanization, but city living has been associated in certain sectors of populations with higher rates of obesity (related to decreased physical activity as well as increased consumption of dietary fat) and greater mental stress—all processes that are widely considered to correlate positively with increased CVD rates.[40] For example, a study comparing urban and rural population groups in India showed that people in urban settings had higher rates of CVD and associated "higher levels of body mass index, blood pressure, fasting blood lipids (total cholesterol, ratio of cholesterol to HDL cholesterol, triglycerides) and diabetes."[41] Another study conducted in two phases by the Sino-MONICA[42] project in the 1980s showed that, along with increasing numbers of deaths related to CVD, there were increases in "body weight (adjusted for height), blood pressure, and cholesterol levels in Chinese population samples aged 35 to 64 years, between the two phases."[43]

Tobacco use, as much or more than urbanization, has been associated with CVD, and as world tobacco sales have increased, so also has the global CVD rate increased. The overall increase has occurred despite declining tobacco sales in industrialized countries (consistent with declining CVD rates in these countries). Tobacco use in Northern countries has dropped in recent years for several reasons: widespread publicity about studies showing a strong association between cigarette smoking and cancer; public health campaigns addressed at smoking prevention; legislative changes that have increased consumption taxes on cigarettes and limited smoking public areas; and successful court challenges that have held cigarette manufacturers responsible for smoking-related diseases and deaths.[44]

The downside of this, however, is that cigarette manufacturers have responded to dwindling sales in industrialized countries by turning their attention to developing countries in search of new markets.[45] Large cigarette manufacturers now advertise extensively in developing countries where their efforts to promote sales have been remarkably successful; tobacco consumption in developing countries increased at an annual rate of 2.8% between 1971 and 1998, and in projections to 2010, it is expected to continue to increase at an average annual rate of 1.7%.[46] Tobacco companies have also benefitted from the liberalization of trade regimes and markets. As a former chairman of British American Tobacco observed: "the tobacco markets open to our products have actually tripled in size in recent years, under the twin impact of market liberalizations across the northern hemisphere and the crumbling of monolithic communism east of the river Elbe."[47] The liberal trade rules that prevent impediments to sales put considerable pressure on countries to conform, even when conformity is against established national rules and national health concerns; a noteworthy case here was a GATT ruling against Thailand's attempt to maintain national laws that prohibited the importation of tobacco products.[48]

Most LMICs have not yet developed initiatives or policies for prevention like those that have contributed to the decline in CVD rates in the West. As a result, currently, of the nearly five million deaths in the world each year that are attributable to tobacco[49], roughly half are in countries of the South. Furthermore, it is projected that, at current rates, the number of deaths due to tobacco use will increase to 10 million by 2020 and, at that time, seven million of those deaths will be in developing countries.[50]

This global trend toward an escalation of CVD in LMICs is a feature of a more general epidemiological transition involving a worldwide shift from the predominance of communicable to chronic diseases as the major cause of mortality and morbidity in the world.[51] As these global disease trends (of both chronic and communicable diseases) reflect rapidly changing patterns of social, economic and cultural behaviour, associated with urbanization and international trade in commodities such as food or tobacco, it is appropriate that solutions be sought, not only in technology and pharmaceuticals, but also – both reactively and prophylactically – in underlying social causes.

Although progress has been slow in viewing CVD as a socially determined disease, especially in the South, there have been significant inroads made in the North over the past two decades in addressing it as a preventable disease with solutions to be found in social programming. The remainder of the paper examines the emergence of a global network that has been responsible for much of the success to date. For understanding the development of this network, work conducted in IPE on the emergence of networks in global governance is informative.

AN EMERGING GLOBAL NETWORK FOR THE PREVENTION OF CVD

Much of the success that has occurred to date in spreading the message for social interventions in heart disease has been due to the emergence and continuing growth of a global network on CVD. Yet, although there is a significant literature on the research and policy contributions of the various individuals, institutions and groups that constitute the network, little research has been conducted on the pathways and mechanisms by which the network itself has developed. In particular, there is a dearth of information on governance models that address social determinants with regard to specific chronic diseases such as CVDs, although there is an important emerging literature on global health policy[52] that has been informed largely by analysis on incipient global governance in IR and IPE.[53]

One of the major changes identified is the diversification of actors involved; non-state actors now play a significantly greater role than previously, often as influential advocates for change,[54] and increasingly in partnership or network arrangements (of more or less degrees of formality) with the state.[55] Another change is the multilevel forms that these new governance/public policy partnerships and networks take; in other words, there are various examples of governance arrangements that involve actors from two or more levels from the local/municipal, national, international to global/transnational.[56] These governance arrangements are closely related to the emergence of new knowledge

networks through which research information is rapidly disseminated throughout the world.[57]

Insights drawn from this literature inform the analysis of new approaches within the medical and public health communities that are emerging to treat, and especially to prevent, CVD as a global disease of growing proportions. In turn, these new approaches in the prevention of CVD may offer useful information to explore broader issues for understanding the emerging architecture of global governance.

To trace the emergence of these networks, we begin with the experiences of the North Karelia Project of Finland, which was one of the first significant initiatives to deal with CVD predominately as a social issue, rather than as a biomedical problem amenable only to technological solution. To a large extent, the North Karelia Project can be viewed as the exemplar for redirecting actions on CVD, first, toward prevention rather than treatment of established disease, and second, toward strategies based on regard for the social-determinants of health, including: a focus on changing medical thinking regarding the causes of CVD; pressures to change political policies regarding environments that affect CVD; and educational activities directed toward changing people's behavior. Although the North Karelia Project was one of the first demonstration models of a new approach to CVD, others developed soon thereafter, both with and without collaboration initially with North Karelia, but eventually coming together in overlapping collaborations to form an increasingly complex and interrelated heart health network. The remainder of the paper describes the development of the network through an exploration of the horizontal and vertical connections of relevant actors engaged in various activities at levels from the local through global and involving representatives from state, civil society and business sectors.

Early Projects

North Karelia: This project began in 1972 following epidemiological studies showing that Finland had the highest CVD-related death rates in the world, and the Finnish province of North Karelia had notably higher rates of cardiovascular diseases than neighboring provinces in the country. By this time, other epidemiological research showed that certain behaviors – for example, smoking, lack of exercise and excess consumption of animal fat, as is found in red meats and dairy products – are associated with CVD.[58] Convinced by the evidence of this research, Dr. Pekka Pushka, who was a medical officer in the Finnish public health system at the time, led a comprehensive program designed to change the CVD-producing habits of the population in the province of North Karelia where dairy farming was one of the main industries and where almost everyone's diet was very high in fat content.[59]

Changing the habits of an entire population was a formidable task requiring a multivariate approach. Various strategies were employed to educate North Karelia citizens on the connections between CVD and nutrition and smoking, with informational sessions and/or material provided in the workplace and on national television as well as in other types of meetings between the public and specially trained public health personnel. Community support was deemed to

be crucial for the success of the project, and to bring community groups and organizations into the planning and operations, a community board of directors was established and working groups for special projects were formed, comprised of public health personnel and representatives from the community, including sports organizations. Efforts were made to encourage the support and involvement of medical personnel at the community level (primary care physicians, nurses, voluntary health associations). To spur interest and participation, "quit and win" contests to reduce smoking were introduced and competitions between villages were held to lower cholesterol.[60] Finally, one of the more innovative strategies of the North Karelia project, and arguably one of the most important, was to target not only consumers and health care personnel, but industry as well. Pushka and his associates contacted farmers in this area, and were successful, first, in convincing them of the health problems of a high fat diet and, second, in persuading them to switch to crops such as berries and apples.[61]

The project has been operating for more than thirty years, and by now, results have been well documented. The project's website summarizes some of the main findings of various surveys from 1972 to 1992:

> … cardiovascular mortality rates for men aged 35-64 decreased 57 percent from 1970 to 1992. The project also contributed to policy changes in health, agriculture, and commerce within Finland as a whole. For example, the food industry collaborated with the project to promote low-fat dairy products and sausage as well as salt reduction in several foods. … In 1972, some 90 percent of the population used butter on their bread; in 1992 only 15 percent did so. Fruit and vegetable consumption increased from about 20 kg per person annually in 1972 to 50 kg in 1992.[62]

Overall, the North Karelia project provided convincing evidence that behavioural change could reduce CVD rates substantially in a relatively short time period and that targeted community intervention was the vehicle by which the behavioural modification was achieved.

Expanding the Network: an international initiative: Following its success in Finland, the North Karelia Project has become a model for several other programs. Also, especially though the efforts of Pekka Pushka, who has been a conscientious "agent of change," the Project has supported the development of international networks for the prevention of CVDs, globally. One of the most important linkages has been with the World Health Organization (WHO), which coordinated activity in Europe aimed at designing more integrated community health approaches for the prevention of CVD by reducing "common risk factors" for the disease. WHO undertook this initiative under the Comprehensive Cardiovascular Community Control Programmes (CCCCP), while later the Countrywide Integrated Noncommunicable Disease Intervention (CINDI) Programme was established to continue CCCCP activities in the area of cardiovascular disease, but also to expand the focus to chronic diseases

generally.[63] Since its inauguration, CINDI has grown to 25 member countries (with Canada being the only non-European country).

Other WHO regions have been influenced by CINDI. Now, four of the five WHO regions have programs on the prevention of cardiovascular disease (in the broader context of chronic disease). One of the most active of these is CARMEN (An Initiative for Integrated Non-Communicable Disease Prevention in the Americas) that was established by the Pan American Health Organization (PAHO). The CVD activities of this organization are well established, and directed to prevention by reducing risk factors using an integrated, community-based approach, the promotion of health equity and the effective monitoring of the effects of intervention.[64]

Another important step toward globalizing preventative measures in CVD was the creation of the InterHealth Programme by WHO in 1986.[65] The main purpose of InterHealth is to provide assistance to member countries in setting up and monitoring demonstration projects based upon the methodology similar to that used successfully by the North Karelia Project; that is, "community involvement, health promotion and maintenance, and behaviour interventions."[66]

By now, a number of projects have been, or are being carried out as demonstration projects of INTERHEALTH (WHO/HQ), CINDI (WHO/EURO) and CARMEN (WHO/AMRO).[67] These projects have various study designs, but similarly-inspired objectives and strategies. Among the more active examples of such projects in the European region are the German Cardiovascular Prevention Study[68] and the Norsjö Study in Sweden.[69] Meanwhile, complementary developments have occurred in North America. In the USA, among the most notable have been the Framingham Study[70] and Stanford University's so-called Stanford Three Community Study.[71] The Stanford initiatives were followed by three major community-based intervention projects financed by the National Institutes for Health (NIH). These include: the Stanford Five City Project,[72] the Minnesota Heart Health Program[73] and Pawtucket Heart Health Program.[74]

Other programs in North America include the Canadian Heart Health Initiative (CHHI).[75] This Initiative is a good example of the types of activities that have been undertaken at local and national levels in coordination with processes occurring at the international and transnational levels. The CHHI was the outcome of multilevel collaboration among federal, provincial and territorial governments of Canada to implement a pan-Canadian CVD prevention strategy. The Initiative was launched in 1987 in response to the high rates of heart disease and stroke and the enormous social and economic burden that these diseases represented in Canada. The first program was established in the Province of Nova Scotia as a Canadian demonstration site as well as a demonstration site for the WHO/CINDI program and its implementation was assisted by linkages to the European Region of WHO and the North Karelia program in Finland.

The Initiative evolved as an organized approach to policy implementation following a partnership model which includes voluntary agencies, professional organizations, communities and the private sector clearly targeted at prevention particularly at the community level.[76] The Initiative has focused on the feasibility of applying existing knowledge by building the capacity of the public health

system to mount community-based interventions. This means that the Initiative works through the existing public health system, but incorporates key players from the community (civil society organizations, key community leaders, businesses as well as academics). It has built on intervention research knowledge that has shown the value of complementary policy and population-type interventions to prevent CVD[77] as well as research on the diffusion of health norms and practices.[78]

Widening the networks: developing countries experiences: Initiatives in developing countries are not yet as advanced as in industrialized countries, but there have been attempts to spread the CVD prevention network to the South. Notably, projects have been established in connection with the WHO Interhealth Programme in Argentina, Cuba, Chile, Nigeria, Mauritius, Seychelles, South Africa, and Tanzania.[79] Mauritius, in particular, has had an encouraging experience with community-based programs; as a result of nutrition policy and education interventions over a five year period, significantly positive effects on diet and serum cholesterol level have been reported.[80] Another ambitious initiative is the CVD prevention programme in the Seychelles which started in 1988, combining research activities with public health interventions over the entire island. The programme has a strong emphasis on research which included initial epidemiological assessment of CVD risk factors for the purpose of programme planning and evaluation. In Asia, Interhealth activities in the WHO/SEAR region were started in Sri Lanka and Thailand. Also, despite slow development, several activities have recently been initiated in other Asian countries like India and Iran. Singapore has a long tradition of community-based CVD health promotion, with active educational and policy components. Particularly active development has taken place in the People's Republic of China. The Interhealth Programme involved two sites, Tianjin and Beijing, and while data for the Beijing site was not available at the time of writing this paper, a report from the Tianjin site showed improved dietary habits and lower blood pressure levels[81]

There is insufficient data available to assess whether the long-term impact of these interventions will be significant as in Karelia, but the early assessments of results indicate that the initiatives have fostered some improvements. Moreover, it is noteworthy that, in a relatively short period of time, an extensive and robust international network has developed to address CVD as a global, socially-determined disease. Like other global governance networks that have been identified, the CVD network is comprised of state and non-state actors acting in multilevel combinations of formal and informal governance arrangements. As with other global governance networks that have been identified, the ability to evaluate network impact is still underdeveloped. Yet, there are some speculative observations that can be made about the successes and weakness of the emerging CVD network.

Network Impacts

Few people, at least in western societies, are now unaware of the negative effects on CVD of smoking. Similarly, most know that preventative strategies for CVD include regular exercise and diets that are low in saturated and trans-fats as well as salt. What is not often acknowledged is that this awareness developed only gradually in populations and, then, only through hard-fought struggles between competing discourses (mainly within the medical community between public health practitioners who support a prevention approach and clinicians who favour a bio-technological, "treatment" approach). While the anti-salt/anti-fat struggle has some parallels with the anti-smoking campaign, the details of the former has yet to be explored, while analysis of the latter has been much more extensive. In this case, the struggle was mainly between cigarette manufactures, who claimed that there was a lack of scientific proof regarding the harmful effects of smoking, and medical personnel and advocates in civil society who worked to persuade populations that the evidence was, in fact, well-established and very clear. That the latter discourse eventually won out was certainly due, in part, to the accumulation of non-refutable scientific evidence, but of equal or greater importance were: a) the advocates for the commitment of research funds to exploring the health effects of tobacco (especially in the face of "scientific" research that was amply funded by the tobacco industry); and b) the translational issues around the research and the pressure from groups within the public health and NGO communities to develop anti-smoking public policies.

The coalitions that emerged to fight these battles were informed and supported by the international efforts as described above. These efforts eventually increased awareness in the general populations and in public policies of individual countries, but they also were behind important international initiatives. Perhaps the most important of these is the WHO Framework Convention on Tobacco Control (FCTC). The FCTC is a treaty which encourages signatories to take a variety of steps, nationally and internationally to curb the sale and use of tobacco worldwide. Although CVD is only one of the effects of smoking that the FCTC addresses, the initiative is not only an outcome of, but also a significant advancement in, the CVD network. And as Lee *et al*. observe, "[t]he successful negotiation of the FCTC provides several lessons for how health issues can influence foreign policy-makers…"[82]. The negotiations brought persuasive information to policy-makers regarding the "scale and cross-border nature of the threat" of tobacco and the economic costs to countries from both high tobacco-caused health care costs and lost revenues related to large-scale tobacco smuggling.[83] The information was based on good research evidence, but the implementation of the treaty was achieved also because of the multi-actor nature of the stakeholders (health and social scientists, NGOs, international organizations (WHO), and high-placed individuals such as Gro Brundtland, Director General of the WHO at the time.

The networking and multi-level, multi-actor dimensions of the preventative, population health model for addressing CVD are critical to its success to date. Many of the individuals who are key players in the Forum, the FCTC and in the various other organizations and projects now established around the world for the prevention of CVD tend to associate with each other at individual levels, communicating on various related issues and meeting semi-

regularly at various international meetings and conferences. As a result, given that each has established networks at national and community levels, there has been considerable cross-fertilization of ideas culminating in the development of a global set of norms for dealing with CVD largely as a social disease. Accordingly, a widely agreed set of "best practices" for the prevention of CVD has been elaborated and is being disseminated throughout the world.

However, there are impediments to moving the agenda successfully into the South. One is the deficiencies in infrastructure, which limits the translational possibilities. Another is insufficient research on the impacts of various interventions in developing countries. The main problem is the lack of research capacity, in terms of both a lack of financial resources to fund research and the relatively smaller numbers (compared with the West) of highly trained researchers. The Global Forum for Health Research has observed that only ten percent of the funds spent on health research worldwide was spent on 90% of the world's population (that is, in the South).[84] This problem is compounded by the relative lack of interest by western donors in funding research or treatments for chronic disease. Considerable amounts of funding are now being influenced, and to some extent directed, by business through philanthropy, public-private partnerships, etc. and these actors tend to focus, almost exclusively on infectious disease. Also, they tend to be interested mainly in technical solutions to these diseases rather than in addressing underlying social causes.[85]

CONCLUSIONS: MOVING THE GLOBAL CVD NETWORK FORWARD

Implications for Health

One of the most significant contributions of the participants in the new global network for the prevention of CVD is their projected understanding of the social determinants of the disease. This is especially important in devising strategies to deal with CVD as a population health issue (and it clearly is that, as demonstrated by the global transition statistics) as opposed to dealing with it as a purely clinical issue of individual-focused health care. The implications of this are that biomedical interventions are only part of the solution—and a solution that is sought only after individuals develop the disease. If CVD is seen as a population health issue, caused by social conditions and processes, as well as by biological susceptibility of individuals, its amenability to preventative strategies targeted at the community as a whole becomes apparent. Evidence from the North Karelia, Nova Scotia Projects and others shows that broad-based, multivariate interventions are effective in reducing CVD rates. These approaches require attitude and practice changes among medical personnel, but they go well beyond traditional thinking that health involves only those involved in health professions. Instead, improved heart health involves targeting change in public policy, encouraging community involvement, and enlisting business cooperation. These are all issues that have concerned social scientists, traditionally. As the world becomes progressively more global, and CVD ever more globalized, these are increasingly issues demanding scholarly input from IPE.

Implications for IPE

The apparent increase of inequality and inequity related to globalization is an important determinant of health.[86] Changing social conditions and practices related to features of a globalizing world also impact upon health. Not the least of these changes is the epidemiological transition that is associated with the global spread of chronic, including cardiovascular, disease. Health trends such as these provide important empirical information that exposes the impact on people of the economic and political economy changes that are associated with globalization. Equally important, the emergence of global networks for the prevention of CVD can provide useful material for understanding the processes by which new global governance arrangements are emerging and their impact potential in terms, for instance, of norm changes, societal behavioural changes and public policy reforms.

A Future Research Agenda

To date, information on the emerging networks for the prevention of CVD has been mainly in the form of descriptive mapping exercises, as indeed, has been much of the extant literature on emerging global governance networks. Considerable information exists about the development of the individual CVD programs and initiatives, and although there is not yet published material that shows definitely the level of interaction between and among the various projects and initiatives, there is considerable anecdotal evidence as well as extensive paper trails to support that the linkages exist at institutional as well as individual levels. Questions still to be answered, however, concern the mechanisms by which localized or regionalized diseases become globalized; the extent to which global connections are critical to the changing attitudes and practices in the treatment of disease; and the nature of the processes by which information and norm changes occur. For example, further research is required to understand how economic changes (such as national economic growth, or trade or market pressures) impact upon social conditions—inequities, social status—to affect health outcomes. Greater understanding of cultural and demographic changes associated, for instance, with urbanization and the development of diasporas is also required to explain the nature of health transitions at the global level.

While the emergence of global networks for governance in several areas is now well documented in the literature, few analyses give detailed information about the nature of interactions of "change agents": individuals and groups at local levels that either initiate or take up the influential ideas that spread globally. In some instances, these agents promote superficial change in the direction of policy, but their potential for fomenting structural change, as in moving the health agenda from its biomedical focus to a social-determinates approach, is consistent with the Gramscian notion of organic intellectuals who successfully challenge the prevailing social order. The strategies of these actors and the types of interactions in which they engage need further study, as does the nature of their engagements with actors at other levels from the national through the international and global. How attitudes and practices (of policymakers,

practitioners and ordinary individuals) are changed as a result of these interactions is an area still to be investigated.

Sandra J. MacLean *is an Associate Professor of Political Science at Simon Fraser University, British Columbia, Canada. Her research is on global governance in areas of health, human security, and development.*

David R. MacLean *is a Professor and past (founding) Dean of the Faculty of Health Sciences, Simon Fraser University. His research includes chronic disease prevention and control, health promotion and disease prevention, and health system and policy development.*

---

[1] Derek Yach et al., "Editorial: Global Chronic Diseases," *Science* 2, no.307 (2005): 317.
[2] Kent Buse et al., "The Public Health Implications of Multilateral Trade Agreements," in *Health Policy in a Globalizing World,* eds. Kelly Lee et al., (Cambridge: Cambridge University Press, 2002), 18-40; David Fidler, "Public Health and National Security in the Global Age: Infectious Diseases, Bioterrorism, and Realpolitik," *George Washington International Law Review* 35 (2003): 787-856; Ronald Labonte, "Globalization, Health, and the Free Trade Regime: Assessing the Links," *Perspectives on Global Development & Technology* 3, no. 1/2 (2004): 47-72; A. J. Mc McMichael, "Climate Change and Human Health: Present and Future Risks," *Lancet* 367, no. 9513 (2006): 859-869; B.M. Popkin, "Global Nutrition Dynamics: The World is Shifting Rapidly toward a Diet Linked with Noncommunicable Disease," *American Journal of Clinical Nutrition* 84 (August 2006): 289-98; E.R. Shaffer et al.,"Global Trade and Public Health," *American Journal of Public Health* 95, no. 1 (2005): 23-34.
[3] Kofi Annan, "Public Health Challenges also Affect Development and Security," Excerpt from an address to the New York Academy of Medicine entitled "Global Health: Challenges, Capacity and Responsibility", *UN Chronicle* 43, no. 2 (2006): 4-5; Jennifer Clapp, "The Political Economy of Food Aid in an Era of Agricultural Biotechnology," *Global Governance* 11, no. 4 (2005): 467-485; John Wyn Owen and Olivia Roberts, "Globalization, Health and Foreign Policy: Emerging Linkages and Interests," *Globalization and Health* 1 (2005): 12; Susan Peterson, "Epidemic Disease and National Security," *Security Studies* 12, no.2 (2002/2003): 43-81; Iqbal Zaryab, "Health and Human Security: The Public Health Impact of Violent Conflict," *International Studies Quarterly* 50, no. 3 (2006): 631-649.
[4] Colin McInnes and Kelly Lee, "Health, Security and Foreign Policy," *Review of International Studies* 32, no. 1 (2006): 5-23; Carolyn Thomas and Martin Weber, "The Politics of Global Health Governance: Whatever Happened to 'Health for All by the Year 2000?'" *Global Governance* 10, no. 2 (2004): 187-205; Jeremy Youde, "Enter the Fourth Horseman: Human Security & IR Theory," *The Whitehead Journal of Diplomacy & International Relations* VI, no. I (2005): 193-208.
[5] Ronen Palan, "Introduction" in *Global Political Economy: Contemporary Theories*, ed. Ronen Palan (London & New York: Routledge, 2000): i.
[6] Globalization has been defined in various ways; narrowly it is defined as the global spread of neoliberal economic practices, regulations and values, but more broadly, it is defined as profound transformations and interdependencies in social relations, including in areas of economy, politics, ecology, health, and identity. We define it in the latter terms as processes of transformation affecting the entire world that involve the transnationalization of production and finance, the increasing structural and/or cybernetic relevance of technology, realignments of power over several levels of formal and informal systems of governance, and the deterritorialization and reterritorialization of social relations. For a thorough discussion of these issues, see Jan Aart

Scholte, *Globalization: A Critical Introduction*, 2nd ed., (Houndmills, NewYork: St. Martin's, 2005).
[7] Palan, "Introduction", i.
[8] See, for example, from different analytical perspectives: Robert W. Cox, *Political Economy of a Plural World: Globalization and Civilization* (London: Routledge, 2002); David Held et al., *Global Transformations: Politics, Economics & Culture* (Cambridge: Polity Press, 1999); Jeffrey Frieden and David A. Lake, eds., *International Political Economy: Perspectives on Global Power and Wealth* (New York: St. Martin's Press, 2000); Stephen Gill, *Power and Resistance in the New World Order* (Basingstoke: Palgrave Macmillan, 2008); Robert Gilpin, *Global Political Economy* (Princeton: Princeton University Press, 2001); Joseph M. Grieco and G. John Ikenberry, *State Power and World Markets: The International Political Economy* (New York: W.W. Norton); Paul Hirst and Grahame Thompson, *Globalization in Question: the International Economy and the Possibilities of Governance*, 2nd ed., (Oxford: Polity Press, 1999); James N. Rosenau, *Along the Domestic-Foreign Frontier: Exploring Governance in a Turbulent World* (Cambridge: Cambridge University Press, 1997); James N. Rosenau and Ernst-Otto Czempiel, *Governance without Government: Order and Change in World Politics* (Cambridge: Cambridge University Press, 1992); Jan Aart Scholte, *Globalization: A Critical Introduction*, 2nd ed., (Houndmills, NewYork: St. Martin's, 2005); Anne-Marie Slaughter, *A New World Order* (Princeton: Princeton University Press, 2004).
[9] Geoffrey R. D. Underhill, "Conceptualizing the Changing Global Order," *Political Economy and the Changing Global Order,* eds., Richard Stubbs and Geoffrey R.D. Underhill, (Don Mills, ONT: Oxford University Press, 2000): 17-19.
[10] Jan Aart Scholte, *Globalization*.
[11] William K. Tabb, *Economic Governance in the Age of Globalization* (New York: Columbia University Press, 2004): 22-3.
[12] Yale H. Ferguson, "The Crisis of the State in a Globalizing World," *Globalizations* 3, no. 1, (2006): 5-8.
[13] Georg Sørensen, "The Global Polity and Changes in Statehood," *Toward a Global Polity*, Morten Ougaard and Richard Higgott (London & New York: Routledge, 2002).
[14] Branko Milanovic, *Worlds Apart: Measuring International and Global Inequality* (Princeton: Princeton University Press, 2005); Nita Rudra, "Globalization and the Decline of the Welfare State in Less-Developed Countries," *International Organization* 56, no. 2 (2002), 411-445; Johannes Dragsbaek Schmidt and Jacques Hersh, "Neoliberal Globalization: Workforce without Welfare," *Globalizations* 3, no. 1 (March 2006): 69-90.
[15] Spike V. Peterson, "How (the Meaning of) Gender Matters in Political Economy," *New Political Economy* 10, no. 4 (2005): 499-521.
[16] Robin Broad, ed., *Citizen Initiatives for a Just World Economy* (Lanham, Md.: Rowman & Littlefield, 2002).
[17] Robert O'Brien et al., *Contesting Global Governance: Multilateral Economic Institutions and Global Social Movements* (Cambridge: Cambridge University Press, 2000).
[18] David Woodward et al., "Globalization and Health: A Framework for Analysis and Action," *Bulletin of the World Health Organization* 79, no. 9 (2001): 876.
[19] Woodward et al., "Globalization and Health," 876.
[20] Woodward et al., "Globalization and Health," 876; Labonte, "Globalization, Health, and the Free Trade Regime."
[21] Joan Busfield, "The Globalization of the Pharmaceutical Industry," *Global Change and Health,* eds. Kelly Lee and Jeff Collin (Maidenhead, UK: Open University Press, 2005).
[22] Douglas Bettcher et al., *Confronting the Tobacco Epidemic in an Era of Trade Liberalization* (Geneva: WHO, 2001).
[23] Popkin, "Global Nutrition Dynamics".
[24] Woodward et al, "Globalization and Health," 876.
[25] G.D. Brown, "The Global Threats to Workers' Health and Safety on the Job," *Social Justice* 29, no. 3 (2002): 12-25.
[26] A. Haines, "Health Effects of Climate Change", *JAMA* 291, no. 1 (2004): 99-103; Andrew Price-Smith, *The Health of Nations: Infectious Disease, Environmental Change and their Effects on*

National Security and Development (Cambridge, MA: MIT Press, 2002); Joan Aron and Johnathan Patz, eds., *Ecosystem Change and Public Health: A Global Perspective* (Baltimore: Johns Hopkins University Press, 2001).
[27] Paul Farmer, *Pathologies of Power: Health, Human Rights and the New War on the Poor* (Berkeley: University of California Press, 2003).
[28] United Kingdom Department of Health and Social Services, "Inequalities in Health: Report of a Working Group", chaired by Sir Douglas Black (London: Department of Health and Social Services, 1980).
[29] Geoffrey Rose and Michael Marmot, "Social Class and Coronary Heart Disease, *British Heart Journal* 45 (1981): 3-19.
[30] Robert G. Evans, Morris L. Barer and Theodore R. Marmot, eds., *Why Are Some People Healthy and Others Not? The Determinants of Health of Populations* (New York: Aldine de Gruyer, 1994).
[31] For example, see Jeffrey Sacks, "WHO Commission on Macroeconomics and Health," (Geneva: World Health Organization, 2001); WHO Commission on the Social Determinants of Health, *Closing the Gap in a Generation* (Geneva: WHO, 2008); Andrew T. Price-Smith, *The Health of Nations: Infectious Disease, Environmental Change, and their Effects on National Security and Development* (Cambridge, Mass: (MIT Press, 2002); Robert Fogel, "The Conquest of High Mortality and Hunger in Europe and America: Timing and Mechanisms," in *Favourites of Fortune*: *Technology, Growth and Economic Development since the Industrial Revolution*, Patrice Higonnet et al., eds., (Harvard University Press, 1991).
[32] Stephen Leeder et al., "A Race against Time: The Challenge of Cardiovascular Disease in Developing Economies," Research report, 2004, IC Health (Initiative for Cardiovascular Health Research in the Developing Countries). Available at http://www.ichealth.org/RaceAgainstTime.html; Rose and Marmot, "Social Class and Coronary Heart Disease"; Derek Yach et al., "Editorial: Global Chronic Diseases," *Science* 21, no. 307 (2005): 317; Srinath Reddy and Salim Yusuf, "Emerging Epidemic of Cardiovascular Disease in Developing Countries," *Circulation* 97 (1998): 596-601.
[33] Srinath Reddy, "Foreword", in Leeder et al., "A Race against Time," vii.
[34] However, the overall numbers obscure age-specific trends. In industrialized countries, CVD is now the leading cause of death only for those over 70 years of age; there has been a significant decrease in deaths due to heart disease since the 1960s and malignancies have overtaken CVD as leading cause in the 34-70 age group. See Leeder et al., "A Race against Time," 11.
[35] World Health Organization, *Health and the Millennium Development Goals* (Geneva: WHO, 2005).
[36] Salim Yusuf et al., "Global Burden of Cardiovascular Diseases: Part I: General Considerations, the Epidemiological Transition, Risk Factors, and the Impact of Urbanization"; and "Part II: Variations in Cardiovascular Disease by Specific Ethnic Groups and Geographic Region and Prevention Strategies," *Circulation* 104 (2001): 2746-2753 and 2855-2864.
[37] Reddy and Yusuf, "Emerging Epidemic of Cardiovascular Disease."
[38] Reddy and Yusuf reported in 1998 that "the proportion of CVD deaths occurring below the age of 70 years was 26.5% in the developed countries compared with 46.7% in the developing countries." Reddy & Yusuf, "Emerging Epidemic": 597.
[39] Deane Neubauer, "Mixed Blessings of the Megacities," Global Policy Forum, Policy papers, articles, and statements, (2007):3. Available at http://www.globalpolicy.org/globaliz/special/2004/0924megacities.pdf.
[40] Evans et al., eds., *Why are Some People Healthy and Others Not?*; Stephen Stansfeld and Michael Marmot, eds., *Stress and the Heart: Psychosocial Pathways to Coronary Heart Disease* (London, BMJ Books, 2002).
[41] Srinath Reddy, "Cardiovascular Disease in India", *World Health Statistics Quarterly* 46 (1993): 101–107.
[42] MONICA is the acronym for Multinational MONItoring of trends and determinants in CArdiovascular disease, a project of the World Health Organization (WHO), set up in the 1980s "to monitor trends in cardiovascular diseases, and to relate these to risk factor changes in the population over a ten year period" (See the MONICA website at http://www.ktl.fi/monica).

[43] Yao Chonghau, Wu Zhaosu, and Wu Yingkai, "The Changing Pattern of Cardiovascular Diseases in China," *World Health Statistics Quarterly* 46, no. 2 (1993): 113–118.
[44] Yach et al., "Editorial", 317.
[45] World Health Organization, *The Millennium Development Goals and Tobacco Control* (Geneva: WHO, 2005), 2. Available at http://www.who.int/tobacco/research/economics/publications/ mdg_ book/en/index.html; Collin, "The Global Economy and the Tobacco Pandemic," 114-6.
[46] United Nations Food and Agriculture Organization, "Higher World Tobacco Use Expected by 2010 - Growth Rate Slowing Down", (8 January 2004). Available at http://www.fao.org/english/newsroom/news/2003/26919-en.html.
[47] As quoted by Jeff Collin in "The Global Economy and the Tobacco Pandemic", *Global Change and Health*, eds., Lee & Collin, 116.
[48] Collin, "The Global Economy," 116-7.
[49] Only a portion of these deaths are due to CVD. Tobacco use is also associated with death from other diseases such as lung cancer and chronic obstructive pulmonary disease (COPD).
[50] World Health Organization, *The Millennium Development Goals and Tobacco Control*, 18-19.
[51] Richard G. Wilkinson, "Income Distribution and Life Expectancy," *British Medical Journal* 304, no. 6820 (18 January1992): 165-8; Christopher J.L. Murray and Alan D. Lopez, *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries, and Risk Factors in 1990 and Projected to 2020* (Boston: Harvard University Press, 1996); Yach et al. "Editorial."
[52] Andrew F. Cooper et al., eds., *Governing Global Health: Challenge, Response, Innovation* (Aldershot: Ashgate, 2007); Kelly Lee et al. eds., *Health Policy in a Globalising World* (Cambridge: Cambridge University Press, 2002).
[53] Robert Cox, *Political Economy of a Plural World: Globalization and Civilization* (New York: Routledge, 2002); Margaret Keck and Katherine Sikkink, *Activists beyond Borders: Advocacy Networks in International Politics* (Ithaca, NY: Cornell University Press, 1998); David Held and Anthony G. McGrew, eds., *Governing Globalization: Power, Authority and Global Governance* (Cambridge: Polity, 2002); Ougaard and Higgott, *Towards a Global Polity*; Wolfgang H. Reinicke, "The Other World Wide Web: Global Public Policy Networks," *Foreign Policy* 117 (Winter 1999-2000): 44-57; James Rosenau, "Global Governance as Disaggregated Complexity," *Contending Perspectives on Global Governance: Coherence, Contestation and World Order*, eds., Alice Ba and Matthew J. Hoffman (London & New York: Routledge, 2005); Anne-Marie Slaughter, "Disaggregated Sovereignty: Towards the Public Accountability Of Global Government Networks", *Government and Opposition* 39, no. 2 (2004): 159-90; Diane Stone and Simon Maxwell, eds., *Global Knowledge Networks and International Development: Bridges across Boundaries* (London: Taylor & Francis, 2005); Thomas G. Weiss, "Governance, Good Governance and Global Governance: Conceptual and Actual Challenges," *Third World Quarterly* 21, no. 5 (2000): 795-814.
[54] Keck and Sikkink, *Activists beyond Borders*; O'Brien et al., *Contesting Global Governance;* Jan Aart Scholte and Albrecht Schnabel, eds., *Civil Society and Global Finance* (London: Routledge, 2002); Daphne W. Josselin and William Wallace, eds., *Non-state Actors in World Politics* (London: Palgrave, 2001).
[55] Ann M. Florini, *The Third Force: The Rise of Transnational Civil Society* (Tokyo &Washington: Japan Center for International Exchange & the Carnegie Endowment for International Peace, 2000); Jan Aart Scholte, "Civil Society and Democracy in Global Governance", *Global Governance* 8, no. 3 (2002): 281-304.
[56] Preet S. Aulakh and Michael G. Schechter, eds., *Rethinking Globalization(s): From Corporate Transnationalism to Local Interventions* (Basingstoke: Macmillan; New York: St. Martin's, 2000); Dianne Otto, "Nongovernmental Organizations in the United Nations System: The Emerging Role of International Civil Society", *Human Rights Quarterly* 18, no. 1 (1996): 107-41.
[57] Stone and Maxwell, *Global Knowledge Networks*.
[58] Ancel Keys et al., "Epidemiologic Studies Related to Coronary Heart Disease: Characteristics of Men Aged 40-59 in Seven Countries," *Acta Medica Scandinavica*, Supplement, 460 (1967): 1-392.

[59] Gautam Naik, "Community Chest: Finns Find a Fix for Heart Disease: Vast Group Effort - Doctors Cajole Whole Towns to Change their Habits, From Bad Diet to Smoking - Praise from the Mayo Clinic", *Wall Street Journal*, (14 January 2003): A1.
[60] North Karelia Project website http://www.cvhpinstitute.org/links/northk.htm).
[61] Naim, "Community Chest", A1.
[62] North Karelia Project (http://www.cvhpinstitute.org/links/northk.htm).
[63] CINDI Programme (http://www.who.dk/CINDI).
[64] CARMEN Programme (http://www.paho.org/english/ad/dpc/nc/carmen-info.htm).
[65] Interhealth Steering Committee, "Demonstration Projects for the Integrated Prevention and Control of Noncommunicable Diseases (Interhealth Programme): Epidemiological Background and Rationale", *World Health Statistics Quarterly*, (1991): 48-54.
[66] T.A. Grabowsky et al., "Efforts to Improve Heart Health: A Follow-Up to the Catalonia Declaration—Selected Program Description, Stanford University School of Medicine, Stanford Centre for Research in Disease Prevention," (Stanford, CA; Center for Disease Control and Prevention, and Centre for Chronic Disease Prevention and Health Promotion, Atlantic, Georgia, 1997). Available at: http://www.internationalhearthealth.org/Publications/catalonia.pdf
[67] CINDI (http://www.who.dk/CINDI).
[68] GCP Study Group, "The German Cardiovascular Prevention Study: Design and Methods," *European Heart Journal* 9 (1988): 1058-1066.
[69] I. Brännström et al., "Changing Social Patterns of Risk Factors for Cardiovascular Disease in a Swedish Community Intervention Programme," *International Journal of Epidemiology* 22 (1993): 1026-1037.
[70] William P. Castelli, "Epidemiology of Coronary Heart Disease: The Framinghan Study," *American Journal of Medicine* 76 (1984): 4-12.
[71] John W. Farquhar et al. "Effects of Community-wide Education on Cardiovascular Disease Risk Factors: The Stanford Five-City Projest," *Journal of the American Medical Association* 264 (1990): 359–365; T.A. Grabowsky et al. "Efforts to Improve Heart Health: A Follow-up to the Catalonia Declaration—Selected Program Description," (1997). Available at http://www.internationalhearthealth.org/Publications/catalonia.pdf .
[72] Farquhar et al., "Effect of Communitywide Education."
[73] Russell V. Luepker et al., "Community Education for Cardiovascular Disease Prevention: Risk Factor Changes in the Minnesota Heart Health Program," *American Journal of Public Health* 84 (1994): 1383-1393.
[74]Richard A. Carleton et al., "The Pawtucket Heart Health Program: Community Changes in Cardiovascular Risk Factors and Projected Disease Risk," *American Journal of Public Health* 85, no. 6 (1995): 777-785.
[75] Silvie Stachenko, "The Canadian Heart Health Initiative: A Countrywide Cardiovascular Disease Prevention Strategy," *Journal of Human Hypertension* 10, Suppl 1 (1996): S5-8.
[76] For example, see Nova Scotia Department of Health, http://www.gov.ns.ca/health/downloads/tobacco.pdf.
[77] For example, see Luepker, "Community Education for Cardiovascular Disease Prevention."
[78] For example, see Farquhar, "Community Education for Cardiovascular Health."
[79] Interhealth Steering Committee, "Demonstration Projects."
[80] U. Uusitalo et al., "Fall in Total Cholesterol Concentration over Five Years in Association with Changes in Fatty Acid Composition of Cooking Oil in Mauritius: Cross-Sectional Survey," *British Medical Journal* 313 (1996): 1044-1046; G. Dowse et al., "Changes in Population Cholesterol Concentrations and other Cardiovascular Risk Factor Levels after Five Years of the Non-Communicable Disease Intervention Programme in Mauritius, *British Medical Journal* 311 (1995): 1255-1259.
[81] Yu Zhijie et al., "Changes in Cardiovascular Risk Factors in Difference Socioeconomic Groups: Seven Year Trends in Chinese Urban Population," *Journal of Epidemiology and Community Health* 54 (2000): 692-696.
79. Kelly Lee et al., "Bridging Health and Foreign Policy: The Role of Health Impact Assessments," *Bulletin of the World Health Organization* 85, no. 3 (2007): 210.
[83] *Ibid*.

[84] Stephen Matlin, Director Global Health Forum for Health Research, "Global Health Challenges," Presentation at Simon Fraser University, Burnaby, Canada, (April 19, 2005).
[85] Sandra J. MacLean and David R. MacLean, "The Political Economy of Global Health Research," paper presented at the 6th Pan-European International Relations (SGIR) Conference, Turin Italy, (September, 2007).
[86] Paul Farmer, *Pathologies of Power;* A. Deaton, "Policy Implications of the Gradient of Health and Wealth: An Economist Asks, 'Would Redistributing Income Improve Population Health'?" *Health Affairs* 21, no. 2 (2002): 13-26; R.G. Wilkinson "Income Distribution and Life Expectancy"; R. G. Wilkinson, "The Epidemiological Transition: From Material Scarcity to Social Disadvantage?" *Daedalus* 123, no. 4 (1994): 61-77; R.G. Wilkinson, *Unhealthy Societies: The Afflictions of Inequality* (London: Routledge, 1996); R.G. Wilkinson and Michael Marmot, eds., *Social Determinants of Health: The Solid Facts* (Copenhagen: World Health Organization Regional Office for Europe, 1998).